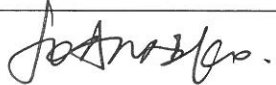



**Highways Department**

Agreement No. CE 20/2009 (EP)

**Environmental Team for the Widening of  
Tolo Highway / Fanling Highway between  
Island House Interchange and Fanling****(Stage 1)  
Between Island House Interchange and  
Tai Hang - Investigation****Monthly EM&A Report  
for January 2014**

[02/2014]

	Name	Signature
Prepared & Checked:	Joanne Ko	
Reviewed & Approved:	Y T Tang	

Version: Rev. 0 Date: 14 February 2014

**Disclaimer**

This report is prepared for Highways Department and is given for its sole benefit in relation to and pursuant to Environmental Team for the Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling (Stage 1) Between Island House Interchange and Tai Hang - Investigation and may not be disclosed to, quoted to or relied upon by any person other than Highways Department without our prior written consent. No person (other than Highways Department) into whose possession a copy of this report comes may rely on this report without our express written consent and Highways Department may not rely on it for any purpose other than as described above.

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13 February 2014  
By Fax (2805 5028) and Post

**Attn.: Mr. James Penny**

Dear Sir,

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

We refer to the captioned Monthly EM&A Report received on 11 and 12 February 2014 submitted by Environmental Team (ET) via email. Pursuant to EP Condition 3.3, I hereby verify the Monthly EM&A Report for January 2014 (Stage 1) for the Project.

Yours faithfully  
for MOTT MACDONALD HONG KONG LIMITED



Terence Kong  
Independent Environmental Checker

c.c. HyD – Mr. Raymond T W Kong / Mr. Dennis Wong / Mr. William Chiang (Fax: 2761 4864)  
ETL, AECOM – Mr. Y T Tang (Fax: 2317 7609)

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## EXECUTIVE SUMMARY

The proposed widening of Tolo Highway and Fanling Highway between Island House Interchange and Fanling (the Project) is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is governed by an Environmental Permit (EP-324/2008)(EP) issued by EPD on 23 December 2008. Subsequently, EPD issued a Variation of Environmental Permit (EP-324/2008/A) (VEP) on 31 January 2012.

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

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

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

This report documents the findings of EM&A works conducted in the period between 1 and 31 January 2014.

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

- Temporary shoring, sheetpiling and excavation
- At-grade road construction
- Retaining wall construction
- Noise barrier footing construction
- Noise barrier panels installation
- Asphalt laying
- Installation of Drainage Pipes

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

- Condition survey of existing structures
- Setting up the temporary traffic arrangement
- Excavation of trial trenches to locate existing utilities
- Construction of haul road
- Construction of concrete profile barrier and beam barrier
- Construction of Pilecap / Spread footing of noise barriers / semi-noise enclosures
- Slope works, including installation of soil nails
- Noise barrier construction
- Modification of existing bridge structures
- Entrusted watermains works
- Sewer Installation
- Road and drainage works
- Landscaping works

### Reporting Change

There was no reporting change required in the reporting month.

### Breaches of Action and Limit Levels for Air Quality

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

### **Breaches of Action and Limit Levels for Noise**

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

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

### **Complaint, Notification of Summons and Successful Prosecution**

One (1) noise-related complaint was received on 13 January 2014 and followed up by the Environmental Team in January 2014. The summary of investigation is described in Sections 4.6.3 to 4.6.5.

One (1) air-and-water related complaint was received on 21 January 2014 and followed up by the Environmental Team in January 2014. The summary of investigation is described in Sections 4.6.6 to 4.6.8.

One (1) air-related follow-up complaint was received on 22 January 2014 and followed up by the Environmental Team in January 2014. The summary of investigation is described in Sections 4.6.9 to 4.6.11.

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

### **Future Key Issues**

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

- Properly store and label oils and chemicals on site;
- Chemical, chemical waste and waste management;
- Collection of construction waste should be carried out regularly;
- Site runoff should be properly collected and treated prior to discharge;
- 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;
- Suppress dust generated from excavation, breaking and drilling activities, haul road traffic and grout mixing;
- Quieter powered mechanical equipment should be used;
- Closely check and replace the sound insulation materials wrapped at the concrete breaker tip regularly;
- Better scheduling of construction works to minimize noise nuisance; and
- Tree protective measures for all retained trees should be well maintained.

## **1 INTRODUCTION**

### **1.1 Background**

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

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

1.1.3. The Project is a designated project 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). The construction works of Stage 1 commenced on 23 November 2009 and will tentatively be completed in March 2014; while the construction works of Stage 2 commenced on 21 November 2013. This report focuses on Stage 1 of the Project only.

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

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

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

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

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

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

## **1.2 Scope of Report**

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

<b>Party</b>	<b>Position</b>	<b>Name</b>	<b>Telephone</b>	<b>Fax</b>
<b>ER of Stage 1, Contract 1</b>  (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer /TOL01	James Tsang	9038 8797	26674000
<b>ER of Stage 1, Contract 2</b>  (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer /TOL02	Paul Appleton	9097 5833	2653 2348
<b>IEC of Stage 1</b>  (Mott MacDonald Hong Kong Limited)	Independent Environmental Checker	Terence Kong	2828 5919	2827 1823
<b>Contractor of Stage 1, Contract 1</b>  (China State Construction Engineering (Hong Kong) Limited)	Site Agent	Eddie Tang	9863 7686	2667 5666
	Environmental Officer	Michael Tsang	9277 4956	2667 5666
		M L Lam	9489 4641	2667 5666
<b>Contractor of Stage 1, Contract 2</b>  (Gammon Construction Limited)	Site Agent	John Chan	3126 1202	2559 3410
	Environmental Officer	Thomson Chang	9213 6569	2559 3410
		Crispin Ao	9223 8773	2559 3410
		Jason Cheng	9837 9323	2559 3410
<b>ET of Stage 1</b>  (AECOM Asia Company Limited)	ET Leader	Y T Tang	3922 9393	3922 9797

#### 1.4 Summary of Construction Works

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

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

- Temporary shoring, sheetpiling and excavation
- At-grade road construction

- Retaining wall construction
- Noise barrier footing construction
- Noise barrier panels installation
- Asphalt laying
- Installation of Drainage Pipes

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

- Condition survey of existing structures
- Setting up the temporary traffic arrangement
- Excavation of trial trenches to locate existing utilities
- Construction of haul road
- Construction of concrete profile barrier and beam barrier
- Construction of Pilecap / Spread footing of noise barriers / semi-noise enclosures
- Slope works, including installation of soil nails
- Noise barrier construction
- Modification of existing bridge structures
- Entrusted watermains works
- Sewer Installation
- Road and drainage works
- Landscaping works

1.4.4 The Construction Programmes are shown in Appendix B.

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

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

## **1.5 Summary of EM&A Programme Requirements**

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

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

## 2 AIR QUALITY MONITORING

### 2.1 Monitoring Requirements

2.1.1 In accordance with the updated EM&A Manual, baseline 1-hour and 24-hour TSP levels at 4 air quality monitoring stations were established. Impact 1-hour TSP monitoring 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 & GMW-2310)

### 2.3 Monitoring Locations

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

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

**Table 2.2 Locations of Impact Air Quality Monitoring Stations**

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

## 2.4 Monitoring Parameters, 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
1-hour TSP	Three times every 6 days while the highest dust impact was expected
24-hour TSP	Once every 6 days

## 2.5 Monitoring Methodology

### 2.5.1 24-hour TSP Monitoring

- (a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS.
- (i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
  - (ii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
  - (iii) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
  - (iv) A minimum of 2 meters separation from any supporting structure, measured horizontally.
  - (v) No furnace or incinerator flues nearby.
  - (vi) Airflow around the sampler was unrestricted.
  - (vii) Permission was obtained to set up the samplers and access to the monitoring stations.
  - (viii) A secured supply of electricity was obtained to operate the samplers.
  - (ix) The sampler was located more than 20 meters from any dripline.
  - (x) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
  - (xi) Flow control accuracy was kept within  $\pm 2.5\%$  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  $\pm 3$  °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 m<sup>3</sup>/min, and complied with the range specified in the updated EM&A Manual (i.e. 0.6-1.7 m<sup>3</sup>/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 Monitoring Results

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

## 2.8 Results and Observations

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

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

	Average ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
<b>AM1A</b>	81.6	74.6 – 87.2	302.1	500
<b>AM2</b>	83.0	80.9 – 86.3	301.9	500
<b>AM3</b>	82.0	78.4 – 86.3	301.9	500
<b>AM4A</b>	82.5	78.5 – 86.4	302.3	500

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

	Average ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
<b>AM1A</b>	70.5	32.2 – 119.6	176.6	260
<b>AM2</b>	59.7	31.0 – 121.8	178.6	260
<b>AM3</b>	55.3	7.7 – 118.7	193.1	260
<b>AM4A</b>	73.8	17.3 – 130.3	198.5	260

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

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

2.8.4 The event action plan is annexed in Appendix J.

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

### 3 NOISE MONITORING

#### 3.1 Monitoring Requirements

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

#### 3.2 Monitoring Equipment

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

**Table 3.1 Noise Monitoring Equipment**

Equipment	Brand and Model
Integrated Sound Level Meter	Rion NL-31 / B&K 2238 / B&K 2250-L
Acoustic Calibrator	Rion NC-73

#### 3.3 Monitoring Locations

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

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

**Table 3.2 Locations of Impact Noise Monitoring Stations**

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

### 3.4 Monitoring Parameters, 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 measurements were made at all monitoring locations, except monitoring stations NM2 and NM6.
- (b) The sound level meter was set on a tripod at a height of 1.2 m above the ground for free-field measurements at NM2 and NM6.
- (c) The battery condition was checked to ensure the correct functioning of the meter.
- (d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:-
  - (i) frequency weighting: A
  - (ii) time weighting: Fast
  - (iii) time measurement:  $L_{eq(30\text{-minutes})}$  during non-restricted hours i.e. 07:00 – 1900 on normal weekdays;  $L_{eq(5\text{-minutes})}$  during restricted hours i.e. 19:00 – 23:00 and 23:00 – 07:00 of normal weekdays, whole day of Sundays and Public Holidays
- (e) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- (f) During the monitoring period, the  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- (g) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- (h) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

#### 3.5.2 Maintenance and Calibration

- (a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- (b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- (c) Calibration certificates of the sound level meters and acoustic calibrators are provided in Appendix E.

### 3.6 Monitoring Schedule for the Reporting Month

3.6.1 The schedule for environmental monitoring in 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 mins)	Range, dB(A), $L_{eq}$ (30 mins)	Limit Level, dB(A), $L_{eq}$ (30 mins)
NM1A	61.7	60.3 – 63.3	75
NM2	65.6	64.1 – 67.3	75
NM3	62.6	61.4 – 63.7	70/65 <sup>#</sup>
NM4	63.9	62.0 – 66.1	75
NM5	62.8	53.7 – 64.1	75
NM6	62.7*	62.0 – 63.4*	70 <sup>#</sup>
NM7	58.3	57.7 – 58.8	75

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

3.7.3 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 included construction activities of Stage 1 of the Project and nearby traffic noise and general school activities.

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 Stage 1 of the Project. In the reporting month, 5 site inspections were carried out on 3, 8, 15, 22 and 28 January 2014 for Contract 1 of the Project, and 4 site inspections for Contract 2 of the Project were carried out on 10, 16, 23 and 29 January 2014.

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

4.1.3 Particular observations during the site inspections for Contract 1 are described below:

#### ***Air Quality***

4.1.4 Dry surfaces were observed on access roads near the site exit. The Contractor was reminded to spray water to maintain the entire surface wet and wash the wheels of vehicles before leaving the construction site.

#### ***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 The Contractor was reminded to clear the construction waste at the waste skip.

#### ***Landscape and Visual Impact***

4.1.8 No adverse observation was identified in the reporting month.

#### ***Miscellaneous***

4.1.9 The Contractor was reminded to clear the stagnant water at the drip tray so as to prevent mosquito breeding.

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

#### ***Air Quality***

4.1.11 No adverse observation was identified in the reporting month.

#### ***Noise***

4.1.12 The Contractor was reminded to wrap the breaker properly with sound-absorptive materials.

#### ***Water Quality***

4.1.13 The Contractor was reminded to clear the muddy water at the wheel-washing facilities in Shek Kwu Lung.

#### ***Chemical and Waste Management***

- 4.1.14 The Contractor was reminded to clear the refuse at the waste skip at G40A.
- 4.1.15 The Contractor was reminded to provide a drip tray to the chemical container on Lam Kam Flyover or remove the chemical container.
- 4.1.16 The Contractor was reminded to clear the general refuse inside and next to the rubbish bin.

***Landscape and Visual Impact***

- 4.1.17 No adverse observation was identified in the reporting month.

***Miscellaneous***

- 4.1.18 No adverse observation was identified in the reporting month.

**4.2 Advice on the Solid and Liquid Waste Management Status**

- 4.2.1 The Contract 1 Contractor (CSHK) and the Contract 2 Contractor (GCL) are registered as chemical waste producers for Stage 1 of the Project. C&D material sorting was carried out on site. Sufficient numbers of receptacles were available for general refuse collection.
- 4.2.2 As advised by the Contract 1 Contractor (CSHK), 189m<sup>3</sup> of inert C&D materials was disposed of to the public fill at Tuen Mun 38 (of which 8m<sup>3</sup> was broken concrete), while 163m<sup>3</sup> of general refuse was disposed of at the NENT landfill. 84kg of paper/cardboard packaging, 3,652kg of plastics and 0kg of metals were collected by recycling contractors in the reporting month. 1,933m<sup>3</sup> and 566m<sup>3</sup> of inert C&D materials were reused on site and reused in NENT for backfilling purpose respectively. 0kg of chemical waste was collected by the licensed contractor in the reporting period.
- 4.2.3 As advised by the Contract 2 Contractor (GCL), 150m<sup>3</sup> of inert C&D materials was disposed of to Tuen Mun 38 and 225m<sup>3</sup> of general refuse was disposed of to the NENT landfill in the reporting period. No paper/cardboard packaging, plastics or metals was collected by the recycling contractors in the reporting month. 0m<sup>3</sup> and 260m<sup>3</sup> of inert C&D materials were reused on site and reused in other projects respectively. Besides, no chemical waste was collected by the licensed contractor in the reporting period.
- 4.2.4 The Contract 1 Contractor (CSHK) and the Contract 2 Contractor (GCL) are 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 4.1.

**Table 4.1 Summary of Environmental Licensing and Permit Status**

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License/ Permit Holder	Remarks
			From	To		
EIAO	Environmental Permit	EP-324/2008/A	31/01/2012	N/A	HyD	Tolo Highway/Fanling Highway between Island House Interchange and Ma Wo
WPCO	Discharge License (Office)	WT00005096-2009	03/12/2009	31/12/2014	CSHK	Discharge at Site Office
	Discharge License (Site)	WT00005445-2009	15/12/2009	31/12/2014	CSHK	Discharge of Construction Runoff
	Discharge License (Office)	WT00006782-2010	25/06/2010	30/06/2015	GCL	Discharge at Site Office
	Discharge License (Site)	WT00007162-2010	09/08/2010	31/07/2015	GCL	Discharge of Construction Runoff
WDO	Chemical Waste Producer Registration	5213-727-C3249-46	25/09/2009	N/A	CSHK	Chemical waste produced in Contract HY/2008/09
		5213-722-G2347-18	18/05/2010	N/A	GCL	Chemical waste produced in Contract HY/2009/08
WDO	Billing Account for Disposal of Construction Waste	7009328	08/09/2009	N/A	CSHK	Waste disposal in Contract HY/2008/09
		7010320	02/03/2010	N/A	GCL	Waste disposal in Contract HY/2009/08
NCO	Construction Noise Permit	GW-RN0468-13	19/08/2013	23/01/2014	CSHK	Routine Road Maintenance
		GW-RN0561-13	02/10/2013	01/04/2014	CSHK	Modification of Sign Gantry_G11, G13, G70, G73, G74, G75 & G76
		GW-RN0766-13	14/12/2013	23/02/2014	CSHK	Road Paving on Tolo Highway between Ma Wo and NLKRB (Shatin Bound)
		GW-RN0789-13	02/01/2014	31/03/2014	CSHK	Construction works next to MTRC's tracks protection zone
		GW-RN0801-13	28/12/2013	23/02/2014	CSHK	Road Marking Alternation at Tolo Highway at

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License/ Permit Holder	Remarks
			From	To		
						Island House Interchange
		GW-RN0807-13	29/12/2013	23/02/2014	CSHK	Road pavement for Slip Road from Tolo Highway to Tai Po Road near Yuen Chau Tsai (Fanling Bound)
		GW-RN0810-13	31/12/2013	23/02/2014	CSHK	Road Paving Reconstruction on Slip Road from Tai Po Road-Yuen Chau Tsai
		GW-RN0812-13	03/01/2014	25/03/2014	CSHK	Sign Gantry at Tolo Highway between Yuen Chau Tsai and Ma Wo
		GW-RN0815-13	04/01/2014	23/02/2014	CSHK	Road Marking Alternation at Tolo Highway between Ma Wo and The Paragon (Fanling Bound)
		GW-RN0819-13	06/01/2014	28/02/2014	CSHK	Road Pavement at Island House on Normal Weekdays
		GW-RN0822-13	11/01/2014	23/02/2014	CSHK	Road Paving on Tolo Highway between Grand Dynasty and The Paragon (Shatin Bound)
		GW-RN0016-14	16/01/2014	28/02/2014	CSHK	Road pavement for Slip Road from Tolo Highway to Tai Po Road near Yuen Chau Tsai (Fanling Bound)
		GW-RN0025-14	17/01/2014	28/02/2014	CSHK	Road Pavement at Tolo Highway between Wan Tau Tong Estate and Tai Po Road (Shatin Bound)
		GW-RN0030-14	21/01/2014	28/02/2014	CSHK	Installation of Sign Gantries G18
		GW-RN0031-14	23/01/2014	01/03/2014	CSHK	Road Resurfacing on Tolo Highway between Ma Wo and Tai Po Road (Fanling Bound)
		GW-RN0039-14	27/01/2014	26/07/2014	CSHK	Construction works at Island House Interchange



Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License/ Permit Holder	Remarks
			From	To		
		GW-RN0058-14	29/01/2014	01/03/2014	CSHK	Modification of Sign Gantries_G13-17, 66-68 & 70
		GW-RN0064-14	29/01/2014	01/03/2014	CSHK	Installation of Noise Barrier on Kwong Fuk West Viaduct
		GW-RN0530-13	03/10/2013	02/02/2014	GCL	Renewal of GW-RN0194-13 Tolo Highway near Tai Po Tau Raw Water Pumping Station
		GW-RN0695-13	17/11/2013	12/05/2014	GCL	General work and asphalt paving at Tolo Highway near Shek Kwu Lung and Ma Wo (CH18.1 - 19.2)
		GW-RN0758-13	12/12/2013	27/02/2014	GCL	General Works at a section of Tolo Highway near Parc Versailles
		GW-RN0785-13	28/12/2013	27/02/2014	GCL	Stitching Construction at Section of Tolo Highway (Shatin Bound) CH19 to CH18.8A
		GW-RN0786-13	19/12/2013	11/06/2014	GCL	Renewal of GW-RN0484-13 Tolo Highway and Fanling Highway near Tai Po Tai Wo Road, Lam Kam Interchange & Tai Wo Service Road West
		GW-RN0795-13	24/12/2013	27/02/2014	GCL	Erection of Sign Gantry at Tolo Highway (Fanling Bound) CH19.9 to CH20.1 near Lam Kam Interchange
		GW-RN0817-13	04/01/2014	28/02/2014	GCL	Renewal of GW-RN0637-13 Erection of Sign Gantry at a section of Tai Po Tai Wo Road Uphill to Tolo Highway Northbound near Shek Kwu Lung

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License/ Permit Holder	Remarks
			From	To		
		GW-RN0006-14	12/01/2014	23/02/2014	GCL	Lane Shifting at Tolo Highway CH19.8 - 17.95A near Ma Wo
		GW-RN0018-14	15/01/2014	28/02/2014	GCL	Lane Shifting Works and Modification of Road Marking at Tolo Highway CH19.9 to CH20.3B
		GW-RN0022-14	17/01/2014	29/03/2014	GCL	Installation of Sign Gantry G26 at Tolo Highway (Fanling Bound) CH19.55 to CH19.65B
		GW-RN0023-14	18/01/2014	28/02/2014	GCL	Installation of Sign Gantry G25 at Tolo Highway (Fanling Bound) CH19.3 to CH19.5B
		GW-RN0037-14	28/01/2014	12/04/2014	GCL	Erection of Sign Gantry G29 at Lam Kam Flyover (Fanling Bound) from CH21.0 to CH21.2B
		GW-RN0052-14	26/01/2014	23/02/2014	GCL	Road Sections of Tolo Highway (South Bound) between Shek Kwu Lung and Dynasty View, Tai Po, New Territories
		GW-RN0057-14	29/01/2014	28/02/2014	GCL	Tolo Highway (Fanling Bound) near Mun Shue Hang, Tai Po, New Territories

#### 4.4 Implementation Status of Environmental Mitigation Measures

- 4.4.1 In response to the site audit findings, the Contractors carried out corrective actions.
- 4.4.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in Appendix C. Most of the necessary mitigation measures were implemented properly.

#### 4.5 Summary of Exceedances of the Environmental Quality Performance Limit

- 4.5.1 All 1-hour and 24-hour TSP monitoring results complied with the Action / Limit Levels in the reporting period.
- 4.5.2 For construction noise, no Action and Limit Level exceedance was recorded at all monitoring stations in the reporting period.

#### **4.6 Summary of Complaints, Notification of Summons and Successful Prosecutions**

- 4.6.1 The Environmental Complaint Handling Procedure is annexed in Figure 4.1.
- 4.6.2 Two (2) new complaints and one (1) follow-up complaint were followed up by the Environmental Team in the reporting period.
- 4.6.3 One (1) noise-related complaint was received on 13 January 2014 and followed up by the Environmental Team in January 2014. The summary of investigation is described in Sections 4.6.3 to 4.6.5.
- 4.6.4 EPD referred a noise complaint on 13 January 2014 from a resident living in Grand Palisades at Tai Po. The complainant complained about the persistent construction noise emitted between late-night hours on Saturdays and early morning of Sundays at Tolo Highway.
- 4.6.5 According to the information provided by the Contractor (China State Construction Engineering (HK) Ltd.) and confirmed by the Engineer of the Project, road resurfacing works were carried out at Tolo Highway over Shan Tong Road between 23:00 on 11 January 2014 and 07:00 on 12 January 2014.

A valid Construction Noise Permit (CNP no.: GW-RN0815-13) has been obtained for the use of certain specified Powered Mechanical Equipments (PMEs) and carrying out of certain prescribed construction work at Tolo Highway (Fanling Bound) between The Balmoral and The Paragon near Tat Wan Road between 23:00 on Saturdays and 07:00 on Sundays, subject to the conditions imposed in the CNP. All restricted hours works were supervised by senior staff of the Contractor and Representatives of the Engineer to ensure all CNP conditions were complied with. The list of plants used during the construction works (provided by the Contractor and confirmed by the Engineer) on 11 and 12 January 2014 was checked for verification.

Notification had been sent to the EPD on 9 January 2014 prior to the commencement of construction works before the said works was carried out at 23:00 on 11 January 2014.

Other Advance Notifications of Restricted-hour Construction Work to the EPD have also been attached since the complaint is concerned with persistent construction noise emitted. The notifications were sent to the EPD 2 days prior to the commencement of the said works.

The Contractor notified the nearby residents in advance of the construction work by disseminating a public notice to the estates management offices of the affected residential buildings on 6 November 2013.

The warning buzzer of the road miller used between 23:00 on 11 January 2014 and 00:30 on 12 January 2014 was enclosed that night to reduce noise impacts from the road resurfacing works.

However, the noise complaint is considered project-related.

Upon the receipt of the complaint, there has not been road resurfacing works under the CNP no.: GW-RN0815-13 being arranged at the same location at night since 11 and 12 January 2014.

Moreover, the Contractor was urged to shorten the time of handling rubbles as much as possible to minimize nuisance caused to the nearby residents. The Contractor has been setting up permanent noise barriers at both sides of the section of the road where road resurfacing works were carried out. Most of the noise barriers have been erected. The Contractor was prompted to install the remaining permanent noise barriers as soon as it can.

The Contractor met Mr Chan Siu-kuen, The Tai Po District Council Member, in the morning of 13 January 2014 to explain their works and progress. Mr Chan agreed to contact the complainant and the complainant has been satisfied with Mr Chan's explanations.

According to the Contractor, no further works in relation to CNP no.: GW-RN0607-13 is scheduled before the CNP expires at 07:00 on 23 February 2014, even though the CNP permits such prescribed use of the specified PMEs for a total of 6 nights during its validity period.

There are still outstanding works to be carried out at night in the coming months before the South Bound of Tolo Highway is open. However, the works will be less frequent and cause less impacts compared to those in previous months. The Contractor was urged to comply with conditions of existing and subsequent CNPs for future works and make advance notifications to the EPD at least 48 hours before the scheduled commencement of works. The Contractor was prompted to improve their management and schedule night works as early as possible to prevent late notification. The Contractor was reminded to review the current working method and implement noise mitigation measures so as to minimize nuisance caused to sensitive receivers.

In addition, the Contractor is advised to implement the mitigation measures as stated in "Recommended Mitigation Measures" below:

- Strictly comply with the requirements of the approved CNP for works carried out in restricted hours;
- Have better scheduling of works to minimize noise nuisance;
- Instruct the site workers to keep the noise in minimum during construction works in restricted hours;  
and
- Foster better public relations with the sensitive receivers nearby.

4.6.6 One (1) air-and-water related complaint was received on 21 January 2014 and followed up by the Environmental Team in January 2014.

4.6.7 EPD referred a complaint on 21 January 2014.

The complainant drove via Tai Po Tai Wo Road section of Tolo Highway on 21 January 2014 morning. He observed a lot of muddy water generated from the Tolo Highway widening construction works. Besides, he saw from Google Earth Image Satellite that a pipe was used to draw water for ground washing, causing the outflow of muddy runoff. As the mud on the road becomes dry, dust is generated when vehicles are passing by.

The complainant requests follow-up as soon as possible.

4.6.8 As informed by the Contractor (Gammon Construction Ltd) and confirmed by the Engineer of the Project, concrete breaking at Bridge 15A North abutment was carried out at the work areas from 8:30am to 5:30pm on 21 January 2014.

Mitigation measures have been implemented in relation to water quality impact when construction activities are carried out. The measures include ensuring the works areas are well paved by concrete and keeping the paved area clean by sweeping to prevent mud and debris from depositing on the paved area. Besides, temporary channels are set up to control runoff.

Mitigation measures have been implemented in relation to dust control when construction activities are carried out. The measures include ensuring the works areas are well paved by concrete, wetting the breaking surfaces regularly for dust suppression of concrete breaking works and providing wheel washing of vehicles before vehicles leave the construction site.

With reference to the monitoring results recorded on the day closest to the day of complaint at the nearest EM&A monitoring station (AM4A- 168 Shek Kwu Lung Village), the 24-hour TSP level on 22 January 2014 was 96.1 ug/m<sup>3</sup>, which is below the action level of 176.6 ug/m<sup>3</sup>. Besides, the average

1-hour TSP level on 22 January 2014 at AM4A was 85.8 ug/m<sup>3</sup>, which is also below the action level of 302.3ug/m<sup>3</sup>.

The complaint was received by the Contractor at around 2:15pm on 21 January 2014 and site inspection was immediately carried out at 3 pm on the same day. Inspection was conducted along the concerned carriageway and no muddy water or mud trails were observed on both the carriageway and access gates. Moreover, referring to the complainant's description, the Google earth image was capturing the condition in April 2011, which is deviated from the current site situation. Although no muddy water was observed on 21 January 2014 afternoon, the Contractor was urged to monitor the road surfaces regularly and rectify whenever muddy water is observed by sweeping to prevent mud and debris from depositing on paved road areas.

Nevertheless, the complaint was considered project-related.

Therefore, the Contractor is reminded to enhance the water quality impacts and dust mitigation measures as stated in the "Recommended Mitigation Measures" below:

- Rectify the muddy water overflowing and propose preventive measures for muddy runoff;
- Review the methodology of collecting the wheel washing water to prevent recurrence in the future;
- Confirm the implementation of dust mitigation measures during all construction and dusty activities to minimize fugitive dust generation;
- Maintain the frequency of environmental supervision (by the Contractor) to regularly review the adequacy and effectiveness of dust suppression measures to suit the construction progress;
- Inform the complainant before dusty activities are carried out; and
- Foster better public relations with the sensitive receivers and complainants nearby.

- 4.6.9 One (1) air-related follow-up complaint was received on 22 January 2014 and followed up by the Environmental Team in January 2014.
- 4.6.10 EPD referred a follow-up complaint from a resident of Ma Wo on 22 January 2014. The complaint is about the dust emission at the construction site of the Tolo Highway widening construction works at Ma Wo on 21 January 2014 afternoon and 22 January 2014 morning. The complainant complained that there was insufficient water spraying and tarpaulin sheets were not used. He expressed that the air pollution problem has caused nuisance to him for three years. He requests improvements by the Contractor and follow-up by the EPD.
- 4.6.11 As informed by the Contractor (Gammon Construction Ltd) and confirmed by the Engineer of the Project, slope trimming and U-channel construction were carried out in work area W36, and slope trimming was carried out in work areas W39-W40 on 21 and 22 January 2014.

The following mitigation measures have been done by the Contractor. The loading and unloading height of general fill materials was kept to a minimum. Wheel washing has been carried out at the site entrance. There have been water spraying by sprinklers on haul roads and exposed slopes, covering non-working slopes by tarpaulin sheets at a sight distance from the complainant before the complete construction of permanent footpath, full-time manual water spraying, and the tarpaulin dust screen of appropriately 1.8 m in height set on the top of W45-47 which is along W44 and NB31, and a section of footpath on W38. Water is sprayed manually to the leaves of the trees to minimize the emitted dust from dropping to the complainant's house and Ma Wo Tsuen through the trees. Besides, in case any dump truck passes through W45-47, the mechanical covering will not open until they reach the unloading point.

With reference to the monitoring results recorded on the day closest to the day of complaint at the nearest EM&A monitoring station (AM1A- Sheung Wun Yiu), the 24-hour TSP level on 21 January 2014 was 123.0 ug/m<sup>3</sup>, which was below the action level of 176.6 ug/m<sup>3</sup>. Besides, the average 1-hour TSP level 21 January 2014 at AM1A- Sheung Wun Yiu was 87.3 ug/m<sup>3</sup>, which was also below the action level of 302.3ug/m<sup>3</sup>.

Nevertheless, the complaint was considered project-related.

Therefore, the Contractor is reminded to enhance the dust mitigation measures as stated in the "Recommended Mitigation Measures" below:

- Confirm the implementation of dust mitigation measures (erection of tarpaulin dust screens along the work areas W38-48, spraying water manually by workers and sprinkler systems for the haul roads and exposed slopes at work areas W38-48, covering non-working slopes by tarpaulin sheets within the work areas, covering dusty materials carried in dump trucks within work areas W38-48) during all construction and dusty activities to minimize fugitive dust generation;
- Increase the frequency of watering in the work areas (specially at the entrance of the construction site, and on site haul roads and exposed slopes / areas in the work areas W38-48), so that site haul roads and exposed surfaces are in a wet condition;
- Cover the backfilling surface after work;
- Keep soil surfaces wet before loading and unloading activities;
- Maintain the frequency of the environmental supervision (by the Contractor) to regularly review the adequacy and effectiveness of dust suppression measures to suit the construction progress;
- Inform the complainant before dusty activities (e.g. rock breaking, excavation, grouting and backfilling) are carried out; and
- Foster better public relations with the sensitive receivers and complainants nearby.

4.6.12 No new notification of summons and prosecution was received in the reporting period.

4.6.13 Statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix L.

## **5 FUTURE KEY ISSUES**

### **5.1 Construction Programme for the Coming Month**

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

- Temporary shoring, sheetpiling and excavation
- At-grade road construction
- Retaining wall construction
- Noise barrier footing construction
- Noise barrier panels installation
- Asphalt laying
- Installation of drainage pipes

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

- Condition survey of existing structures
- Setting up the temporary traffic arrangement
- Excavation of trial trenches to locate existing utilities
- Construction of haul road
- Construction of concrete profile barrier and beam barrier
- Construction of Pilecap / Spread footing of noise barriers / semi-noise enclosures
- Slope works, including installation of soil nails
- Noise barrier construction
- Modification of existing bridge structures
- Entrusted watermains works
- Sewer Installation
- Road and drainage works
- Landscaping works

### **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;
- Site runoff should be properly collected and treated prior to discharge;
- 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;
- Suppress dust generated from excavation, breaking and drilling activities, haul road traffic and grout mixing process;
- Quieter powered mechanical equipment should be used;
- Closely check and replace the sound insulation materials wrapped at the concrete breaker tip regularly;
- Better scheduling of construction works to minimize noise nuisance; and
- Tree protective measures for all retained trees should be well maintained.

### **5.3 Monitoring Schedule for the Coming Month**

5.3.1 The tentative schedule for environmental monitoring in 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 Stage 1 of the project commenced on 23 November 2009.
- 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.
- 6.1.4 No Action and Limit Level exceedance for construction noise was recorded at all monitoring stations in the reporting month.
- 6.1.5 Environmental site inspection was carried out 9 times in January 2014. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.
- 6.1.6 Two (2) new complaints and one (1) follow-up complaint were followed up by the Environmental Team in the reporting period.
- 6.1.7 One (1) noise-related complaint was received on 13 January 2014 and followed up by the Environmental Team in January 2014. The summary of investigation is described in Sections 4.6.3 to 4.6.5.
- 6.1.8 One (1) air-and-water related complaint was received on 21 January 2014 and followed up by the Environmental Team in January 2014. The summary of investigation is described in Sections 4.6.6 to 4.6.10.
- 6.1.9 One (1) air-related follow-up complaint was received on 22 January 2014 and followed up by the Environmental Team in January 2014. The summary of investigation will be described in the next reporting month.
- 6.1.10 No new notification of summons and prosecution was received in the reporting period.

### 6.2 Recommendations

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

#### ***Air Quality Impact***

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

#### ***Construction Noise Impact***

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

#### ***Water Quality Impact***

- Preventive measures should be implemented to avoid the spread of mud trails on the public road.



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

***Chemical and Waste Management***

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

***Landscape and Visual Impact***

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

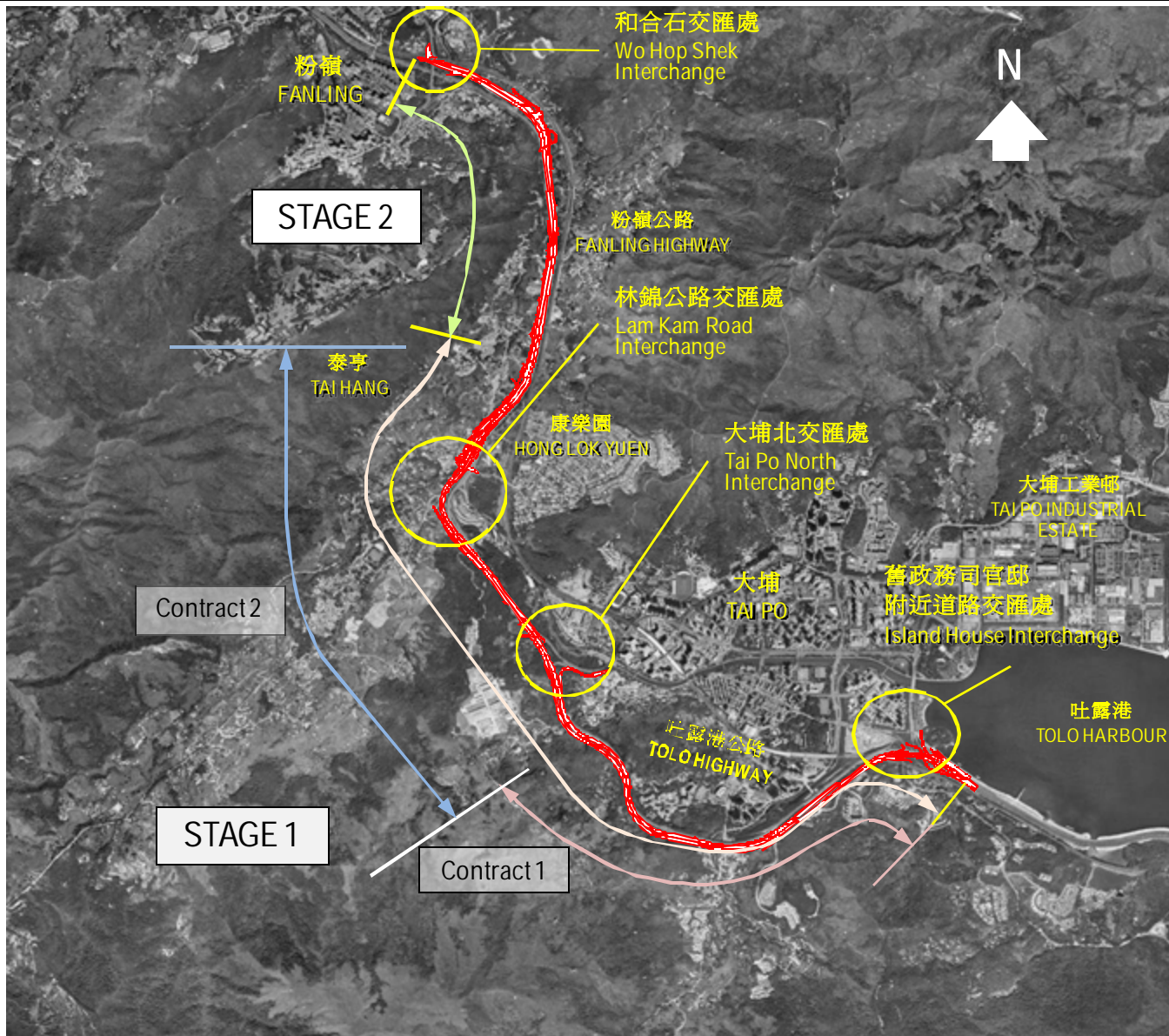
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## FIGURES

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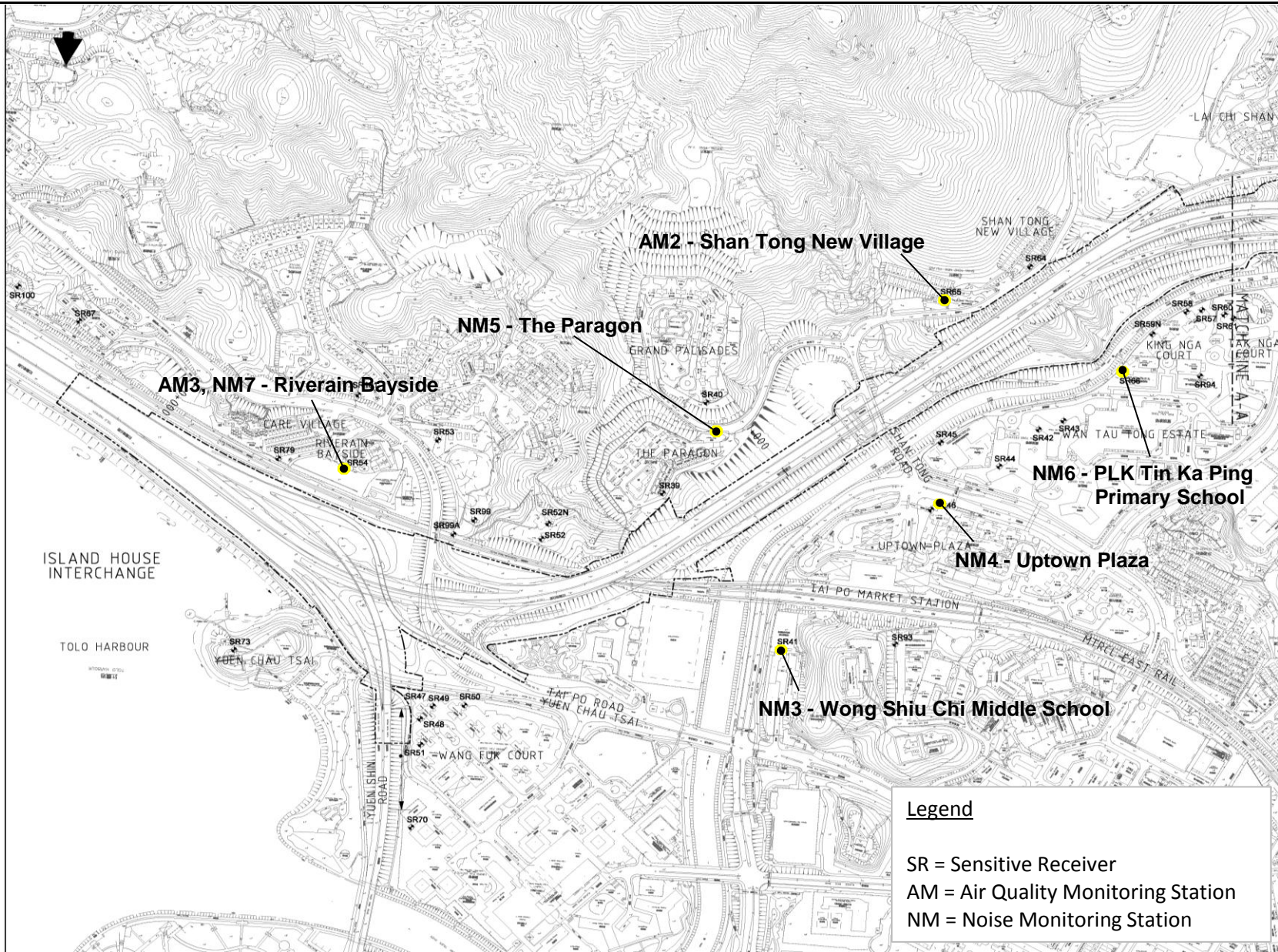


Environmental Team for the Widening of Tolo Highway between  
Island House Interchange and Tai Hang - Investigation

General Project Layout Plan

SCALE	N.T.S.	DATE	Dec-09	
CHECK	ENFL	DRAWN	RWHW	
JOB NO.	60102979	FIGURE NO.	1.1	Rev 0





**Legend**

SR = Sensitive Receiver  
 AM = Air Quality Monitoring Station  
 NM = Noise Monitoring Station

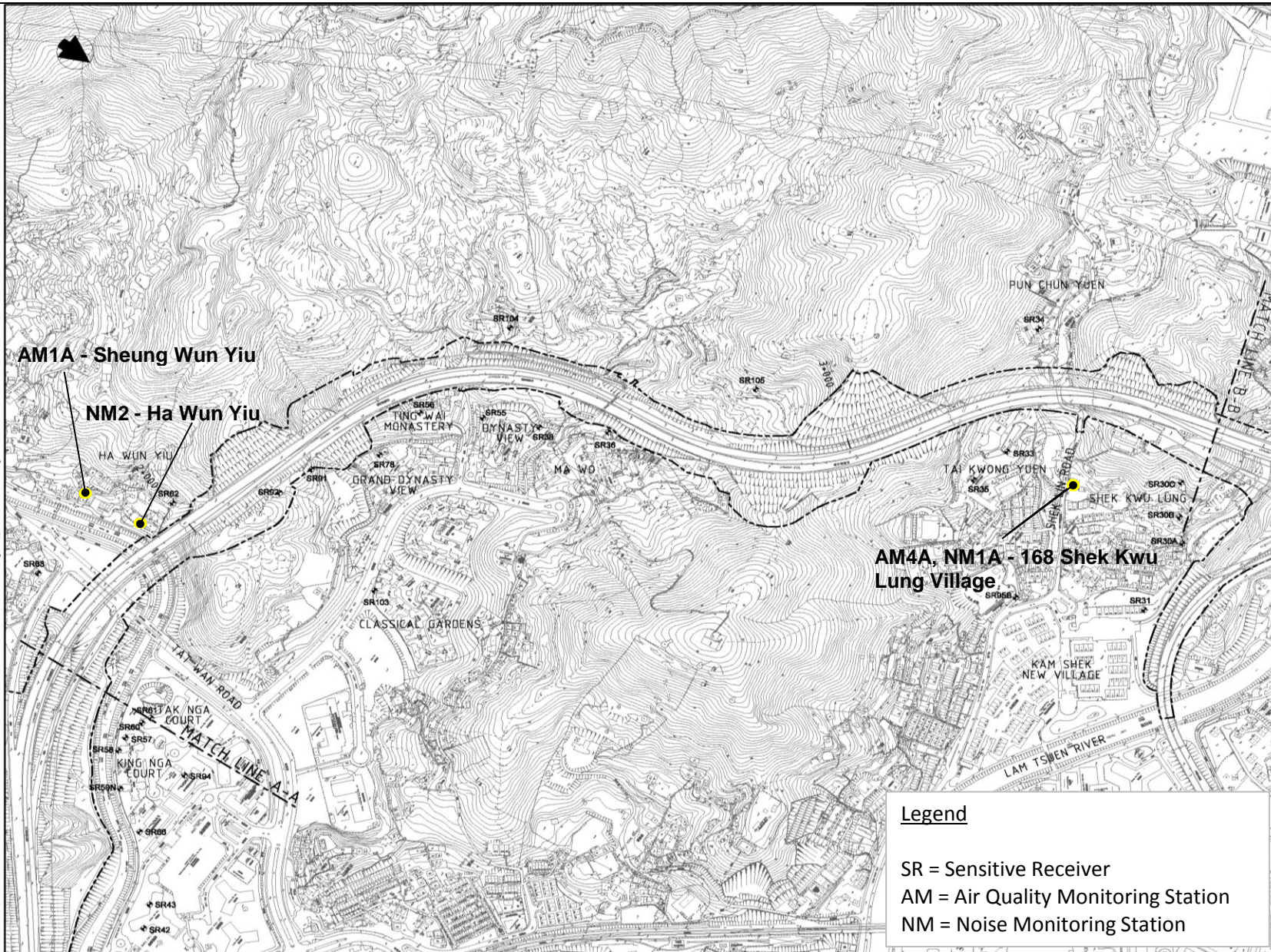


**Environmental Team for the Widening of Tolo Highway between  
 Island House Interchange and Tai Hang - Investigation**

EM&A Monitoring Locations (Sheet 1 of 2)

SCALE	N.T.S.	DATE	Sep-11
CHECK	ENFL	DRAWN	LCHC
JOB NO.	60102979	FIGURE NO.	2.1
		Rev	0

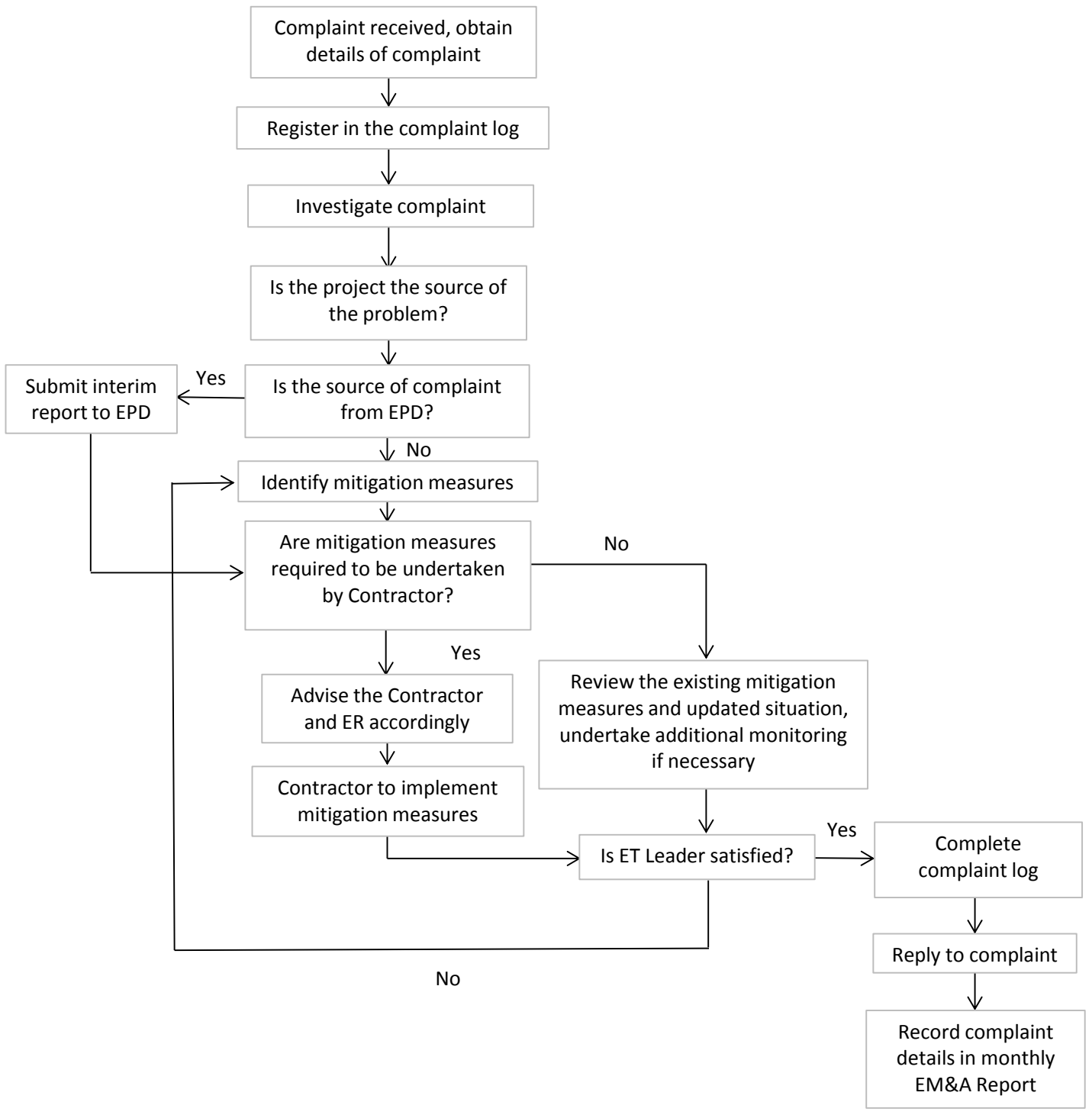




**Environmental Team for the Widening of Tolo Highway between  
 Island House Interchange and Tai Hang - Investigation**

EM&A Monitoring Locations (Sheet 2 of 2)

SCALE	N.T.S.	DATE	Sep-11
CHECK	ENFL	DRAWN	LCHC
JOB NO.	60102979	FIGURE NO.	2.1
		Rev	0



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

Environmental Complaint Handling Procedure

SCALE	N.T.S.	DATE	Mar-13
CHECK	ENFL	DRAWN	CHCL
JOB NO.	60102979	FIGURE	Rev.
		4.1	-

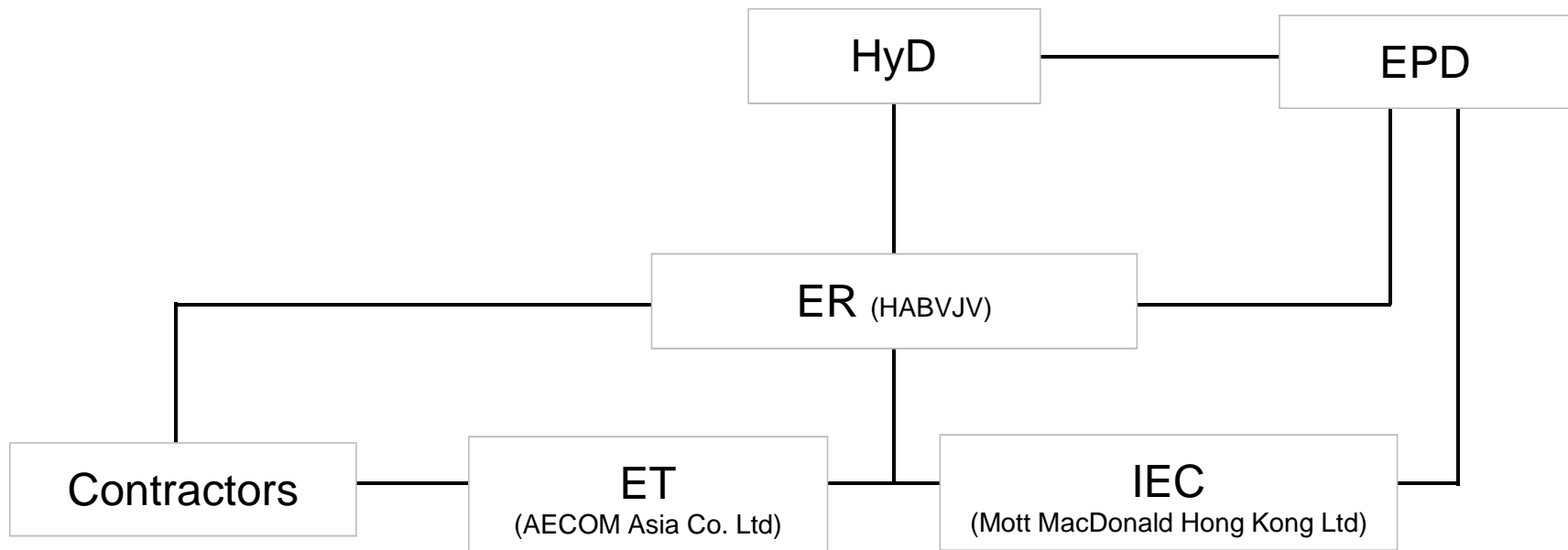
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**APPENDIX A  
PROJECT ORGANIZATION STRUCTURE**

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

Project Organization Structure

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



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**APPENDIX B  
CONSTRUCTION PROGRAMMES**

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Activity ID	Activity Name	Original Durat...	Start	Finish	2014																			
					2013				January				February				March				April			
					er				22	29	05	12	19	26	02	09	16	23	02	09	16	23	30	06
<b>KEY DATES</b>																								
<b>Section Completion</b>																								
<b>Section Completion Date</b>																								
<b>Key Date</b>																								
KD-300900	KD9 Section 9 Area SA1, 3 to 9A Road Maintenance (1580)	0		23-Jan-14*																				
KD-300200	KD2 Section 2 Areas SA8,SA9 + SA9A Work (1052d)	0		04-Mar-14*																				
<b>SOFT LANDSCAPE IN SA1: SECT. 5 WORKS</b>																								
<b>Landscaping Works</b>																								
<b>Landscape Works</b>																								
S5-212800	Areas SA1 Irrigation + Landscape Soft Works	30	13-Apr-14	12-May-14																				
<b>REMAINDER OF SOFT LANDSCAPE: SECT. 6 WORKS</b>																								
<b>Landscaping Works</b>																								
<b>Landscape Works</b>																								
S6-212800	Remainder Irrigation + Landscape Soft Works	30	28-Mar-14	26-Apr-14																				
<b>ROUTINE MAINTENANCE: SECT. 9 WORKS</b>																								
<b>Road Maintenance</b>																								
<b>Routine Maintenance of Road Network</b>																								
S9-100000	Road Maintenance of Road Network	1401	22-Feb-10 A	23-Jan-14*																				
<b>Z1: CH 0 to CH 500: SECT. 1 WORKS</b>																								
<b>Noise Barrier at Kwong Fuk West</b>																								
<b>Noise Barrier at Kwong Fuk West Viaduct</b>																								
<b>Noise Barrier Foundation Works</b>																								
S1-180510A040	Pier Head (incl. all cast-in item)-PC5A(Tradition formwork)	9	21-Oct-13 A	29-Jan-14																				
S1-180700A	KFWV structural steel, (bay 1-5)	18	25-Mar-14	14-Apr-14																				
S1-180810	KFWV structural steel, (bay 5-7)	26	25-Mar-14	25-Apr-14																				
S1-180800	KFWV Panel Installation, (bay 1-5)	14	15-Apr-14	02-May-14																				
<b>TCSS Works/Other Utilities</b>																								
S1-180905	Civil prov. works (CPW)- TCSS Pillar Box B	18	17-Feb-14	08-Mar-14																				
<b>TCSS Works</b>																								
<b>New Sign Gantry Construction</b>																								
<b>G18 (VO205 Slip Road)</b>																								
GS1810	G18 Footing construction besides Slip road	25	20-Nov-13 A	26-Feb-14																				
GS1802	VO341 - Reconstruct existing drain pipe at G18 LHS footing	20	27-Dec-13 A	22-Jan-14 A																				
GS1860	Design information by Engineer for existing NB modification available	0	15-Feb-14																					
GS1870	Existing NB modification	14	27-Feb-14	14-Mar-14																				
GS1790	Erect column besides slip road & Gantry Beam	4	15-Mar-14	19-Mar-14																				
<b>Existing Sign Gantry Modification</b>																								
<b>G19 (VO: New Gantry Modification without drawing)</b>																								
GS2650	Carry out Sign Gantry modification (LCS, TCSS etc)-New Gantry	14	20-Mar-14	04-Apr-14																				
GS2660	Speed Enforcement Camera installation	2	05-Apr-14	07-Apr-14																				
GS2670	VSL and VDS installation	2	08-Apr-14	09-Apr-14																				
<b>TCSS E&amp;M Works &amp; Handover</b>																								
S1-700075	T&C - Lighting	20	20-Mar-14	11-Apr-14																				
S1-700080	T&C - power supply system to TCSS	20	20-Mar-14	11-Apr-14																				
<b>Southbound Work- Ret. Wall, Noise B, Rd</b>																								
<b>NB6, and Slope S4</b>																								
<b>High Mast Lighting</b>																								
S1-203068	Install/delete lamps at high mast HM2 & HM3	18	20-Jan-14	18-Feb-14																				
<b>Noise Barrier NB6</b>																								
S1-207055	NB production period	76	10-Apr-13 A	15-Feb-14																				
S1-207060	NB6 Structural Steel	6	17-Feb-14	22-Feb-14																				
S1-208060	NB6 NB Panels	5	24-Feb-14	28-Feb-14																				
<b>Road Lighting/ or High Mast</b>																								
S1-700050	Cabling works for utilities/Lighting	20	13-Feb-14	07-Mar-14																				
S1-203067	Relocate pillar box for high mast HM1 - HM10	18	17-Feb-14	08-Mar-14																				
S1-700070	Pillar Box + MCB Board installation	18	17-Feb-14	08-Mar-14																				
<b>Cut Slope S4</b>																								
S1-031060B	Cut Slope S4 - drainage/ u channels	20	15-Oct-13 A	07-Mar-14																				
<b>SB Road &amp; Drain, Ch 0-300, after NB3</b>																								
<b>TCSS Works/Other Utilities</b>																								
S1-035045	TCSS P57 - footing	14	20-Nov-13 A	11-Feb-14																				
S1-035055	TCSS S167 - footing	14	12-Feb-14	27-Feb-14																				
<b>Road Lighting/ or High Mast</b>																								
S1-051215A	Public Lighting - cabling works	18	20-Jan-14*	18-Feb-14																				
S1-051215B	Public Lighting - power supply connection & test	18	20-Jan-14	18-Feb-14																				
<b>Roadworks</b>																								
S1-051210	Roadworks- 3rd TTA - middle lane	18	29-Nov-13 A	28-Dec-13 A																				
S1-051230	Roadworks- 4th TTA - fast lane	26	30-Dec-13 A	27-Jan-14																				
<b>NB6 and Slope S4A, after TB1 demolition</b>																								
<b>Noise Barrier NB6 (remaining 1 bay after TB1 removal)</b>																								

Contract: HY/2008/09

Widening of Tolo Highway / Fanling Highway  
Between Island House Interchange and Fanling  
(Stage 1 - Between Island House Interchange and Ma Wo)

Three Months Rolling Programme  
for the Period of 21 Jan 2014 to 20 Apr 2014







Activity ID	Activity Name	Original Durat...	Start	Finish	2014											
					January				February				March			
					22	29	05	12	19	26	02	09	16	23	02	09
S4-203170B090	NB17 (Bay 1-8) Steel Column & NB Panel	21	22-Nov-13 A	31-Dec-13 A	NB17, (Bay 1-8) Steel Column & NB Panel											
<b>CM: CH500-1100, Road&amp;Drain+Utilities</b>																
<b>TCSS Works/Other Utilities</b>																
S4-208305	Power supply cable ducts	36	14-Aug-13 A	21-Feb-14	Power supply cable ducts											
S4-208300	Utilities+TCSS buried ducts + civil prov. works	48	16-Aug-13 A	21-Feb-14	Utilities+TCSS buried ducts + civil											
<b>Road Lighting/ or High Mast</b>																
S4-208325A	Public Lighting - cabling works	18	20-Sep-13 A	21-Feb-14	Public Lighting - cabling works											
S4-208325	Public lighting - Lamp Pole + Lamps	24	20-Jan-14	25-Feb-14	Public lighting - Lamp Pole.+ La											
S4-208325B	Public Lighting - power supply connection & test	18	27-Jan-14	25-Feb-14	Public Lighting - power supply c											
<b>Roadworks</b>																
S4-208315	Roadworks - base course to friction course	11	20-Jan-14	10-Feb-14	Roadworks - base course to friction cours											
S4-208320	Roadworks - road marking + furnitures	16	20-Jan-14	15-Feb-14	Roadworks - road marking + furnitures											
S4-208335	Central Median Works Complete	0	22-Feb-14		◆ Central Median Works Complete											
<b>Stage 2: Northbound Work- Ret. Wall, Noise B, Rd</b>																
<b>Mod. Existing Lam Kam Railway Br. +Noise B.</b>																
S4-193900	LKRB NB plinth at slow lane (besides W4A)	75	13-Jan-14 A	28-Mar-14	LKRB NB pl											
<b>Noise Barrier NB16</b>																
<b>Noise Barrier Foundation Works</b>																
S4-513145	NB16 - (5-7) bay Remaining Wall Stem & plinth	42	06-Dec-13 A	28-Feb-14	NB16 - (5-7) bay Remaining W											
S4-513150	NB16 - Drainage work	26	16-Dec-13 A	15-Mar-14	NB16 - Drainage wo											
S4-513140	NB16 - (18,19) bay Remaining Wall Stem	18	19-Dec-13 A	17-Jan-14 A	NB16 - (18,19) bay Remaining Wall Stem											
S4-513160	NB16 - Backfilling	12	17-Mar-14	29-Mar-14	NB16 - Bac											
<b>Noise Barrier Structural Steel &amp; Panels</b>																
S4-207160	NB16 Structural Steel	10	11-Apr-14	24-Apr-14												
<b>Retaining Wall W4A &amp; NB13 &amp; Slip Rd M</b>																
<b>Retaining Wall W4A</b>																
S4-03504A040	RW W4A (last 4 bays) excavation + base slab (I&P)	30	06-Jan-14 A	12-Mar-14	RW W4A (last 4 bays)											
S4-03504A050	RW W4A (last 4 bays), wall stem (I&P)	30	14-Mar-14	21-May-14												
<b>Noise Barrier NB13</b>																
S4-207130	NB13 Structural Steel	5	31-Dec-13 A	03-Jan-14 A	■ NB13 Structural Steel											
S4-208130	NB13 NB Panels	8	09-Jan-14 A	17-Jan-14 A	■ NB13 NB Panels											
<b>NB: CH500-1100, Road&amp;Drain+Utilities</b>																
<b>Road Drainage</b>																
S4-031210	Road Drainage - pipelaying + manhole	44	02-Jul-13 A	21-Feb-14	Road Drainage - pipelaying + ma											
<b>Firemain</b>																
S4-031220	Firemain- excav, pipe install + pit/new hydrants	36	25-Jul-13 A	21-Feb-14	Firemain- excav, pipe install + pit/r											
<b>TCSS Works/Other Utilities</b>																
S4-031225	Utilities + TCSS + CPW- SC 20/S20	36	17-Jul-13 A	21-Feb-14	Utilities + TCSS + CPW- SC 20/S2											
S4-031230	Power supply cable ducts	36	20-Jul-13 A	21-Feb-14	Power supply cable ducts											
<b>Road Lighting/ or High Mast</b>																
S4-031250A	Public Lighting - cabling works	18	04-Oct-13 A	21-Feb-14	Public Lighting - cabling works											
S4-031250	Public lighting - Lamp Pole + Lamps	24	20-Dec-13 A	31-Mar-14	Public ligh											
S4-031250B	Public Lighting - power supply connection & test	18	11-Mar-14	31-Mar-14	Public Ligh											
<b>Roadworks</b>																
A1080	Road Re-construction for Lane 2 (1st middle lane)	22	15-Nov-13 A	28-Dec-13 A	■ Road Re-construction for Lane 2 (1st middle lane)											
A1090	Stage 4 (Open Lane 2 & Close HS)	0		28-Dec-13 A	◆ Stage 4 (Open Lane 2 & Close HS)											
A1100	Road Re-construction for Lane 1 (slow lane)	28	30-Dec-13 A	18-Jan-14 A	■ Road Re-construction for Lane 1 (slow lane)											
A1110	4 lane opening Complete (including slip Road)	0		19-Jan-14 A	◆ 4 lane opening Complete (including slip Road)											
A1170	NB16 - Road Re-construction for (HS)	22	31-Mar-14	26-Apr-14												
S4-031260	Northbound road substantial completed in Zone 2	0	01-Apr-14		◆ Northbound											
<b>Z3: CH 1100 to CH 2000: SECT. 4 WORKS</b>																
<b>Section Completion</b>																
<b>Section Completion Date</b>																
KD-300400B	ZONE 3 COMPLETE - KD4 Section 4	0		08-Mar-14	◆ ZONE 3 COMPLETE - KI											
<b>TCSS Works</b>																
<b>New Sign Gantry Construction</b>																
<b>G62</b>																
GS2135	Erect Column SL/FL	4	13-Aug-13 A	24-Jan-14	■ Erect Column SL/FL											
GS2140	Erect Gantry Beam	4	21-Jan-14	24-Jan-14	■ Erect Gantry Beam											
<b>TCSS E&amp;M Works &amp; Handover</b>																
S4-0512765	Cabling works for Utilities/TCSS/Lighting	24	20-Sep-13 A	08-Mar-14	Cabling works for Utilities											
S4-0512780	T&C - power supply system to TCSS/Lighting	36	20-Sep-13 A	08-Mar-14	T&C - power supply syste											
S4-0512785	Handover to TCSS Contractor	0		08-Mar-14	◆ Handover to TCSS Contr											
<b>Stage 1: Southbound Work- Ret. Wall, Noise B, Rd</b>																
<b>Fill Slope S13 and NB21</b>																
<b>Fill Slope S13</b>																
S4-031130C	Fill Slope S13- u channels	363	12-Mar-12 A	22-Feb-14	Fill Slope S13- u channels											
S4-031130D	Fill Slope S13- metal works + hand rails etc.	236	15-Aug-12 A	22-Feb-14	Fill Slope S13- metal works + han											
<b>Stage 2 - Slip Rd L, Ret. Wall W11, W12</b>																
<b>Slip Rd P</b>																
S4-208231	Slip Rd P- road reconstruction, Stage 2	265	13-Jul-12 A	21-Dec-13 A	Slip Rd P- road reconstruction, Stage 2											
<b>SB: CH1260-1600, L=410m, Road&amp;Drain+Utilities</b>																



**Contract: HY/2008/09**  
**Widening of Tolo Highway / Fanling Highway**  
**Between Island House Interchange and Fanling**  
**(Stage 1 - Between Island House Interchange and Ma Wo)**

**Three Months Rolling Programme**  
**for the Period of 21 Jan 2014 to 20 Apr 2014**

Activity ID	Activity Name	Original Durat...	Start	Finish	2014															
					2013				January			February			March			April		
					er	22	29	05	12	19	26	02	09	16	23	02	09	16	23	30
<b>Road Lighting/ or High Mast</b>																				
S4-050785B	Public Lighting - power supply connection & test	18	20-Jan-14	18-Feb-14																
<b>Roadworks</b>																				
S4-0507845	Roadworks - base course to friction course	219	31-Aug-12 A	28-Jan-14																
S4-0507850	Roadworks - road marking + furnitures	244	31-Aug-12 A	28-Jan-14																
S4-0507865	Complete (divert SB traffic to RW10, B11A, RW8 area)	0	18-Feb-14																	
<b>Stage 3: Central Median - Ret. Wall, Noise B, Rd</b>																				
<b>CM: CH1260-1600, L=410m, Road&amp;Drain+Utilities</b>																				
<b>TCSS Works/Other Utilities</b>																				
S4-0512710	Power supply cable ducts	91	20-Feb-13 A	22-Feb-14																
<b>Road Lighting/ or High Mast</b>																				
S4-051273A	Public Lighting - cabling works	91	20-Feb-13 A	22-Feb-14																
S4-0512730	Public lighting - Lamp Pole + Lamps	23	06-Aug-13 A	22-Feb-14																
S4-051273B	Public Lighting - power supply connection & test	12	10-Feb-14	22-Feb-14																
<b>Roadworks</b>																				
S4-0512725	Roadworks - road marking + furnitures	18	11-Nov-13 A	25-Jan-14																
S4-0512740	Road Works completed	0	24-Feb-14																	
<b>Noise Barrier Structural Steel &amp; Panels</b>																				
S4-208200	NB20 & NB23 NB Panels	160	15-Dec-12 A	24-Feb-14																
<b>W20A + Slope S20</b>																				
<b>Cut Slope S20A</b>																				
S4-03120AA	Cut Slope S20A - excavation	30	20-Jan-14*	04-Mar-14																
S4-03120AB	Cut Slope S20A - drainage/channels	30	21-Feb-14	27-Mar-14																
<b>Stage 2: Northbound Work- Ret. Wall, Noise B, Rd</b>																				
<b>Modification of Existing Bridge No. 10 + Noise B</b>																				
<b>Bridge Roadworks &amp; Furnitures</b>																				
S4-194880	Install noise barrier (1st half from east end)	36	20-Jan-14	11-Mar-14																
S4-194889	Install noise barrier (2nd half to west end)	40	20-Jan-14	15-Mar-14																
S4-194899	Road Surfacing & Furnitures	18	20-Jan-14	18-Feb-14																
S4-194990	Bridge No. 10 Modification Completion	0		18-Feb-14																
<b>Remaining Work after Road opening</b>																				
S4-195894	Greenin works (Pending for VO of Deletion)	45	17-Mar-14	10-May-14																
<b>Modification of Existing Bridge No.11 + Noise B</b>																				
<b>Bridge Roadworks &amp; Furnitures</b>																				
S4-195895	Road Surfacing & Furnitures after stitching	18	20-Jan-14	18-Feb-14																
S4-195910	Install Noise barrier panel	30	20-Jan-14	04-Mar-14																
S4-195900	Bridge No. 11 Modification Completion	0		04-Mar-14																
<b>Remaining Work after Road opening</b>																				
S4-1958211	Greening works (Pending for VO of Deletion)	60	19-Feb-14	01-May-14																
<b>RW W9, Slope S9, &amp; Noise Barrier NB19, NB22</b>																				
<b>Noise Barrier NB19</b>																				
S4-207190	NB19 Structural Steel, 10 bays	10	28-Jan-14*	17-Feb-14																
S4-207190A	NB19 Structural Steel, 21 bays	10	28-Jan-14*	17-Feb-14																
S4-208190	NB19 NB Panels, 10 bays	10	18-Feb-14	28-Feb-14																
S4-208190A	NB19 NB Panels, 21 bays	10	18-Feb-14	28-Feb-14																
<b>Noise Barrier NB22</b>																				
S4-207220	NB22 Structural Steel	13	20-Sep-13 A	21-Feb-14																
S4-208220	NB22 NB Panels	24	20-Sep-13 A	21-Feb-14																
<b>Fill Slope S9</b>																				
S4-031095A	Fill Slope S9- backfilling	24	20-Jan-14*	25-Feb-14																
S4-031095B	Fill Slope S9 - drainage	12	19-Feb-14	04-Mar-14																
<b>NB: CH1260-1750, L=410m, Road&amp;Drain+Utilities</b>																				
<b>Road Drainage</b>																				
S4-0512620	Road Drainage - pipelayinng + manhole	48	01-Aug-13 A	24-Feb-14																
<b>Firemain</b>																				
S4-0512630	Firemain- excav, pipe install+pit/new hydrants	24	17-Sep-13 A	24-Feb-14																
<b>TCSS Works/Other Utilities</b>																				
S4-0512635	Utilities +TCSS buried ducts + civil prov. works	36	21-Oct-13 A	08-Mar-14																
S4-0512640	Power supply cable ducts	17	20-Jan-14*	17-Feb-14																
S4-0512627	TCSS High mast M7/S117 - footing	17	27-Jan-14*	24-Feb-14																
<b>Road Lighting/ or High Mast</b>																				
S4-0512660	Public lighting - Lamp Pole + Lamps	36	21-Oct-13 A	08-Mar-14																
S4-051266A	Public Lighting - cabling works	36	21-Oct-13 A	08-Mar-14																
S4-051266B	Public Lighting - power supply connection & test	12	24-Feb-14	08-Mar-14																
<b>Roadworks</b>																				
S4-0512645	Roadworks +Slip Road N- Resurfacing	26	18-Oct-13 A	08-Mar-14																
S4-0512655	Roadworks +Slip Road N- road marking + furnitures	6	03-Mar-14	08-Mar-14																
<b>Z4: CH 2000 to CH 2400: SECT. 2 WORKS</b>																				
<b>Stage 1A: Southbound - S14-, RW21-28, TP7,Rd/Dr</b>																				
<b>Retaining Wall W24 to W28 &amp; Slope S17</b>																				
<b>Cut Slope S17</b>																				
S2-031170	Slope S17 (SB) (after 29A & W29B part)	45	03-Jun-13 A	21-Feb-14																
<b>SB Road &amp; Drain, Ch 2000-2200, L=200m</b>																				
<b>TCSS Works/Other Utilities</b>																				
S2-031295	Power supply cable ducts	277	25-Jul-12 A	24-Feb-14																



**Contract: HY/2008/09**  
**Widening of Tolo Highway / Fanling Highway**  
**Between Island House Interchange and Fanling**  
**(Stage 1 - Between Island House Interchange and Ma Wo)**

**Three Months Rolling Programme**  
**for the Period of 21 Jan 2014 to 20 Apr 2014**



Activity ID	Activity Name	Original Durat...	Start	Finish	2014															
					2013					January		February			March			April		
					er	22	29	05	12	19	26	02	09	16	23	02	09	16	23	30
<b>Cut Slope S14</b>																				
S2-031140E10	Slope S14 - Soil nail & remaining drainage work (VO343-additional ...	61	10-Jun-13 A	15-Mar-14															Slope S14 - Soil nail	
<b>Stage 1B: Northbound- S15-S19, RW31-33, Rd/Dr</b>																				
<b>Retaining Wall W30, W31, W32(Piled), W33</b>																				
<b>Retaining Wall W31,32, 33</b>																				
S2-035325C10	RW W31,W32,33 - wall stem + backfill (5 months)	161	18-Mar-13 A	22-Feb-14															RW W31,W32,33 - wall stem + ba	
S2-GCL036	Northbound - GCL interfacing work completion for Lane 1,2,3 open	0		20-Jan-14*															Northbound - GCL interfacing work completion for Lane	
S2-GCL046	Completion of works subject to GCL works completion	30	20-Jan-14	04-Mar-14															Completion of works subjec	
<b>Stage 2A: Southbound- S17, RW 29-34, NB27-29</b>																				
<b>Noise Barrier NB27, NB29</b>																				
<b>Noise Barrier NB29</b>																				
S2-035350	NB29 NB Panels	7	16-Oct-13 A	22-Feb-14															NB29 NB Panels	
<b>Retaining Wall, W29 &amp; NB27(@W29)</b>																				
<b>Retaining Wall W29A</b>																				
S2-03529AB	RW W29A facing panel structure (bay 1)	30	20-Jan-14*	04-Mar-14															RW W29A facing panel str	
<b>SB: CH2200-2400, L=200m, Road&amp;Drain+Utilities</b>																				
<b>Road Drainage</b>																				
S2-031250	W29A bay 1 road drainage after GCL TTA stage 6A	20	15-Feb-14	10-Mar-14															W29A bay 1 road draina	
<b>TCSS Works/Other Utilities</b>																				
S2-031287	TCSS S160 (VDS) - footing	23	14-Sep-13 A	21-Feb-14															TCSS S160(VDS) - footing	
<b>Roadworks</b>																				
S2-031255	W29A bay 1 road work after GCL TTA stage 6A	20	15-Feb-14	10-Mar-14															W29A bay 1 road work	
S2-031265	Remaining roadwork to final pavement level after GCL TTA stage 6A	6	11-Mar-14	17-Mar-14															Remaining roadwo	
<b>Stage 3: Central Median- NB26, NB29 +Road&amp;Drain</b>																				
<b>CM: NB26 &amp; NB28 L=400m &amp; Road&amp;Drain+Utilities</b>																				
<b>Noise Barrier Structural Steel &amp; Panels</b>																				
S2-208300	NB26 NB Structural Steel	7	08-Jul-13 A	18-Feb-14															NB26 NB Structural Steel	
S2-208310	NB26 NB Panels	12	27-Jan-14	18-Feb-14															NB26 NB Panels	
S2-208395	Implement TTA- divert traffic to new SB, NB & CM	0	20-Feb-14																Implement TTA- divert traffic to new	
<b>Stage 2B: Northbound- NB25</b>																				
<b>Noise Barrier NB25</b>																				
S4-207250	NB25 Structural Steel	10	20-Jan-14*	30-Jan-14															NB25 Structural Steel	
S4-208250	NB25 NB Panels	10	10-Feb-14	20-Feb-14															NB25 NB Panels	
<b>TCSS Works</b>																				
<b>TCSS E&amp;M Works &amp; Handover</b>																				
S2-208420	Lighting & T&C	24	15-Oct-13 A	22-Feb-14															Lighting & T&C	
S2-208450	T&C - power supply system to TCSS	22	20-Jan-14	22-Feb-14															T&C - power supply system to TC	
S2-208425	Handover to TCSS Contractor	0		22-Feb-14															Handover to TCSS Contractor	
<b>Z6: TCSS IN PORTION SA11: SECT. 4 WORKS</b>																				
<b>TCSS Works</b>																				
<b>New Sign Gantry Construction</b>																				
<b>G14 (Outside Site Boundary)</b>																				
GS1680	Reinstatement & Shifting of traffic lane	52	20-Jan-14	29-Mar-14															Reinstatem	
<b>Existing Sign Gantry Modification</b>																				
<b>G13 (Substantial Modification Works of Sign Gantries)</b>																				
GS2410	Carry out Sign Gantry modification (LCS, TCSS etc)	52	05-Mar-14	07-May-14																
<b>G66 (Substantial Modification Works of Sign Gantries)</b>																				
GS2730	Carry out Sign Gantry modification (LCS, TCSS etc)	30	12-Dec-13 A	04-Mar-14															Carry out Sign Gantry modif	
<b>G75 (Substantial Modification Works of Sign Gantries)</b>																				
GS3290	Carry out Sign Gantry modification (LCS, TCSS etc)	52	26-Nov-13 A	08-Mar-14															Carry out Sign Gantry mc	
<b>G76 (Substantial Modification Works of Sign Gantries)</b>																				
GS3370	Carry out Sign Gantry modification (LCS, TCSS etc)	52	26-Nov-13 A	08-Mar-14															Carry out Sign Gantry mc	
<b>VO214, 223, 227 - Ground Works &amp; Ducts Works for TCSS (Outside Site Boundary)</b>																				
<b>VO214 -Outside site Boundary- Install UPVC Ducts for TCSS Works-Road Side Work</b>																				
GS3570	Road Side Works - SK1258 - G66	20	01-May-13 A	25-Jan-14															Road Side Works - SK1258 - G66	
GS3490	Road Side Works - SK1252, SK1253 - G11 LHS (Case 113/111-112)	26	20-Jan-14	27-Feb-14															Road Side Works - SK1252, S	
GS3530	Cycle Track G73 - G74 Sk1253	26	28-Feb-14	29-Mar-14															Cycle Track	
<b>VO214 -Outside site Boundary- Install UPVC Ducts for TCSS Works-Cross Road Work</b>																				
GS3610	(Pending for VO for cancellation)Cross Road Ducts - SK1253 - P12 ...	30	20-Jan-14	04-Mar-14															(Pending for VO for cancell	
GS3620	(Pending for VO for cancellation)Cross Road Ducts - SK1253 - P12 ...	30	05-Mar-14	08-Apr-14															(Pend	
GS3630	(Pending for VO for cancellation)Cross Road Ducts - SK1256 - P59 ...	30	09-Apr-14	16-May-14																
<b>SI-40 - 7 Nos of Trial Pits for P11, P12, S107 and P59</b>																				
GS3680	Trial Pits for P11, P12, S107 and P59	30	20-Jan-14	04-Mar-14															Trial Pits for P11, P12, S107	



**Contract: HY/2008/09**  
**Widening of Tolo Highway / Fanling Highway**  
**Between Island House Interchange and Fanling**  
**(Stage 1 - Between Island House Interchange and Ma Wo)**

**Three Months Rolling Programme**  
**for the Period of 21 Jan 2014 to 20 Apr 2014**

Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010				2011				2012				2013				2014		
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3

**HY/2009/08 TOLO HIGHWAY WIDENING, Updated on 20140126**

**EXECUTIVE SUMMARY**

**Design**

A1330	Alternative Design		100%	292	26-Jul-10 A	14-Jan-11 A
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**Construction**

**Section 1**

A1000	SA21 - North Bound		100%	959	15-Oct-10 A	25-Dec-13 A
A1010	SA21 - South Bound	-100	95.99%	814	15-Oct-10 A	28-Feb-14
A1020	SA21 - Middle Lane	-84	94%	275	08-May-12 A	12-Feb-14

**Section 2**

A1030	SA22 - North Bound		100%	1016	26-Feb-10 A	07-Dec-13 A
A1040	SA22 - South Bound	-70	94.7%	1037	01-Apr-10 A	22-Mar-14
A1060	SA23 - South Bound		100%	388	28-Dec-11 A	25-Jan-14 A
A1070	SA24 - North Bound	-95	89.83%	787	25-Aug-10 A	16-Apr-14
A1080	SA25 - South Bound	-48	96.98%	777	20-Oct-10 A	19-Feb-14
A1090	SA26 - North Bound	-55	96.75%	1216	26-Feb-10 A	07-Mar-14
A1100	SA26 - South Bound	-61	96.22%	1216	26-Feb-10 A	13-Mar-14

**Section 3**

A1110	SA26A - North Bound	-15	97.48%	1191	26-Feb-10 A	25-Feb-14
A1120	SA26A - South Bound	-21	95.96%	879	26-Feb-10 A	03-Mar-14
A1130	SA26A - North & South Bound		100%	612	26-Feb-11 A	30-Jul-13 A
A1140	SA27 - South Bound	-15	96.43%	826	27-Mar-10 A	25-Feb-14

**Section 4**

A1150	SA28 - North Bound	-65	92.64%	1216	26-Feb-10 A	26-Apr-14
A1160	SA28 - South Bound	-8	97.01%	1099	23-Jun-10 A	28-Feb-14
A1170	SA29 - North Bound		100%	909	26-Jan-11 A	26-Sep-13 A
A1180	SA32 - Roadside FVMS		100%	265	26-Mar-11 A	15-Dec-11 A

**Section 5**

A1190	SA31 - South Bound		100%	884	26-Feb-10 A	28-Mar-13 A
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**Section 7**

A1200	SA41 - Site Office	-71	85.96%	1581	26-Feb-10 A	05-Sep-14
A1210	SA42 - Temporary Contractor's Works Area	0	90.52%	1582	25-Feb-10 A	25-Jun-14

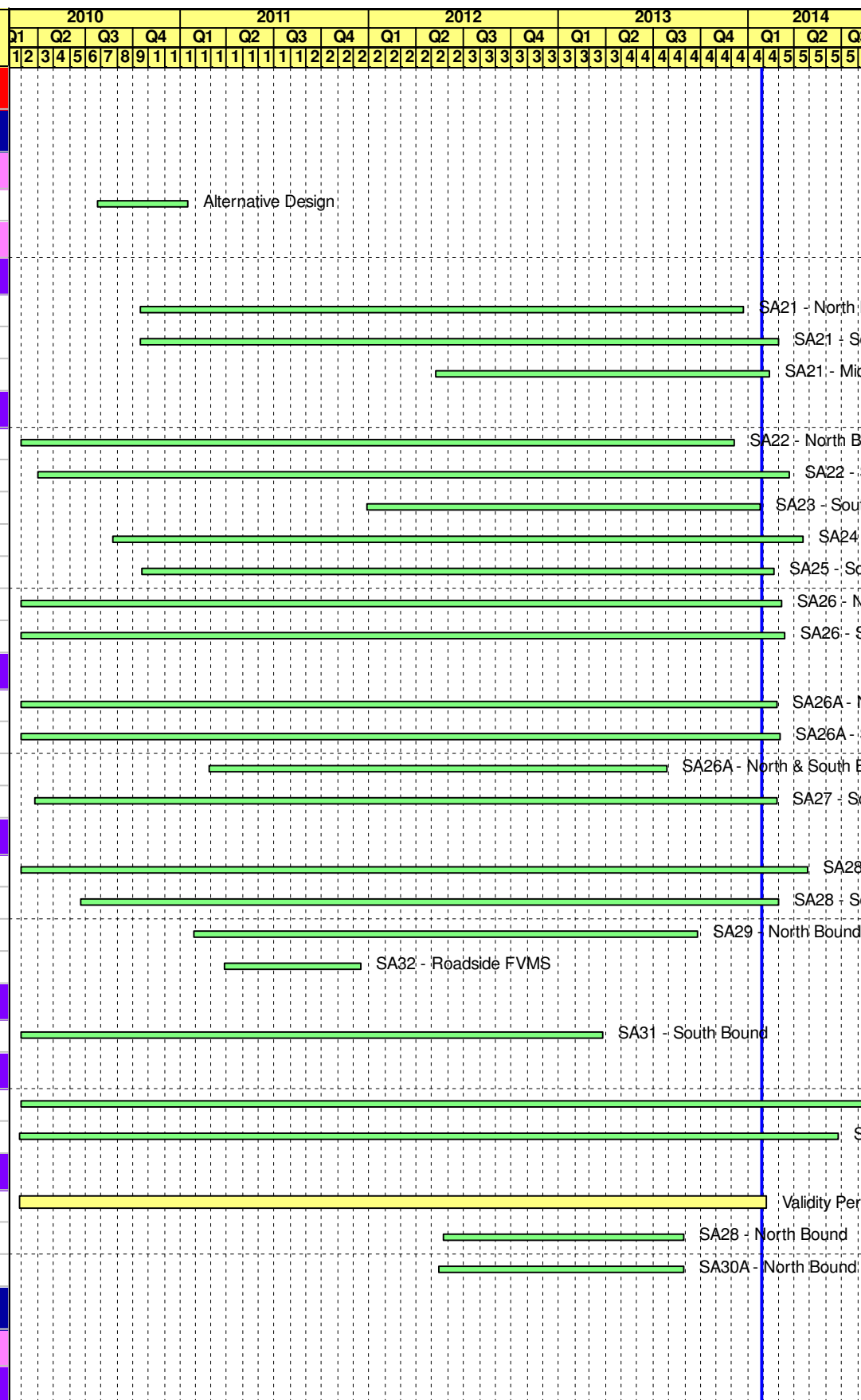
**Section 17 (Subject to Excision, Engineer may instruct within 819 days)**

A1300	Validity Period	140	98.6%	819	25-Feb-10 A	07-Feb-14
A1310	SA28 - North Bound		100%	34	24-May-12 A	31-Aug-13 A
A1320	SA30A - North Bound		100%	155	14-May-12 A	31-Aug-13 A

**KEY DATES/ MILESTONES**

**Portion Handover Dates**

**Section 1 (Site Area SA21)**



Project ID: J3318-UPDATE 2014JAN  
 Project Name: HY/2009/08 TOLO HIGHWAY WIDENING...  
 Print Date: 30-Jan-14  
 Data Date: 27-Jan-14  
 Page 1 of 46

- Current Bar
- Level of Effort
- Critical
- Milestone

**Highways Department - Contract No. HY/2009/08**

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

**Updated Works Programme, 26 January 2014**

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

Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010												2011												2012												2013												2014											
							Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4														
							1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
PHSA2100	Possession of SA21 (Day365)		100%	0	16-Jul-10 A		◇ Possession of SA21 (Day365)																																																											
<b>Section 3 (Site Area SA26A and SA 27)</b>																																																																		
PHSA26A0	Possession of SA26A (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA26A (Day0)																																																											
PHSA2700	Possession of SA27 (Day 90)		100%	0	26-Mar-10 A		◇ Possession of SA27 (Day 90)																																																											
<b>Section 2 (Site Area SA22, SA23, SA24, SA25 and SA26)</b>																																																																		
PHSA2200	Possession of SA22 (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA22 (Day0)																																																											
PHSA2300	Possession of SA23 (Day180)		100%	0	04-May-10 A		◇ Possession of SA23 (Day180)																																																											
PHSA2400	Possession of SA24 (Day180)		100%	0	04-May-10 A		◇ Possession of SA24 (Day180)																																																											
PHSA2500	Possession of SA25 (Day270)		100%	0	04-May-10 A		◇ Possession of SA25 (Day270)																																																											
PHSA2600	Possession of SA26 (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA26 (Day0)																																																											
<b>Section 4 (Site Area SA28, SA29 and SA32)</b>																																																																		
PHSA2800	Possession of SA28 (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA28 (Day0)																																																											
PHSA2900	Possession of SA29 (Day270)		100%	0	27-Jul-10 A		◇ Possession of SA29 (Day270)																																																											
PHSA3200	Possession of SA32 (Day365)		100%	0	25-Feb-11 A		◇ Possession of SA32 (Day365)																																																											
<b>Section 5 (Site Area SA31)</b>																																																																		
PHSA3100	Possession of SA31 (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA31 (Day0)																																																											
<b>Section 7 (All Works Except Works Included in Other Sections)</b>																																																																		
PHSA4100	Possession of SA41 (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA41 (Day0)																																																											
PHSA4200	Possession of SA42 (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA42 (Day0)																																																											
PHSA4300	Possession of SA43 (Day90)		100%	0	04-May-10 A		◇ Possession of SA43 (Day90)																																																											
<b>Section 8 (Establishment Works in Site Area SA21)</b>																																																																		
PHSA2110	Possession of SA21 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA21 (Day1217)																																																											
<b>Section 9 (Establishment Works in Site Area SA22, SA23, SA24, SA25 and SA26)</b>																																																																		
PHSA2210	Possession of SA22 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA22 (Day1217)																																																											
PHSA2310	Possession of SA23 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA23 (Day1217)																																																											
PHSA2420	Possession of SA24 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA24 (Day1217)																																																											
PHSA2510	Possession of SA25 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA25 (Day1217)																																																											
PHSA2610	Possession of SA26 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA26 (Day1217)																																																											
<b>Section 10 (Establishment Works in Site Area SA26A and SA27)</b>																																																																		
PHSA26A1	Possession of SA26A (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA26A (Day1217)																																																											
PHSA2710	Possession of SA27 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA27 (Day1217)																																																											
<b>Section 11 (Establishment Works in Site Area SA28 and SA29)</b>																																																																		
PHSA2810	Possession of SA28 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA28 (Day1217)																																																											
PHSA2910	Possession of SA29 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA29 (Day1217)																																																											
<b>Section 12 (Establishment Works in Site Area SA30 and SA30A)</b>																																																																		
PHSA3000	Possession of SA30 (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA30 (Day1217)																																																											
PHSA30A0	Possession of SA30A (Day1217)	-214	0%	0	27-Jan-14		◇ Possession of SA30A (Day1217)																																																											
<b>Section 13 (Remainder of Establishment Works)</b>																																																																		
PHSA3110	Possession of SA31 (Day1217)	-178	0%	0	27-Jan-14*		◇ Possession of SA31 (Day1217)																																																											
PHSA3220	Possession of SA32 (Day1217)	-178	0%	0	27-Jan-14*		◇ Possession of SA32 (Day1217)																																																											
PHSA4120	Possession of SA41 (Day1217)	-178	0%	0	27-Jan-14*		◇ Possession of SA41 (Day1217)																																																											
PHSA4220	Possession of SA42 (Day1217)	-178	0%	0	27-Jan-14*		◇ Possession of SA42 (Day1217)																																																											
PHSA4330	Possession of SA43 (Day1217)	-178	0%	0	27-Jan-14*		◇ Possession of SA43 (Day1217)																																																											
<b>Section 14 Comprises Routine Maintenance of Road Network in Site Area SA21 to SA31)</b>																																																																		
PHSA2130	Possession of SA21 for Routine Maintenance (Day365)		100%	0	16-Jul-10 A		◇ Possession of SA21 for Routine Maintenance (Day365)																																																											
PHSA2230	Possession of SA22 for Routine Maintenance (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA22 for Routine Maintenance (Day0)																																																											



Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010												2011												2012												2013												2014											
							Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4														
							1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
PHSA2330	Possession of SA23 for Routine Maintenance (Day180)		100%	0	04-May-10 A		◇ Possession of SA23 for Routine Maintenance (Day180)																																																											
PHSA2430	Possession of SA24 for Routine Maintenance (Day180)		100%	0	04-May-10 A		◇ Possession of SA24 for Routine Maintenance (Day180)																																																											
PHSA2530	Possession of SA25 for Routine Maintenance (Day270)		100%	0	04-May-10 A		◇ Possession of SA25 for Routine Maintenance (Day270)																																																											
PHSA2630	Possession of SA26 for Routine Maintenance (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA26 for Routine Maintenance (Day0)																																																											
PHSA26A3	Possession of SA26A for Routine Maintenance (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA26A for Routine Maintenance (Day0)																																																											
PHSA2730	Possession of SA27 for Routine Maintenance (Day90)		100%	0	26-Mar-10 A		◇ Possession of SA27 for Routine Maintenance (Day90)																																																											
PHSA2830	Possession of SA28 for Routine Maintenance (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA28 for Routine Maintenance (Day0)																																																											
PHSA2930	Possession of SA29 for Routine Maintenance (Day270)		100%	0	27-Jul-10 A		◇ Possession of SA29 for Routine Maintenance (Day270)																																																											
PHSA3060	Possession of SA30 for Routine Maintenance (Day0)		100%	0	26-Feb-10 A		◇ Possession of SA30 for Routine Maintenance (Day0)																																																											
PHSA30A4	Possession of SA30A for Routine Maintenance (Day180)		100%	0	27-Jul-10 A		◇ Possession of SA30A for Routine Maintenance (Day180)																																																											
PHSA3130	Possession of SA31 for Routine Maintenance		100%	0	26-Feb-10 A		◇ Possession of SA31 for Routine Maintenance																																																											
<b>Section 17 (Subject to Excision and Instruct by Engineer within 819 days)</b>																																																																		
PHSA3030	Earliest Date to Possession of SA30		100%	0	26-Feb-10 A		◇ Earliest Date to Possession of SA30																																																											
PHSA30A3	Earliest Date to Possession of SA30A		100%	0	27-Jul-10 A		◇ Earliest Date to Possession of SA30A																																																											
<b>Key Dates (include EOT GCL submitted and awarded upto Aug 2013)</b>																																																																		
HDS01000	KD1: Completion of Section 1 - (Day1216) - Overall Completion of Works	-100	0%	0		28-Feb-14*	◇ KD1: Comp																																																											
HDS01100	KD1: Completion of Section 1 - (Day1216) - Substantial Completion for Road Opening	-71	0%	0		30-Jan-14*	◇ KD1: Comple																																																											
HDS02000	KD2: Completion of Section 2 - (Day1216) - Overall Completion of Works	-95	0%	0		16-Apr-14*	◇ KD2: Cc																																																											
HDS02100	KD2: Completion of Section 2 - (Day1216) - Substantial Completion for Road Opening	-70	0%	0		22-Mar-14*	◇ KD2: Con																																																											
HDS03000	KD3: Completion of Section 3 - (Day1216) - Overall Completion of Works	-59	0%	0		10-Apr-14*	◇ KD3: Cc																																																											
HDS03100	KD3: Completion of Section 3 - (Day1216) - Substantial Completion for Road Opening	-17	0%	0		28-Feb-14*	◇ KD3: Comp																																																											
HDS04000	KD4: Completion of Section 4 - (Day1216) - Overall Completion of Works	-65	0%	0		26-Apr-14*	◇ KD4: C																																																											
HDS04100	KD4: Completion of Section 4 - (Day1216) - Substantial Completion for Road Opening	-8	0%	0		28-Feb-14*	◇ KD4: Comp																																																											
HDS05000	KD5: Completion of Section 5 - (Day884)		100%	0		28-Mar-13 A	◇ KD5: Completion of Section 5 - (Da																																																											
HDS07000	KD7: Completion of Section 7 - (Day1581)	0	0%	0		25-Jun-14*	◇ KD																																																											
HDS08000	KD8: Completion of Section 8 - (Day1581)	0	0%	0		25-Jun-14*	◇ KD																																																											
HDS09000	KD9: Completion of Section 9 - (Day1581)	0	0%	0		25-Jun-14*	◇ KD																																																											
HDS10000	KD10: Completion of Section 10 - (Day1581)	0	0%	0		25-Jun-14*	◇ KD																																																											
HDS11000	KD11: Completion of Section 11 - (Day1581)	0	0%	0		25-Jun-14*	◇ KD																																																											
HDS12000	KD12: Completion of Section 12 - (Day1581)	0	0%	0		25-Jun-14*	◇ KD																																																											
HDS13000	KD13: Completion of Section 13 - (Day1581)	0	0%	0		25-Jun-14*	◇ KD																																																											
HDS14000	KD14: Completion of Section 14 - (Day1581)	0	0%	0		25-Jun-14*	◇ KD																																																											
HDS17000	KD17: Latest Date to Compl of Section 17 - (Day397) Subject to Excision		100%	0		31-Aug-13 A	◇ KD17: Latest Date to Co																																																											
<b>DESIGN SUBMISSION</b>																																																																		
<b>Alternative Design</b>																																																																		
<b>Ground Investigation &amp; Reporting</b>																																																																		
AD000010	Ground Investigation for Alternative Design		100%	54	22-Mar-10 A	29-May-10 A	Ground Investigation for Alternative Design																																																											
AD000020	Report of Ground Investigation		100%	56	12-Apr-10 A	18-Jun-10 A	Report of Ground Investigation																																																											
<b>Package AD1: W56B</b>																																																																		
AD000110	AD1 - Design Period		100%	80	29-Mar-10 A	08-Jul-10 A	AD1 - Design Period																																																											
AD000120	AD1 - Full Package to ICE for Certification		100%	20	09-Jul-10 A	31-Jul-10 A	AD1 - Full Package to ICE for Certification																																																											
AD000130	AD1 - Approval by ER/CLIENT/CEDD (GEO)		100%	101	09-Jul-10 A	06-Nov-10 A	AD1 - Approval by ER/CLIENT/CEDD (GEO)																																																											
<b>Package AD2: W57B</b>																																																																		
AD000210	AD2 - Design Period		100%	72	14-Apr-10 A	10-Jul-10 A	AD2 - Design Period																																																											
AD000220	AD2 - Full Package to ICE for Certification		100%	44	12-Jul-10 A	31-Aug-10 A	AD2 - Full Package to ICE for Certification																																																											
AD000230	AD2 - Approval by ER/CLIENT/CEDD (GEO)		100%	172	26-Nov-10 A	26-Apr-11 A	AD2 - Approval by ER/CLIENT/CEDD (GEO)																																																											

Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010				2011				2012				2013				2014		
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
							1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
<b>Package AD3: W69</b>																									
AD000310	AD3 - Design Period		100%	75	03-May-10 A	31-Jul-10 A																			
AD000320	AD3 - Full Package to ICE for Certification		100%	57	02-Aug-10 A	08-Oct-10 A																			
AD000330	AD3 - Approval by ER/CLIENT/CEDD (GEO)		100%	100	02-Aug-10 A	29-Nov-10 A																			
<b>Package AD4: W38</b>																									
AD000410	AD4 - Design Period		100%	78	09-Jun-10 A	09-Sep-10 A																			
AD000420	AD4 - Full Package to ICE for Certification		100%	18	10-Sep-10 A	09-Nov-10 A																			
AD000430	AD4 - Approval by ER/CLIENT/CEDD (GEO)		100%	54	11-Nov-10 A	15-Jan-11 A																			
<b>Package AD5 (Noise Barrier Foundation): NB38, NB39, NB41 &amp; NB43</b>																									
AD000510	AD5 - Design Period		100%	98	21-Jul-10 A	22-Oct-10 A																			
AD000520	AD5 - Full Package to ICE for Certification		100%	51	23-Oct-10 A	22-Dec-10 A																			
AD000530	AD5 - Approval by ER/CLIENT/CEDD (GEO)		100%	74	18-Oct-10 A	14-Jan-11 A																			
<b>MATERIALS PROCUREMENT</b>																									
<b>Major Materials (Detail shall refer to supplementary information)</b>																									
<b>Water Works</b>																									
MA001010	Place Order		100%	0	31-Aug-10 A																				
MA001030	Fabrication, Manufacturing & Delivery		100%	900	31-Aug-10 A	31-Aug-12 A																			
<b>Vehicular Parapet SSD161</b>																									
MA001050	Place Order		100%	0	26-May-11 A																				
MA001060	Fabrication, Manufacturing & Delivery		100%	350	26-May-11 A	24-Aug-12 A																			
<b>Bearing</b>																									
MA001070	Place Order		100%	0	31-Jul-10 A																				
MA001080	Fabrication, Manufacturing & Delivery		100%	630	31-Jul-10 A	05-Aug-12 A																			
<b>Movement Joint</b>																									
MA001090	Place Order		100%	0	31-Aug-10 A																				
MA001100	Fabrication, Manufacturing & Delivery		100%	620	31-Aug-10 A	31-Aug-12 A																			
<b>CONSTRUCTION PHASE</b>																									
<b>Preliminaries &amp; General Requirement</b>																									
<b>Preliminaries</b>																									
<b>General Submissions</b>																									
PR000000	Commencement of Works		100%	0	26-Feb-10 A																				
PR001000	Site Establishment		100%	90	26-Feb-10 A	25-May-10 A																			
PR001010	Effect required Insurances		100%	0	26-Feb-10 A																				
PR001030	Erect Contractor's Office Compound		100%	69	26-Feb-10 A	04-May-10 A																			
PR001040	Submit Site Organization Chart		100%	14	26-Feb-10 A	10-Mar-10 A																			
PR001050	Submit Site Layout Plan		100%	7	26-Feb-10 A	03-Mar-10 A																			
PR001060	Prepare/Submit Initial Works Programme		100%	7	26-Feb-10 A	03-Mar-10 A																			
PR001070	Approval on Initial Works Programme		100%	30	04-Mar-10 A	02-Apr-10 A																			
PR001080	Prepare/Submit Detailed Works Programme		100%	58	03-Apr-10 A	30-May-10 A																			
PR001090	Prepare/Submit First 3-month Programme		100%	14	26-Feb-10 A	10-Mar-10 A																			
PR001100	Submit initial 12-month Pgr for Rou. Maint. Work		100%	14	26-Feb-10 A	10-Mar-10 A																			
PR001110	Submit Rolling 3month Routine Maint. Program		100%	14	26-Feb-10 A	10-Mar-10 A																			
PR001170	Prepare/Submit Subcon Management Plan (SMP)		100%	30	26-Feb-10 A	26-Mar-10 A																			
PR001200	Submit Interface Management Plan		100%	60	26-Feb-10 A	25-Apr-10 A																			
PR001242	Application of Expressway Permit		100%	7	26-Feb-10 A	03-Mar-10 A																			
PR001244	Approval of Expressway Permit		100%	21	04-Mar-10 A	24-Mar-10 A																			

























Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010				2011				2012				2013				2014		
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
							1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
S22N2173	Wall Stem (Bay 1c & 1d, 1a & 1b, 1g)		100%	25	26-Sep-11 A	26-Oct-11 A																			
S22N2174	Wall Stem (Bay 2a, 2bnb, 2b)		100%	75	16-Jul-12 A	13-Oct-12 A																			
S22N2175	Wall Stem (Bay 2c, 2d)		100%	30	06-Aug-12 A	03-Nov-12 A																			
S22N2176	Wall Stem (Bay 3)		100%	25	31-Aug-12 A	17-Nov-12 A																			
S22N2186	Backfilling		100%	30	19-Nov-12 A	26-Jan-13 A																			
<b>Retaining Wall W56B (AD 1)</b>																									
S22N2210	Prepare Piling Platform for W56B		100%	37	02-Oct-10 A	11-Feb-11 A																			
S22N2220	Pre-drilling for W56B		100%	37	02-Oct-10 A	15-Nov-10 A																			
S22N2240	Pipe Pile for W56B		100%	98	20-Nov-10 A	21-Mar-11 A																			
S22N2241	Pipe Pile for W56B - Stage 1		100%	75	20-Nov-10 A	23-Feb-11 A																			
S22N2242	Pipe Pile for W56B - Stage 2		100%	75	31-Jan-11 A	23-Sep-11 A																			
S22N2250	Construction of W56B		100%	276	17-Sep-11 A	06-Apr-13 A																			
S22N2251	Excavation (W56B), upper		100%	75	17-Sep-11 A	05-Jan-12 A																			
S22N2252	Excavation (W56B), Middle		100%	60	06-Jan-12 A	26-May-12 A																			
S22N2254	Excavation (W56B), bottom		100%	60	11-May-12 A	29-Sep-12 A																			
S22N2260	Base Slab (W56B), (Bay 1 -3)		100%	25	27-Jul-12 A	10-Sep-12 A																			
S22N2262	Base Slab (W56B), (Bay 4 - 8)		100%	60	27-Sep-12 A	10-Nov-12 A																			
S22N2264	Base Slab (W56B), (Bay 9, 10 & 12A)		100%	35	27-Jul-12 A	13-Oct-12 A																			
S22N2270	Wall Stem (W56B), (Bay 1 - 3, Total 18 pours)		100%	75	01-Nov-12 A	06-Apr-13 A																			
S22N2274	Wall Stem (W56B), (Bay 4 - 8, Total 30 pours)		100%	75	12-Nov-12 A	06-Apr-13 A																			
S22N2276	Wall Stem (W56B), (Bay 9 - 10, Total 12 pours)		100%	75	24-Nov-12 A	06-Apr-13 A																			
S22N2290	Backfilling (Bay 1 to Bay 3)		100%	15	10-Jan-13 A	19-Jan-13 A																			
S22N2292	Backfilling (Bay 4 to Bay 10)		100%	30	14-Jan-13 A	05-Mar-13 A																			
<b>Roadworks &amp; Drainage</b>																									
S22N4000	Roadworks, Drainages & Utilities (CH 2840 - 3140)		100%	129	15-Jan-13 A	07-Dec-13 A																			
S22N4010	Roadworks Stage 1 (CH 2840 - 3000)		100%	30	15-Jan-13 A	29-Mar-13 A																			
S22N4030	Drainages Stage 1 (CH2840 - 3000)		100%	30	15-Jan-13 A	05-Mar-13 A																			
S22N4040	Road Surface Works		100%	30	21-Mar-13 A	23-Apr-13 A																			
S22N4042	Roadworks Stage 2 (CH3000 - 3140)		100%	30	18-Mar-13 A	30-Jul-13 A																			
S22N4044	Drainages Stage 2 (CH3000 - 3140)		100%	30	20-Feb-13 A	11-Apr-13 A																			
S22N4046	Road Surface Works		100%	30	17-May-13 A	18-Aug-13 A																			
S22N4048	Road Construction Works Remain Fast Lane (along CH2840 - 3140)		100%	50	25-Nov-13 A	07-Dec-13 A																			
<b>Noise Barriers</b>																									
<b>Noise Barrier NB31A</b>																									
S22N3020	NB31A (CH 0-21.9) on W56A (incl. VO 9: Construction of double leaf access door for noise barrier)		100%	74	15-Oct-12 A	22-Nov-12 A																			
S22N3021	NB31A (CH 0-21.9) on W56A : Erecting H-Column		100%	38	15-Oct-12 A	19-Oct-12 A																			
S22N3022	NB31A (CH 0-21.9) on W56A : Installing Panel		100%	36	22-Oct-12 A	22-Nov-12 A																			
<b>South Bound</b>																									
<b>Preliminaries</b>																									
S22S0000	Site Clearance/Access Rd		100%	84	01-Apr-10 A	16-Jul-10 A																			
S22S0010	Site Clearance		100%	72	01-Apr-10 A	02-Jul-10 A																			
S22S0020	Access Road		100%	72	20-Apr-10 A	16-Jul-10 A																			
<b>Slopeworks</b>																									
S22S5000	Slopeworks Cut(S28-sn) (incl. VO15: Revised Layout of Slope S28)		100%	198	21-Oct-10 A	17-Aug-11 A																			
S22S5010	Slopeworks Cut(S28) - Stage 1 (Cutslope)		100%	23	21-Oct-10 A	16-Nov-10 A																			
S22S5030	Slopeworks Cut(S28) - Stage 1 (Soil Nail Installation : IJKL)		100%	23	17-Nov-10 A	08-Feb-11 A																			
S22S5040	Slopeworks Cut(S28) - Stage 2 (Cutslope)		100%	37	11-Dec-10 A	03-Jan-11 A																			















Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010												2011												2012												2013												2014											
							Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4														
							1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
S26S1384	Base slab of RWTW2 (stage 1 & 2: half Bay1 & Bay 2-4)		100%	75	26-Nov-11 A	10-Nov-12 A	Base slab of RWTW2 (stage 1 & 2: half Bay1 & Bay 2-4)																																																											
S26S1386	Wall of RWTW2 (stage 1 & 2: half Bay1 & Bay 2-4)		100%	48	12-Nov-12 A	22-Jan-13 A	Wall of RWTW2 (stage 1 & 2: half Bay1 & Bay 2-4)																																																											
S26S1520	Construction of Remain of RWTW2 (stage 3: Remaining Half Bay 1, Connection to LB2)		100%	50	18-Feb-13 A	04-Jun-13 A	Construction of Remain of RWTW2 (stage 3: Remaining Half Bay 1, Connection to LB2)																																																											
S26S1530	Backfilling of RWTW2		100%	20	02-May-13 A	18-Jun-13 A	Backfilling of RWTW2																																																											
S26S1540	Roadworks		100%	20	22-Aug-13 A	25-Sep-13 A	Roadworks																																																											
<b>Retaining Wall RWTW3, (VO)</b>																																																																		
S26S1389	Pre-drilling for RWTW3		100%	12	28-Dec-10 A	11-Jan-11 A	Pre-drilling for RWTW3																																																											
S26S1390	Piling/Excavate & Construct RWTW3		100%	708	01-Aug-11 A	25-Sep-13 A	Piling/Excavate & Construct RWTW3																																																											
S26S1591	Piling for RWTW3		100%	24	01-Aug-11 A	23-Sep-11 A	Piling for RWTW3																																																											
S26S1592	ELS Works & Excavation		100%	24	28-Dec-11 A	28-Jan-12 A	ELS Works & Excavation																																																											
S26S1593	VO 51.1: Modification works of ELS		100%	20	03-Jul-12 A	31-Jul-12 A	VO 51.1: Modification works of ELS																																																											
S26S1596	VO 51.1: Construction RWTW Base Slab (Bay2-8)		100%	60	20-Aug-12 A	10-Nov-12 A	VO 51.1: Construction RWTW Base Slab (Bay2-8)																																																											
S26S1598	VO 51.1: Construction RWTW Wall Stem (Bay 2-8)		100%	60	17-Sep-12 A	14-Jan-13 A	VO 51.1: Construction RWTW Wall Stem (Bay 2-8)																																																											
S26S1600	VO 51.1: Temporary cut to slope toe		100%	25	22-Jan-13 A	12-Apr-13 A	VO 51.1: Temporary cut to slope toe																																																											
S26S1602	VO 51.1: Rockfill Slope (Bay 1 -Bay 7)		100%	40	13-Apr-13 A	17-Jun-13 A	VO 51.1: Rockfill Slope (Bay 1 -Bay 7)																																																											
S26S1604	VO 51.1: Construction RWTW3 (Bay 1)		100%	40	12-Nov-12 A	12-Dec-12 A	VO 51.1: Construction RWTW3 (Bay 1)																																																											
S26S1606	VO 51.1: Remaining Rockfill below LB3	119	90%	20	19-Jun-13 A	28-Jan-14	VO 51.1: Remaining Rockfill below LB3																																																											
S26S1608	VO 51.1: Roadworks		100%	30	26-Jun-13 A	25-Sep-13 A	VO 51.1: Roadworks																																																											
<b>Retaining Wall RWTW3A</b>																																																																		
S26S1614	Construction of RWTW 3A		100%	168	01-Oct-12 A	25-Sep-13 A	Construction of RWTW 3A																																																											
S26S1628	ELS works RWTW3A		100%	32	01-Oct-12 A	15-Nov-12 A	ELS works RWTW3A																																																											
S26S1638	Excavation works RWTW 3A		100%	25	16-Nov-12 A	24-Nov-12 A	Excavation works RWTW 3A																																																											
S26S1648	RC wall construction RWTW 3A		100%	70	26-Nov-12 A	27-Apr-13 A	RC wall construction RWTW 3A																																																											
S26S1658	Backfill RWTW 3A		100%	20	06-May-13 A	15-Jun-13 A	Backfill RWTW 3A																																																											
S26S1668	Roadworks		100%	30	26-Jun-13 A	25-Sep-13 A	Roadworks																																																											
<b>Retaining Wall W60 &amp; W61A (CSD 2)</b>																																																																		
S26S2020	Pre-drilling for W60 & W61A		100%	7	06-May-11 A	24-Jun-11 A	Pre-drilling for W60 & W61A																																																											
S26S2030	Mini Piles for W60 & W61A		100%	30	15-Jun-11 A	20-Aug-11 A	Mini Piles for W60 & W61A																																																											
S26S2040	Excavation		100%	50	19-Apr-12 A	25-Aug-12 A	Excavation																																																											
S26S2050	Construct Cap & Wall		100%	52	06-Jun-12 A	31-Aug-12 A	Construct Cap & Wall																																																											
S26S2060	Backfilling		100%	30	04-Sep-12 A	10-Apr-13 A	Backfilling																																																											
<b>Temporary Bridge bet. RWTW2 &amp; RWTW1</b>																																																																		
S26S2520	TTA Stage 5		100%	0	27-Sep-12 A		TTA Stage 5																																																											
<b>Road Re-construction Works, Roadworks, Drainage &amp; Utilities</b>																																																																		
S26S4000	Roadworks, Drainages & Utilities (Landing between B13A & B15A within CH 3600 - 3720)		100%	62	18-Feb-13 A	21-Jun-13 A	Roadworks, Drainages & Utilities (Landing between B13A & B15A within CH 3600 - 3720)																																																											
S26S4002	Removal of existing paving of landing area		100%	12	18-Feb-13 A	09-Apr-13 A	Removal of existing paving of landing area																																																											
S26S4005	Road Works		100%	25	10-Apr-13 A	31-May-13 A	Road Works																																																											
S26S4006	Drainages Works		100%	15	23-Apr-13 A	30-May-13 A	Drainages Works																																																											
S26S4010	Road Surface Works (incl. VO14: Revised Layout of Police Observation Platform at CH3700 )		100%	10	01-Jun-13 A	21-Jun-13 A	Road Surface Works (incl. VO14: Revised Layout of Police Observation Platform at CH3700 )																																																											
<b>Noise Barriers &amp; Road Barriers</b>																																																																		
<b>Noise Barrier NB35</b>																																																																		
S26S3000	Construct Noise Barrier & Beam Barrier, NB35		100%	60	15-Mar-13 A	18-Jun-13 A	Construct Noise Barrier & Beam Barrier, NB35																																																											
S26S3010	Construct Noise Barrier : foundation Works. NB35		100%	30	15-Mar-13 A	11-May-13 A	Construct Noise Barrier : foundation Works. NB35																																																											
S26S3020	Construct Noise Barrier : Installation of H-coulnm & Panel NB35		100%	7	17-May-13 A	18-Jun-13 A	Construct Noise Barrier : Installation of H-coulnm & Panel NB35																																																											
S26S3030	Remaining Works of NB35	-49	80%	10	27-Aug-13 A	28-Jan-14	Remaining Works of NB35																																																											
<b>Traffic Control &amp; Survelance System</b>																																																																		
S26S4800	TCSS		100%	57	12-Mar-13 A	10-Aug-13 A	TCSS																																																											
S26S4810	TCSS - Stage 1 (LB1) (VSL Pole P55)		100%	30	12-Mar-13 A	21-Sep-13 A	TCSS - Stage 1 (LB1) (VSL Pole P55)																																																											



















Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010												2011				2012				2013				2014		
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3				
							1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
S26AN010	Site Clearance		100%	60	26-Feb-10 A	12-May-10 A	Site Clearance																										
S26AN020	Access Rd		100%	60	07-Apr-10 A	18-Jun-10 A	Access Rd																										
<b>Slopeworks</b>																																	
S26AN502	Cut Slope (S37A)		100%	48	26-Apr-12 A	03-Jul-12 A	Cut Slope (S37A)																										
S26AN506	Cut Slope (S40-sn, Including removal of existing retaining wall)		100%	168	19-Jun-10 A	08-Jan-11 A	Cut Slope (S40-sn, Including removal of existing retaining wall)																										
S26AN508	Slopeworks Cut(S40) - Stage 1 (Cut Slope and Erect Scaffolding)		100%	11	19-Jun-10 A	16-Jul-10 A	Slopeworks Cut(S40) - Stage 1 (Cut Slope and Erect Scaffolding)																										
S26AN510	Slopeworks Cut(S40) - Stage 1 (Soil Nail Installation : QRST)		100%	11	19-Jul-10 A	18-Aug-10 A	Slopeworks Cut(S40) - Stage 1 (Soil Nail Installation : QRST)																										
S26AN514	Slopeworks Cut(S40) - Stage 2 (Cut Slope and Erect Scaffolding)		100%	14	19-Aug-10 A	17-Sep-10 A	Slopeworks Cut(S40) - Stage 2 (Cut Slope and Erect Scaffolding)																										
S26AN516	Slopeworks Cut(S40) - Stage 2 (Soil Nail Installation : MNOP)		100%	14	21-Nov-10 A	26-Dec-10 A	Slopeworks Cut(S40) - Stage 2 (Soil Nail Installation : MNOP)																										
S26AN518	Slopeworks Cut(S40) - Stage 3 (Cut Slope and Erect Scaffolding)		100%	17	18-Aug-10 A	17-Sep-10 A	Slopeworks Cut(S40) - Stage 3 (Cut Slope and Erect Scaffolding)																										
S26AN520	Slopeworks Cut(S40) - Stage 3 (Soil Nail Installation : IJKL)		100%	17	27-Dec-10 A	01-Feb-11 A	Slopeworks Cut(S40) - Stage 3 (Soil Nail Installation : IJKL)																										
S26AN522	Slopeworks Cut(S40) - Stage 4 (Cut Slope and Erect Scaffolding)		100%	12	28-Jan-11 A	15-Feb-11 A	Slopeworks Cut(S40) - Stage 4 (Cut Slope and Erect Scaffolding)																										
S26AN524	Slopeworks Cut(S40) - Stage 4 (Soil Nail Installation : EFGH)		100%	12	02-Feb-11 A	19-Feb-11 A	Slopeworks Cut(S40) - Stage 4 (Soil Nail Installation : EFGH)																										
S26AN525	Slopeworks Cut(S40) - Stage 5 (Cut Slope and Erect Scaffolding)		100%	15	29-Oct-11 A	16-Nov-11 A	Slopeworks Cut(S40) - Stage 5 (Cut Slope and Erect Scaffolding)																										
S26AN526	Slopeworks Cut(S40) - Stage 5 (Soil Nail Installation : ABCD)		100%	18	16-Nov-11 A	07-Dec-11 A	Slopeworks Cut(S40) - Stage 5 (Soil Nail Installation : ABCD)																										
S26AN528	Removal of Existing Retaining Wall		100%	30	11-Apr-11 A	20-May-11 A	Removal of Existing Retaining Wall																										
S26AN530	Cut Slope (S41-sn)		100%	138	19-Jun-10 A	02-Dec-10 A	Cut Slope (S41-sn)																										
S26AN531	Cut Slope (S41-sn) - Stage 1 (Cut Slope and Erect Scaffolding)		100%	11	19-Jun-10 A	16-Jul-10 A	Cut Slope (S41-sn) - Stage 1 (Cut Slope and Erect Scaffolding)																										
S26AN532	Cut Slope (S41-sn) - Stage 1 (Soil Nail Installation : MNOPQ)		100%	11	19-Jul-10 A	13-Aug-10 A	Cut Slope (S41-sn) - Stage 1 (Soil Nail Installation : MNOPQ)																										
S26AN533	Cut Slope (S41-sn) - Stage 2 (Cut Slope and Erect Scaffolding)		100%	26	23-Aug-10 A	17-Sep-10 A	Cut Slope (S41-sn) - Stage 2 (Cut Slope and Erect Scaffolding)																										
S26AN534	Cut Slope (S41-sn) - Stage 2 (Soil Nail Installation : IJKL)		100%	26	28-Dec-10 A	27-Jan-11 A	Cut Slope (S41-sn) - Stage 2 (Soil Nail Installation : IJKL)																										
S26AN535	Cut Slope (S41-sn) - Stage 3 (Cut Slope and Erect Scaffolding)		100%	20	20-Sep-10 A	27-Nov-10 A	Cut Slope (S41-sn) - Stage 3 (Cut Slope and Erect Scaffolding)																										
S26AN536	Cut Slope (S41-sn) - Stage 3 (Soil Nail Installation : EFGH)		100%	19	30-May-11 A	22-Jun-11 A	Cut Slope (S41-sn) - Stage 3 (Soil Nail Installation : EFGH)																										
S26AN537	Cut Slope (S41-sn) - Stage 4 (Cut Slope and Erect Scaffolding)		100%	12	26-Oct-11 A	08-Nov-11 A	Cut Slope (S41-sn) - Stage 4 (Cut Slope and Erect Scaffolding)																										
S26AN538	Cut Slope (S41-sn) - Stage 4 (Soil Nail Installation : ABCD)		100%	12	03-Dec-12 A	14-Jan-13 A	Cut Slope (S41-sn) - Stage 4 (Soil Nail Installation : ABCD)																										
S26AN540	Slope 7NW-B/C 349		100%	75	02-Oct-10 A	25-Nov-10 A	Slope 7NW-B/C 349																										
S26AN541	Erect Scaffolding & Soil Nail Installation (7NW-B/C 349) - Stage 1 (EF) 52nos.		100%	15	02-Oct-10 A	19-Oct-10 A	Erect Scaffolding & Soil Nail Installation (7NW-B/C 349) - Stage 1 (EF) 52nos.																										
S26AN542	Erect Scaffolding & Soil Nail Installation (7NW-B/C 349) - Stage 2 (ABCD) 270nos.		100%	72	20-Oct-10 A	25-Nov-10 A	Erect Scaffolding & Soil Nail Installation (7NW-B/C 349) - Stage 2 (ABCD) 270nos.																										
S26AN550	Slope 7NW-A/C35-sn		100%	200	01-Sep-10 A	20-Nov-10 A	Slope 7NW-A/C35-sn																										
S26AN560	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 1 (OP) 25nos.		100%	10	01-Sep-10 A	11-Sep-10 A	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 1 (OP) 25nos.																										
S26AN570	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 2 (KLMN) 285nos.		100%	40	13-Sep-10 A	19-Oct-10 A	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 2 (KLMN) 285nos.																										
S26AN580	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 3 (GHIJ) 370nos.		100%	57	30-Sep-10 A	19-Oct-10 A	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 3 (GHIJ) 370nos.																										
S26AN590	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 4 (CDEF) 407nos.		100%	62	20-Oct-10 A	19-Nov-10 A	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 4 (CDEF) 407nos.																										
S26AN650	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 5 (AB) 204nos.		100%	31	01-Nov-10 A	20-Nov-10 A	Erect Scaffolding & Soil Nail Installation (7NW-A/C35-sn) - Stage 5 (AB) 204nos.																										
S26AN660	Slope 7NW-A/CR39		100%	80	22-Nov-10 A	28-Mar-11 A	Slope 7NW-A/CR39																										
S26AN670	Erect Scaffolding & Soil Nail Installation (7NW-A/CR39) - Stage 1 (JK) 28nos.		100%	10	22-Nov-10 A	15-Dec-10 A	Erect Scaffolding & Soil Nail Installation (7NW-A/CR39) - Stage 1 (JK) 28nos.																										
S26AN680	Erect Scaffolding & Soil Nail Installation (7NW-A/CR39) - Stage 2 (DEFGHI) 162nos.		100%	40	16-Dec-10 A	25-Feb-11 A	Erect Scaffolding & Soil Nail Installation (7NW-A/CR39) - Stage 2 (DEFGHI) 162nos.																										
S26AN690	Erect Scaffolding & Soil Nail Installation (7NW-A/CR39) - Stage 3 (ABC) 109nos.		100%	30	22-Feb-11 A	28-Mar-11 A	Erect Scaffolding & Soil Nail Installation (7NW-A/CR39) - Stage 3 (ABC) 109nos.																										
S26AN930	Erect Scaffolding & Soil Nail Installation (Area 6-1)		100%	75	20-Feb-13 A	25-Nov-13 A	Erect Scaffolding & Soil Nail Installation (Area 6-1)																										
<b>Construction of Retaining Wall</b>																																	
<b>Retaining Wall W65C (w/SP)</b>																																	
S26AN100	Sheet Pile/Excavate & Construct W65C (w/SP)		100%	150	27-Jun-11 A	25-Jul-11 A	Sheet Pile/Excavate & Construct W65C (w/SP)																										
S26AN101	Sheet Pile and Excavation		100%	24	27-Jun-11 A	25-Jul-11 A	Sheet Pile and Excavation																										
S26AN102	Construction of Structure W65C		100%	72	27-Jun-11 A	25-Jul-11 A	Construction of Structure W65C																										
S26AN103	Backfilling		100%	24	27-Jun-11 A	25-Jul-11 A	Backfilling																										
<b>Retaining Wall W68</b>																																	
S26AN120	Sheet Pile/Excavate & Construct W68 (w/SP)		100%	99	15-Nov-10 A	16-Jul-12 A	Sheet Pile/Excavate & Construct W68 (w/SP)																										
S26AN121	Sheet Pile and Excavation		100%	19	15-Nov-10 A	04-Dec-10 A	Sheet Pile and Excavation																										



















Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010												2011				2012				2013				2014					
							Q1			Q2			Q3			Q4			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3							
							1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
S28N0000	Site Clearance/Access Rd		100%	239	26-Feb-10 A	19-Feb-11 A	Site Clearance/Access Rd																													
S28N0010	Site Clearance (ch 4830-5250)		100%	75	26-Feb-10 A	05-Jun-10 A	Site Clearance (ch 4830-5250)																													
S28N0020	Site Clearance (ch 5250-5700)		100%	75	17-Apr-10 A	23-Jul-10 A	Site Clearance (ch 5250-5700)																													
S28N0110	Access Rd (ch 4830-5250)		100%	75	30-Jun-10 A	04-Oct-10 A	Access Rd (ch 4830-5250)																													
S28N0120	Access Rd (ch 5250-5700)		100%	75	09-Sep-10 A	19-Feb-11 A	Access Rd (ch 5250-5700)																													
<b>Slopeworks</b>																																				
S28N5000	Slopeworks Fill S44		100%	36	28-Dec-11 A	11-Feb-12 A	Slopeworks Fill S44																													
S28N5010	Slopeworks Fill S45	-21	0%	40	27-Jan-14	17-Mar-14	Slopeworks Fill S45																													
<b>Construction of Retaining Wall</b>																																				
<b>Retaining Wall W72B (CSD 1)</b>																																				
S28N2010	Prepare Piling Platform for W72B		100%	13	14-Sep-10 A	29-Sep-10 A	Prepare Piling Platform for W72B																													
S28N2020	Pre-drilling for W72B		100%	13	14-Sep-10 A	29-Sep-10 A	Pre-drilling for W72B																													
S28N2040	Piling works		100%	24	01-Mar-11 A	21-Mar-11 A	Piling works																													
S28N2050	Capping/Walling for W72B		100%	50	26-May-11 A	25-Jul-11 A	Capping/Walling for W72B																													
S28N2051	Pile Cap for W72B		100%	30	26-May-11 A	09-Jun-11 A	Pile Cap for W72B																													
S28N2052	Walling for W72B		100%	75	21-Jun-11 A	17-Sep-11 A	Walling for W72B																													
S28N2060	Backfilling		100%	68	26-Sep-11 A	15-Dec-11 A	Backfilling																													
<b>Retaining Wall W73 (CSD 1)</b>																																				
S28N2071	Excavation & ELS		100%	24	14-Sep-10 A	13-Oct-10 A	Excavation & ELS																													
S28N2072	W73 wall Structure (7 bays)		100%	45	01-Mar-11 A	20-Apr-11 A	W73 wall Structure (7 bays)																													
S28N2073	Base Slab W73		100%	24	01-Mar-11 A	28-Mar-11 A	Base Slab W73																													
S28N2074	Wall Stem & W73		100%	24	25-Mar-11 A	20-Apr-11 A	Wall Stem & W73																													
S28N2080	Backfill		100%	75	09-Jul-11 A	24-Dec-11 A	Backfill																													
<b>Retaining Wall for Accom. Underpass Extn. (CSD 1)</b>																																				
S28N230	Pre-drilling for Accommodation Underpass Extension		100%	30	30-Jun-10 A	04-Aug-10 A	Pre-drilling for Accommodation Underpass Extension																													
S28N240	Prepare Piling Platform for Accom. Underpass Extn		100%	30	30-Jun-10 A	04-Aug-10 A	Prepare Piling Platform for Accom. Underpass Extn																													
S28N250	Piling works		100%	45	01-Mar-11 A	25-Mar-11 A	Piling works																													
S28N260	Capping/Walling (incl. VO71: Details of typical section for slip road R verge at AUE wall)		100%	54	26-Mar-11 A	03-Jun-11 A	Capping/Walling (incl. VO71: Details of typical section for slip road R verge at AUE wall)																													
S28N270	Capping (AUE)		100%	45	26-Mar-11 A	25-May-11 A	Capping (AUE)																													
S28N280	Walling (AUE)		100%	55	26-May-11 A	30-Jul-11 A	Walling (AUE)																													
S28N290	Backfilling		100%	62	26-Sep-11 A	17-Dec-11 A	Backfilling																													
<b>Retaining Wall W74</b>																																				
S28N2105	Liasion with location resident for slip road diversion		100%	75	26-Feb-10 A	05-Jun-10 A	Liasion with location resident for slip road diversion																													
S28N2115	Utilities Diversion		100%	60	07-Jun-10 A	17-Aug-10 A	Utilities Diversion																													
S28N2120	Temporary road and pedestrian diversion		100%	60	18-Aug-10 A	29-Oct-10 A	Temporary road and pedestrian diversion																													
S28N2125	Pre-drilling for Piles		100%	15	21-Oct-10 A	19-Nov-10 A	Pre-drilling for Piles																													
S28N2130	Confirmation of Founding Level		100%	19	26-Mar-11 A	18-Apr-11 A	Confirmation of Founding Level																													
S28N2134	Falsework removal beteew NLK deck P7 -P8		100%	26	07-Jan-13 A	01-Feb-13 A	Falsework removal beteew NLK deck P7 -P8																													
S28N2135	Piling work for W74 (Stage 1: Bay1 - 3)		100%	75	21-Feb-13 A	22-Apr-13 A	Piling work for W74 (Stage 1: Bay1 - 3)																													
S28N2140	Temporary Work for Excavation (Stage 1: Bay1 - 3)		100%	20	27-Jun-12 A	31-Jul-12 A	Temporary Work for Excavation (Stage 1: Bay1 - 3)																													
S28N2145	Excavation and Tie Back to Formation Level (Stage 1: Bay1 - 3)		100%	18	18-Jul-12 A	31-Jul-12 A	Excavation and Tie Back to Formation Level (Stage 1: Bay1 - 3)																													
S28N2150	Pile Head Trimming and bearing plate (Stage 1: Bay1 - 3)		100%	14	27-May-13 A	11-Jun-13 A	Pile Head Trimming and bearing plate (Stage 1: Bay1 - 3)																													
S28N2155	Retaining Wall Construction (Stage 1: Bay1 - 3)		100%	45	11-Jun-13 A	07-Oct-13 A	Retaining Wall Construction (Stage 1: Bay1 - 3)																													
S28N2156	Base Slab (W74) (Bay 1 - 3)		100%	30	25-May-13 A	27-Jul-13 A	Base Slab (W74) (Bay 1 - 3)																													
S28N2158	Wall Stem (W74) (Bay 1 - 3)		100%	30	23-Jul-13 A	07-Oct-13 A	Wall Stem (W74) (Bay 1 - 3)																													
S28N2160	Retaining Wall Construction (Stage 2: Bay 4 - 9)	-18	91.34%	202	23-Apr-13 A	19-Feb-14	Retaining Wall Construction (Stage 2: Bay 4 - 9)																													
S28N2161	Falsework removal bewteen NLK deck P8 - P9		100%	26	23-Apr-13 A	20-Jul-13 A	Falsework removal bewteen NLK deck P8 - P9																													
S28N2162	Piling work for W74 (Stage 2: Bay 4 - 9)		100%	50	24-Jun-13 A	22-Oct-13 A	Piling work for W74 (Stage 2: Bay 4 - 9)																													









Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010												2011				2012				2013				2014																												
							Q1			Q2			Q3			Q4			Q1		Q2		Q3		Q4		Q1		Q2		Q3		Q4																										
							1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
S28S0020	Access Rd		100%	75	27-Jul-10 A	01-Feb-11 A	Access Rd																																																				
<b>Roadworks, Drainage &amp; Utilities</b>																																																											
S28S4010	Roadworks, Drainages & Utilities (CH4820 - Ch5700)(incl. VO20: Revised Fire mains alignment plan)	6	97.25%	454	11-May-12 A	13-Feb-14	Roadworks, Drainages & Utilities																																																				
S28S4012	Removal of existing paving - Stage 1 (CH5300 - 5700 & Slip Road W)		100%	75	11-May-12 A	08-Jun-13 A	Removal of existing paving - Stage 1																																																				
S28S4016	Utilities - Stage 1		100%	75	11-May-12 A	08-Feb-13 A	Utilities - Stage 1																																																				
S28S4020	Road and Drainages Works - Stage 1 (incl.VO 75 Modification of existing SAV Chamber)		100%	75	11-May-12 A	25-Jun-13 A	Road and Drainages Works - Stage 1																																																				
S28S4021	Road Surface and Roadmark - Stage 1 (Slow Lane)		100%	30	18-Mar-13 A	18-Jul-13 A	Road Surface and Roadmark - Stage 1																																																				
S28S4025	Removal of existing paving - Stage 2 (CH5300 - 5700 & Slip Road W)		100%	30	19-Jul-13 A	02-Aug-13 A	Removal of existing paving - Stage 2																																																				
S28S4027	Utilities - Stage 2 (CH5300 - 5700) (incl. VO 77 Provision of cable duct for power supply)		100%	30	03-Aug-13 A	12-Aug-13 A	Utilities - Stage 2 (CH5300 - 5700)																																																				
S28S4029	Road and Drainages Works - Stage 2		100%	30	03-Aug-13 A	12-Aug-13 A	Road and Drainages Works - Stage 2																																																				
S28S4031	Road Surface and Roadmark - Stage 2 (Fast Lane)	6	85%	30	13-Aug-13 A	04-Feb-14	Road Surface and Roadmark - Stage 2																																																				
S28S4085	Remaining Road Works at Slip Road W	6	80%	40	27-Aug-13 A	13-Feb-14	Remaining Road Works at Slip Road W																																																				
<b>Noise Barriers 44 &amp; Road Barriers</b>																																																											
<b>Noise Barrier NB44</b>																																																											
S28S2000	Excavation for NB44		100%	219	25-Aug-10 A	24-May-11 A	Excavation for NB44																																																				
S28S2010	Excavation for NB44 (Bay1 & Bay2)		100%	44	25-Aug-10 A	18-Oct-10 A	Excavation for NB44 (Bay1 & Bay2)																																																				
S28S2020	Excavation for NB44 (Bay3 & Bay4)		100%	44	19-Oct-10 A	08-Dec-10 A	Excavation for NB44 (Bay3 & Bay4)																																																				
S28S2030	Excavation for NB44 (Bay5 & Bay6)		100%	44	26-Apr-11 A	26-May-11 A	Excavation for NB44 (Bay5 & Bay6)																																																				
S28S2040	Excavation for NB44 (Bay7 & Bay8)		100%	36	26-Aug-11 A	10-Oct-11 A	Excavation for NB44 (Bay7 & Bay8)																																																				
S28S2050	Excavation for NB44 (Bay9 & Bay10)		100%	43	14-Oct-11 A	03-Dec-11 A	Excavation for NB44 (Bay9 & Bay10)																																																				
S28S2060	Noise Barrier Footing Construction for NB44 (incl. VO 46: Modification of Noise Barrier Footing for NB44)		100%	282	26-Mar-11 A	20-Dec-11 A	Noise Barrier Footing Construction for NB44 (incl. VO 46: Modification of Noise Barrier Footing for NB44)																																																				
S28S2070	Noise Barrier Footing Construction for NB44 (Bay 1)		100%	32	26-Mar-11 A	15-Apr-11 A	Noise Barrier Footing Construction for NB44 (Bay 1)																																																				
S28S2080	Noise Barrier Footing Construction for NB44 (Bay 2)		100%	32	06-Apr-11 A	21-Apr-11 A	Noise Barrier Footing Construction for NB44 (Bay 2)																																																				
S28S2090	Noise Barrier Footing Construction for NB44 (Bay 3)		100%	32	26-May-11 A	04-Jun-11 A	Noise Barrier Footing Construction for NB44 (Bay 3)																																																				
S28S2100	Noise Barrier Footing Construction for NB44 (Bay 4)		100%	30	26-Apr-11 A	26-May-11 A	Noise Barrier Footing Construction for NB44 (Bay 4)																																																				
S28S2110	Noise Barrier Footing Construction for NB44 (Bay 5)		100%	24	26-Sep-11 A	25-Oct-11 A	Noise Barrier Footing Construction for NB44 (Bay 5)																																																				
S28S2120	Noise Barrier Footing Construction for NB44 (Bay 6)		100%	24	26-Oct-11 A	22-Nov-11 A	Noise Barrier Footing Construction for NB44 (Bay 6)																																																				
S28S2130	Noise Barrier Footing Construction for NB44 (Bay 7)		100%	24	23-Nov-11 A	20-Dec-11 A	Noise Barrier Footing Construction for NB44 (Bay 7)																																																				
S28S2140	Noise Barrier Footing Construction for NB44 (Bay 8)		100%	24	23-Nov-11 A	20-Dec-11 A	Noise Barrier Footing Construction for NB44 (Bay 8)																																																				
S28S2150	Noise Barrier Footing Construction for NB44 (Bay 9)		100%	23	23-Nov-11 A	20-Dec-11 A	Noise Barrier Footing Construction for NB44 (Bay 9)																																																				
S28S2160	Noise Barrier Footing Construction for NB44 (Bay 10)		100%	18	23-Nov-11 A	20-Dec-11 A	Noise Barrier Footing Construction for NB44 (Bay 10)																																																				
S28S2170	Remaining NB44 installation of panel		100%	7	27-Aug-13 A	26-Sep-13 A	Remaining NB44 installation of panel																																																				
<b>Traffic Control &amp; Survelance System</b>																																																											
S28S4800	TCSS	-5	81.5%	130	28-Feb-13 A	26-Feb-14	TCSS																																																				
S28S4810	TCSS - Stage 1 (ch4820 - ch5520)	-5	80%	24	28-Feb-13 A	04-Feb-14	TCSS - Stage 1																																																				
S28S4850	TCSS - Stage 5 (ch5520 - ch5640), (Gantry G56) (incl. VO73 Revised Sign Gantry Details)	-5	20%	24	27-Nov-13 A	26-Feb-14	TCSS - Stage 5																																																				
<b>Modification of Existing Bridge</b>																																																											
S28S1200	Modification of Lam Kam Rd. Flyover	-21	79.23%	119	26-Aug-13 A	27-Feb-14	Modification of Lam Kam Rd. Flyover																																																				
S28S1240	Diversion for modification kerb and road reconstruction (N/B)	-21	95%	43	26-Aug-13 A	29-Jan-14	Diversion for modification kerb and road reconstruction (N/B)																																																				
S28S1250	Removal central barrier and road construction	-21	85%	40	26-Sep-13 A	08-Feb-14	Removal central barrier and road construction																																																				
S28S1260	Diversion for modification kerb and road reconstruction (S/B)	-21	45%	30	02-Dec-13 A	27-Feb-14	Diversion for modification kerb and road reconstruction (S/B)																																																				
<b>Road Construction and Road Resurfacing</b>																																																											
S28S4960	Road Construction and Resurfacing S/B for SA28	6	85%	60	26-Sep-13 A	14-Feb-14	Road Construction and Resurfacing S/B for SA28																																																				
<b>Site Area SA29</b>																																																											
PHSA2920	Possession of SA29 (Day270)		100%	0	27-Jul-10 A		Possession of SA29 (Day270)																																																				

Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010												2011				2012				2013				2014		
							Q1			Q2			Q3			Q4			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3				
							1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
SA290000	Site Area SA29 Works Period (incl. VO002 & VO0011: Fencing details along site boundaries SA 29)	148	99.63%	946	27-Jul-10 A	30-Jan-14																											
SA290010	Site Area SA29 Works Completion	148	0%	0		30-Jan-14																											
SA290020	Temporary Traffic Arrangement (Detail shall refer to supplementary information)	118	99.54%	764	27-Jul-10 A	30-Jan-14																											
SA290030	Overall Utilities Diversion (Detail shall refer to supplementary information)	118	99.54%	764	27-Jul-10 A	30-Jan-14																											
<b>North Bound</b>																																	
<b>Preliminaries</b>																																	
S29N0000	Site Clearance/Access Rd		100%	60	26-Jan-11 A	09-Apr-11 A																											
<b>Roadworks, Drainage &amp; Utilities</b>																																	
S29N4010	Roadworks, Realignment of Tai Wo Service Rd. West (NB42)		100%	58	13-Apr-12 A	21-Jan-13 A																											
S29N4020	Roadworks, Realignment of Tai Wo Service Rd. West (exclude NB42)		100%	38	15-Jan-13 A	28-Mar-13 A																											
S29N4100	Gravity Sewer Line (4 sections) (incl. VO 8 & VO 35: Revised layout of Southern Trunk Sewer & Manhole Schedule)		100%	111	03-Jan-11 A	15-Dec-12 A																											
S29N4110	Gravity Sewer Line - Stage 1 (STS10.30-80)		100%	60	03-Jan-11 A	31-Mar-12 A																											
S29N4120	Gravity Sewer Line - Stage 2 (STS10.10-30)		100%	60	01-Apr-11 A	30-Jul-11 A																											
S29N4130	Gravity Sewer Line - Stage 2 (STS10.80-105)		100%	63	28-May-11 A	15-Dec-12 A																											
<b>Noise Barriers &amp; Road Barriers</b>																																	
<b>Noise Barrier NB42 on Mini-Piles (AD)</b>																																	
S29N2000	WSD/DSD/HKCG/PCCW/HGC/CATV/NWT/HKBN/TGT/CLP Diversion		100%	72	11-Apr-11 A	11-Jul-11 A																											
S29N2020	Footing for NB42 (Bay1 - Bay9) (incl. VO 7: Construction of modified noise barrier foundation for NB42)		100%	110	06-Dec-10 A	05-Jul-11 A																											
S29N2030	Footing for NB42 (Bay1 - Bay5)		100%	60	06-Dec-10 A	05-Jul-11 A																											
S29N2040	Footing for NB42 (Bay6 - Bay9)		100%	50	06-Dec-10 A	05-Jul-11 A																											
S29N3000	Construct Noise Barrier & Beam Barrier (incl. VO 23. Provision of Drainage at Noise Barrier 42)		100%	60	26-Sep-11 A	01-Aug-12 A																											
<b>Landscaping</b>																																	
S29N6000	Landscaping Works (Near NB43)		100%	50	27-Jun-13 A	26-Sep-13 A																											
<b>Site Area SA32</b>																																	
PHSA3210	Possession of SA32 (Day365)		100%	0	25-Feb-11 A																												
SA320000	Site Area SA32 Works Period		100%	265	26-Feb-11 A	17-Nov-11 A																											
SA320010	Site Area SA32 Works Completion	-46	0%	0		07-Apr-14																											
<b>General</b>																																	
S32G0000	Site Clearance/TTM		100%	72	26-Mar-11 A	25-Jun-11 A																											
S32G4005	Application XP for Construct Roadside Fully Variable Message Sign	-38	90%	60	11-Mar-13 A	05-Feb-14																											
S32G4015	Construct Roadside Fully Variable Message Sign (RFVMS3)(include duct, footing and column)	-38	15%	30	26-Sep-13 A	07-Mar-14																											
S32G4025	Construct Roadside Fully Variable Message Sign (RFVMS2)(include duct, footing and column)	-38	15%	30	26-Sep-13 A	07-Mar-14																											
S32G4035	Construct Roadside Fully Variable Message Sign (RFVMS1)(include duct, footing and column)	-38	15%	30	26-Sep-13 A	07-Apr-14																											
S32G4045	Construct Roadside Fully Variable Message Sign (TP04)(include duct, footing and column)	-38	15%	30	26-Sep-13 A	07-Apr-14																											
S32G4060	VO 13: Relocation of existing Directional Signs in the Vicinity of Lam Kam Road Interchange		100%	10	27-Apr-11 A	11-Sep-12 A																											
<b>Construction of New Lam Kam Road</b>																																	
<b>Substructure and Pier Construction</b>																																	
<b>South Ramp</b>																																	
S28N1213	Temporary Work for Excavation		100%	15	27-Jul-12 A	13-Aug-12 A																											
S28N1214	Excavation		100%	20	23-Jul-12 A	08-Aug-12 A																											
S28N1215	Construction of South Ramp (incl. VO72: revised North & South Ramps Retaining Wall)		100%	145	23-Jul-12 A	26-Jan-13 A																											
S28N1216	Base Slab		100%	60	23-Jul-12 A	19-Oct-12 A																											
S28N1217	Wing Wall		100%	75	24-Sep-12 A	31-Dec-12 A																											
S28N1227	Backfilling to South Ramp		100%	40	28-Dec-12 A	25-Jan-13 A																											





Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010				2011				2012				2013				2014		
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
							1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
S28N1309	Backfilling		100%	30	13-Dec-10 A	18-Dec-10 A																			
S28N1310	Pier Construction		100%	74	28-Dec-10 A	28-Mar-11 A																			
<b>Pier NLKP6</b>																									
S28N1321	Gas main Diversion		100%	150	13-May-10 A	10-Nov-10 A																			
S28N1322	Pre-drilling for Piles		100%	14	21-Jul-10 A	23-Feb-11 A																			
S28N1323	Confirmation of Founding Level		100%	14	21-Jul-10 A	25-Feb-11 A																			
S28N1324	Piling Work (23shp)		100%	75	28-Feb-11 A	28-Mar-11 A																			
S28N1325	Temporary Shoring System		100%	44	26-May-11 A	18-Jul-11 A																			
S28N1326	Excavation to Formation Level		100%	7	05-May-11 A	23-Jun-11 A																			
S28N1327	Pile Head Trimming and bearing plate		100%	14	29-Jun-11 A	05-Jul-11 A																			
S28N1328	Pile Cap Construction (incl. VO29: revised piling details)		100%	23	28-Jul-11 A	24-Aug-11 A																			
S28N1329	Backfilling		100%	28	26-Sep-11 A	29-Oct-11 A																			
S28N1330	Pier Construction		100%	71	28-Sep-11 A	12-Nov-11 A																			
<b>Pier NLKP7</b>																									
S28N1341	Realignment of Existing slip road		100%	45	19-May-10 A	13-Jul-10 A																			
S28N1342	Existing Water main Diversion		100%	45	14-Jul-10 A	03-Sep-10 A																			
S28N1343	Pre-drilling for Piles		100%	7	04-Sep-10 A	18-Sep-10 A																			
S28N1344	Confirmation of Founding Level		100%	14	13-Sep-10 A	25-Sep-10 A																			
S28N1345	Piling Work (16shp)		100%	62	26-Jan-11 A	28-Feb-11 A																			
S28N1346	Temporary Shoring System		100%	44	08-Mar-11 A	16-Apr-11 A																			
S28N1347	Excavation to Formation Level		100%	7	08-Mar-11 A	16-Apr-11 A																			
S28N1348	Pile Head Trimming and bearing plate		100%	14	27-Apr-11 A	17-May-11 A																			
S28N1349	Pile Cap Construction (incl. VO29: revised piling details)		100%	21	19-May-11 A	31-May-11 A																			
S28N1350	Backfilling		100%	30	26-Sep-11 A	01-Nov-11 A																			
S28N1351	Pier Construction		100%	72	03-Oct-11 A	24-Dec-11 A																			
<b>Pier NLKP8</b>																									
S28N1361	Realignment of Existing slip road		100%	45	19-May-10 A	13-Jul-10 A																			
S28N1363	Existing Water main Diversion		100%	45	14-Jul-10 A	03-Sep-10 A																			
S28N1364	Pre-drilling for Piles		100%	18	04-Sep-10 A	25-Sep-10 A																			
S28N1365	Confirmation of Founding Level		100%	14	27-Sep-10 A	13-Oct-10 A																			
S28N1366	Piling Work (24shp)		100%	75	14-Jan-11 A	05-Feb-11 A																			
S28N1367	Temporary Shoring System		100%	44	26-Apr-11 A	25-May-11 A																			
S28N1368	Excavation to Formation Level		100%	30	26-Sep-11 A	22-Oct-11 A																			
S28N1369	Pile Head Trimming and bearing plate		100%	7	15-Oct-11 A	22-Oct-11 A																			
S28N1370	Pile Cap Construction (incl. VO29: revised piling details)		100%	24	26-Oct-11 A	02-Nov-11 A																			
S28N1371	Backfilling		100%	24	26-Nov-11 A	23-Dec-11 A																			
S28N1372	Pier Construction		100%	72	21-Dec-11 A	31-Jan-12 A																			
<b>Pier NLKP9</b>																									
S28N1381	Realignment of Existing slip road		100%	45	19-May-10 A	13-Jul-10 A																			
S28N1382	Existing Water main Diversion		100%	45	14-Jul-10 A	03-Sep-10 A																			
S28N1383	Pre-drilling for Piles		100%	14	04-Sep-10 A	20-Sep-10 A																			
S28N1384	Confirmation of Founding Level		100%	14	21-Sep-10 A	08-Oct-10 A																			
S28N1385	COD: Drainage (ADN 72, 86, 121, 145, 225), Fire Services Mains (DAN 202) and related UU works		100%	75	21-Sep-10 A	21-Oct-11 A																			
S28N1386	Piling Work (24shp)		100%	75	22-Oct-11 A	19-Dec-11 A																			
S28N1387	Temporary Shoring System		100%	30	01-Feb-12 A	19-Apr-12 A																			
S28N1388	Excavation to Formation Level		100%	36	19-Apr-12 A	26-Jun-12 A																			
S28N1389	Pile Head Trimming and bearing plate		100%	12	27-Jun-12 A	11-Jul-12 A																			



Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010				2011				2012				2013				2014		
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
							1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
S28N1390	Pile Cap Construction (incl. VO29: revised piling details)		100%	12	12-Jul-12 A	01-Aug-12 A																			
S28N1391	Backfilling		100%	12	28-Jul-12 A	14-Sep-12 A																			
S28N1392	Pier Construction		100%	40	15-Sep-12 A	18-Oct-12 A																			
<b>Pier NLKP10</b>																									
S28N1401	132 kv Cable Diversion		100%	75	26-Oct-11 A	27-Jan-12 A																			
S28N1402	Existing Water main Diversion		100%	50	23-Apr-12 A	16-Aug-12 A																			
S28N1405	Piling Work (17shp)		100%	60	23-Jul-12 A	19-Sep-12 A																			
S28N1409	Pile Cap construction (incl. VO29: revised piling details)		100%	25	03-Oct-12 A	01-Dec-12 A																			
S28N1411	Pier Construction		100%	25	11-Dec-12 A	29-Dec-12 A																			
<b>North Abutment</b>																									
S28N1422	Existing Water Main Utilities Diversion		100%	30	09-Jul-12 A	30-Aug-12 A																			
S28N1426	Piling Work (24shp)		100%	60	20-Sep-12 A	12-Nov-12 A																			
S28N1428	Pile Cap Construction (incl. VO29: revised piling details)		100%	30	26-Nov-12 A	02-Jan-13 A																			
S28N1430	Abutment		100%	30	05-Jan-13 A	24-Jan-13 A																			
S28N1580	Backfilling		100%	20	20-May-13 A	31-May-13 A																			
<b>North Ramp</b>																									
S28N1434	COD: RFI 399 HP Gas Main Clashing with abutment (incl. trail pit excavation)		100%	50	19-Sep-12 A	31-Dec-12 A																			
S28N1435	Construction of North Ramp (incl. VO72: revised North & South Ramps Retaining Wall)		100%	148	06-Nov-12 A	08-May-13 A																			
S28N1436	Temporary Work for Excavation		100%	24	06-Nov-12 A	26-Jan-13 A																			
S28N1437	Excavation		100%	22	22-Nov-12 A	06-Feb-13 A																			
S28N1438	Base Slab		100%	14	31-Dec-12 A	05-Mar-13 A																			
S28N1439	Wing Wall		100%	48	01-Feb-13 A	08-May-13 A																			
S28N1449	Backfilling		100%	20	06-May-13 A	07-Jun-13 A																			
<b>Decking and Finishing</b>																									
S28N1440	Decking (Bearing, Drainage & MJ included) (incl. VO 40: NLK - Revised Drainage Arrangement for Bridge Deck)		100%	559	27-Jun-11 A	14-May-13 A																			
S28N1450	NLK Deck; P4 - P5		100%	75	27-Jun-11 A	23-Sep-11 A																			
S28N1460	NLK Deck; P3 - P4		100%	75	26-Oct-11 A	27-Jan-12 A																			
S28N1470	NLK Deck; P2 - P3		100%	72	11-May-12 A	16-Aug-12 A																			
S28N1475	Falsework erection of deck: P1 - P2		100%	50	29-Sep-12 A	21-Dec-12 A																			
S28N1480	NLK Deck; P1 - P2		100%	62	06-Nov-12 A	30-Jan-13 A																			
S28N1484	Falsework dismantling of deck: P1 - P2		100%	18	21-Mar-13 A	30-Apr-13 A																			
S28N1485	Falsework erection of deck: South Abutment - P1		100%	25	10-Dec-12 A	30-Jan-13 A																			
S28N1490	NLK Deck; South Abutment - P1		100%	60	03-Jan-13 A	18-Mar-13 A																			
S28N1495	Falsework dismantling of deck: South Abutment - P1		100%	18	15-Apr-13 A	11-May-13 A																			
S28N1500	NLK Deck; P5 - P6		100%	75	26-Nov-11 A	04-Jun-12 A																			
S28N1510	NLK Deck; P6 - P7		100%	75	16-Jun-12 A	06-Oct-12 A																			
S28N1520	NLK Deck; P7 - P8		100%	75	03-Sep-12 A	22-Dec-12 A																			
S28N1524	Falsework dismantling of deck: P7 - P8		100%	26	07-Jan-13 A	01-Feb-13 A																			
S28N1525	Falsework erection of deck: P8 - P9		100%	18	29-Oct-12 A	29-Jan-13 A																			
S28N1530	NLK Deck; P8 - P9		100%	75	20-Dec-12 A	29-Mar-13 A																			
S28N1534	Falsework dismantling of deck: P8 - P9		100%	26	23-Apr-13 A	20-Jul-13 A																			
S28N1535	Falsework erection of deck: P9 - P10		100%	34	10-Dec-12 A	23-Jan-13 A																			
S28N1540	NLK Deck; P9 - P10		100%	65	18-Jan-13 A	25-Apr-13 A																			
S28N1544	Falsework dismantling of deck: P9 - P10		100%	18	20-May-13 A	30-Nov-13 A																			
S28N1545	Falsework erection of deck: P10 - North Abutment		100%	18	17-Jan-13 A	21-Feb-13 A																			
S28N1550	NLK Deck; P10 - North Abutment		100%	55	21-Feb-13 A	14-May-13 A																			
S28N1554	Falsework dismantling of deck: P10 - North Abutment		100%	18	20-May-13 A	08-Jun-13 A																			







Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010												2011												2012												2013												2014											
							Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3			Q4														
							1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
S41G040	Construction of Mulching Production Yard		100%	60	06-Aug-10 A	18-Oct-10 A	Construction of Mulching Production Yard																																																											
S41G050	Temp Warehouse, Fabrication & Equip Yard (Site allocated for period till 8 May 2012) : Expected production = 900m3	151	100%	1260	13-Sep-10 A	27-Jan-14	Temp Warehouse																																																											
S41G060	Mulching Production Phase 1 (45m3)		100%	63	13-Sep-10 A	09-Oct-10 A	Mulching Production Phase 1 (45m3)																																																											
S41G070	Mulching Production Phase 2 (45m3) (incl. VO16, VO 18)		100%	63	21-Dec-10 A	21-Feb-11 A	Mulching Production Phase 2 (45m3) (incl. VO16, VO 18)																																																											
S41G080	Mulching Production Phase 3 (45m3)		100%	63	20-Feb-11 A	24-Apr-11 A	Mulching Production Phase 3 (45m3)																																																											
S41G090	Mulching Production Phase 4 (45m3)		100%	63	24-Apr-11 A	26-Jun-11 A	Mulching Production Phase 4 (45m3)																																																											
S41G100	Mulching Production Phase 5 (45m3)		100%	63	27-Jun-11 A	28-Aug-11 A	Mulching Production Phase 5 (45m3)																																																											
S41G110	Mulching Production Phase 6 (45m3)		100%	63	29-Aug-11 A	30-Oct-11 A	Mulching Production Phase 6 (45m3)																																																											
S41G120	Mulching Production Phase 7 (45m3)		100%	63	31-Oct-11 A	01-Jan-12 A	Mulching Production Phase 7 (45m3)																																																											
S41G130	Mulching Production Phase 8 (45m3)		100%	63	02-Jan-12 A	31-Mar-12 A	Mulching Production Phase 8 (45m3)																																																											
S41G140	Mulching Production Phase 9 (45m3)		100%	63	02-Apr-12 A	31-Dec-12 A	Mulching Production Phase 9 (45m3)																																																											
S41G260	Dismantle of Mulching Production Yard	-61	0%	68	17-Jun-14	05-Sep-14																																																												
S41G270	Dismantle of Mulching Production Yard : Removing Mulching Office	-61	0%	48	17-Jun-14	13-Aug-14																																																												
S41G280	Dismantle of Mulching Production Yard : Removing Security Fence and Security Device	-61	0%	20	13-Aug-14	05-Sep-14																																																												
<b>Section 8</b>																																																																		
<b>Establishment Works</b>																																																																		
S21G8000	SA21 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
<b>Section 9</b>																																																																		
<b>Establishment Works</b>																																																																		
S22G8000	SA22 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
S23G8000	SA23 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
S24G8000	SA24 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
S25G8000	SA25 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
S26G8000	SA26 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
<b>Section 10</b>																																																																		
<b>Establishment Works</b>																																																																		
S26AG800	SA26A Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
S27G8000	SA27 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
<b>Section 11</b>																																																																		
<b>Establishment Works</b>																																																																		
S28G8000	SA28 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
S29G8000	SA29 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
<b>Section 12</b>																																																																		
<b>Establishment Works</b>																																																																		
S30AG800	SA30A Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
S30G8000	SA30 Establishment Works	-214	0%	365	27-Jan-14	26-Jan-15																																																												
<b>Section 13</b>																																																																		
<b>Establishment Works</b>																																																																		
S30AG810	Remainder of Establishment Works (Exclude Section 8 to 12)	-214	0%	365	27-Jan-14	26-Jan-15																																																												
<b>Section 14</b>																																																																		
<b>Route Network Maintenance (Subject to the the Engineer's Instruction)</b>																																																																		
S21G7000	Tentative Start Date for SA21 Route Maintenance Works		100%	0	17-Sep-10 A		◆ Tentative Start Date for SA21 Route Maintenance Works																																																											
S22G7000	Tentative Start Date for SA22 Route Maintenance Works		100%	0	26-Feb-10 A		◆ Tentative Start Date for SA22 Route Maintenance Works																																																											
S23G7000	Tentative Start Date for SA23 Route Maintenance Works		100%	0	25-Aug-10 A		◆ Tentative Start Date for SA23 Route Maintenance Works																																																											
S24G7000	Tentative Start Date for SA24 Route Maintenance Works		100%	0	25-Aug-10 A		◆ Tentative Start Date for SA24 Route Maintenance Works																																																											



Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish	2010												2011				2012				2013				2014		
							Q1			Q2			Q3			Q4			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3				
							1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
S25G7000	Tentative Start Date for SA25 Route Maintenance Works		100%	0	20-Oct-10 A		◆ Tentative Start Date for SA25 Route Maintenance Works																										
S26AG700	Tentative Start Date for SA26A Route Maintenance Works		100%	0	26-Feb-10 A		◆ Tentative Start Date for SA26A Route Maintenance Works																										
S26G7000	Tentative Start Date for SA26 Route Maintenance Works		100%	0	26-Feb-10 A		◆ Tentative Start Date for SA26 Route Maintenance Works																										
S27G7000	Tentative Start Date for SA27 Route Maintenance Works		100%	0	27-May-10 A		◆ Tentative Start Date for SA27 Route Maintenance Works																										
S28G7000	Tentative Start Date for SA28 Route Maintenance Works		100%	0	26-Feb-10 A		◆ Tentative Start Date for SA28 Route Maintenance Works																										
S29G7000	Tentative Start Date for SA29 Route Maintenance Works		100%	0	20-Oct-10 A		◆ Tentative Start Date for SA29 Route Maintenance Works																										
S30AG700	Tentative Start Date for SA30A Route Maintenance Works		100%	0	25-Aug-10 A		◆ Tentative Start Date for SA30A Route Maintenance Works																										
S30G7000	Tentative Start Date for SA30 Route Maintenance Works		100%	0	26-Feb-10 A		◆ Tentative Start Date for SA30 Route Maintenance Works																										
S31G7000	Tentative Start Date for SA31 Route Maintenance Works		100%	0	26-Feb-10 A		◆ Tentative Start Date for SA31 Route Maintenance Works																										
<b>Section 17 (Subject to Excision and Instruct by Engineer within 819 days)</b>																																	
<b>General</b>																																	
SC150025	Validity Period		100%	819	25-Feb-10 A	31-Aug-13 A	Validity Period																										
SC150030	Latest Date for the Engineer to Issue EI		100%	0		31-Aug-13 A	◆ Latest Date for the Engineer to Issue EI																										
<b>Site Area SA28 &amp; SA30</b>																																	
PHSA2840	Possession of SA28 & SA30		100%	0	26-Feb-10 A		◆ Possession of SA28 & SA30																										
SA280005	Site Area SA28 Works Period		100%	0	24-May-12 A	31-Aug-13 A	Site Area SA28 Works Period																										
SA280020	Site Area SA28 & SA30 Works Completion		100%	0		31-Aug-13 A	◆ Site Area SA28 & SA30 Works Completion																										
<b>All Area</b>																																	
<b>Preliminaries</b>																																	
S28N1000	Site Clearance/TTM/Access Rd/Utility Diversion		100%	45	24-May-12 A	26-Sep-13 A	Site Clearance/TTM/Access Rd/Utility Diversion																										
<b>Site Area SA30A</b>																																	
PHSA30A5	Possession of SA30A		100%	0	27-Jul-10 A		◆ Possession of SA30A																										
SA30A005	Site Area SA30A Works Period		100%	155	23-May-12 A	31-Aug-13 A	Site Area SA30A Works Period																										
SA30A020	Site Area SA30A Works Completion		100%	0		31-Aug-13 A	◆ Site Area SA30A Works Completion																										
<b>North Bound</b>																																	
<b>Preliminaries</b>																																	
S30AN100	Site Clearance/TTM/Access Rd/Utility Diversion		100%	75	14-May-12 A	23-May-12 A	Site Clearance/TTM/Access Rd/Utility Diversion																										
<b>Roadworks, Drainage &amp; Utilities</b>																																	
S30AN415	Section 17 subject to Excision Works Instruction date (Trunk Sewer Line)		100%	245	23-May-12 A	20-Sep-13 A	Section 17 subject to Excision Works Instruction date (Trunk Sewer Line)																										
S30AN420	Issuing of latest design drawing		100%	75	24-May-12 A	05-Sep-12 A	Issuing of latest design drawing																										
S30AN430	Procurement & delivery of Trunk Sewer pipe (Stage 1)		100%	75	06-Sep-12 A	17-Sep-12 A	Procurement & delivery of Trunk Sewer pipe (Stage 1)																										
S30AN440	Design clarification period		100%	60	06-Sep-12 A	31-Jul-13 A	Design clarification period																										
S30AN450	Procurement & delivery of Trunk Sewer pipe (Stage 2)		100%	75	01-Nov-12 A	31-Jul-13 A	Procurement & delivery of Trunk Sewer pipe (Stage 2)																										
S30AN460	Underground Utilities cable detection before ELS works		100%	60	17-Aug-12 A	24-Aug-12 A	Underground Utilities cable detection before ELS works																										
S30AN470	Gravity Sewer Line STS10_170 to 160 (22m Long)		100%	90	05-Dec-12 A	06-Feb-13 A	Gravity Sewer Line STS10_170 to 160 (22m Long)																										
S30AN480	M/H 170 and M/H160 construction (6m depth)		100%	75	05-Dec-12 A	23-Jan-13 A	M/H 170 and M/H160 construction (6m depth)																										
S30AN490	Pipe laying and concrete surround works		100%	60	05-Dec-12 A	07-Jan-13 A	Pipe laying and concrete surround works																										
S30AN500	Backfilling (2 Layers + Temp fill)		100%	30	08-Jan-13 A	06-Feb-13 A	Backfilling (2 Layers + Temp fill)																										
S30AN510	Gravity Sewer Line STS10_160 to 150 (40m Long)		100%	95	27-Feb-13 A	23-Sep-13 A	Gravity Sewer Line STS10_160 to 150 (40m Long)																										
S30AN520	M/H150 construction (5m depth)		100%	40	27-Feb-13 A	16-Mar-13 A	M/H150 construction (5m depth)																										
S30AN530	Pipe laying and concrete surround works (Stage 1)		100%	25	18-Mar-13 A	30-Apr-13 A	Pipe laying and concrete surround works (Stage 1)																										
S30AN540	Construction of Temporary Access for Villager		100%	8	30-Apr-13 A	10-May-13 A	Construction of Temporary Access for Villager																										
S30AN550	Pipe Laying and concrete works (Stage 2)		100%	21	13-May-13 A	14-Sep-13 A	Pipe Laying and concrete works (Stage 2)																										
S30AN560	Backfilling (15 Layers)		100%	8	27-Jul-13 A	23-Sep-13 A	Backfilling (15 Layers)																										
S30AN570	Gravity Sewer Line STS10_120 to 130 (41m Long)		100%	120	17-Sep-12 A	03-Jan-13 A	Gravity Sewer Line STS10_120 to 130 (41m Long)																										
S30AN580	M/H 120 and M/H130 construction (3.5m & 4m depth)		100%	70	24-Sep-12 A	12-Oct-12 A	M/H 120 and M/H130 construction (3.5m & 4m depth)																										
S30AN585	Pipe Laying & concrete surround works		100%	30	14-Nov-12 A	20-Nov-12 A	Pipe Laying & concrete surround works																										



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**APPENDIX C  
IMPLEMENTATION SCHEDULE OF  
ENVIRONMENTAL MITIGATION MEASURES  
(EMIS)**

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## 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 <sup>3</sup> 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.		@
	• All spraying of materials and surfaces shall avoid excessive water usage.		V
	• Vehicles that have the potential to create dust while transporting materials shall be covered, with the cover properly secured and extended over the edges of the side and tail boards.		V
	• Materials shall be dampened, if necessary, before transportation.		V
	• Travelling speeds shall be controlled to reduce traffic induced dust dispersion and resuspension within the site from the operating haul trucks.		V
	• Vehicle washing facilities shall be provided to minimize the quantity of material deposited on public roads.		V

### Noise - Schedule of Recommended Mitigation Measures

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



Water Quality - Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Water quality during Construction	Demolition and reconstruction of bridges	During construction	
	<ul style="list-style-type: none"> <li>Prevent off-site migration through use of sheet piles.</li> </ul>		V
	<ul style="list-style-type: none"> <li>Minimize duration of works as far as practical.</li> </ul>		V
	<ul style="list-style-type: none"> <li>All sewer and drainage connections should be sealed to prevent debris, soil, sand, etc, from entering public sewers/drains.</li> </ul>		V
	<ul style="list-style-type: none"> <li>Site surface runoff should be settled to remove sand/silt before it is discharged into the existing storm drains.</li> </ul>		V
	River training works		
	<ul style="list-style-type: none"> <li>Inspection and testing of water quality in the nullah on the Tai Po River.</li> </ul>		N/A
	Road Widening Works and Earthworks		
	<ul style="list-style-type: none"> <li>Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required.</li> </ul>		V
	<ul style="list-style-type: none"> <li>Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained.</li> </ul>		V
	<ul style="list-style-type: none"> <li>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.</li> </ul>		V
	<ul style="list-style-type: none"> <li>Regular inspections of stilling basins and/or silt traps are required to ensure that sediment is not conveyed into the existing drainage system.</li> </ul>		V
	<ul style="list-style-type: none"> <li>Open stockpiles should be covered with a tarpaulin cover.</li> </ul>		V
	<ul style="list-style-type: none"> <li>During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded.</li> </ul>		V
	<ul style="list-style-type: none"> <li>Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains.</li> </ul>		V
<ul style="list-style-type: none"> <li>Fuels should be stored in bunded areas such that spillage can be easily collected.</li> </ul>	V		

Waste - Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Waste Management during Construction	General Waste	During construction	
	<ul style="list-style-type: none"> <li>Transport of wastes off site as soon as possible.</li> </ul>		@
	<ul style="list-style-type: none"> <li>Maintenance of accurate waste records</li> </ul>		V
	<ul style="list-style-type: none"> <li>Minimization of waste generation for disposal (via reduction/recycling/re-use).</li> </ul>		V
	<ul style="list-style-type: none"> <li>No on-site burning will be permitted.</li> </ul>		V
	<ul style="list-style-type: none"> <li>Use of re-useable metal hoardings/signboards.</li> </ul>		V
	Vegetation from site clearance		
	<ul style="list-style-type: none"> <li>Segregation of materials to facilitate disposal.</li> </ul>		V
	<ul style="list-style-type: none"> <li>Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.</li> </ul>		V
	Demolition Wastes		
	<ul style="list-style-type: none"> <li>Segregation of materials to facilitate disposal.</li> </ul>		V

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

Ecology - Schedule of Recommended Mitigation Measures

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

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

#### Landscape and Visual Impact - Schedule of Recommended Mitigation Measures

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

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

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**APPENDIX D  
SUMMARY OF ACTION AND LIMIT LEVELS**

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## Appendix D - Summary of Action and Limit Levels

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

Location	Action Level	Limit Level
AM1A	302.1 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>
AM2	301.9 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>
AM3	301.9 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>
AM4A	302.3 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>

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

Location	Action Level	Limit Level
AM1A	176.6 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>
AM2	178.6 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>
AM3	193.1 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>
AM4A	198.5 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>

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

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

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

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**APPENDIX E  
CALIBRATION CERTIFICATES OF  
MONITORING EQUIPMENTS**

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**AECOM Asia Company Limited**  
**TSP High Volume Sampler**  
**Field Calibration Report**

Station Sheung Wun Yiu (AM1A) Operator: Gary Choi  
 Cal. Date: 15-Jan-14 Next Due Date: 15-Mar-14  
 Equipment No.: A-001-53T Serial No. 10216

Ambient Condition			
Temperature, Ta (K)	289	Pressure, Pa (mmHg)	767.0

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.94727	Intercept, bc	0.02332
Last Calibration Date:	20-May-13	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	20-May-14	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	8.9	3.04	1.55	46.0	46.93
13	6.0	2.50	1.27	37.0	37.74
10	4.4	2.14	1.09	31.0	31.62
7	3.6	1.94	0.98	28.0	28.56
5	2.1	1.48	0.75	22.0	22.44

**By Linear Regression of Y on X**

Slope, mw = 30.7427 Intercept, bw = -1.2068  
 Correlation Coefficient\* = 0.9966

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

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]<sup>1/2</sup> = 37.99

Remarks: \_\_\_\_\_

QC Reviewer: WS CHAN Signature: [Signature] Date: 16/1/14



# AECOM Asia Company Limited

## TSP High Volume Sampler

### Field Calibration Report

Station: Shan Tong New Village (AM2) Operator: Choi Wing Ho  
 Cal. Date: 22-Dec-13 Next Due Date: 22-Feb-14  
 Equipment No.: A-001-29T Serial No.: 10202

Ambient Condition			
Temperature, Ta (K)	289	Pressure, Pa (mmHg)	756.9

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.94727	Intercept, bc	0.02332
Last Calibration Date:	20-May-13	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	20-May-14	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	9.0	3.04	1.55	47.0	47.63
13	6.5	2.58	1.31	40.0	40.54
10	5.3	2.33	1.19	35.0	35.47
7	3.6	1.92	0.98	29.0	29.39
5	2.6	1.63	0.83	22.0	22.29

**By Linear Regression of Y on X**

Slope, mw = 34.4706 Intercept, bw = -5.2867  
 Correlation Coefficient\* = 0.9935

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

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]<sup>1/2</sup> = 39.00

Remarks: \_\_\_\_\_

QC Reviewer: HT Lam

Signature: [Signature]

Date: 23-12-13

# AECOM Asia Company Limited

## TSP High Volume Sampler

### Field Calibration Report

Station: Riverain Bayside (AM3) Operator: Choi Wing Ho  
 Cal. Date: 22-Dec-13 Next Due Date: 22-Feb-14  
 Equipment No.: A-001-69T Serial No.: 716

Ambient Condition			
Temperature, Ta (K)	289	Pressure, Pa (mmHg)	756.9

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.94727	Intercept, bc	0.02332
Last Calibration Date:	20-May-13	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	20-May-14	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	8.8	3.01	1.53	47.0	47.63
13	7.3	2.74	1.39	43.0	43.58
10	5.6	2.40	1.22	35.0	35.47
7	3.9	2.00	1.02	26.0	26.35
5	2.9	1.73	0.87	22.0	22.29

By Linear Regression of Y on X

Slope, mw = 40.2648 Intercept, bw = -13.5403

Correlation Coefficient\* = 0.9943

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

Set Point Calculation
From the TSP Field Calibration Curve, take Qstd = 1.30m <sup>3</sup> /min
From the Regression Equation, the "Y" value according to
$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$
Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)] <sup>1/2</sup> = <u>38.29</u>

Remarks: \_\_\_\_\_

QC Reviewer: YT Leung

Signature: 

Date: 23-12-13

# AECOM Asia Company Limited

## TSP High Volume Sampler

### Field Calibration Report

Station: 168 Shek Kwu Lung Village (AM4A) Operator: Gary Choi  
 Cal. Date: 16-Nov-13 Next Due Date: 16-Jan-14  
 Equipment No.: A-001-70T Serial No.: 10273

Ambient Condition			
Temperature, Ta (K)	297.4	Pressure, Pa (mmHg)	763.4

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99238	Intercept, bc	-0.00351
Last Calibration Date:	6-Dec-12	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	6-Dec-13	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	8.9	2.99	1.50	47.0	47.15
13	7.5	2.75	1.38	42.0	42.14
10	5.1	2.27	1.14	34.0	34.11
7	3.5	1.88	0.94	28.0	28.09
5	2.4	1.55	0.78	22.0	22.07

By Linear Regression of Y on X

Slope, mw = 34.0386 Intercept, bw = -4.4274

Correlation Coefficient\* = 0.9986

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

#### Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]<sup>1/2</sup> = 39.69

Remarks: \_\_\_\_\_

QC Reviewer: K. H. SHEK Signature: Mike Date: 18-Nov-13

# AECOM Asia Company Limited

## TSP High Volume Sampler

### Field Calibration Report

Station: 168 Shek Kwu Lung Village (AM4A) Operator: Gary Choi  
 Cal. Date: 15-Jan-14 Next Due Date: 15-Mar-14  
 Equipment No.: A-001-70T Serial No.: 10273

Ambient Condition			
Temperature, Ta (K)	289	Pressure, Pa (mmHg)	767.0

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.94727	Intercept, bc	0.02332
Last Calibration Date:	20-May-13	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	20-May-14	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	9.0	3.06	1.56	46.0	46.93
13	7.4	2.78	1.41	42.0	42.84
10	5.0	2.28	1.16	35.0	35.70
7	3.3	1.85	0.94	27.0	27.54
5	2.5	1.61	0.82	23.0	23.46

By Linear Regression of Y on X  
 Slope, mw = 31.7150 Intercept, bw = -2.0528  
 Correlation Coefficient\* = 0.9964  
 \*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min  
 From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]<sup>1/2</sup> = 38.40

Remarks: \_\_\_\_\_

QC Reviewer: WS CHAN Signature: [Signature] Date: 16/1/14





TISCH ENVIRONMENTAL, INC.  
 145 SOUTH MIAMI AVE.  
 VILLAGE OF CLEVES, OH 45002  
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 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 Rootsometer 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:

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

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

## 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<sub>o</sub>: 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 <sup>1</sup> (mg/m <sup>3</sup> ) Y-axis	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> 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

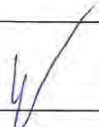
Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®  
 2. Total Count was logged by Laser Dust Monitor  
 3. Count/minute was calculated by (Total Count/60)

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.005.08a  
 Sensitivity Adjustment Scale Setting: 702 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<sub>0</sub>: 12500  
 Last Calibration Date\*: 18 May 2013

\*Remarks: Recommended interval for hardware calibration is 1 year

### Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 702 CPM  
 Sensitivity Adjustment Scale Setting (After Calibration): 702 CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration <sup>1</sup> (mg/m <sup>3</sup> ) Y-axis	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> X-axis
			Temp (°C)	R.H. (%)			
1	18-05-13	12:30 - 13:30	28.1	78	0.04714	1764	29.40
2	18-05-13	13:30 - 14:30	28.1	78	0.04932	1846	30.77
3	18-05-13	14:30 - 15:30	28.2	77	0.05156	1935	32.25
4	18-05-13	15:30 - 16:30	28.1	78	0.05083	1899	31.65

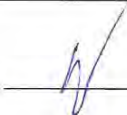
Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®  
 2. Total Count was logged by Laser Dust Monitor  
 3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X

Slope (K-factor): 0.0016  
 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-3  
 Equipment No.: A.005.09a  
 Sensitivity Adjustment Scale Setting: 797 CPM  
 Operator: Mike Shek (MSKM)

### Standard Equipment

Equipment: Rupprecht & Patashnick TEOM®  
 Venue: Cyberport (Pui Ying Secondary School)  
 Model No.: Series 1400AB  
 Serial No: Control: 140AB219899803  
 Sensor: 1200C143659803 K<sub>0</sub>: 12500  
 Last Calibration Date\*: 18 May 2013

\*Remarks: Recommended interval for hardware calibration is 1 year

### Calibration Result

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

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration <sup>1</sup> (mg/m <sup>3</sup> ) Y-axis	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> X-axis
			Temp (°C)	R.H. (%)			
1	18-05-13	12:30 - 13:30	28.1	78	0.04714	1885	31.42
2	18-05-13	13:30 - 14:30	28.1	78	0.04932	1965	32.75
3	18-05-13	14:30 - 15:30	28.2	77	0.05156	2059	34.32
4	18-05-13	15:30 - 16:30	28.1	78	0.05083	2024	33.73


- 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: 0.9973

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 K<sub>0</sub>: 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 <sup>1</sup> (mg/m <sup>3</sup> ) Y-axis	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> 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 K<sub>0</sub>: 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 <sup>1</sup> (mg/m <sup>3</sup> ) Y-axis	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> 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 K<sub>0</sub>: 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 <sup>1</sup> (mg/m <sup>3</sup> ) Y-axis	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> 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<sub>o</sub>: 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 <sup>1</sup> (mg/m <sup>3</sup> ) Y-axis	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> 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

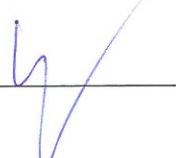
Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®  
 2. Total Count was logged by Laser Dust Monitor  
 3. Count/minute was calculated by (Total Count/60)

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 01-02

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:  $22 \pm 1$  °C  
Relative humidity:  $60 \pm 10$  %  
Air pressure:  $1000 \pm 10$  hPa

### Test specifications

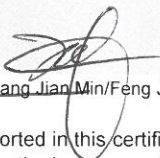
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results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



## CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0325 01-03

Page: 1 of 2

### Item tested

Description: Acoustical Calibrator (Class 1)  
Manufacturer: Rion Co., Ltd.  
Type/Model No.: NC-73  
Serial/Equipment No.: 10186482 / N.004.09  
Adaptors used: -

### Item submitted by

Customer: 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:
Lab standard microphone	B&K 4180	2412857	29-May-2013	SCL
Preamplifier	B&K 2673	2239857	17-Dec-2013	CEPREI
Measuring amplifier	B&K 2610	2346941	17-Dec-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI
Digital multi-meter	34401A	US36087050	10-Dec-2013	CEPREI
Audio analyzer	8903B	GB41300350	29-May-2013	CEPREI
Universal counter	53132A	MY40003662	29-May-2013	CEPREI

### Ambient conditions

Temperature:  $22 \pm 1$  °C  
Relative humidity:  $60 \pm 10$  %  
Air pressure:  $1000 \pm 10$  hPa

### Test specifications

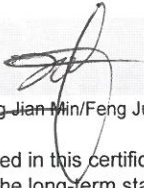
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results 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: 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.: 13CA1107 01-01 Page 1 of 2

### Item tested

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

### Item submitted by

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

Date of test: 08-Nov-2013

### Reference equipment used in the calibration

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

### Ambient conditions

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

### Test specifications

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

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

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**APPENDIX F  
EM&A MONITORING SCHEDULES**

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

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

**Widening of Tolo Highway / Fanling Highway (Stage 1) Between Island House Interchange and Tai Hang - Investigation  
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
			Site inspection (Contract 1) 24-hour TSP 1-hour TSP & Noise	Site inspection (Contract 2)		
9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb
		24-hour TSP 1-hour TSP & Noise	Site inspection (Contract 1)	Site inspection (Contract 2)		
16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb
	24-hour TSP 1-hour TSP & Noise		Site inspection (Contract 1)	Site inspection (Contract 2)		24-hour TSP 1-hour TSP
23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	
			Site inspection (Contract 1)	Site inspection (Contract 2)	24-hour TSP 1-hour TSP & Noise	

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



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

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**Appendix G**  
**Impact Air Quality Monitoring Results**

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

Date	Start Time (hh:mm)	1st Hour	2nd Hour	3rd Hour
		Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )
4-Jan-14	12:05	79.8	74.6	82.1
10-Jan-14	10:05	77.8	79.6	78.4
16-Jan-14	10:30	81.0	80.9	82.0
22-Jan-14	10:10	87.1	86.4	87.2
27-Jan-14	10:15	80.8	81.7	82.6
30-Jan-14	9:50	82.6	80.9	83.4
Average				81.6
Min				74.6
Max				87.2

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

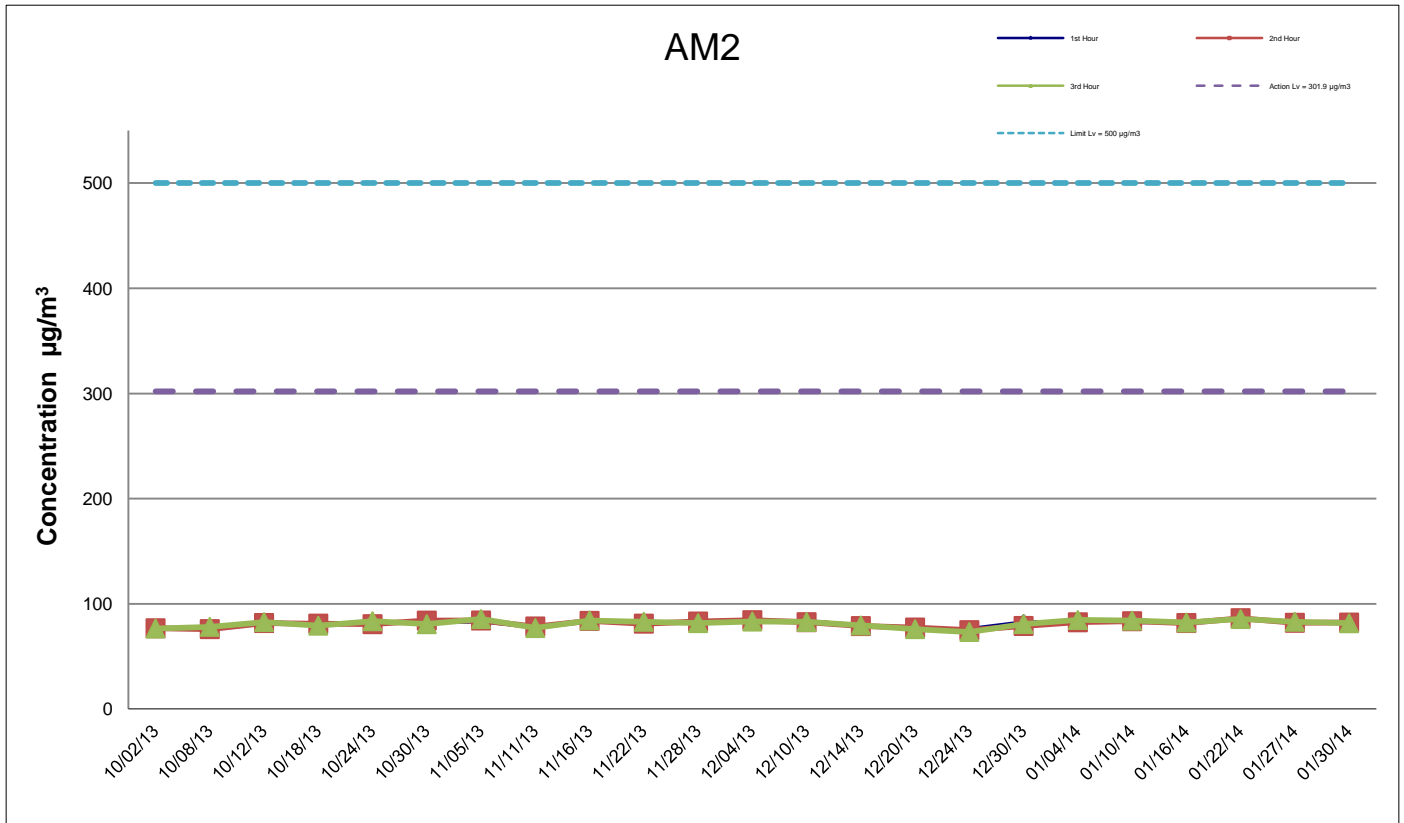
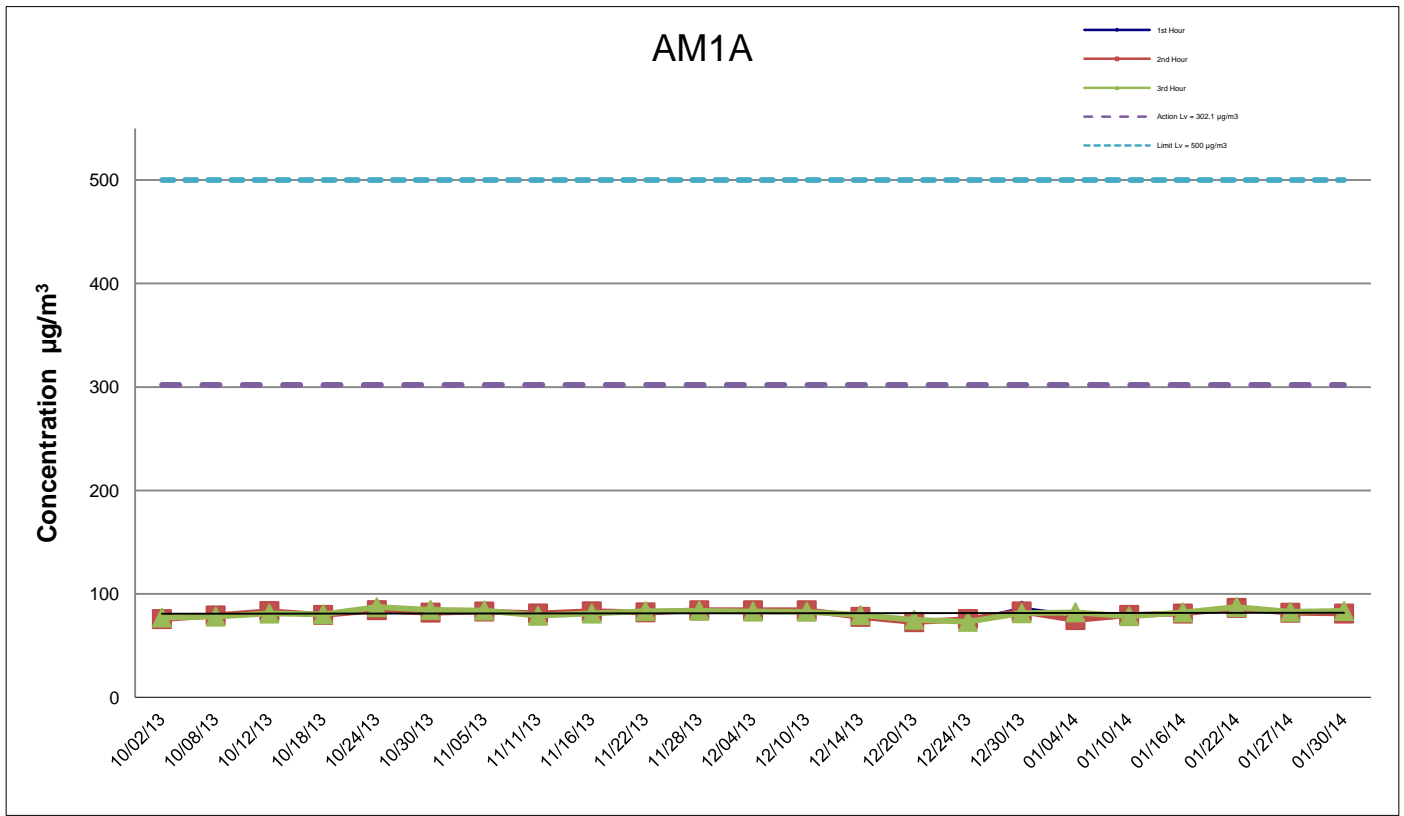
Date	Start Time (hh:mm)	1st Hour	2nd Hour	3rd Hour
		Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )
4-Jan-14	11:50	83.1	82.4	84.6
10-Jan-14	10:15	81.5	83.4	84.0
16-Jan-14	10:14	82.4	81.7	82.2
22-Jan-14	10:25	85.0	86.3	85.5
27-Jan-14	9:50	82.1	81.9	82.9
30-Jan-14	10:00	80.9	82.1	81.5
Average				83.0
Min				80.9
Max				86.3

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

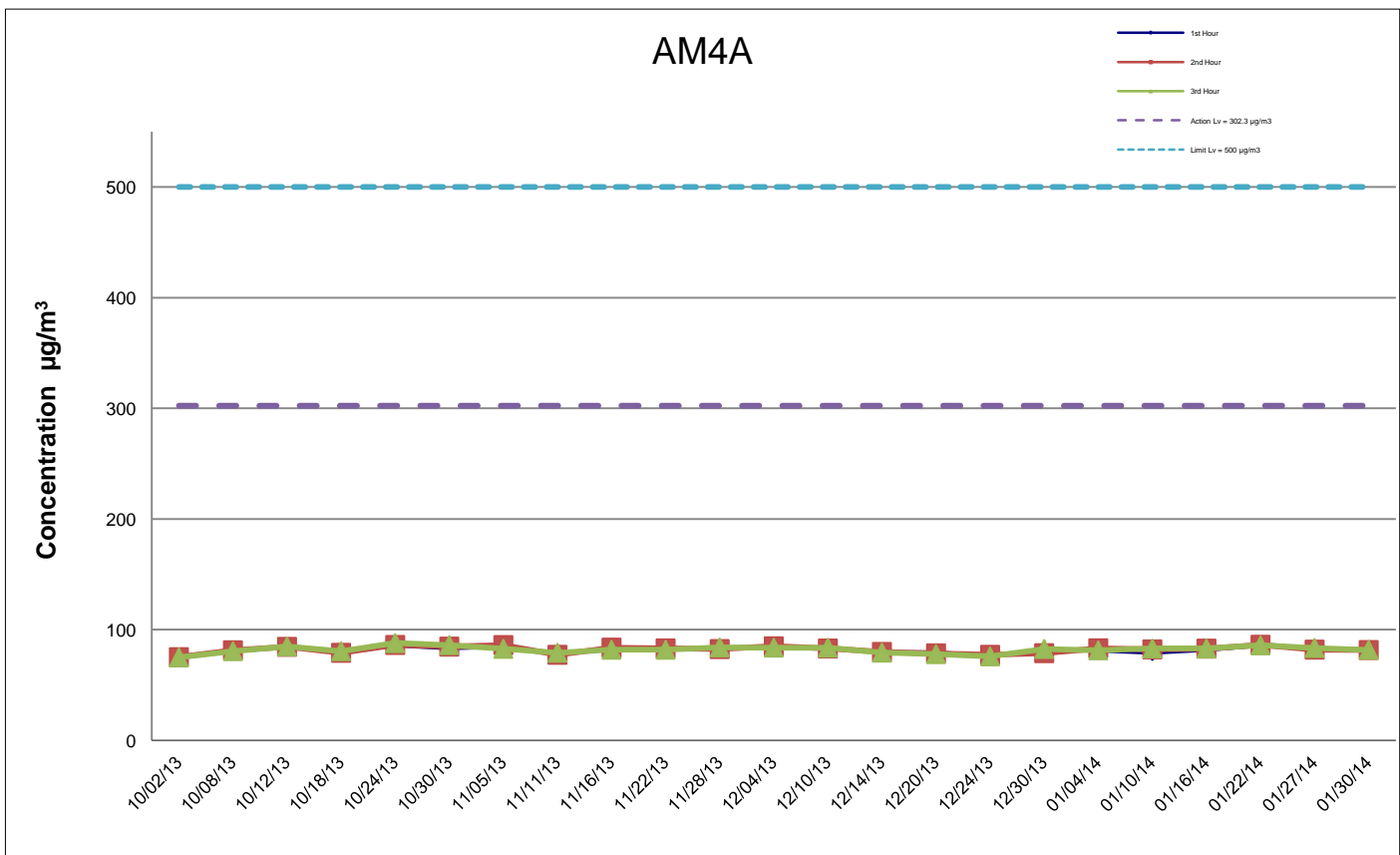
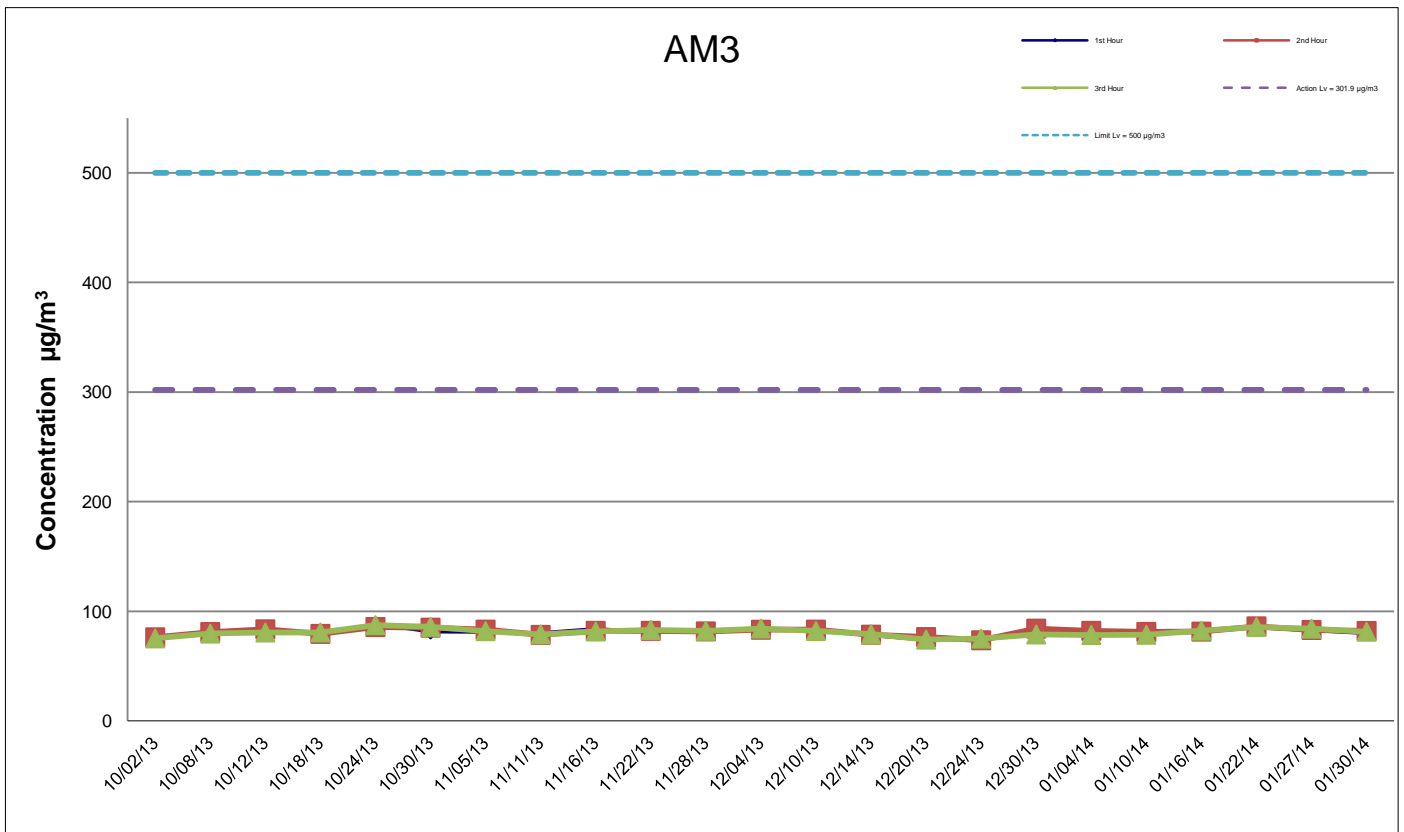
Date	Start Time (hh:mm)	1st Hour	2nd Hour	3rd Hour
		Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )
4-Jan-14	12:15	81.1	82.2	78.4
10-Jan-14	9:45	79.9	81.2	78.6
16-Jan-14	10:02	80.9	81.5	82.4
22-Jan-14	9:50	84.9	86.3	85.7
27-Jan-14	9:40	82.2	83.0	84.2
30-Jan-14	10:30	79.6	82.1	81.4
Average				82.0
Min				78.4
Max				86.3

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

Date	Start Time (hh:mm)	1st Hour	2nd Hour	3rd Hour
		Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )
4-Jan-14	12:30	80.6	83.2	81.4
10-Jan-14	10:35	78.5	82.2	83.0
16-Jan-14	10:43	81.1	82.9	83.0
22-Jan-14	11:00	85.2	86.4	85.9
27-Jan-14	10:00	81.3	82.0	83.5
30-Jan-14	10:15	82.2	81.6	81.8
Average				82.5
Min				78.5
Max				86.4



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



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

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



**Impact Air Quality Monitoring Results**

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

Date	Weather Condition	Air Temp. (°C)	Atmospheric Pressure(hPa)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
				Initial	Final			Initial	Final		Initial	Final		
4-Jan-14	Fine	18.8	1017.8	1.33	1.33	1.33	1916.6	2.8803	3.1095	0.2292	20379.46	20403.46	24.00	119.6
10-Jan-14	Sunny	15.3	1024.3	1.33	1.33	1.33	1916.6	2.6991	2.8514	0.1523	20403.46	20427.46	24.00	79.5
16-Jan-14	Sunny	13.9	1024.3	1.33	1.33	1.33	1916.6	2.8682	2.9595	0.0913	20427.46	20451.46	24.00	47.6
22-Jan-14	Sunny	13.3	1025.2	1.33	1.33	1.33	1916.6	2.7083	2.8878	0.1795	20451.46	20475.46	24.00	93.7
27-Jan-14	Sunny	16.4	1021.3	1.33	1.33	1.33	1916.6	2.6599	2.7570	0.0971	20475.46	20499.46	24.00	50.7
30-Jan-14	Sunny	18.9	1019.3	1.33	1.33	1.33	1916.6	2.7207	2.7824	0.0617	20499.46	20523.46	24.00	32.2
Average													70.5	
Min													32.2	
Max													119.6	

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

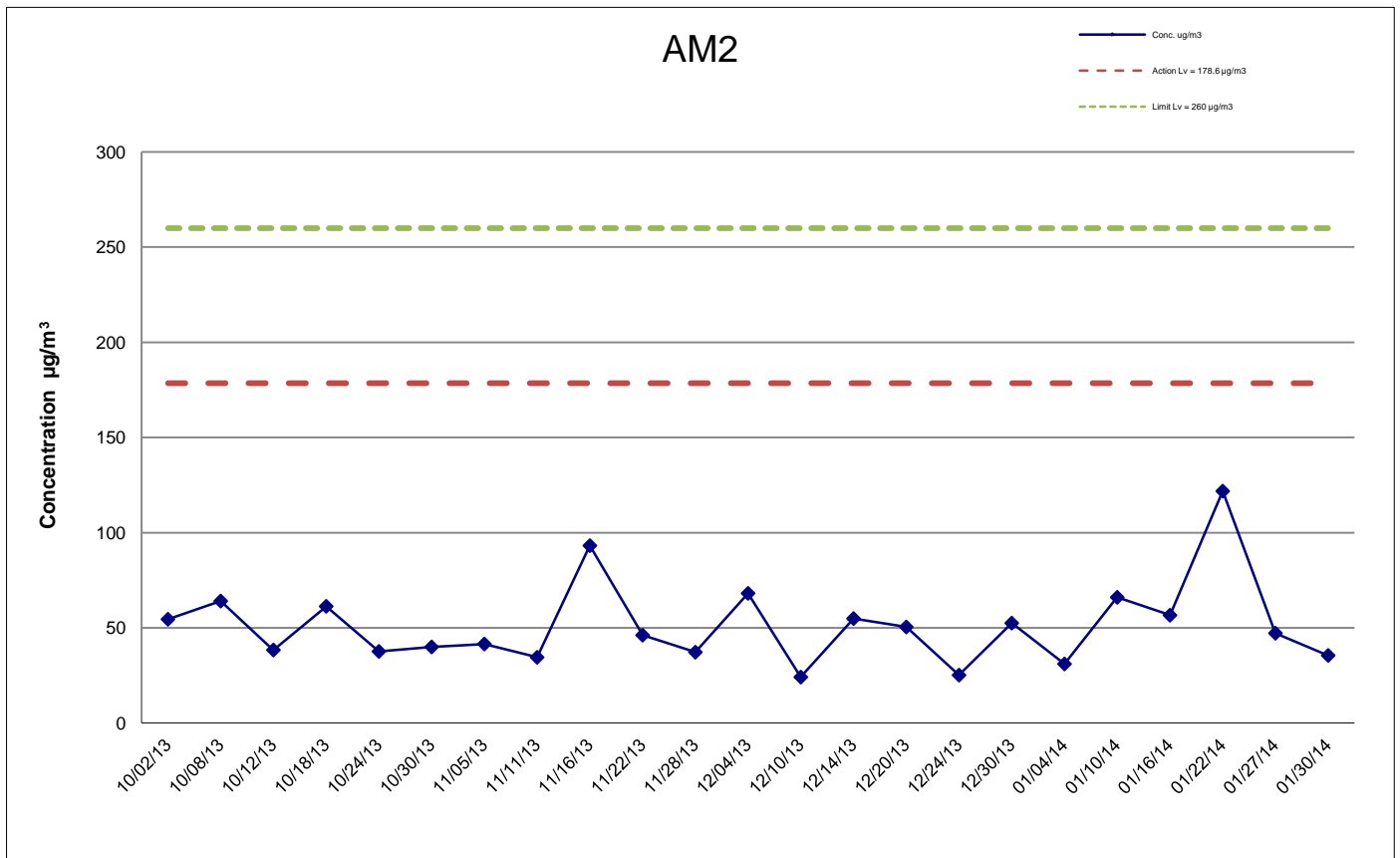
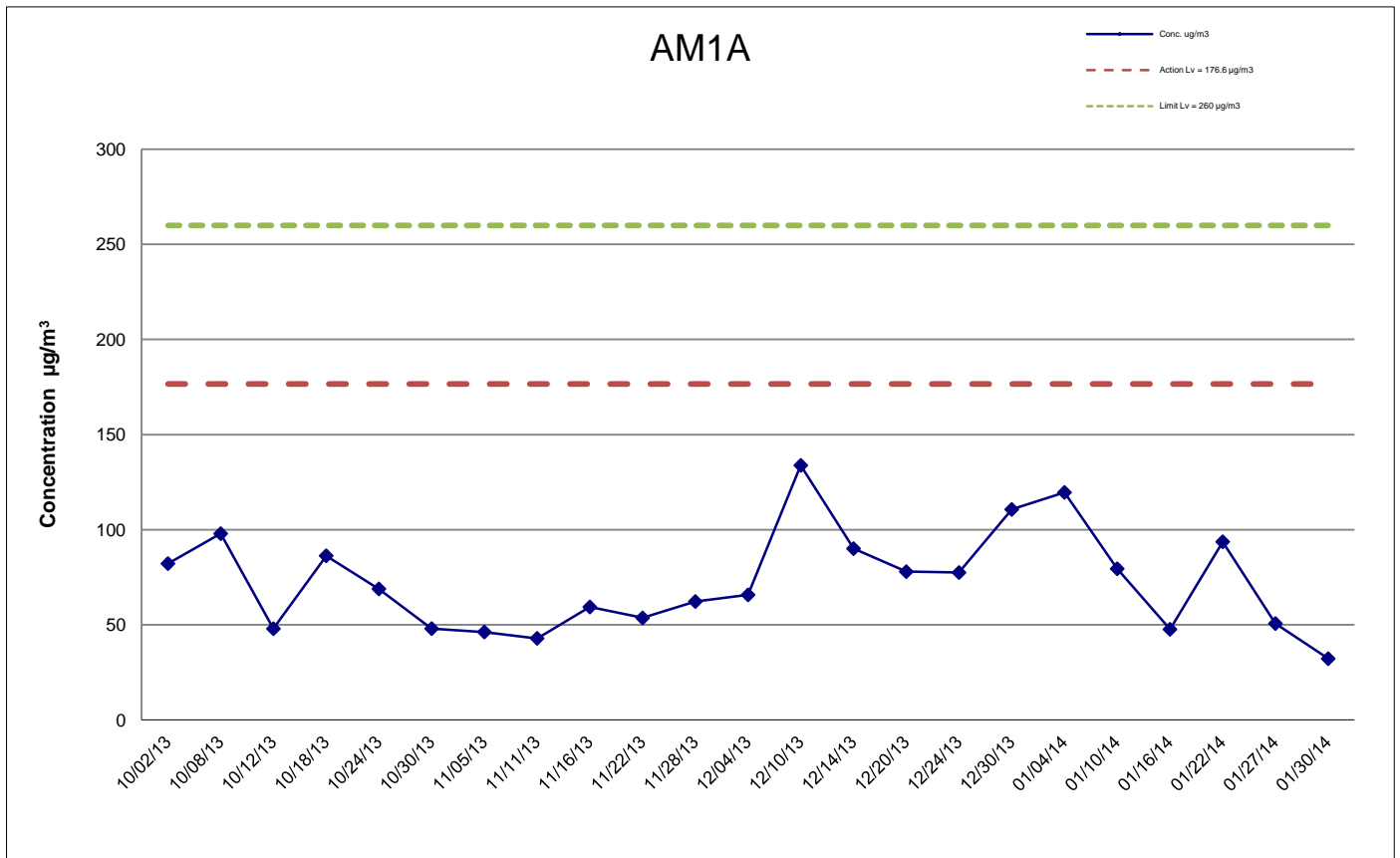
Date	Weather Condition	Air Temp. (°C)	Atmospheric Pressure(hPa)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
				Initial	Final			Initial	Final		Initial	Final		
4-Jan-14	Fine	18.8	1017.8	1.34	1.34	1.34	1925.3	2.8832	2.9429	0.0597	16951.12	16975.12	24.00	31.0
10-Jan-14	Sunny	15.3	1024.3	1.34	1.34	1.34	1925.3	2.7142	2.8413	0.1271	16975.12	16999.12	24.00	66.0
16-Jan-14	Sunny	13.9	1024.3	1.34	1.34	1.34	1925.3	2.7516	2.8606	0.1090	16999.12	17023.12	24.00	56.6
22-Jan-14	Sunny	13.3	1025.2	1.34	1.34	1.34	1925.3	2.6597	2.8942	0.2345	17023.12	17047.12	24.00	121.8
27-Jan-14	Sunny	16.4	1021.3	1.34	1.34	1.34	1925.3	2.6962	2.7870	0.0908	17047.12	17071.12	24.00	47.2
30-Jan-14	Sunny	18.9	1019.3	1.34	1.34	1.34	1925.3	2.6409	2.7092	0.0683	17071.12	17095.12	24.00	35.5
Average													59.7	
Min													31.0	
Max													121.8	


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

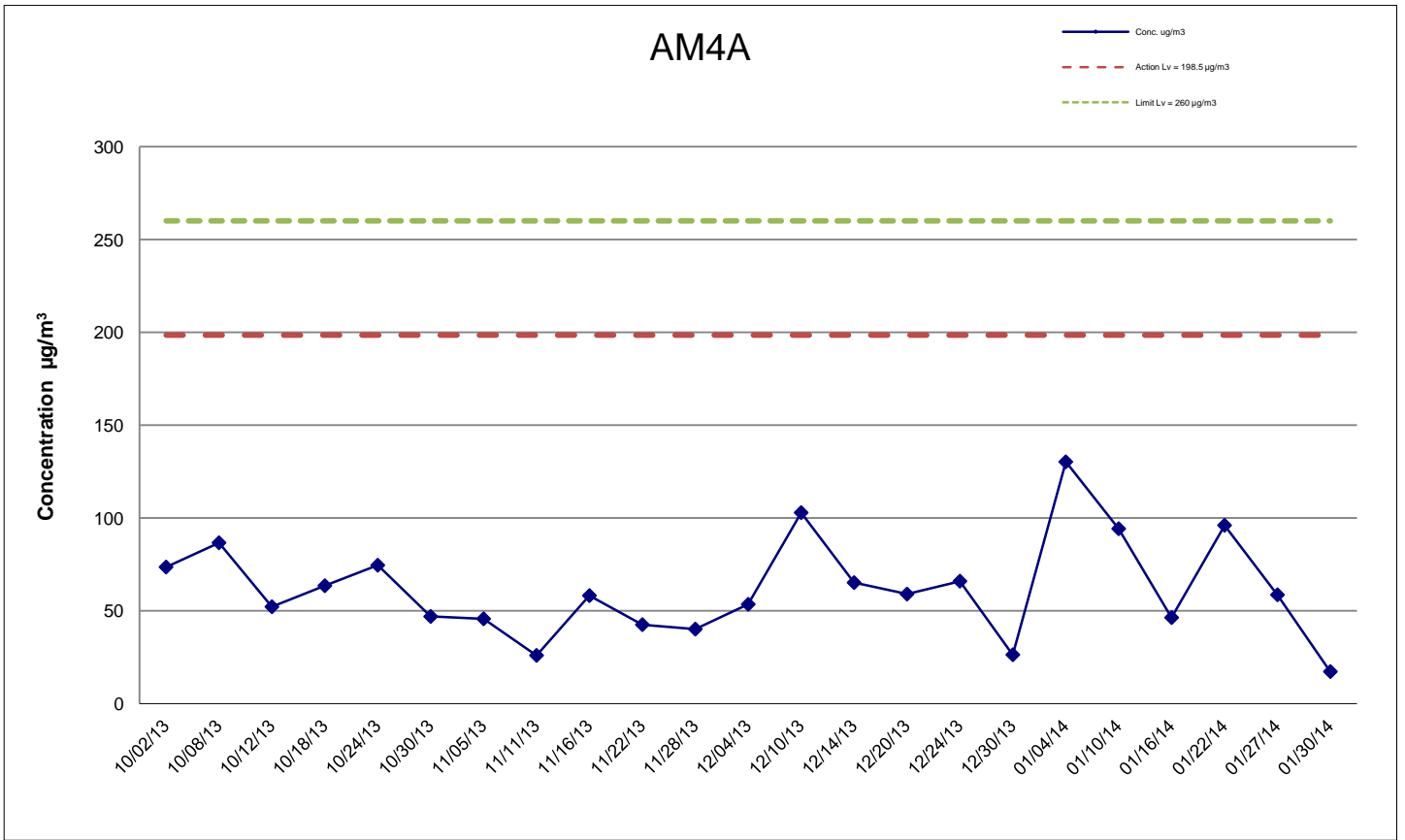
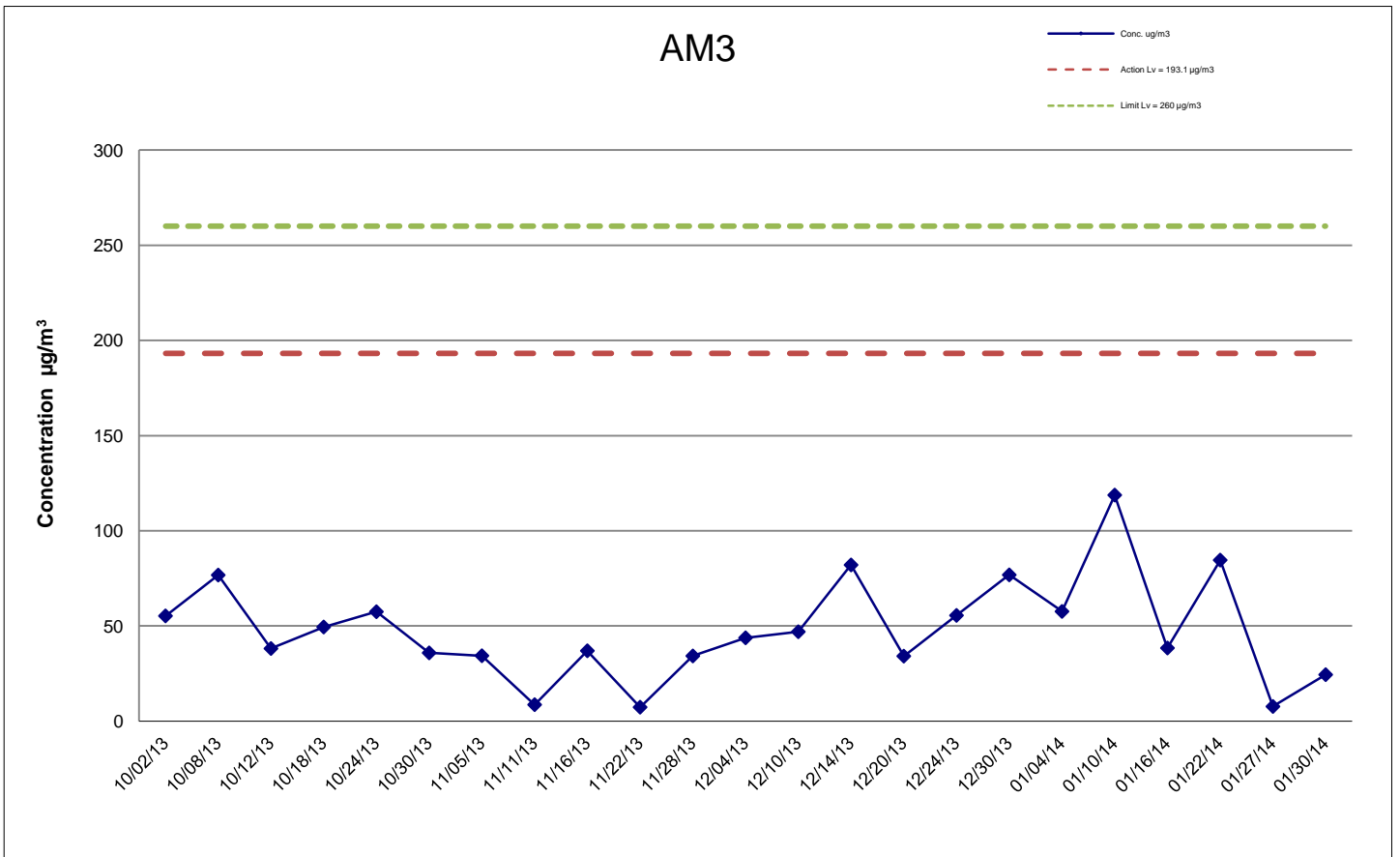
Date	Weather Condition	Air Temp. (°C)	Atmospheric Pressure(hPa)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
				Initial	Final			Initial	Final		Initial	Final		
4-Jan-14	Fine	18.8	1017.8	1.33	1.33	1.33	1921.0	2.6798	2.7905	0.1107	20680.59	20704.59	24.00	57.6
10-Jan-14	Sunny	15.3	1024.3	1.33	1.33	1.33	1921.0	2.5953	2.8234	0.2281	20704.59	20728.59	24.00	118.7
16-Jan-14	Sunny	13.9	1024.3	1.33	1.33	1.33	1921.0	2.6955	2.7693	0.0738	20728.59	20752.59	24.00	38.4
22-Jan-14	Sunny	13.3	1025.2	1.33	1.33	1.33	1921.0	2.6962	2.8587	0.1625	20752.59	20776.59	24.00	84.6
27-Jan-14	Sunny	16.4	1021.3	1.33	1.33	1.33	1921.0	2.6860	2.7008	0.0148	20776.59	20800.59	24.00	7.7
30-Jan-14	Sunny	18.9	1019.3	1.33	1.33	1.33	1921.0	2.6946	2.7415	0.0469	20800.59	20824.59	24.00	24.4
Average													55.3	
Min													7.7	
Max													118.7	

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

Date	Weather Condition	Air Temp. (°C)	Atmospheric Pressure(hPa)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
				Initial	Final			Initial	Final		Initial	Final		
4-Jan-14	Fine	18.8	1017.8	1.33	1.33	1.33	1918.1	2.6724	2.9223	0.2499	16810.36	16834.36	24.00	130.3
10-Jan-14	Sunny	15.3	1024.3	1.33	1.33	1.33	1918.1	2.6483	2.8291	0.1808	16834.36	16858.36	24.00	94.3
16-Jan-14	Sunny	13.9	1024.3	1.33	1.33	1.33	1918.1	2.5117	2.6007	0.0890	16858.36	16882.36	24.00	46.4
22-Jan-14	Sunny	13.3	1025.2	1.33	1.33	1.33	1918.1	2.6799	2.8642	0.1843	16882.36	16906.36	24.00	96.1
27-Jan-14	Sunny	16.4	1021.3	1.33	1.33	1.33	1918.1	2.6720	2.7845	0.1125	16906.36	16930.36	24.00	58.7
30-Jan-14	Sunny	18.9	1019.3	1.33	1.33	1.33	1918.1	2.5413	2.5745	0.0332	16930.36	16954.36	24.00	17.3
Average													73.8	
Min													17.3	
Max													130.3	



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



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

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

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

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**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	****	***	***	***
<b>Mean</b>	*****	21	16	12.4	****	***	***	***
<b>Maximum</b>	*****	26.6	20	16.1	****	***	***	***
<b>Minimum</b>	*****	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 (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
<b>Mean</b>	-----	50	11.1
<b>Total</b>	0.0	---	-----
<b>Maximum</b>	0.0	---	22.7
<b>Minimum</b>	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

**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
<b>Mean</b>	1021.4	19.2	15.3	11.7	8.3	83	65	46
<b>Maximum</b>	1026.4	24.8	19.3	16.4	14.3	95	80	65
<b>Minimum</b>	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 (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	*****	***	*****
<b>Mean</b>	-----	***	*****
<b>Total</b>	*****	---	-----
<b>Maximum</b>	*****	---	*****
<b>Minimum</b>	*****	---	*****

\*\*\* 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 Sha Tin 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	1019.4	20.1	12.5	6.4	3.9	89	61	25
2-Jan	1016.9	20.2	14.8	8.1	10	99	75	53
3-Jan	1015.8	25	18.6	13.9	12.6	93	71	41
4-Jan	1018	21.7	18	13.7	5.9	78	47	29
5-Jan	1019.1	18.9	14.7	9.4	6.1	86	58	30
6-Jan	1018.3	19.3	15.7	11.6	9.1	85	66	48
7-Jan	1016.9	18.7	17.5	16.2	13.5	89	78	60
8-Jan	1018.2	22.8	18.5	14.5	14.2	94	77	56
9-Jan	1023.4	15.3	14.2	13	6.9	75	62	55
10-Jan	1024.6	16.2	14.7	13.4	9.8	80	72	62
11-Jan	1023.9	19.7	15.6	12.3	11	96	75	53
12-Jan	1023.6	21.4	16	11.2	10.7	100	73	50
13-Jan	1024.1	14.6	12.3	10.3	5.1	73	62	52
14-Jan	1023.9	15.9	12.1	9.0	4.6	76	60	50
15-Jan	1025.7	16	12.1	8.7	3.9	83	58	42
16-Jan	1024.4	17	13	9.1	6.4	90	66	45
17-Jan	1023.4	20.2	14.2	8.9	9.4	100	76	37
18-Jan	1026.4	20.2	15.7	11.1	2.4	94	42	24
19-Jan	1026.3	16.8	12.8	9.2	7.0	92	70	41
20-Jan	1024	21.2	15.1	8.8	2.9	88	50	18
21-Jan	1024.7	17.5	14.8	12.5	-6.2	37	23	15
22-Jan	1025.3	17.4	11.8	6.9	-2.9	81	40	17
23-Jan	1023.4	16.3	10.9	6.0	5.7	97	73	43
24-Jan	1019	18.9	14.7	8.2	9.9	93	74	59
25-Jan	1017.8	22.6	17.9	14.5	13.4	92	76	55
26-Jan	1019.7	24.2	18	15.4	13.2	91	75	45
27-Jan	1021.5	19.4	15.9	13.9	9.3	88	66	45
28-Jan	1020.7	21	16.2	12.2	11	95	73	47
29-Jan	1020.2	22.5	15.7	10.6	11	99	76	43
30-Jan	1019.4	24.2	16.5	10.7	12.5	98	80	43
31-Jan	1018.5	25	17.7	11	12.5	99	76	31
<b>Mean</b>	1021.5	19.7	15.1	11	7.9	88	65	42
<b>Maximum</b>	1026.4	25	18.6	16.2	14.2	100	80	62
<b>Minimum</b>	1015.8	14.6	10.9	6.0	-6.2	37	23	15

**Extract of Meteorological Observations for Sha Tin Automatic Weather Station,  
January 2014**

Date	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind (km/h)
1-Jan	0.0	40	3.8
2-Jan	0.0	20	3.7
3-Jan	0.0	70	3.3
4-Jan	0.0	40	6.9
5-Jan	0.0	20	5.3
6-Jan	0.0	90	8.8
7-Jan	0.0	120	8.2
8-Jan	0.0	70	5.9
9-Jan	0.0	30	8.5
10-Jan	0.0	80	6.8
11-Jan	0.0	100	6.9
12-Jan	0.0	30	7.5
13-Jan	0.0	340	9.9
14-Jan	0.0	340	8.8
15-Jan	0.0	30	7.3
16-Jan	0.0	110	6.5
17-Jan	0.0	50	4.3
18-Jan	0.0	40	8.4
19-Jan	0.0	20	5.1
20-Jan	0.0	20	6.6
21-Jan	0.0	30	12.2
22-Jan	0.0	30	7.5
23-Jan	0.0	100	4.5
24-Jan	0.0	350	7.3
25-Jan	0.0	90	5.3
26-Jan	0.0	70	8.0
27-Jan	0.0	100	8.6
28-Jan	0.0	30	4.8
29-Jan	0.0	100	5.1
30-Jan	0.0	140	3.8
31-Jan	0.0	130	4.7
<b>Mean</b>	-----	30	6.6
<b>Total</b>	0.0	---	-----
<b>Maximum</b>	0.0	---	12.2
<b>Minimum</b>	0.0	---	3.3

\*\*\* unavailable

# missing (less than 24 hourly observations a day)

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

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

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**Appendix I Impact Daytime Construction Noise Monitoring Results**

Location : NM1A (168 Shek Kwu Lung Village G/F- Façade)

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

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
10-Jan-14	10:40	60.5	62.0	56.5	64.2	60.5	75	N
16-Jan-14	10:44	60.3	62.1	56.5	64.2	60.3	75	N
22-Jan-14	11:05	62.1	63.9	59.0	64.2	62.1	75	N
27-Jan-14	10:20	63.3	64.5	60.0	64.2	63.3	75	N

Corrected Noise Level dB(A)	
<b>Average</b>	61.7
<b>Max</b>	63.3
<b>Min</b>	60.3

Location : NM2 (38 Ha Wun Yiu G/F - Free Field)

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

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)*	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq*	L10*	L90*				
10-Jan-14	10:20	65.4	66.5	64.0	68.1	65.4	75	N
16-Jan-14	13:28	67.3	69.4	65.0	68.1	67.3	75	N
22-Jan-14	10:30	64.1	65.5	62.4	68.1	64.1	75	N
27-Jan-14	10:40	64.7	66.0	63.0	68.1	64.7	75	N

Corrected Noise Level dB(A)	
<b>Average</b>	65.6
<b>Max</b>	67.3
<b>Min</b>	64.1

\* +3dB(A) Façade effect correction included

\*\* Construction noise level is only calculated when Measured noise level (Leq) > Baseline noise level.

If Measured noise level < Baseline noise level, Corrected noise level = Measured noise level



**Appendix I Impact Daytime Construction Noise Monitoring Results**

Location : NM3 (Wong Shiu Chi Middle School Rooftop - Façade)

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

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)#	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
10-Jan-14	13:20	61.4	63.5	60.0	64.8	61.4	65	N
16-Jan-14	10:16	63.7	65.5	61.5	64.8	63.7	65	N
22-Jan-14	13:15	62.4	63.7	60.5	64.8	62.4	70	N
27-Jan-14	13:10	62.7	64.0	60.0	64.8	62.7	70	N

Corrected Noise Level dB(A)	
<b>Average</b>	62.6
<b>Max</b>	63.7
<b>Min</b>	61.4

Location : NM4 (Uptown Plaza Block 4 Rooftop - Façade)

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

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
10-Jan-14	13:05	62.0	64.0	60.5	67.4	62.0	75	N
16-Jan-14	10:16	66.1	68.0	63.5	67.4	66.1	75	N
22-Jan-14	13:05	63.0	64.4	60.0	67.4	63.0	75	N
27-Jan-14	13:00	63.3	64.5	60.5	67.4	63.3	75	N

Corrected Noise Level dB(A)	
<b>Average</b>	63.9
<b>Max</b>	66.1
<b>Min</b>	62.0

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

\*\* Construction noise level is only calculated when Measured noise level (Leq) > Baseline noise level.

If Measured noise level < Baseline noise level, Corrected noise level = Measured noise level

**Appendix I Impact Daytime Construction Noise Monitoring Results**

Location : NM5 (The Paragon Clubhouse Rooftop - Façade)

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

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
10-Jan-14	11:30	64.1	65.5	61.5	65.2	64.1	75	N
16-Jan-14	13:15	67.7	69.4	65.1	65.2	64.1	75	N
22-Jan-14	14:00	63.6	65.0	60.1	65.2	63.6	75	N
27-Jan-14	11:00	65.5	66.5	62.0	65.2	53.7	75	N

Corrected Noise Level dB(A)	
<b>Average</b>	62.8
<b>Max</b>	64.1
<b>Min</b>	53.7

Location : NM6 (PLK Tin Ka Ping Primary School near the entrance - Free Field)

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

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)*	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)#	Exceedance (Y/N)
	Start Time	Leq*	L10*	L90*				
10-Jan-14	11:10	63.4	64.5	62.5	64.5	63.4	70	N
16-Jan-14	11:30	62.2	63.9	60.1	64.5	62.2	70	N
22-Jan-14	11:20	63.2	64.4	62.0	64.5	63.2	70	N
27-Jan-14	11:30	62.0	64.5	62.0	64.5	62.0	70	N

Corrected Noise Level dB(A)	
<b>Average</b>	62.7
<b>Max</b>	63.4
<b>Min</b>	62.0

Remarks

\* +3dB(A) Façade effect correction included

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

\*\* Construction noise level is only calculated when Measured noise level (Leq) > Baseline noise level.

If Measured noise level < Baseline noise level, Corrected noise level = Measured noise level

**Appendix I Impact Daytime Construction Noise Monitoring Results**

Location : NM7 (Riverain Bayside Switch Room Rooftop - Façade)

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

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
10-Jan-14	9:50	58.6	60.0	55.5	61.5	58.6	75	N
16-Jan-14	14:15	58.8	60.5	56.2	61.5	58.8	75	N
22-Jan-14	9:50	57.7	59.0	56.0	61.5	57.7	75	N
27-Jan-14	9:45	58.1	59.5	56.5	61.5	58.1	75	N

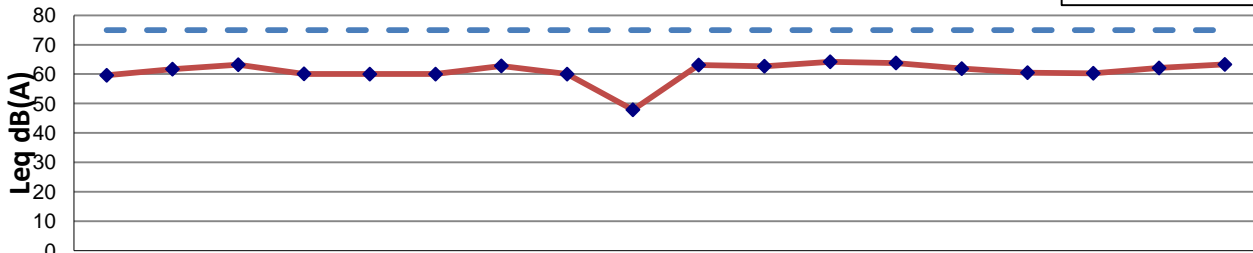
Corrected Noise Level dB(A)	
<b>Average</b>	58.3
<b>Max</b>	58.8
<b>Min</b>	57.7

Remarks

\*\* Construction noise level is only calculated when Measured noise level (Leq) > Baseline noise level.

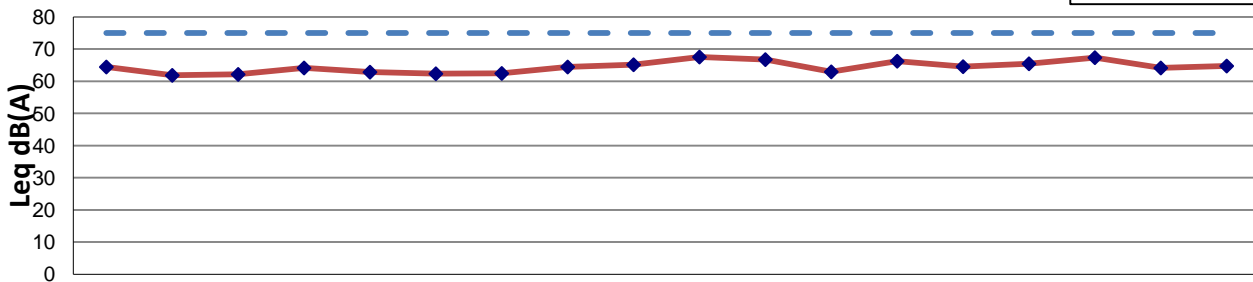
If Measured noise level < Baseline noise level, Corrected noise level = Measured noise level

### NM1A



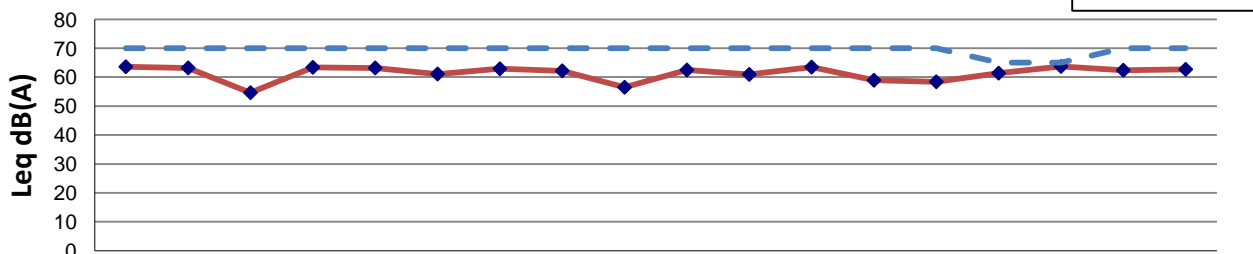
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2	8	8	4	0	5	1	2	8	4	0	0	4	0	0	6	2	7
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1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4

### NM2



1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	1	1	1
/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
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2	8	8	4	0	5	1	2	8	4	0	0	4	0	0	6	2	7
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1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4

### NM3

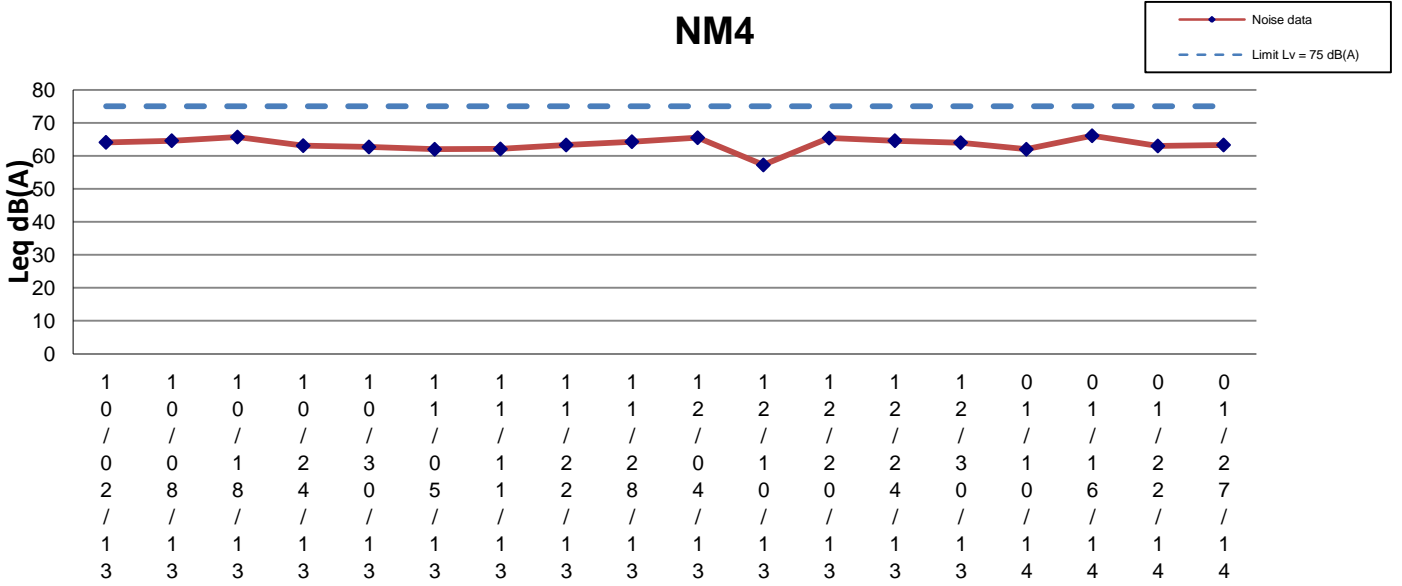


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/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
0	0	1	2	3	0	1	2	2	0	1	2	2	3	1	1	2	2
2	8	8	4	0	5	1	2	8	4	0	0	4	0	0	6	2	7
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1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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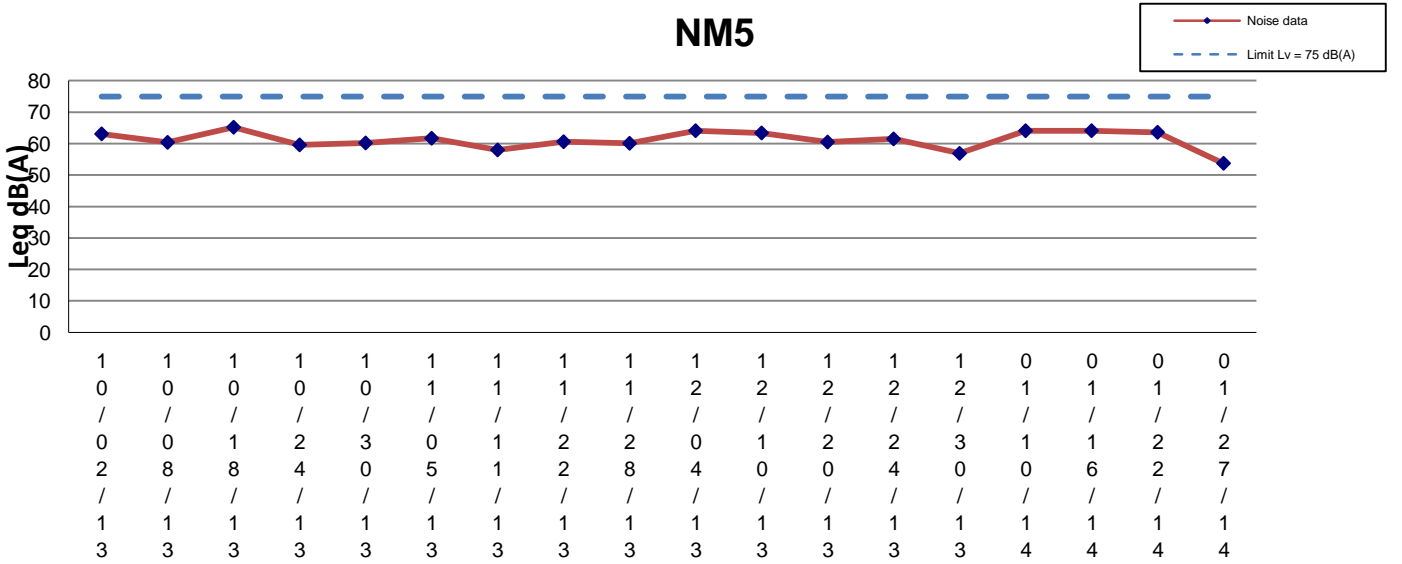
**Remarks:** (1) The monitoring station at Tai Kwong Secondary School (NM1) was relocated to 168 Shek Kwu Lung Village (NM1A) starting from 1 September 2011 due to the mentioned school was closed down;  
 (2) Measured noise level would be shown if Measured noise level (Leq) <= Baseline noise level

	<b>10:16:00 AM</b>	SCALE	N.T.S.	DATE	Feb-14
	Graphical Presentation of Impact Daytime Construction Noise Monitoring Results	CHECK	ENFL	DRAWN	JCYK
		JOB NO.	60102979	APPENDIX No.	I

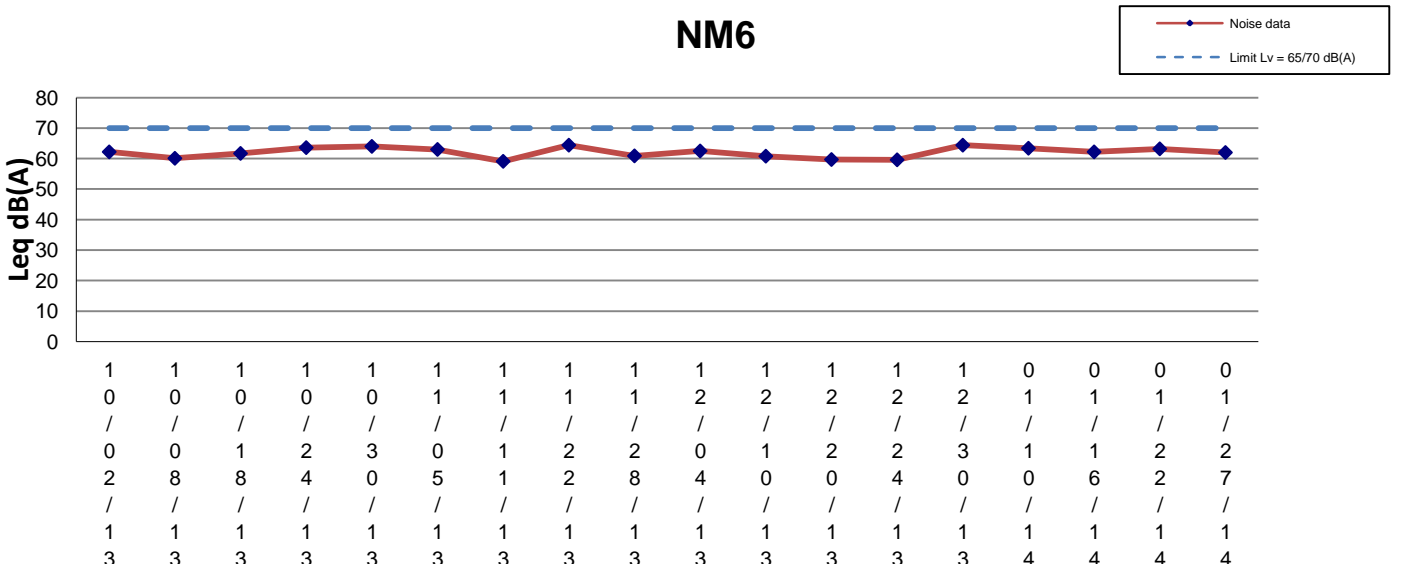
### NM4



### NM5



### NM6

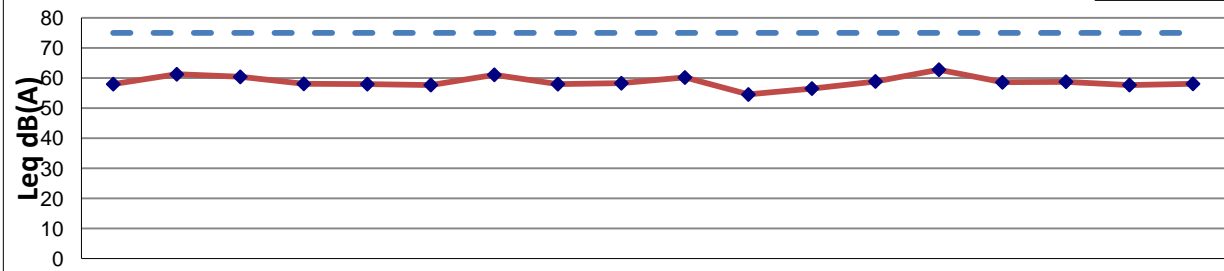
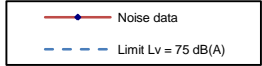


Remark: Measured noise level would be shown if Measured noise level (Leq) <= Baseline noise level

	1:05:00 PM	SCALE	N.T.S.	DATE	Feb-14	
		CHECK	ENFL	DRAWN	JCYK	
	Graphical Presentation of Impact Daytime Construction Noise Monitoring Results	JOB NO.	60102979	APPENDIX No.	I	Rev.



# NM7



1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
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2	8	8	4	0	5	1	2	8	4	0	0	4	0	0	6	2	7	
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1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4

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

<b>AECOM</b>	<b>1:05:00 PM</b>	SCALE	N.T.S.	DATE	Feb-14
		CHECK	ENFL	DRAWN	JCYK
	Graphical Presentation of Impact Daytime Construction Noise Monitoring Results		JOB NO.	60102979	APPENDIX No.

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**APPENDIX J  
EVENT ACTION PLAN**

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## Appendix J – Event Action Plan

### Event / Action Plan for Air Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
<b>Action Level</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Discuss with IEC and Contractor on remedial actions required;</li> <li>6. If exceedance continues, arrange meeting with IEC and ER;</li> <li>7. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>

Event / Action Plan for Air Quality

Event Action Level	Action			
	ET Leader	IEC	ER	Contractor
<b>Limit Level</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC, ER, Contractor and EPD;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal if appropriate.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify IEC, ER, Contractor and EPD;</li> <li>2. Identify source;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase frequency to daily;</li> <li>5. Analyse Contractor's working procedures to determine possible mitigation to be;</li> <li>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by ER until the exceedance is abated.</li> </ol>

Event / Action Plan for Noise Impact

Event Limit Level	Action			
	ET Leader	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> <li>1. Notify IEC and the Contractor.</li> <li>2. Carry out investigation.</li> <li>3. Report the results of investigation to IEC and the Contractor.</li> <li>4. Discuss with the Contractor and formulate remedial measures.</li> <li>5. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review with analysed results submitted by ET.</li> <li>2. Review the proposed remedial measures by the Contractor and advise ER accordingly.</li> <li>3. Supervise the implement of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC.</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Notify, IEC, ER, EPD and the Contractor.</li> <li>2. Identify the source.</li> <li>3. Repeat measurement to confirm findings.</li> <li>4. Increase monitoring frequency.</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented.</li> <li>6. Inform IEC, ER, and EPD the causes &amp; actions taken for the exceedances.</li> <li>7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET Leader and the Contractor on the potential remedial actions.</li> <li>2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly.</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure remedial measures are properly implemented.</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance.</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification.</li> <li>3. Implement the agreed proposals.</li> <li>4. Resubmit proposals if problem still not under control.</li> <li>5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.</li> </ol>



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**APPENDIX K  
SITE INSPECTION SUMMARIES**

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## EM&A Environmental Inspection Record

WIDENING OF TOLO HIGHWAY (STAGE 1)  
BETWEEN ISLAND HOUSE INTERCHANGE AND TAI HANG - INVESTIGATION



### Site Inspection Summary

#### Inspection Information

Contract No.	HY/2008/09 (Between Island House Interchange and Ma Wo)
Date:	03 January 2014
Time:	14:15
Inspection No.:	404

#### Non-compliance

Nil

#### Observations

##### Follow Up Observations

1. Access roads have been moister. The road has been sprayed regularly with water to maintain wet surfaces (Closed).
2. Oil drums were removed (Closed).

##### New Observations

3. The Contractor was reminded to clear the construction waste at the waste skip.
4. Dry surfaces were observed on access roads near the site exit. The Contractor was reminded to spray water to maintain the entire surface wet and wash the wheels of vehicles before leaving the construction site.
5. The Contractor was reminded to clear the stagnant water at the drip tray so as to prevent mosquito breeding.

#### Remarks

Nil

## EM&A Environmental Inspection Record

WIDENING OF TOLO HIGHWAY (STAGE 1)  
BETWEEN ISLAND HOUSE INTERCHANGE AND TAI HANG - INVESTIGATION



### Inspection Information

Contract No.	HY/2008/09 (Between Island House Interchange and Ma Wo)
Date:	08 January 2014
Time:	09:15
Inspection No.:	405

### Non-compliance

Nil
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### Observations

<p><u>Follow Up Observations</u></p> <ol style="list-style-type: none"><li>1. Construction waste at the waste skip has been cleared (Closed).</li><li>2. Water has been sprayed on dry surfaces (Closed).</li><li>3. Stagnant water at the drip tray has been cleared (Closed).</li></ol> <p><u>New Observations</u></p> <p>Nil.</p>
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### Remarks

Nil
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## EM&A Environmental Inspection Record

WIDENING OF TOLO HIGHWAY (STAGE 1)  
BETWEEN ISLAND HOUSE INTERCHANGE AND TAI HANG - INVESTIGATION



### Inspection Information

Contract No.	HY/2009/08 (Between Ma Wo and Tai Hang)
Date:	10 January 2014
Time:	14:00
Inspection No.:	406

### Non-compliance

Nil

### Observations

#### Follow Up Observations

1. Mud at the footpath was cleared and the height of sand bags is increased (Closed).
2. Clear water was diverted to prevent muddy run-off from washing out (Closed).

#### New Observations

Nil.

### Remarks

Nil





## EM&A Environmental Inspection Record

WIDENING OF TOLO HIGHWAY (STAGE 1)  
BETWEEN ISLAND HOUSE INTERCHANGE AND TAI HANG - INVESTIGATION



### Inspection Information

Contract No.	HY/2009/08 (Between Ma Wo and Tai Hang)
Date:	16 January 2014
Time:	14:15
Inspection No.:	408

### Non-compliance

Nil
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### Observations

#### Follow Up Observations

Nil.

#### New Observations

1. The Contractor was reminded to clear the refuse at the waste skip at G40A.

### Remarks

Nil
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## EM&A Environmental Inspection Record

WIDENING OF TOLO HIGHWAY (STAGE 1)  
BETWEEN ISLAND HOUSE INTERCHANGE AND TAI HANG - INVESTIGATION



### Inspection Information

Contract No.	HY/2009/08 (Between Ma Wo and Tai Hang)
Date:	23 January 2014
Time:	09:15
Inspection No.:	410

### Non-compliance

Nil
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### Observations

#### Follow Up Observations

1. The refuse at the waste skip at G40A was cleared (Closed).

#### New Observations

2. The Contractor was reminded to provide a drip tray to the chemical container on Lam Kam Flyover or remove the chemical container.

### Remarks

Nil
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## EM&A Environmental Inspection Record

WIDENING OF TOLO HIGHWAY (STAGE 1)  
BETWEEN ISLAND HOUSE INTERCHANGE AND TAI HANG - INVESTIGATION



### Inspection Information

Contract No.	HY/2009/08 (Between Ma Wo and Tai Hang)
Date:	29 January 2014
Time:	09:00
Inspection No.:	412

### Non-compliance

Nil

### Observations

#### Follow Up Observations

1. The chemical container on Lam Kam Flyover was removed (Closed).

#### New Observations

2. The Contractor was reminded to clear the muddy water at the wheel-washing facilities in Shek Kwu Lung.
3. The Contractor was reminded to clear the general refuse inside and next to the rubbish bin.
4. The Contractor was reminded to wrap the breaker properly with sound-absorptive materials.

### Remarks

Nil



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

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## Appendix L

### Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. followed up by ET this month	Total no. followed up by ET since project commencement
Environmental complaints	13 January 2014 (New)	EPD referred a noise complaint on 13 January 2014 from a resident living in Grand Palisades at Tai Po. The complainant complained about the persistent construction noise emitted between late-night hours on Saturdays and early morning of Sundays at Tolo Highway.	Closed	3	37
	21 January 2014 (New)	EPD referred a complaint on 21 January 2014. The complainant drove via Tai Po Tai Wo Road section of Tolo Highway on 21 January 2014 morning. He observed a lot of muddy water generated from the Tolo Highway widening construction works. Besides, he saw from Google Earth Image Satellite that a pipe was used to draw water for ground washing, causing the outflow of muddy runoff. As the mud on the road becomes dry, dust is generated when vehicles are passing by.  The complainant requests follow-up as soon as possible.	Closed		

	<b>Date Received</b>	<b>Subject</b>	<b>Status</b>	<b>Total no. followed up by ET this month</b>	<b>Total no. followed up by ET since project commencement</b>
	22 January 2014  (Follow-up)	EPD referred a follow-up complaint from a resident of Ma Wo on 22 January 2014. The complaint is about the dust emission at the construction site of the Tolo Highway widening construction works at Ma Wo on 21 January 2014 afternoon and 22 January 2014 morning. The complainant complained that there was insufficient water spraying and tarpaulin sheets were not used. He expressed that the air pollution problem has caused nuisance to him for three years. He requests improvements by the Contractor and follow-up by the EPD.	Closed		
<b>Notification of summons</b>	-	-	-	0	0
<b>Successful Prosecutions</b>	-	-	-	0	0