AECOM

Environmental Protection Department

Contract No. HY/2012/06

Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange

Monthly EM&A Report For April 2019

[05/2019]

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Version:	Rev. 0	Date: 8 May 2019

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Environmental Monitoring and Audit (EM&A) for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling Stage 2 (between Tai Hang to Wo Hop Shek Interchange)
Environmental Permit No. EP-324/2008/E Condition 3.3 – Submission of Monthly EM&A Report – April 2019 for the portion of Stage 2 works under Contract No. HY/2012/06

08 May 2019
By Fax (2805 5028) & Hand

We refer to the Monthly EM&A Report – April 2019 received on 07 May 2019 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – April 2019 (Rev. 0) for the portion of works under Stage 2 of the captioned Project which is managed under Contract No. HY/2012/06.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

Steven Tang
Independent Environmental Checker

c.c.

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

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

The Project is a designated project and governed by an Environmental Permit (EP-324/2008) issued by the EPD on 23 December 2008. Subsequently, the EPD issued Variation of Environmental Permits of EP-324/2008/A, EP-324/2008/B, EP-324/2008/C and EP-324/2008/D on 31 January 2012, 17 March 2014, 27 March 2015 and 27 August 2015 respectively. The current valid VEP was applied on 29 December 2016 and the VEP (EP-324/2008/E) was subsequently granted on 26 January 2017.

The construction works for this Project are delivered in 2 stages i.e. Stage 1 (between Island House Interchange and Tai Hang) and Stage 2 (between Tai Hang and Wo Hop Shek Interchange). Stage 2 would be implemented under three works contracts. Contract No. HY/2012/06 "Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange" and the entrusted portion to CEDD under Contract No. CV/2012/09 "Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – Contract 3". In addition, Contract No. "Provision of Bus-Bus Interchange on Fanling Highway Kowloon Bound" was carried out within the site boundary of Contract No. 02/HY/2015. This report focuses on Contract No. HY/2012/06 "Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange" in Stage 2 of the Project and "Provision of Bus-Bus Interchange on Fanling Highway Kowloon Bound" under Works Order Nos. CB128520-5 and CB128519-0 in Contract No. 02/HY/2015 "Highway Department Term Contract (Management and Maintenance of Roads in Tai Po and North District excluding High Speed Roads 2016-2022)". The construction works of Works Order Nos. CB128520-5 and CB128519-0 under Contract No. 02/HY/2015 have been completed on 23 May 2018.

Pursuant to the EP (EP-324/2008/E) Condition 2.7, the Capture Survey Trip Report for Ma Wat River Northern Meander (Version 2) for the Project was submitted on 24 December 2013 by the Environmental Team (ET) and verified by the Independent Environmental Checker (IEC) on 6 January 2014.

The construction phase of the Contract under the EP and the Environmental Monitoring and Audit (EM&A) programme of the contract commenced on 21 November 2013. The impact environmental monitoring and audit includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 30 April 2019. As informed by the Contractor, construction activities of Contract No. HY/2012/06 in the reporting period were:

- Site clearance
- Pipe laying
- Retaining wall construction
- Noise Barrier
- Excavation
- Backfilling
- Drainage
- Bridge construction

Reporting Change

There was no reporting change required in the reporting period.

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 period.

Breaches of Action and Limit Levels for Noise

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

Complaint, Notification of Summons and Successful Prosecution

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

Future Key Issues

Key issues to be considered in the coming month include:

- Properly store and label oils and chemicals on site;
- Chemical, chemical waste and waste management;
- Collection of construction waste should be carried out regularly;
- Properly maintain all drainage facilities and wheel washing facilities on site;
- Exposed slopes should be covered up properly if no temporary work will be conducted;
- Quieter powered mechanical equipment should be used;
- Suppress dust generated from excavation activities and haul road traffic; and
- Tree protective measures for all retained trees should be well maintained.

1 INTRODUCTION

1.1 Background

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

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

1.1.3. The Project is a designated project and governed by an Environmental Permit (EP-324/2008) issued by the EPD on 23 December 2008. Subsequently, the EPD issued Variation of Environmental Permits of EP-324/2008/A, EP-324/2008/B, EP-324/2008/C and EP-324/2008/D on 31 January 2012, 17 March 2014, 27 March 2015 and 27 August 2015 respectively. The current valid VEP was applied on 29 December 2016 and the VEP (EP-324/2008/E) was subsequently granted on 26 January 2017.

1.1.4. The scope of the Project comprises mainly:-

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

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

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

1.1.5. The construction works for this Project will be delivered in 2 stages i.e. Stage 1 (between Island House Interchange and Tai Hang) and Stage 2 (between Tai Hang and Wo Hop Shek Interchange). Stage 2 would be implemented under two works contracts. Contract No. HY/2012/06 "Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange" and the entrusted portion to CEDD under Contract No. CV/2012/09 "Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – Contract 3". In addition, Contract No. "Provision of Bus-Bus Interchange on Fanling Highway Kowloon Bound" was carried out within the site boundary of Contract No. 02/HY/2015. This report focuses on Contract No. HY/2012/06 "Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange" in Stage 2 of the Project and "Provision of Bus-Bus Interchange on Fanling Highway Kowloon Bound" under Works Order Nos. CB128520-5 and CB128519-0 in Contract No. 02/HY/2015 "Highway Department Term Contract (Management and Maintenance of Roads in Tai Po and North District excluding High Speed Roads 2016-2022)".

1.1.6. Hyder-Arup-Black and Veatch Joint Venture (HABVJV) are appointed by Highways Department (HyD) as the consultants for the design and construction assignment for the Tolo project under Agreement No. CE 58/2000 Supplementary Agreement No. 3 (SA3) (i.e. the Engineer for Contract No. HY/2012/06).

1.1.7. China State Construction Engineering (Hong Kong) Ltd. (CSHK) was commissioned as the Contractor of Contract No. HY/2012/06. Chiu Hing Construction & Transportation Company Limited (Chiu Hing) was commissioned as the Contractor of Contract No. 02/HY/2015. The construction works of Works Order Nos. CB128520-5 and CB128519-0 under Contract No. 02/HY/2015 have been completed on 23 May 2018.

1.1.8. AECOM Asia Co. Ltd. was commissioned by China State Construction Engineering (Hong Kong) Limited as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for the Contract and Mott MacDonald Hong Kong Ltd. acts as the Independent Environmental Checker (IEC) for the Contract.

1.1.9. The construction phase of the Contract under the EP commenced on 21 November 2013.

1.1.10. According to the updated EM&A Manual of Stage 2 of the Project, there is a need of an EM&A programme including air quality and noise monitoring. The EM&A programme for Stage 2 of the Project commenced on 21 November 2013.

1.2 Scope of Report

1.2.1 This is the sixty-seventh monthly EM&A Report under the Contract No. HY/2012/06 "Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for the Contract in April 2019.

1.3 Project Organization

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

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
ER (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer	Edwin Chung	6115 0818	2638 0950
IEC (Mott MacDonald Hong Kong Limited)	Independent Environmental Checker	Steven Tang	2828 5920	2827 1823
Contractor of [HY/2012/06] (China State Construction Engineering (Hong Kong) Limited)	Environmental Officer	Michael Tsang	9277 4956	2672 2501
		C C Chow	9679 6315	2672 2501
Contractor of [02/HY/2015] (Chiu Hing Construction & Transportation Company Limited)	Safety Officer	Marty Tai	9106 5318	-

Party	Position	Name	Telephone	Fax
ET (AECOM Asia Company Limited)	ET Leader	Y W Fung	3922 9393	3922 9797

1.4 Summary of Construction Works

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

1.4.2 Details of the construction works of Contract No. HY/2012/06 carried out by the Contractor in this reporting period are listed below:

- Site clearance
- Pipe laying
- Retaining wall construction
- Noise Barrier
- Excavation
- Backfilling
- Drainage
- Bridge construction

1.4.3 The Construction Programme is shown in Appendix B.

1.4.4 The general layout plan of the Project site of Contract No. HY/2012/06 and Works Order Nos. CB128520-5 and CB128519-0 under 02/HY/2015 showing the contract areas are shown in Figure 1.1 and Figure 1.2 respectively.

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

1.5 Summary of EM&A Programme Requirements

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

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

2 AIR QUALITY MONITORING

2.1 Monitoring Requirements

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

2.2 Monitoring Equipment

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

Table 2.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
Portable direct reading dust meter (1-hour TSP)	Sibata Digital Dust Monitor (Model No. LD-3 & LD-3B)
High Volume Sampler (24-hour TSP)	Tisch Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. TE-5025A)

2.3 Monitoring Locations

2.3.1 The monitoring station was set up at the proposed location in accordance with updated EM&A Manual. Table 2.2 describes details of the monitoring station. The locations are shown in Figure 1.3a.

Table 2.2 Locations of Impact Air Quality Monitoring Station

Location	Monitoring Station
AM2 (SR2)	Fanling Government Secondary School

2.4 Monitoring Parameters and Frequency

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

Table 2.3 Air Quality Monitoring Parameters and Frequency

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

2.5 Monitoring Methodology

2.5.1 24-hour TSP Monitoring

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

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

(b) Preparation of Filter Papers

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

(c) Field Monitoring

(i) The power supply was checked to ensure the HVS works properly.
(ii) The filter holder and the area surrounding the filter were cleaned.
(iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
(iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
(v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
(vi) Then the shelter lid was closed and was secured with the aluminum strip.
(vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
(viii) A new flow rate record sheet was set into the flow recorder.
(ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.1 m^3/min, and complied with the range specified in the updated EM&A Manual (i.e. 0.6-1.7 m^3/min).
(x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
(xi) The initial elapsed time was recorded.
(xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
(xiii) The final elapsed time was recorded.

(xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
(xv) It was then placed in a clean plastic envelope and sealed.
(xvi) All monitoring information was recorded on a standard data sheet.
(xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

(d) Maintenance and Calibration

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

2.5.2 1-hour TSP Monitoring

(a) Measuring Procedures

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

(b) Maintenance and Calibration

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

2.6 Monitoring Schedule for the Reporting period

2.6.1 The schedule for environmental monitoring in April 2019 is provided in Appendix F.

2.7 Results and Observations

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

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

Location	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM2 (Fanling Government Secondary School)	61.9	57.2 – 71.9	317.8	500

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

Location	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM2 (Fanling Government Secondary School)	22.4	11.0 – 32.0	200.7	260

2.7.2 The major dust source during the monitoring was mainly from nearby traffic emission.

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

2.7.4 The event action plan is annexed in Appendix J.

2.7.5 Weather information including wind speed and wind direction is annexed in Appendix H. The information was obtained from the Hong Kong Observatory Tai Po and Tai Mei Tuk Automatic Weather Stations.

3 NOISE MONITORING

3.1 Monitoring Requirements

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

3.2 Monitoring Equipment

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

Table 3.1 Noise Monitoring Equipment

Equipment	Brand and Model
Integrated Sound Level Meter	B&K 2238, B&K 2250
Acoustic Calibrator	B&K 4231, Rion Co., Ltd. NC-74

3.3 Monitoring Locations

3.3.1 Monitoring stations M2 and M3 were set up at the proposed locations in accordance with updated EM&A Manual. Figure 1.3a-b shows the locations of the monitoring stations. Table 3.2 describes the details of the monitoring stations.

Table 3.2 Locations of Impact Noise Monitoring Stations

Monitoring Station	Location	Description
M2	West Tai Wo	1.2m from the ground floor free-field of the Residential
M3	Fanling Government Secondary School	1m from the exterior of the roof top façade of the school

3.4 Monitoring Parameters and Frequency

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

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

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

3.5 Monitoring Methodology

3.5.1 Monitoring Procedure

(a) Façade measurement was made at monitoring station M3, while free-field measurement was made at monitoring station M2.

(b) The sound level meter was set on a tripod at a height of 1.2 m above the ground for free-field measurements at monitoring station M2.

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

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

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

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

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

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

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

3.5.2 Maintenance and Calibration

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

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

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

3.6 Monitoring Schedule for the Reporting period

3.6.1 The schedule for environmental monitoring in April 2019 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

Location	Average, dB(A), $L_{eq\ (30\ mins)}$	Range, dB(A), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
M2* (West Tai Wo)	67.5	64.8 – 68.6	75
M3# (Fanling Government Secondary School)	64.7	60.1 – 69.2	65/70

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

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

3.7.3 Major noise sources during noise monitoring in the reporting period were mainly road traffic noise.

3.7.4 The event action plan is annexed in Appendix J.

4 ENVIRONMENTAL SITE INSPECTION AND AUDIT

4.1 Site Inspection

4.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Contract. In the reporting period, 5 site inspections were carried out respectively on 2, 9, 18, 23 and 30 April 2019 for the Contract. While no specific observation was recorded, recommendations on remedial actions were given to the Contractor for precautionary purpose.

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

4.1.3 Particular observations during the site inspections are described below:

Contract No. HY/2012/06

Air Quality

4.1.4 Exposed stockpiles of dusty materials without proper cover were observed at Tai Hang Bridge and W78. The Contractor was advised to cover the stockpiles entirely with impervious sheeting for dust suppression.

Noise

4.1.5 No adverse observation was identified in the reporting period.

Water Quality

4.1.6 No adverse observation was identified in the reporting period.

Chemical and Waste Management

4.1.7 Excessive construction waste and general refuse were observed at SA328. The Contractor was advised to segregate construction waste and general refuse prior to disposing of regularly.

4.1.8 Retained water in drip trays of chemical container and generator was observed at NB54. The Contractor was advised to clean up the drip trays to prevent overflow and potential leakage.

4.1.9 Chemical containers without secondary containment were observed at W76 and near Wo Hop Shek Bridge. The Contractor was advised to provide drip trays to the chemical containers to prevent potential leakage.

Landscape and Visual Impact

4.1.10 No adverse observation was identified in the reporting period.

Miscellaneous

4.1.11 The Contractor was reminded to remove the stagnant water observed at SA329 or apply larvicidal oil to prevent mosquito breeding.

4.2 Advice on the Solid and Liquid Waste Management Status

4.2.1 Contract No. HY/2012/06 has registered as chemical waste producers for the Contract. C&D material sorting was carried out on site. Sufficient numbers of receptacles were available for general refuse collection.

4.2.2 As advised by the Contractor of Contract No. HY/2012/06, 2,371 m^3 of inert C&D material was generated in the reporting month (499 m^3 disposed of as public fill to Tuen Mun 38, 1,424 m^3 of inert C&D materials was reused on site, 448 m^3 of inert C&D materials was reused in other projects and 0 m^3 was broken concrete). For C&D wastes, 115 m^3 of general refuse was disposed of at NENT landfill, 68 kg of paper/cardboard packaging, 2,466 kg of plastics and 0 kg of metals were collected by recycling Contractors, and 0 kg of chemical wastes was collected by licensed Contractors in the reporting period.

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

Table 4.1 Summary of Waste Flow Table for Contract No. HY/2012/06

Waste Type	Actual Amount	Disposal/Reuse Locations
Inert C&D materials disposed as public fill	499 m^3	Tuen Mun 38
Broken concrete	0 m^3	Tuen Mun 38
C&D wastes disposed as general refuse	115 m^3	NENT Landfill
Paper/cardboard packaging	68 kg	Recycling Facilities
Plastics	2,466 kg	Recycling Facilities
Metals	0 kg	Recycling Facilities
C&D materials reused on site	1,424 m^3	Site Area
C&D materials reused in other projects	448 m^3	Other projects
Chemical wastes	0 kg	Licensed Contractors

4.2.4 The Contractors were 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 2 of the Project and valid in the reporting period is summarized in Table 4.2.

Table 4.2 Summary of Environmental Licensing and Permit Status

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License / Permit Holder	Remarks
			From	To		
EIAO	Environmental Permit	EP-324/2008/E	26/01/2017	N/A	HyD	
WPCO	Discharge License (Site)	WT-00031556-2018	20/09/2018	30/09/2023	CSHK	--
		WT00027968-2017	22/05/2017	31/05/2022	Chiu Hing	--

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License / Permit Holder	Remarks
			From	To		
WDO	Chemical Waste Producer Registration	5213-722-C3822-01	05/09/2013	N/A	CSHK	Chemical waste produced in Contract HY/2012/06
WDO	Billing Account for Disposal of Construction Waste	7017860	N/A	N/A	CSHK	Waste disposal in Contract HY/2012/06
		7024392	N/A	N/A	Chiu Hing	Waste disposal in Contract 02/HY/2015
APCO	Notification Under Air Pollution Control (Construction Dust) Regulation	361991	15/07/2013	N/A	CSHK	--
		414360	08/03/2017	N/A	Chiu Hing	--
NCO	Construction Noise Permit	GW-RN0792-18	18/01/2019	17/07/2019	CSHK	Zone 2B Dismantling of Metal Scaffold at KLHVB over MTR's Tracks
		GW-RN0026-19	18/01/2019	26/04/2019	CSHK	Zone 4 Sign Gantry Installation
		GW-RN0103-19	24/02/2019	21/04/2019	CSHK	NB, Zone 4 Road Marking Alternation
		GW-RN0104-19	24/02/2019	21/04/2019	CSHK	SB, Zone 4 Road Marking Alternation
		GW-RN0110-19	24/02/2019	28/04/2019	CSHK	SB, Zone 1 & 2A Road Marking Alternation
		GW-RN0124-19	07/03/2019	14/06/2019	CSHK	SB & NB, Zone 1 & 2A Road Resurfacing
		GW-RN0127-19	06/03/2019	11/08/2019	CSHK	NB, Zone1&2A Road Marking Alternation
		GW-RN0131-19	09/03/2019	12/04/2019	CSHK	Zone 2B Erection of Tai Wo Footbridge
		GW-RN0178-19	21/03/2019	20/05/2019	CSHK	SB Zone 4 Installation of Traffic Sign

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License / Permit Holder	Remarks
			From	To		
		GW-RN0179-19	21/03/2019	13/07/2019	CSHK	PWR & TWSRW, Zone 4 Tree Felling
		GW-RN0221-19	13/04/2019	24/08/2019	CSHK	Zone 1 & 2 Sign Gantry Installation
		GW-RN0223-19	13/04/2019	20/09/2019	CSHK	Zone 2B Tai Wo Footbridge Concreting
		GW-RN0273-19	27/04/2019	07/09/2019	CSHK	Zone 4 Sign Gantry Installtion
		GW-RN0277-19	28/04/2019	14/07/2019	CSHK	NB, Zone 4 Road Marking Alternation
		GW-RN0271-19	28/04/2019	14/07/2019	CSHK	SB, Zone 4 Road Marking Alternation

4.4 Implementation Status of Environmental Mitigation Measures

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

4.5 Summary of Exceedances of the Environmental Quality Performance Limit

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

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

4.6 Summary of Complaints, Notification of Summons and Successful Prosecutions

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

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

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

5 FUTURE KEY ISSUES

5.1 Construction Programme for the Coming Months

5.1.1 The major construction works for Contract No. HY/2012/06 in May 2019 will be:-

- Site clearance
- Pipe laying
- Noise Barrier
- Excavation
- Backfilling
- Drainage
- Bridge construction
- Demolition of temporary bridge

5.2 Key Issues for the Coming Month

5.2.1 Key issues to be considered in May 2019:-

- Properly store and label oils and chemicals on site;
- Chemical, chemical waste and waste management;
- Collection of construction waste should be carried out regularly;
- Properly maintain all drainage facilities and wheel washing facilities on site;
- Exposed slopes should be covered up properly if no temporary work will be conducted;
- Quieter powered mechanical equipment should be used;
- Suppress dust generated from excavation activities and haul road traffic; and
- Tree protective measures for all retained trees should be well maintained.

5.3 Monitoring Schedule for the Coming Month

5.3.1 The tentative schedule for environmental monitoring in May 2019 is provided in Appendix F.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

6.1.1 The construction phase and EM&A programme of the Contract commenced on 21 November 2013.

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

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

6.1.4 5 environmental site inspections were carried out in April 2019. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.

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

6.2 Recommendations

6.2.1 According to the environmental site inspections performed in the reporting period, the following recommendations on remedial actions were provided to the Contractor for precautionary purpose:

Contract No. HY/2012/06

Air Quality Impact

- The Contractor was advised to cover the exposed stockpiles of dusty materials entirely with impervious sheeting for dust suppression.

Noise Impact

- No adverse observation was identified in the reporting period.

Water Quality Impact

- No adverse observation was identified in the reporting period.

Chemical and Waste Management

- The Contractor was advised to segregate construction waste and general refuse prior to disposing of regularly.
- The Contractor was advised to clean up the retained water in drip trays of the chemical container and generator to prevent overflow and potential leakage.
- The Contractor was advised to provide drip trays to the chemical containers to prevent potential leakage.

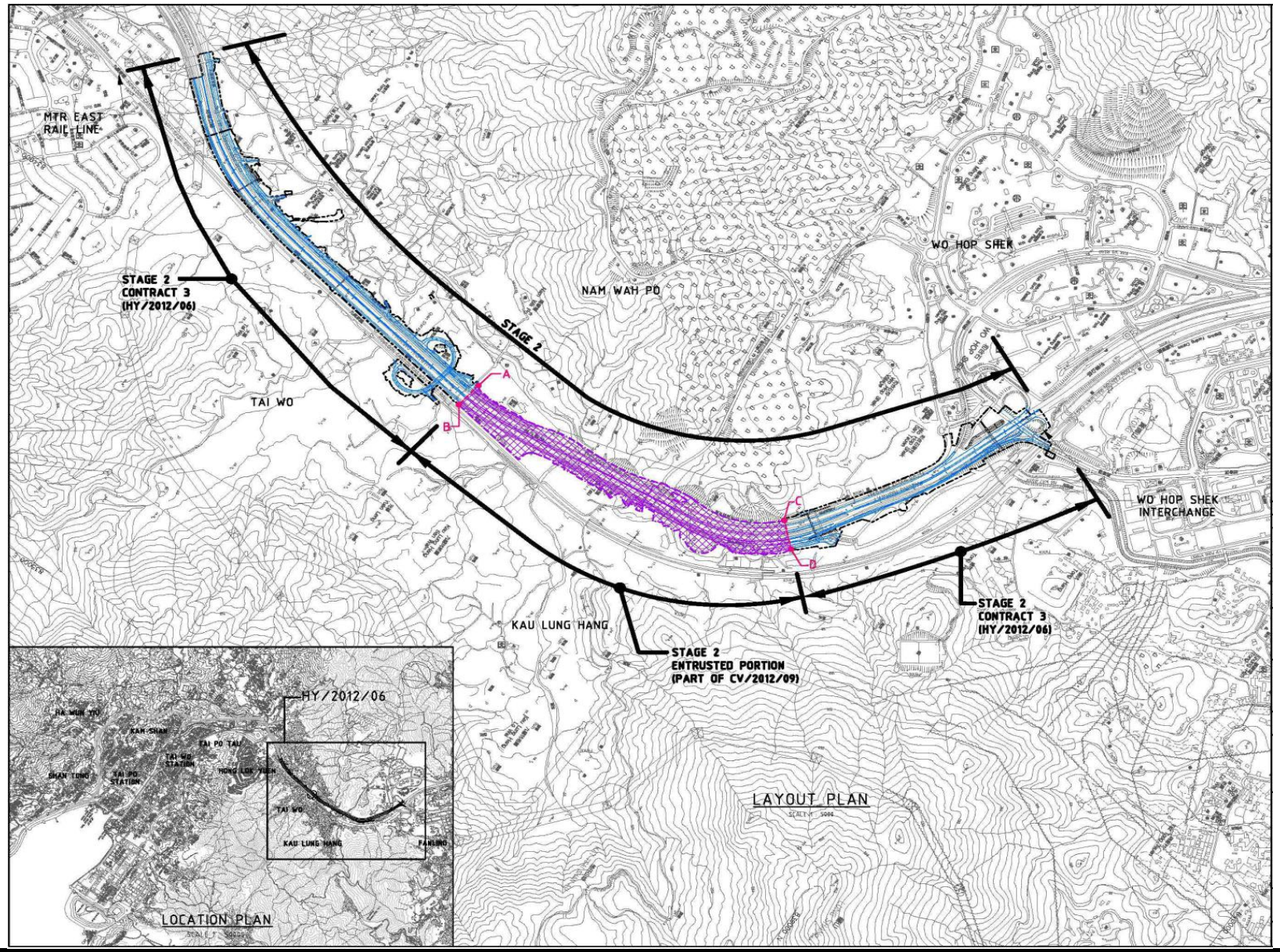
Landscape and Visual Impact.

- No adverse observation was identified in the reporting period.

Miscellaneous

- The Contractor was advised to remove the stagnant water or apply larvicidal oil to prevent mosquito breeding.

FIGURES



	EASTING	NORTHING
A	833867.6259	837386.5638
B	833945.6833	837375.1412
C	833721.8117	838310.5250
D	833782.3083	838375.1303

CONTRACT NO. HY/2012/06

WIDENING OF FANLING HIGHWAY

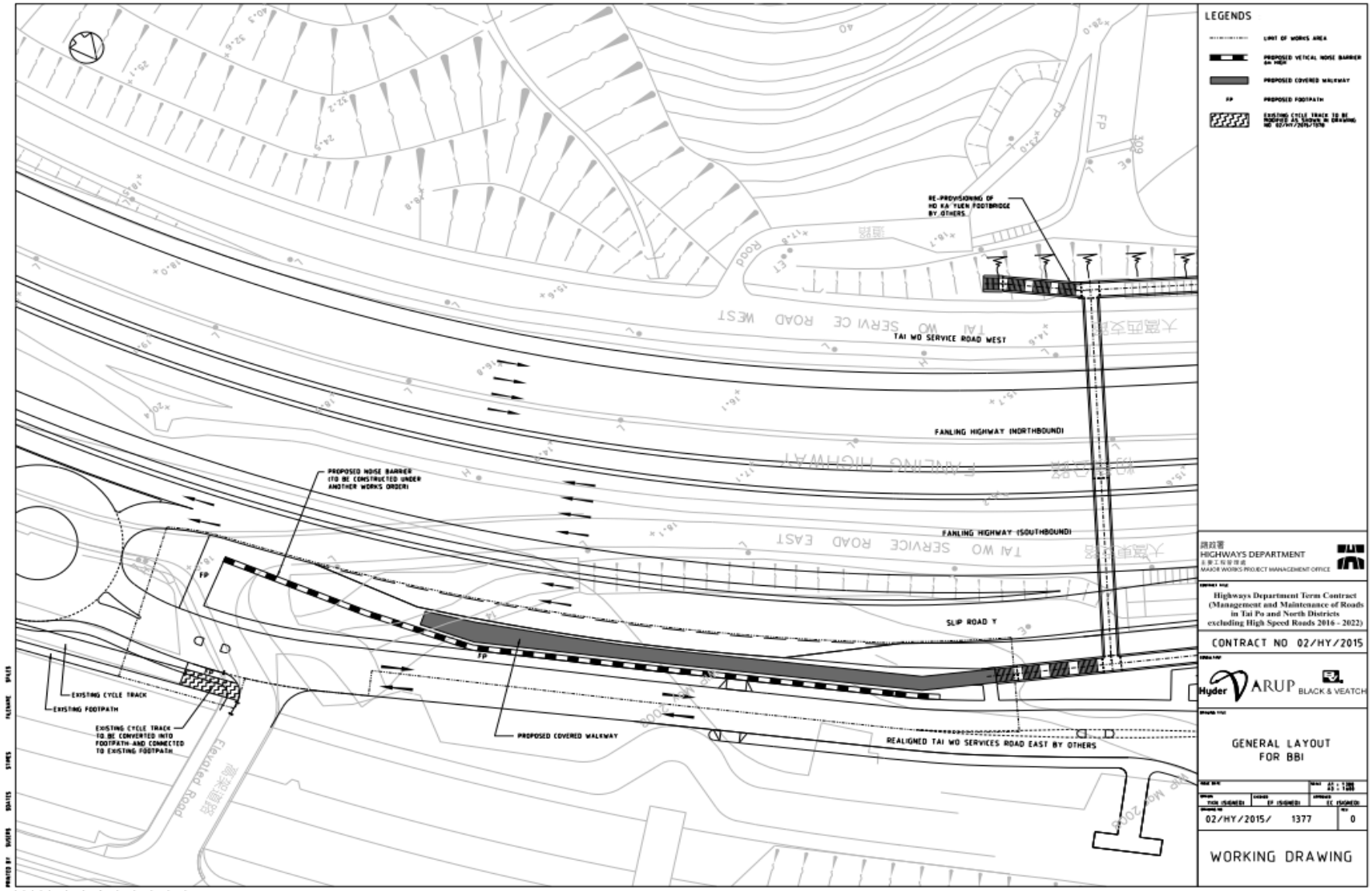
- TAI HANG TO WO HOP SHEK INTERCHANGE

AECOM

Layout Plan

Date: Dec 2013

Figure 1.1



CONTRACT NO. 02/HY/2015

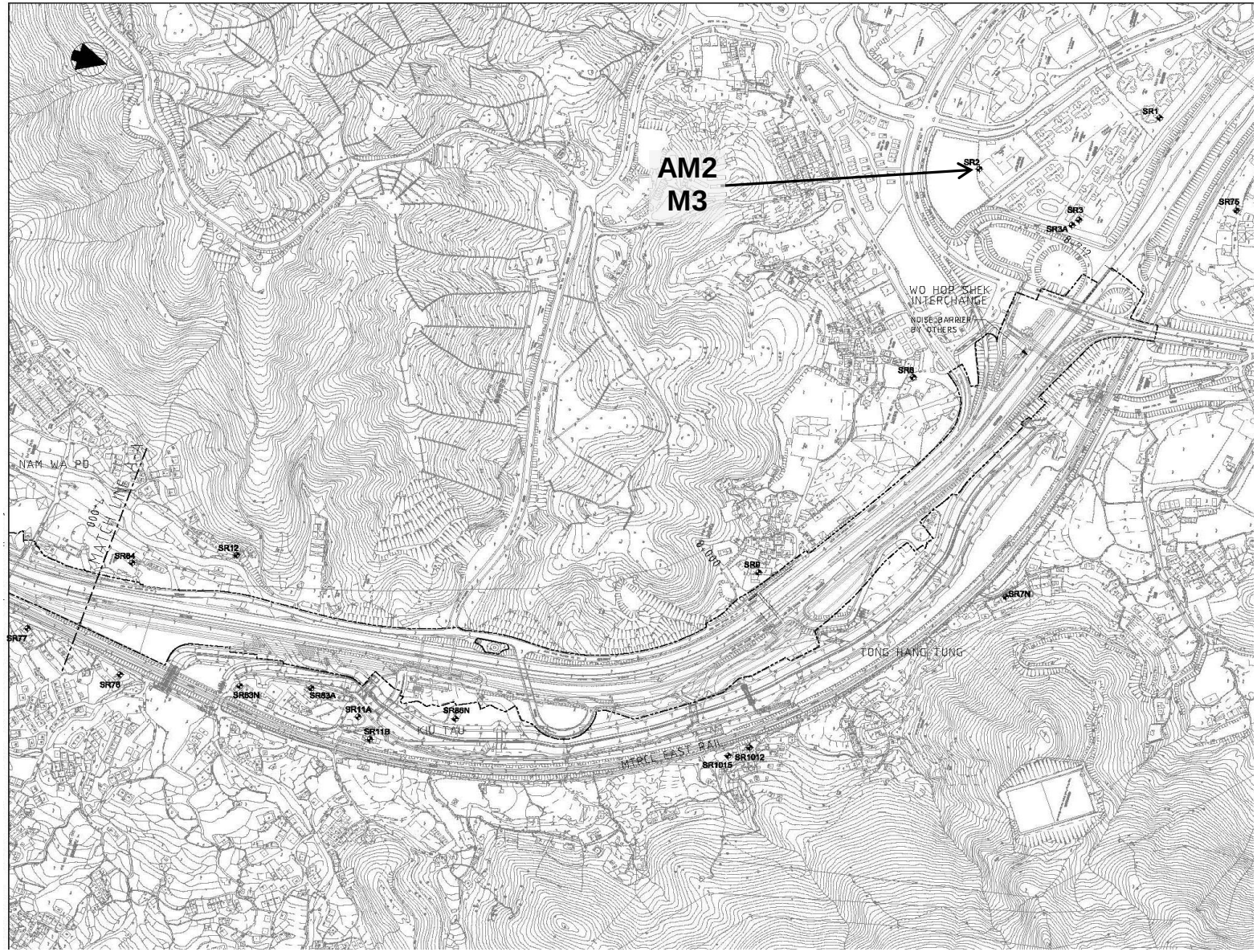
PROVISION OF BUS-BUS INTERCHANGE ON FANLING HIGHWAY KOWLOON BOUND

AECOM

Layout Plan

Date: Apr 2017

Figure 1.2



CONTRACT NO. HY/2012/06

WIDENING OF FANLING HIGHWAY

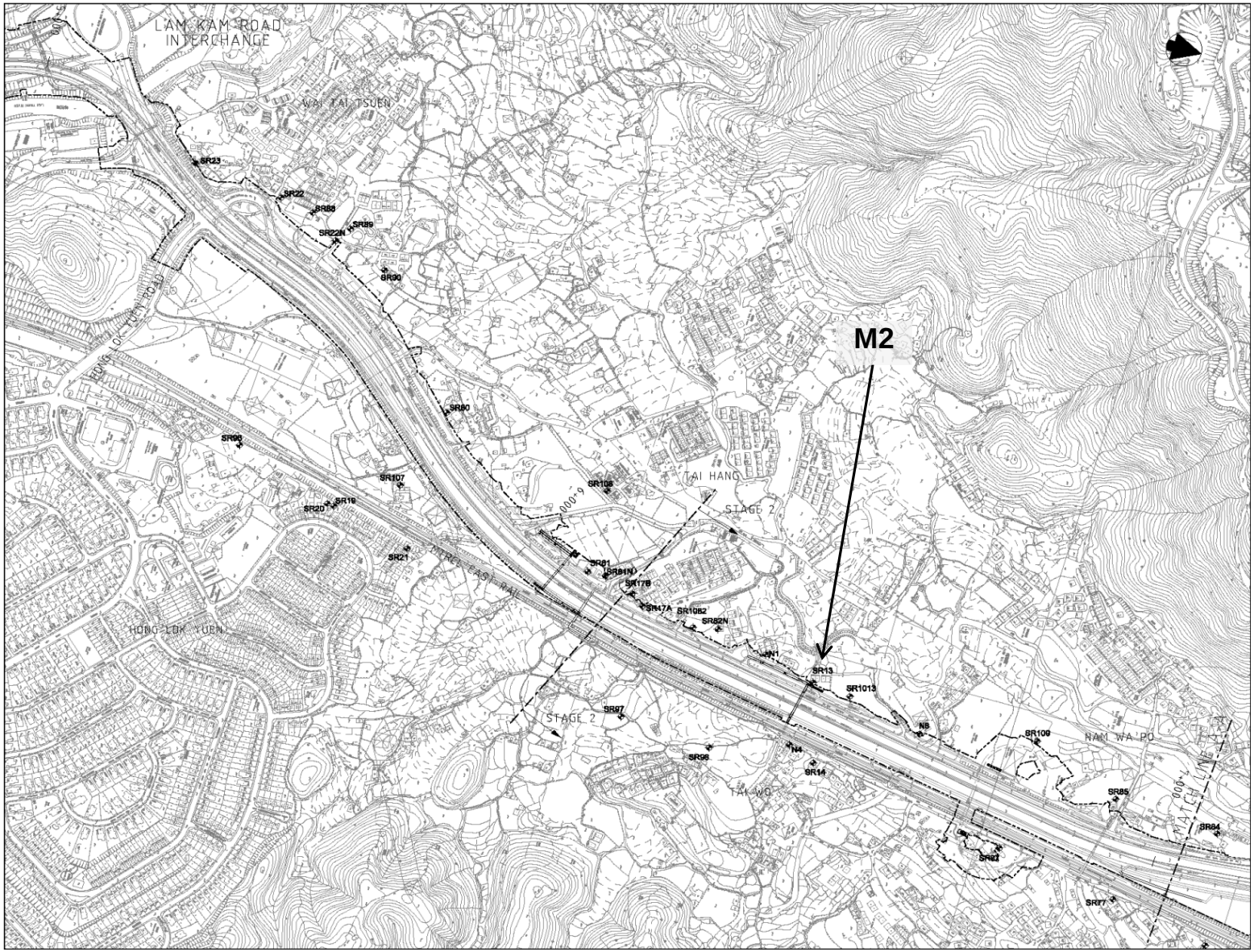
- TAI HANG TO WO HOP SHEK INTERCHANGE

AECOM

Locations of Monitoring Station

Date: Dec 2013

Figure 1.3a



CONTRACT NO. HY/2012/06

WIDENING OF FANLING HIGHWAY

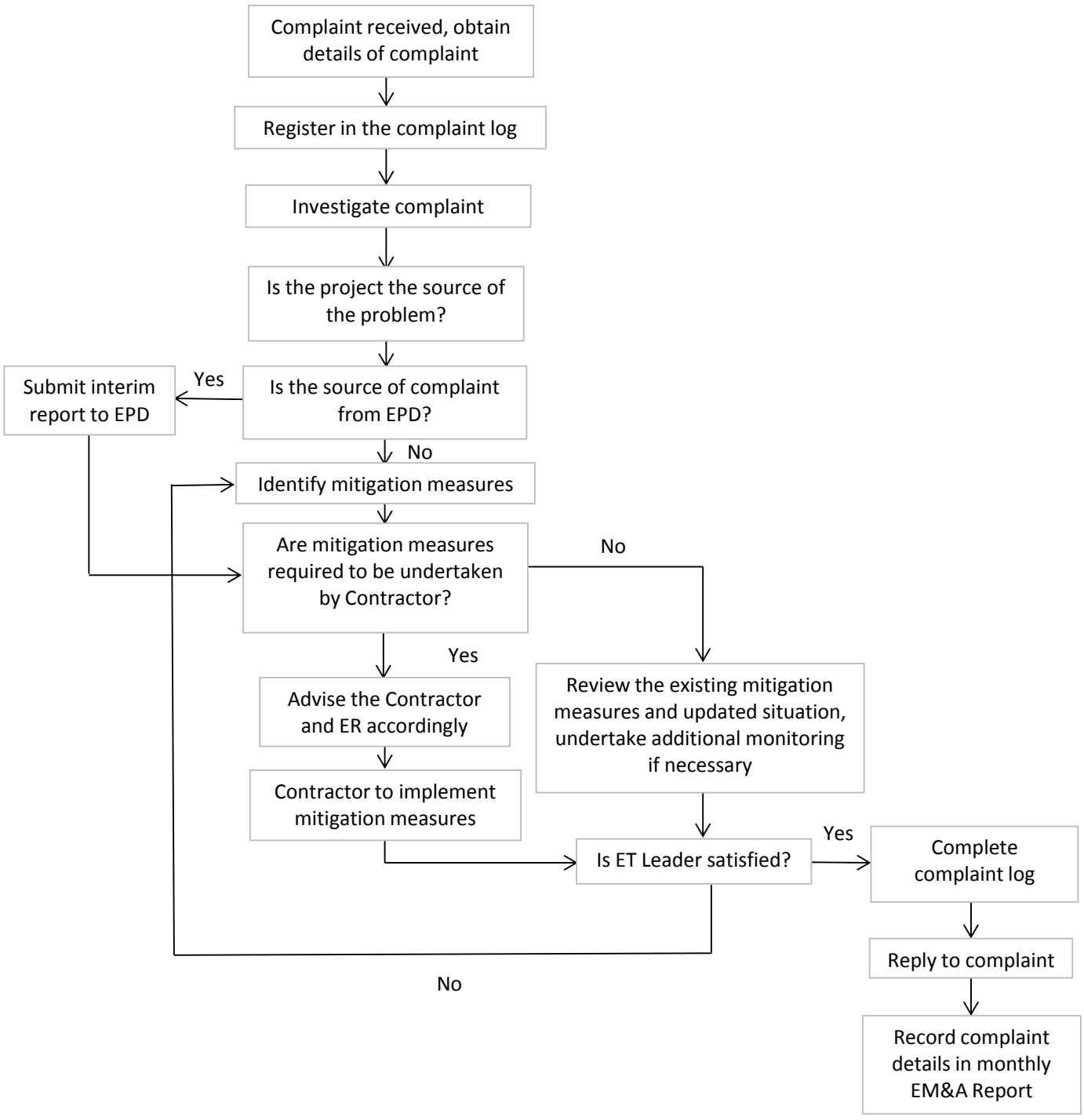
- TAI HANG TO WO HOP SHEK INTERCHANGE

AECOM

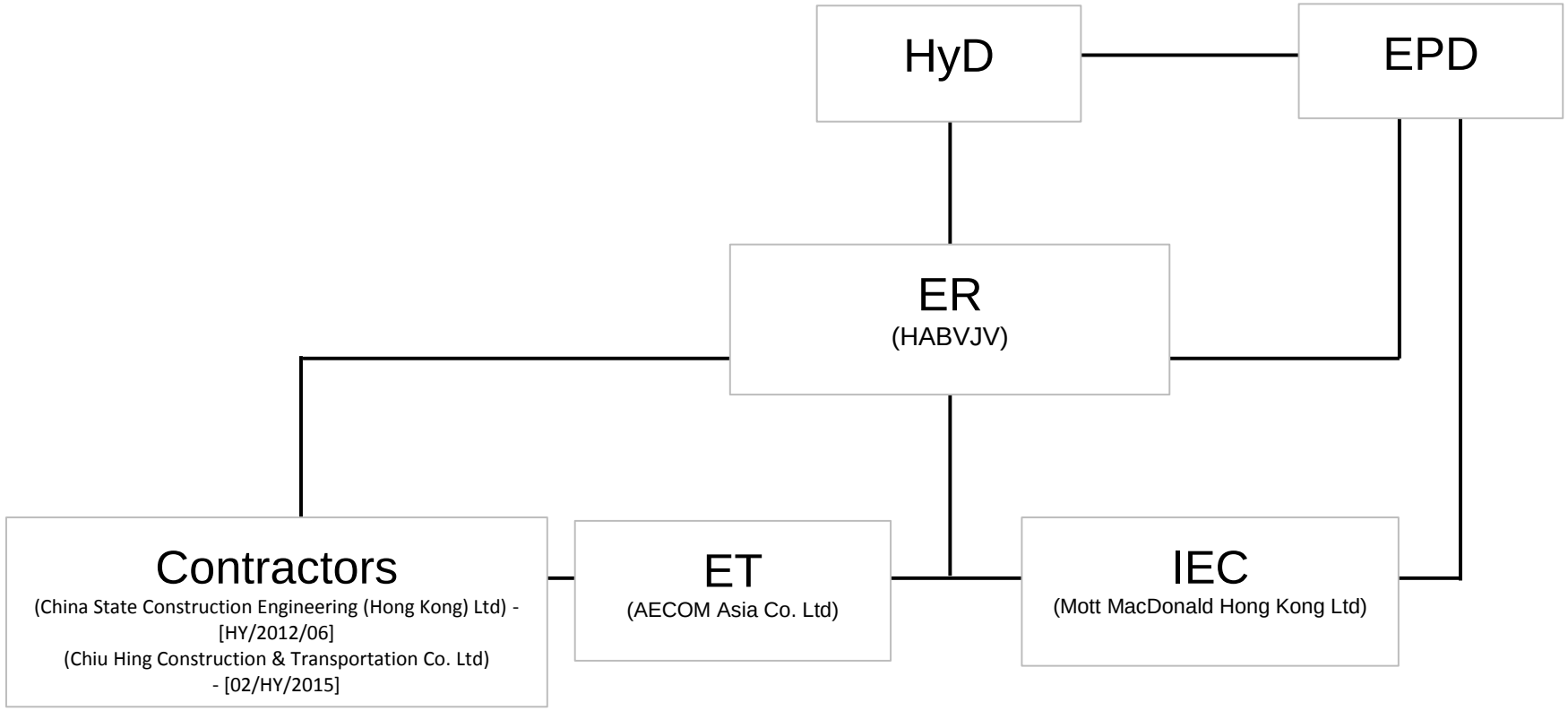
Locations of Monitoring Station

Date: Dec 2013

Figure 1.3b



APPENDIX A
PROJECT ORGANIZATION STRUCTURE



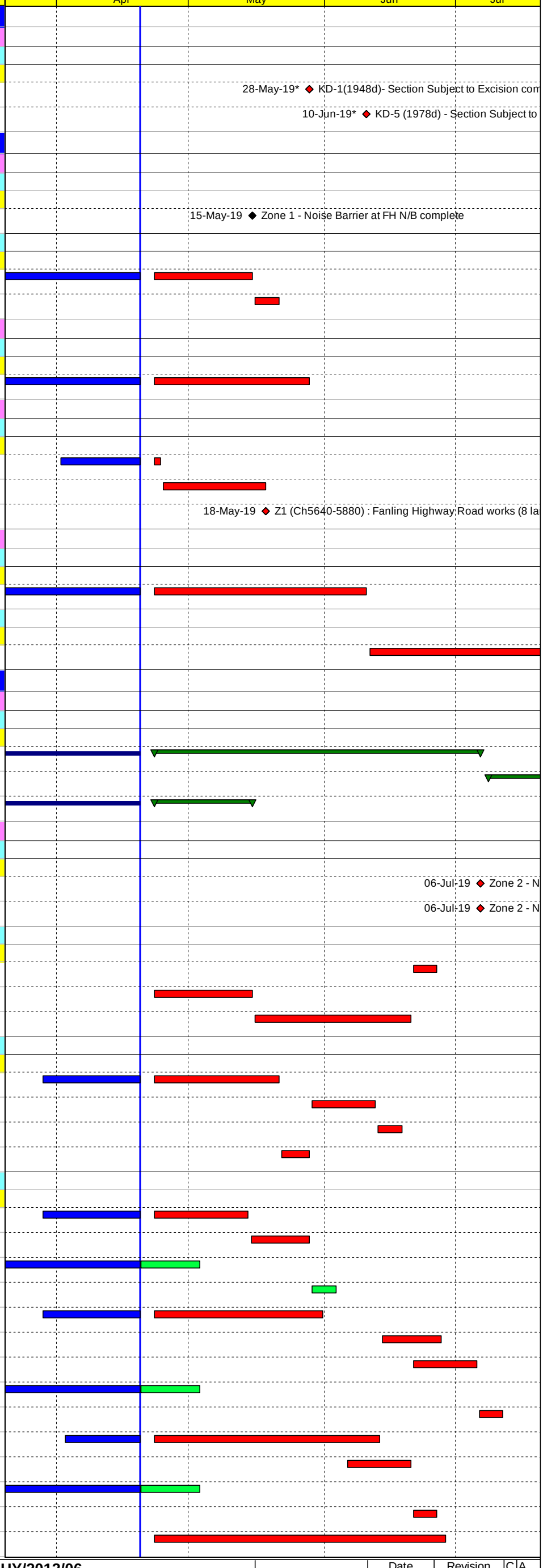
CONTRACT NO. HY/2012/06
WIDENING OF FANLING HIGHWAY
- TAI HANG TO WO HOP SHEK INTERCHANGE

AECOM

Project Organization Structure

APPENDIX B
CONSTRUCTION PROGRAMMES

Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
Contract Condition							
General							
Contract Condition							
Contract Condition							
KD01	KD-1(1948d)- Section Subject to Excision comprises all works(excl.	0%	0	0		28-May-19	2
KD05	KD-5 (1978d) - Section Subject to Excision comprise Landscape	0%	0	0		10-Jun-19*	0
ZONE 1 (Ch. 5640 to 5880)							
Noise Barrier Along Fanling Highway N/B							
Site Clearance & Demolition of Existing Structure							
General							
ADVZ10130	Zone 1 - Noise Barrier at FH N/B complete	0%	0	0		15-May-19	13
NB43B (Ch.5640-5880)-FH N/B Side							
Noise Barrier Works							
NB01217	NB43B-1 - Footing & Wall Structure (bay 1-2)	26.92%	19	26	20-Mar-19 A	15-May-19	8
NB01250	NB43B-1 - NB post & panel installation	0%	5	5	16-May-19	21-May-19	8
TWSR-West Construction							
Drainage & Road Works							
Ch 5640-5880							
RDZ10100	Z1: New Tai Wo Service Road West - Drainage & Road works near N/B	86.05%	30	215	07-Aug-18 A	28-May-19	2
Fanling Highway Construction							
Drainage & Road Works							
Ch 5640-5880							
RDZ11070	Z1 (Ch5640-5880) : Fanling Highway S/B - road works (lane 2)	87.5%	2	16	02-Apr-19 A	24-Apr-19	10
RDZ11080	Z1 (Ch5640-5880) : Fanling Highway S/B - road works (lane 1)	0%	20	20	25-Apr-19	18-May-19	10
RDZ11090	Z1 (Ch5640-5880) : Fanling Highway Road works (8 lanes)	0%	0	0		18-May-19	10
Other Works							
Landscape Softwork							
Landscape Works							
Z1.LW.1000	Landscape soft work Zone1	72.79%	40	147	08-Dec-18 A	10-Jun-19	0
Establishment Works							
Establishment Works							
Z1.EW.1000	Establishment work Zone1	0%	365	365	11-Jun-19	09-Jun-20	0
ZONE 2 (Ch. 5880 to 6930)							
General							
DRM Proposal							
DRM Proposal							
ADVZ20290	NB at FLHY N/B construction Period (Zone 2)	87.35%	62	490	20-Nov-17 A	06-Jul-19	-84
ADVZ20300	TWSR-W lane 2 construction	0%	50	50	08-Jul-19	03-Sep-19	-84
ADVZ20310	NB at FLHY N/B construction Period (Zone 1)	95.84%	19	457	05-Oct-17 A	15-May-19	13
Noise Barrier Along Fanling Highway N/B							
Site Clearance & Demolition of Existing Structure							
General							
ADVZ20170	Zone 2 - Noise Barrier at FH N/B backfilling complete	0%	0	0		06-Jul-19	-84
ADVZ20270	Zone 2 - Noise Barrier at FH N/B complete (Without Buffer Zone	0%	0	0		06-Jul-19	-84
NB43A (Ch.5880-6060)-FH N/B Side							
Noise Barrier Works							
NB01600	NB43A-2 - NB post & panel installation	0%	5	5	21-Jun-19	26-Jun-19	0
NB03330	Bus Shelter footing at NB43A - VO86	0%	19	19	23-Apr-19*	15-May-19	0
NB03340	Relocate Bus Shelter installation - VO86	0%	30	30	16-May-19	20-Jun-19	0
NB50 (Ch.6060-6130)-FH N/B Side							
Noise Barrier Works							
NB001175	NB50 - Drainage Works	0%	24	24	29-Mar-19 A	21-May-19	-64
NB001180	NB50 -backfilling	0%	12	12	29-May-19	12-Jun-19	-64
NB001200	NB50 -NB post & panel installation	0%	5	5	13-Jun-19	18-Jun-19	7
NB17571	NB50 - Drainage Works (VO on 14-6-18 - add 1 manhole)	0%	6	6	22-May-19	28-May-19	-64
NB50A (Ch.6130-6450)-FH N/B Side							
Noise Barrier Works							
NB001245	NB50A - ID2-2 Drainage Works	0%	18	18	29-Mar-19 A	14-May-19	-52
NB001250	NB50A - ID2-2 backfilling	0%	12	12	15-May-19	28-May-19	-52
NB001260	NB50A - ID2-2 NB production	86.54%	14	104	20-Jan-19 A	03-May-19	48
NB001270	NB50A - ID2-2 NB post & panel installation	0%	5	5	29-May-19	03-Jun-19	19
NB01625	NB50A (0-108m) - Drainage Works	0%	33	24	29-Mar-19 A	31-May-19	-59
NB01626	NB50A (0-108m) - Drainage Works (VO on 14-6-18 - add 2 manholes)	0%	12	12	14-Jun-19	27-Jun-19	-83
NB01630	NB50A-1 - backfilling	0%	12	12	21-Jun-19	05-Jul-19	-83
NB01640	NB50A-1 - NB production	68.89%	14	45	20-Mar-19 A	03-May-19	48
NB01650	NB50A-1 - NB post & panel installation	0%	5	5	06-Jul-19	11-Jul-19	-12
NB01676	NB50A (132-228m) - Drainage Works (VO on 14-6-18 - add 7	23.21%	43	56	03-Apr-19 A	13-Jun-19	-83
NB01680	NB50A-2 - backfilling	0%	12	12	06-Jun-19	20-Jun-19	-71
NB01690	NB50A-2 - NB production	68.89%	14	45	20-Mar-19 A	03-May-19	48
NB01700	NB50A-2 - NB post & panel installation	0%	5	5	21-Jun-19	26-Jun-19	0
NB01726	NB50A (225-311m) - Drainage Works (VO on 14-6-18 - add 7	0%	56	56	23-Apr-19*	28-Jun-19	-17



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

Project ID:WP Rev 07 (1904)

Layout: 3 Month Rolling Program

Page 1 of 6

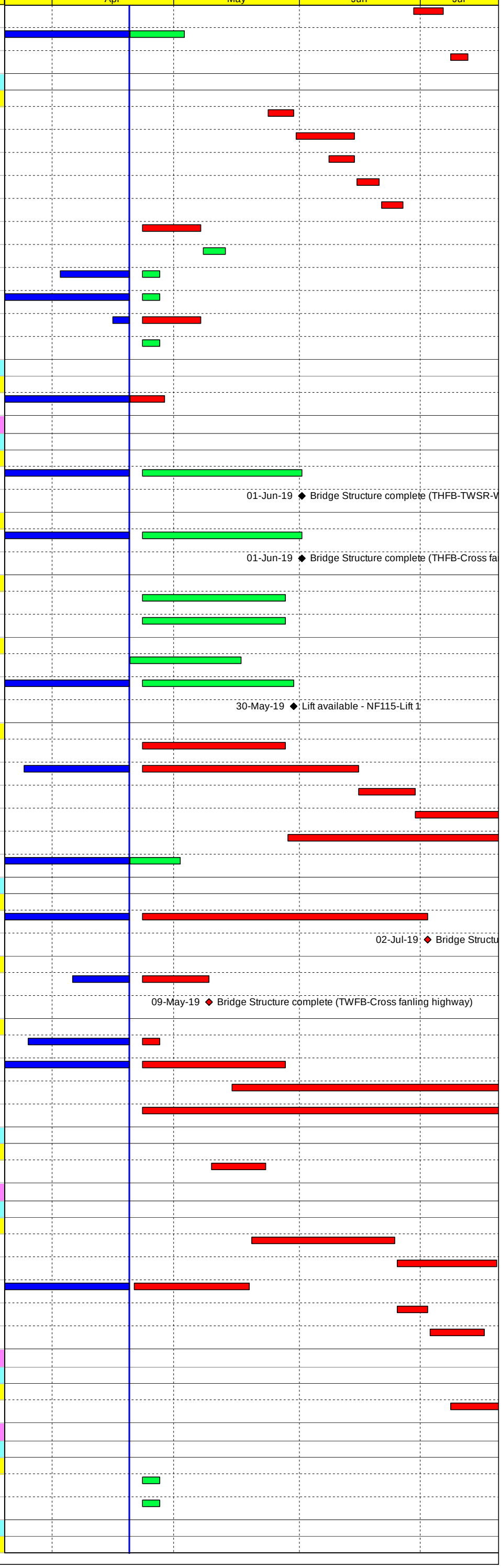
Contract No. HY/2012/06

Widening of Fanling Highway - Tai Hang to Wo Hop Shek Interchange

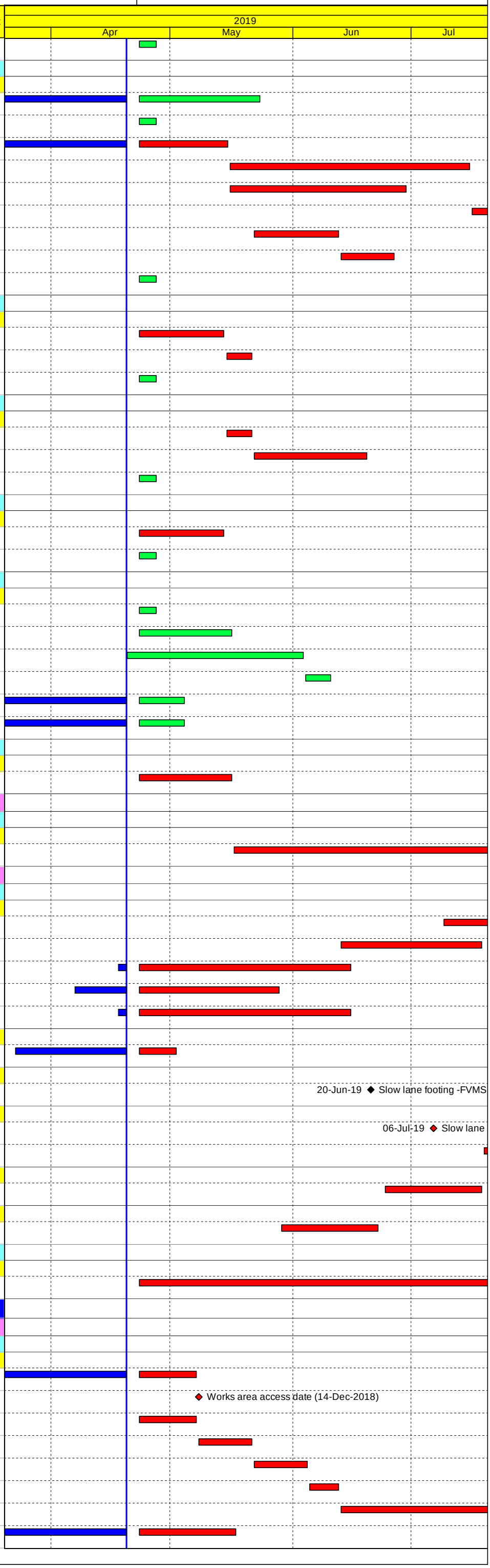
3 Month Rolling Program(20-Apr-19)

Date	Revision	C	A...
08-Nov-16	WP Rev 4		
17-Aug-17	WP Rev 5		
28-Mar-18	WP Rev 6		
27-Nov-18	WP Rev 6A		
15-Jan-19	WP Rev 7		

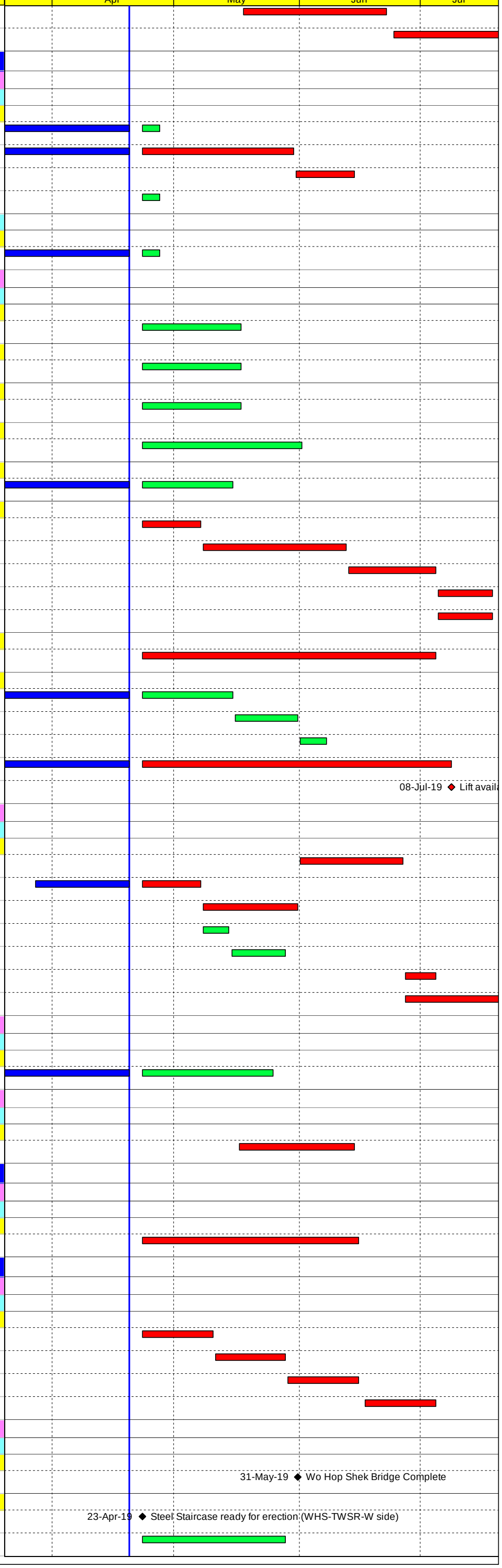
Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
NB01730	NB50A-3 - backfilling	0%	6	6	29-Jun-19	06-Jul-19	-84
NB01740	NB50A-3 - NB production	68.89%	14	45	20-Mar-19 A	03-May-19	48
NB01750	NB50A-3 - NB post & panel installation	0%	5	5	08-Jul-19	12-Jul-19	-13
NB60 (Ch.6450-6920)-FH N/B Side							
Noise Barrier Works							
NB01755	NB60-1 (0-15m) - Sheet piling & Excavation	0%	6	6	24-May-19	30-May-19	0
NB01757	NB60-1 (0-15m) - Footing & Wall Structure	0%	12	12	31-May-19*	14-Jun-19	0
NB017571	NB60-1 (0-15m) - Drainage Works	0%	6	6	08-Jun-19	14-Jun-19	0
NB01758	NB60-1 (0-15m) - Backfilling	0%	5	5	15-Jun-19	20-Jun-19	0
NB01759	NB60-1 (0-15m) - NB post & panel installation	0%	5	5	21-Jun-19	26-Jun-19	0
NB01800	NB60-1 -(15-108m) backfilling	0%	12	12	23-Apr-19	07-May-19	-34
NB01820	NB60-1 - NB post & panel installation	0%	5	5	08-May-19	13-May-19	37
NB01890	NB60-2 - NB post & panel installation	0%	5	5	03-Apr-19 A	27-Apr-19	49
NB01960	NB60-ID3-2 - NB post & panel installation	0%	5	5	20-Mar-19 A	27-Apr-19	49
NB02010	NB60-3 - backfilling	0%	12	12	16-Apr-19 A	07-May-19	-34
NB02022	NB60-3 - NB post & panel installation	0%	5	5	23-Apr-19	27-Apr-19	49
Underground Utility Works							
Underground Utility Works							
UU0110	Towngas duct laying and associated work before backfill in Zone 1 & 2	97.38%	9	343	20-Apr-18 A	28-Apr-19	-32
Bridge Construction							
New Tai Hang Footbridge							
TWSR-West/ FL Highway N/B Side Section							
THBF0620	Finishes Work	94.73%	34	645	27-Feb-17 A	01-Jun-19	20
THBF0625	Bridge Structure complete (THFB-TWSR-W side)	0%	0	0		01-Jun-19	20
Crossing Fanling Highway Section							
THBF0590	Finishes Work	86.87%	34	259	20-Jun-18 A	01-Jun-19	20
THBF0600	Bridge Structure complete (THFB-Cross fanling highway)	0%	0	0		01-Jun-19	20
TWSR-East FL Highway S/B Side Section							
THBF0640	Finishes Work	0%	30	30	23-Apr-19	28-May-19	24
THBF0800	ABWF work	0%	30	30	23-Apr-19*	28-May-19	24
Lift at TWSR-W Side							
L1580	EMSD inspection & approval	0%	28	28	20-Apr-19	17-May-19	40
L1590	E&M and Finishes work	60%	32	80	21-Jan-19 A	30-May-19	22
L1610	Lift available - NF115-Lift 1	0%	0	0		30-May-19	22
Lift at FLHY S/B							
L1400	Roof cover for RC Platform	0%	30	30	23-Apr-19	28-May-19	-76
L1410	Lift installation (NF78)	31.82%	45	66	25-Mar-19 A	15-Jun-19	-26
L1420	Lift T&C	0%	14	14	15-Jun-19	29-Jun-19	-31
L1430	EMSD inspection & approval	0%	28	28	29-Jun-19	27-Jul-19	-31
L1440	E&M and Finishes work	0%	100	100	29-May-19	25-Sep-19	-76
L1450	CLP Power available (by CLP)	98.72%	13	1015	21-Jun-16 A	02-May-19	13
New Tai Wo Footbridge							
TWSR-West/ FL Highway N/B Side Section							
TWFB1390	Finishes Work	90.4%	58	604	20-May-17 A	02-Jul-19	-18
TWFB1400	Bridge Structure complete (TWFB-TWSR-W side)	0%	0	0		02-Jul-19	-18
Crossing Fanling Highway Section							
TWFB1460	Finishes Work	22.22%	14	18	06-Apr-19 A	09-May-19	0
TWFB1470	Bridge Structure complete (TWFB-Cross fanling highway)	0%	0	0		09-May-19	0
Lift at TWSR-W Side							
L1700	Metal cover on RC platform	83.33%	5	30	26-Mar-19 A	27-Apr-19	-2
L1710	Glass canopy on ground level	25%	30	40	08-Mar-19 A	28-May-19	-27
L1740	Lift installation	0%	70	70	15-May-19*	06-Aug-19	-85
L1770	E&M and Finishes work	0%	120	120	23-Apr-19	12-Sep-19	-80
Temporary Tai Wo Footbridge							
Construction Works							
TWFB-T1240	Removed Temp Footbridge	0%	12	12	10-May-19	23-May-19	0
Signalized Junction							
New Tai Hang Footbridge							
TWSR-West/ FL Highway N/B Side Section							
THBF0650	Ducting & Cable Draw Installation (Tai hang Junction)	0%	30	30	20-May-19	24-Jun-19	-61
THBF0660	Installation of Traffic Signal Poles at TWSR-W S/B (Tai hang Junction)	0%	21	21	25-Jun-19	19-Jul-19	-61
THBF0670	E-prom ordering by EMSD (Tai hang Junction)	80.54%	29	149	20-Nov-18 A	19-May-19	-77
THBF0680	Ducting & cable draw inspection by EMSD (Tai hang Junction)	0%	6	6	25-Jun-19	02-Jul-19	-22
THBF0690	Ducting & cable draw rectification (Tai hang Junction)	0%	12	12	03-Jul-19	16-Jul-19	-22
TWSR-West Construction							
Drainage & Road Works							
Ch 5880-6740							
RDZ20170	Z2 : New TWSR-West road Works (lane 2)	0%	50	50	08-Jul-19	03-Sep-19	-84
Noise Barrier Along Fanling Highway S/B							
NB51 (Ch.5935-6055)-FH S/B Side							
Noise Barrier Works							
NB02310	NB51 ID1-3 (0-25m) - NB post & panel installation	0%	5	5	23-Apr-19*	27-Apr-19	49
NB03370	NB51(bay 15) - NB post & panel installation	0%	5	5	23-Apr-19	27-Apr-19	49
NB52 (Ch.6055-6125) -FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							



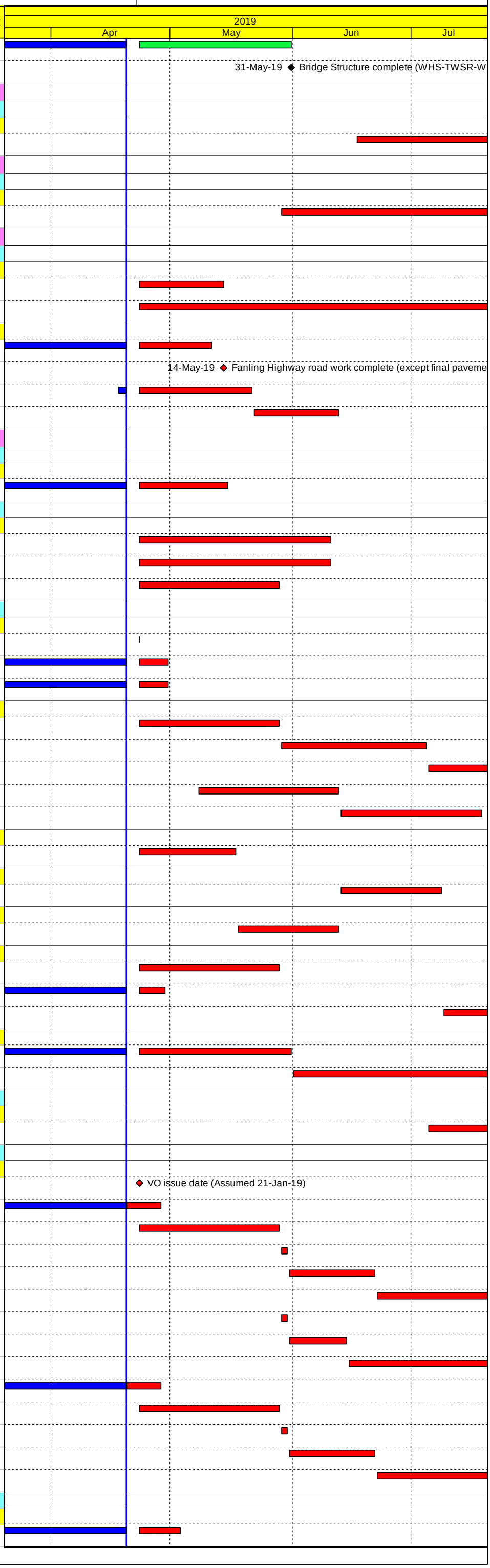
Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
NB03390	NB52 (bay 21) - NB post & panel installation	0%	5	5	23-Apr-19*	27-Apr-19	49
NB53 (Ch.6125-6300) -FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02460	NB53 (0-100m)- backfilling	73.47%	26	98	20-Dec-18 A	23-May-19	28
NB02480	NB53 (0-100m) - NB post & panel installation	0%	5	5	23-Apr-19	27-Apr-19	49
NB02520	NB53 ID2-3 (100-125m) - Footing & Wall Structure	86.03%	19	136	18-Oct-18 A	15-May-19	-20
NB02530	NB53 ID2-3 (100-125m) - backfilling	0%	50	50	16-May-19	15-Jul-19	-20
NB02540	NB53 ID2-3 (100-125m) - NB production	0%	45	45	16-May-19	29-Jun-19	-9
NB02550	NB53 ID2-3 (100-125m) - NB post & panel installation	0%	5	5	16-Jul-19	20-Jul-19	-20
NB02572	NB53 (125-180m) - Drainage Works	0%	18	18	22-May-19	12-Jun-19	0
NB02574	NB53 (125-180m) - Drainage Works (VO on 14-6-18 - add 2 manhole)	0%	12	12	13-Jun-19	26-Jun-19	0
NB02600	NB53 (125-180m) - NB post & panel installation	0%	5	5	23-Apr-19*	27-Apr-19	49
NB55 (Ch.6300-6360)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02642	NB55 - Drainage Works	0%	18	18	23-Apr-19	14-May-19	0
NB02644	NB55 - Drainage Works (VO on 14-6-18 - add 1 manhole)	0%	6	6	15-May-19	21-May-19	0
NB02670	NB55 - NB post & panel installation	0%	5	5	23-Apr-19*	27-Apr-19	49
NB56 (Ch.6360-6400)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02712	NB56 - Drainage Works	0%	6	6	15-May-19	21-May-19	6
NB02714	NB56 - Drainage Works (VO on 14-6-18 - add 4 manhole)	0%	24	24	22-May-19	19-Jun-19	6
NB02740	NB56 - NB post & panel installation	0%	5	5	23-Apr-19*	27-Apr-19	49
NB61 (Ch.6400-6560)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02784	NB61 (0-50m) - Drainage Works (VO on 14-6-18 - add 3 manhole)	0%	18	18	23-Apr-19	14-May-19	6
NB02860	NB61 (50-160m) - NB post & panel installation	0%	5	5	23-Apr-19*	27-Apr-19	49
NB61A (Ch.6560-6745)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02930	NB61A (0-50m) - NB post & panel installation	0%	5	5	23-Apr-19	27-Apr-19	49
NB02980	NB61A ID2-3 (50-75m)- backfilling	0%	20	20	23-Apr-19	16-May-19	29
NB02990	NB61A ID2-3 (50-75m) - NB production	0%	45	45	20-Apr-19	03-Jun-19	17
NB03000	NB61A ID2-3 (50-75m) - NB post & panel installation	0%	5	5	04-Jun-19	10-Jun-19	14
NB03024	NB61A (75-190m) - Drainage Works (VO on 16-10-18 - add 4 manhole)	79.17%	10	48	01-Feb-19 A	04-May-19	44
NB03050	NB61A (75-190m) - NB post & panel installation	96.32%	10	272	05-May-18 A	04-May-19	44
Box Culvert ID3 Works							
VO58 Extension of ID3							
ID30130	Backfill	0%	20	20	23-Apr-19	16-May-19	-56
Fanling Highway Construction							
Drainage & Road Works							
Ch 5880-6740							
RDZ41270	Z2 (CH5880-6740) : Fanling Highway S/B - road works (lane 1)	0%	90	90	17-May-19	31-Aug-19	-56
Other Works							
TCSS Works							
TCSS Pre-Construction Works							
TCSS0170	Sign Gantry Factory production - AADS1	0%	30	30	09-Jul-19	12-Aug-19	-81
TCSS0190	Sign Gantry Factory production - ADS1	0%	30	30	13-Jun-19	18-Jul-19	-81
TCSS0200	Sign Gantry Factory production - FADS1	0%	45	30	18-Apr-19 A	15-Jun-19	-75
TCSS0210	Sign Gantry Factory production - G55	0%	30	30	07-Apr-19 A	28-May-19	-81
TCSS0220	Sign Gantry Factory production - G54	0%	45	30	18-Apr-19 A	15-Jun-19	-12
AADS1							
TCSS1660	TTA application & Approval - AADS1	91.11%	8	90	23-Mar-19 A	02-May-19	4
FVMS1 (Deleted by DWG HY/2012/06/SK/0866)							
TCSS1420	Slow lane footing -FVMS1 (NB50A)	0%	0	0		20-Jun-19	457
ADS1							
TCSS1440	Slow lane footing - ADS1 (NB50A)	0%	0	0		06-Jul-19	-71
TCSS1990	Sign Gantry Erection - ADS1	0%	21	21	19-Jul-19	12-Aug-19	-81
FADS1							
TCSS2060	Sign Gantry Erection - FADS1	0%	21	21	24-Jun-19	18-Jul-19	-81
G55							
TCSS1750	Sign Gantry Erection - G55	0%	21	21	29-May-19	22-Jun-19	-81
Landscape Softwork							
Landscape Works							
Z2.LW.1000	Landscape soft work Zone2	0%	150	150	23-Apr-19	21-Oct-19	-65
Pai Lau in Tai Hang (VO126)							
Pai Lau in Tai Hang (VO126)							
Pai Lau in Tai Hang (VO126)							
Pai Lau in Tai Hang (VO126)							
PL00995	VO126 Suspension on 20-Feb-19 (HY/2012/06)/M15/220.126/(5)	0%	12	5	20-Feb-19 A	07-May-19	-102
PL01000	Works area access date (14-Dec-2018)	0%	0	0	08-May-19		-102
PL01010	CLP relocation of Overhead Cable	0%	12	12	23-Apr-19*	07-May-19	-72
PL01020	Excavation	0%	12	12	08-May-19	21-May-19	-102
PL01030	Footing	0%	12	12	22-May-19	04-Jun-19	-102
PL01040	backfill	0%	6	6	05-Jun-19	12-Jun-19	-102
PL01050	Pai Lau Superstructure	0%	65	65	13-Jun-19	28-Aug-19	-102
PL01060	Material submission for finishes works	84.09%	21	132	05-Nov-18 A	17-May-19	-91



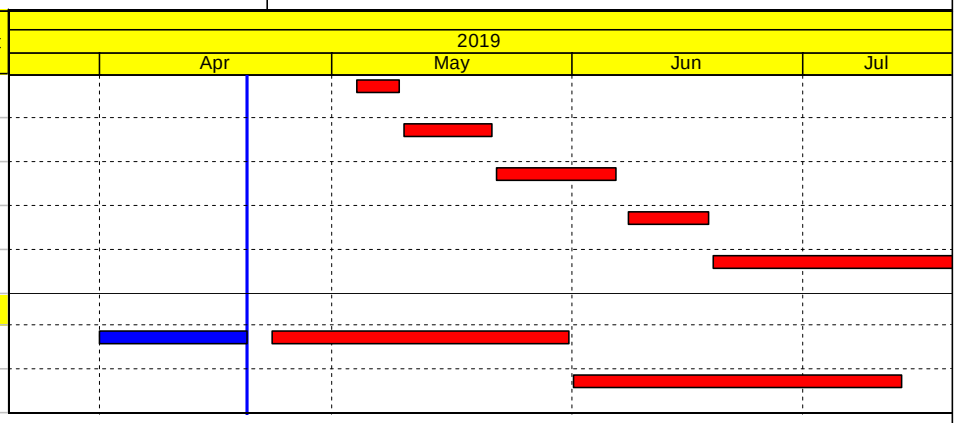
Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
PL01070	Material submission approval	0%	30	30	18-May-19	22-Jun-19	-91
PL01080	Material Order & delivery on site	0%	45	45	24-Jun-19	15-Aug-19	-91
South Buffer Zone 1 (SBZ1) (within Zone 2)(Ch.6740 to 6930)							
Noise Barrier Along Fanling Highway N/B							
NB60 (Ch.6450-6920)-FH N/B Side							
Noise Barrier Works							
NB02082	NB60-4 - NB post & panel installation	0%	5	5	20-Mar-19 A	27-Apr-19	49
NB02125	NB60-5 (408-468m) - Drainage Works	0%	32	24	04-Mar-19 A	30-May-19	-66
NB02130	NB60-5 - backfilling	0%	12	12	31-May-19	14-Jun-19	-66
NB02142	NB60-5 - NB post & panel installation	0%	5	5	23-Apr-19	27-Apr-19	501
NB66 (Ch.6920-6930)-FH N/B Side							
Noise Barrier Works							
NB02190	NB66 - NB post & panel installation	0%	5	5	20-Mar-19 A	27-Apr-19	49
Bridge Construction							
Kau Lung Hang Vehicular Bridge							
KLH Bridge - West Ramp							
KLH.1290	West Ramp - Planting	0%	21	21	23-Apr-19	17-May-19	33
KLH Bridge - Deck 1							
KLH.3430	Deck 1 - Planting	0%	21	21	23-Apr-19	17-May-19	33
KLH Bridge - Deck 3							
KLH.3500	Deck 3 - Planting	0%	21	21	23-Apr-19	17-May-19	19
KLH Bridge - East Ramp							
KLH.3590	East Ramp - Planting	0%	34	34	23-Apr-19	01-Jun-19	472
KLH Bridge - Ramp R2							
Z2.KLH.1550	Ramp R2 - Steel roof	96.88%	19	608	14-Mar-17 A	15-May-19	35
KLH Bridge - Staircase S1							
Z2.KLH.1490	S1- RC deck slab	0%	12	12	23-Apr-19	07-May-19	-18
Z2.KLH.1500	S1 - Roof steel frame installation	0%	30	30	08-May-19	12-Jun-19	-18
Z2.KLH.1750	S1 - Corrugated steel roof	0%	18	18	13-Jun-19	04-Jul-19	-18
Z2.KLH.1760	S1 - Handrail	0%	12	12	05-Jul-19	18-Jul-19	-18
Z2.KLH.1770	S1 - Lighting & finishes works	0%	12	12	05-Jul-19	18-Jul-19	-18
Bridge Road Work							
Z2.KLH.2040	Landscape work of KLHVB	0%	60	60	23-Apr-19*	04-Jul-19	-6
Lift at TWSR-W Side							
L01100	Lift installation	72.86%	19	70	12-Feb-19 A	15-May-19	15
L01110	Lift T&C	0%	14	14	16-May-19	31-May-19	15
L01120	EMSD inspection & approval (Assume 7 days is required instead	0%	7	7	01-Jun-19	07-Jun-19	19
L01130	Finishes work	28.41%	63	88	20-Mar-19 A	08-Jul-19	-9
L01150	Lift available - NF117-Lift 1	0%	0	0		08-Jul-19	-9
Signalized Junction							
Kau Lung Hang Vehicular Bridge							
KLH Bridge - West Ramp							
Z2.KLH.1032	Installation of Traffic Signal Poles at TWSR-W N/B (KLHVB)	0%	21	21	01-Jun-19	26-Jun-19	-21
Z2.KLH.1042	Ducting & Cable Draw Installation (KLHVB)	60%	12	30	28-Mar-19 A	07-May-19	-21
Z2.KLH.1052	Installation of Traffic Signal Poles at TWSR-W S/B (KLHVB)	0%	21	21	08-May-19	31-May-19	-21
Z2.KLH.1072	Ducting & cable draw inspection by EMSD (KLHVB)	0%	6	6	08-May-19	14-May-19	12
Z2.KLH.1082	Ducting & cable draw rectification (KLHVB)	0%	12	12	15-May-19	28-May-19	12
Z2.KLH.1092	PCCW cable installation & connection (KLHVB)	0%	6	6	27-Jun-19	04-Jul-19	-12
Z2.KLH.1102	EMSD cable & equipment installation (KLHVB)	0%	21	21	27-Jun-19	22-Jul-19	-21
Noise Barrier Along Fanling Highway S/B							
NB62 (Ch.6745-6910)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB03170	NB62 (80-110m) Under bridge - NB post & panel installation	81.58%	28	152	20-Oct-18 A	25-May-19	26
Fanling Highway Construction							
Drainage & Road Works							
Ch 6740-6930							
RDZ20520	Z2 (CH6740-6930) : Fanling Highway S/B - road works (lane 1)	0%	24	24	17-May-19	14-Jun-19	10
North Buffer Zone 2 (NBZ2) (within Zone 4) (Ch. 7925 to 8100)							
Bridge Construction							
New Ho Ka Yuen Footbridge							
TWSR-West/ FL Highway N/B Side Section							
HKY1520	VO11 - slope improvement work	0%	45	45	23-Apr-19	15-Jun-19	1
ZONE 4 (Ch. 7925 to 8700)							
Noise Barrier Along TWSR-West and Laying New Utilities							
Underground Utility Works							
DN450 DI Watermain "A" (Ch 1989-2529)							
DI0210	DN450 DI watermain laying at TWSR-W (CHA 2020)	0%	15	15	23-Apr-19	10-May-19	-49
DI0220	DN450 DI watermain laying at TWSR-W (CHA 2070)	0%	15	15	11-May-19	28-May-19	-49
DI0230	DN450 DI watermain laying at TWSR-W (CHA 2200)	0%	15	15	29-May-19	15-Jun-19	-49
DI0240	DN450 DI watermain laying at TWSR-W (CHA 2370)	0%	15	15	17-Jun-19	04-Jul-19	-44
Bridge Construction							
New Wo Hop Shek Pedstrian & Cycle Bridge							
General							
WHS1110	Wo Hop Shek Bridge Complete	0%	0	0		31-May-19	13
TWSR-West/ FL Highway N/B Side Section							
WHS1280	Steel Staircase ready for erection (WHS-TWSR-W side)	0%	0	0		23-Apr-19	16
WHS1290	Erect Stairecase (WHS-TWSR-W side)	0%	30	30	23-Apr-19	28-May-19	16



Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
WHS1420	Ramp Finishes Work	85.71%	33	231	13-Jul-18 A	31-May-19	13
WHS1430	Bridge Structure complete (WHS-TWSR-W side)	0%	0	0		31-May-19	13
TWSR-West Construction							
Drainage & Road Works							
TWSR-West/ FL Highway N/B Side Section							
RDZ41180	TWSR -W Road Works rectification	0%	50	50	17-Jun-19	14-Aug-19	-49
Slip Road Y Construction							
Drainage & Road Works							
TWSR-East FL Highway S/B Side Section							
RDZ41080	Construct Slip Rd Y- 2nd lane (Ch8370-8650)(SA340) (Z4	0%	55	55	29-May-19	02-Aug-19	-53
Fanling Highway Construction							
Drainage & Road Works							
TWSR-West/ FL Highway N/B Side Section							
RDZ41119	Construct FH N/B lane 4 (Ch8100-8600)	0%	18	18	23-Apr-19	14-May-19	-20
RDZ41170	Complete Slip road V and associated slope work	0%	90	90	23-Apr-19	08-Aug-19	-44
TWSR-East FL Highway S/B Side Section							
RDZ41137	Construct FHS/B Lane 1,2,3 (Ch8470-8600)	78.67%	16	75	08-Jan-19 A	11-May-19	-18
RDZ41140	Fanling Highway road work complete (except final pavement	0%	0	0		14-May-19	-20
RDZ41150	Central Divider construction	0%	24	24	18-Apr-19 A	21-May-19	-26
RDZ41160	Final pavement & final road marking	0%	18	18	22-May-19	12-Jun-19	-26
Other Works							
Retaining Wall W78							
TWSR-East FL Highway S/B Side Section							
RWZ4.1040	Backfilling (0-6m high) - RW78 (Ch.50-101) (Slope S55)	71.64%	19	67	14-Jan-19 A	15-May-19	-52
Slope Works							
TWSR-East FL Highway S/B Side Section							
S1040	Slope S54A-Cut ~4m	0%	40	40	23-Apr-19	10-Jun-19	-20
S1050	Slope S54B-Cut ~5m	0%	40	40	23-Apr-19	10-Jun-19	-20
S1060	Slope S55-Fill ~10m	0%	30	30	23-Apr-19	28-May-19	-53
TCSS Works							
TCSS Pre-Construction Works							
TCSS0180	Sign Gantry Factory production - FVMS1 (Deleted)	0%	0	0	23-Apr-19	23-Apr-19	506
TCSS0250	Sign Gantry Factory production - G36 (Z4)	93.46%	7	107	05-Dec-18 A	30-Apr-19	-10
TCSS0270	Sign Gantry Factory production - FADS8 (Z4)	94.02%	7	117	05-Dec-18 A	30-Apr-19	-31
Civil Provision for TCSS Works							
TCSS2210	Pillar box, isolator & associated duct work - PL207 for G34 & G35	0%	30	30	23-Apr-19	28-May-19	-74
TCSS2220	Pillar box, isolator & associated duct work - PL252 for G52	0%	30	30	29-May-19	04-Jul-19	-74
TCSS2230	Pillar box, isolator & associated duct work - PL251 for G51 & FL01	0%	30	30	05-Jul-19	08-Aug-19	-74
TCSS2250	FL01 mounted on top of DS53	0%	30	30	08-May-19	12-Jun-19	-26
TCSS2260	FL02 mounted on top of ADS52	0%	30	30	13-Jun-19	18-Jul-19	-26
G34							
TCSS1790	Sign Gantry Erection - G34 (Z4)	0%	21	21	23-Apr-19	17-May-19	-87
G35							
TCSS1810	Sign Gantry Erection - G35 (Z4)	0%	21	21	13-Jun-19	08-Jul-19	-87
DS50							
TCSS1850	Sign Gantry Erection - DS50 (Z4)	0%	21	21	18-May-19	12-Jun-19	-87
FADS8							
TCSS1630	Fast lane footing - FADS8 (CH8220, S/B)	0%	30	30	23-Apr-19	28-May-19	-54
TCSS1860	TTA application & Approval - FADS8 (Z4)	93.33%	6	90	06-Dec-18 A	29-Apr-19	-30
TCSS1870	Sign Gantry Erection - FADS8 (Z4)	0%	21	21	09-Jul-19	01-Aug-19	-87
TCSS Hub Room							
TCSS1900	TCSS Hub Room Structure	42.11%	33	57	06-Mar-19 A	31-May-19	-77
TCSS1910	TCSS Hub Room Finishes	0%	45	45	01-Jun-19	25-Jul-19	-77
Landscape Softwork							
Landscape Works							
Z4.LW.1000	Landscape soft work Zone4	0%	50	50	05-Jul-19	31-Aug-19	-40
VO Relocation of Traffic Sign at Pak Wo Road & Jockey Club Road							
VO Relocation of Traffic Sign at Pak Wo Road & Jockey Club Road							
TS01000	VO issue date (Assumed 21-Jan-19)	0%	0	0	23-Apr-19*		-73
TS01010	XP application period - Pak Wo Road	90%	9	90	21-Jan-19 A	28-Apr-19	-96
TS01030	TTA submission & approval	0%	30	30	23-Apr-19	28-May-19	-101
TS01040	TTA	0%	2	2	29-May-19	30-May-19	-101
TS01050	Sheet piling & excavation	0%	18	18	31-May-19	21-Jun-19	-101
TS01060	Footing (FL02, ADS52)	0%	45	45	22-Jun-19	14-Aug-19	-101
TS01110	TTA	0%	2	2	29-May-19	30-May-19	-62
TS01120	Sheet piling & excavation	0%	12	12	31-May-19	14-Jun-19	-62
TS01130	Footing (ADS51)	0%	30	30	15-Jun-19	20-Jul-19	-62
TS1160	XP application period - Jockey Club Road	90%	9	90	21-Jan-19 A	28-Apr-19	-96
TS1170	TTA submission & approval	0%	30	30	23-Apr-19	28-May-19	-101
TS1180	TTA	0%	2	2	29-May-19	30-May-19	-101
TS1190	Sheet piling & excavation	0%	18	18	31-May-19	21-Jun-19	-101
TS1200	Footing (DS53, FL01)	0%	45	45	22-Jun-19	14-Aug-19	-101
Ducting Works in Traffic Signalized Junction at Pak Wo Road							
WHS Interchange							
TSJ01006	Procurement & subletting	82.69%	9	52	26-Jan-19 A	03-May-19	-91



Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
TSJ01010	Site Clearance	0%	5	5	04-May-19	09-May-19	-91
TSJ01020	Trial Pits excavation	0%	10	10	10-May-19	21-May-19	-91
TSJ01030	Determination of proposed cable alignment	0%	14	14	22-May-19	06-Jun-19	-91
TSJ01040	Duct Laying (Road Crossing) - Wo Hing Road	0%	9	9	08-Jun-19	18-Jun-19	-91
TSJ01050	Duct Laying (Road Crossing) - Pak Wo Road	0%	42	42	19-Jun-19	07-Aug-19	-91
Pak Wo Road and Jockey Club Road Junction							
TSJ01260	Existing MJ modified by HyD structure	0%	33	5	01-Apr-19 A	31-May-19	-27
TSJ01270	Road Construction & reinstatement (new 2nd stage after MJ	0%	35	35	01-Jun-19	13-Jul-19	-27



APPENDIX C
IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

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

Air Quality – Schedule of Recommended Mitigation Measures

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

Noise – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Noise during construction	Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant.	During construction	V
	Reduce the number of equipment and their percentage on-time.		V
	3.5 m and 5.5 m high temporary noise barrier at culvert construction work area (Figure 2a of the Environmental Permit).		V*
	3 m high temporary noise barrier along the northern edge of Bridge 12 at ground level (Figure 2b of the Environmental Permit).		V*
	2 m high temporary noise barrier along the northern edge of Bridge 12 at bridge level (Figure 2b of the Environmental Permit).		V*
	2.5 m high temporary noise barrier along Tai Wo Service Road West (Figure 2c of the Environmental Permit).		V*
	3.5m and 7m high temporary noise barrier along Tai Wo Services Road West near Tai Hang (Figure 2c of the Environmental Permit).		V*
	7 m high temporary noise barrier along Tai Wo Service Road West near Tai Wo Footbridge work area (Figure 2d of the Environmental Permit).		V*
	7 m high temporary noise barrier near Kiu Tau Footbridge work area (Figure 2d of the Environmental Permit).		V*
	2.5 m high temporary noise barrier near river diversion work area (Figure 2e of the Environmental Permit).		V*

* Permanent noise barriers have been erected.

Water Quality – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Water quality during construction	Demolition and reconstruction of bridges - Prevent off-site migration through use of sheet piles. - Minimise duration of works as far as practical. - All sewer and drainage connections should be sealed to prevent debris, soil, sand, etc, from entering public sewers/drains. - Site surface runoff should be settled to remove sand/silt before it is discharged into the existing storm drains.	During construction	V
	Road Widening Works, Earthworks and Culvert Extension Works - 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. - Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained. - Runoff from exposed working areas, unfinished slopes and from unlined temporary channels should be directed to stilling basins and/or silt traps before discharging to the drainage outfalls. - Regular inspections of stilling basins and/or silt traps are required to ensure that sediment is not conveyed into the existing drainage system. - Open stockpiles should be covered with a tarpaulin cover. - During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded. - Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains. - Fuels should be stored in bunded areas such that spillage can be easily collected.		@

Waste – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Waste management during construction	General Waste - Transport of wastes off site as soon as possible. - Maintenance of accurate waste records. - Minimisation of waste generation for disposal (via reduction/recycling/re-use). - No on-site burning will be permitted. - Use of re-useable metal hoardings/signboards.	During construction	@
	Vegetation from site clearance - Segregation of materials to facilitate disposal. - Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.		V
	Demolition Wastes - Segregation of materials to facilitate disposal. - Appropriate stockpile management.		V
	Excavated Materials - Segregation of materials to facilitate disposal / reuse. - Appropriate stockpile management. - Re-use of excavated material on or off site (where possible). - Special handling and disposal procedures in the event that contaminated materials are excavated.		V
	Construction Wastes - Segregation of materials to facilitate recycling/reuse (within designated area in appropriate containers/stockpiles). - Appropriate stockpile management. - Planning to reduce over ordering and waste generation. - Recycling and re-use of materials where possible (e.g. metal, wood from formwork) - For material which cannot be re-used/recycled, collection should be carried out by an approved waste contractor for landfill disposal.		@
	Bentonite Slurries - Bentonite slurries should be reused as far as possible. - Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94.		#

	Chemical Wastes - Storage within locked, covered and bunded area. - The storage area shall not be located adjacent to sensitive receivers e.g. drains. - Minimise waste production and recycle oils/solvents where possible. - A spill response procedure shall be in place and absorption material available for minor spillages. - Use appropriate and labelled containers. - Educate site workers on site cleanliness/waste management procedures. - If chemical wastes are to be generated, the contractor must register with EPD as a chemical waste producer. - The chemical wastes shall be collected by a licensed chemical waste collector.		@
	Municipal Wastes - Waste shall be stored within a temporary refuse collection facility, in appropriate containers prior to collection and disposal. - Regular, daily collections are required by an approved waste collector.		V

Ecology – Schedule of Recommended Mitigation Measures

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

Landscape and Visual Impact – Schedule of Recommended Mitigation Measures

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

Legend:
V = implemented;
x = not implemented;
@ = partially implemented;
+ = recommended and immediately implemented during the site inspection by the Contractor;
N/A = not applicable - No such work was undertaken or no such material was used on site;
= to be implemented.

APPENDIX D
SUMMARY OF ACTION AND LIMIT LEVELS

Appendix D - Summary of Action and Limit Levels

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

Location	Action Level	Limit Level
AM2	317.8 μg/m3	500 μg/m3

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

Location	Action Level	Limit Level
AM2	200.7 μg/m3	260 μg/m3

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

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

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

APPENDIX E
CALIBRATION CERTIFICATES OF MONITORING EQUIPMENTS

TISCH Environmental

RECALIBRATION DUE DATE:
May 22, 2019

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	May 22, 2018	**Rootsmeter S/N:** 438320	**Ta:** 296	°K
Operator:	Jim Tisch		**Pa:** 749.3	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **0988**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3840	3.2	2.00
2	3	4	1	0.9840	6.4	4.00
3	5	6	1	0.8790	7.9	5.00
4	7	8	1	0.8420	8.7	5.50
5	9	10	1	0.6900	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9883	0.7141	1.4090	0.9957	0.7195	0.8889
0.9841	1.0001	1.9926	0.9915	1.0076	1.2570
0.9821	1.1173	2.2278	0.9895	1.1257	1.4054
0.9811	1.1652	2.3365	0.9884	1.1739	1.4740
0.9758	1.4141	2.8179	0.9831	1.4247	1.7777
QSTD	**m=**	**2.01748**	**QA**	**m=**	**1.26331**
	b=	**-0.02651**		**b=**	**-0.01673**
	r=	**0.99988**		**r=**	**0.99988**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

AECOM

Total Suspended Particulates (TSP) Sampler
Field Calibration Report

Station: Fanling Government Secondary School (AM2)
Operator: Choi Wing Ho
Date: 11-Mar-19
Next Due Date: 11-May-19
Model No: TE-5170
Verified Against: O.T.S -- 988
Equipment No.: A-001-74T
Expiration Date: 22-May-19

Ambient Condition					
Temperature, Ta	292.0	Kelvin	Pressure, Pa	762	mmHg

Orifice Transfer Standard Information					
Equipment No.:	988	Slope, mc	2.01748	Intercept, bc	-0.02651
Last Calibration Date:	22-May-18	**mc x Qstd + bc = [H x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	22-May-19				

Calibration of TSP Sampler

Calibration Point	H in. of water	[H x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (m^3/min) **X - axis**	W in. of oil	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	7.1	2.70	1.35	5.5	2.37
2	5.8	2.44	1.22	4.4	2.12
3	4.4	2.12	1.06	3.4	1.87
4	3.3	1.84	0.92	2.4	1.57
5	2.4	1.57	0.79	1.8	1.36

By Linear Regression of Y on X

Slope , mw = **1.8089** **Intercept, bw =** **-0.0739**

Correlation Coefficient* = **0.9990**

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.21 m^3/min (43 CFM)

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

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

Therefore, Set Point W = (m x Qstd + b)^2 x (760 / Pa) x (Ta / 298) = **4.37**

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

Remarks:

QC Reviewer: WS Signature: WS Date: 11/3/19

EQUIPMENT CALIBRATION RECORD

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

Standard Equipment

Equipment:	*Rupprecht & Patashnick TEOM®*		
Venue:	*Cyberport (Pui Ying Secondary School)*		
Model No.:	*Series 1400AB*		
Serial No:	Control: *140AB219899803*		
	Sensor: *1200C143659803*	K_o: *12500*	
Last Calibration Date*:	*3 May 2018*		

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

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

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			Temp (°C)	R.H. (%)			
1	*05-05-18*	*09:15 - 10:15*	*27.6*	*79*	*0.05367*	*2151*	*35.85*
2	*05-05-18*	*10:15 - 11:15*	*27.6*	*80*	*0.05864*	*2347*	*39.12*
3	*05-05-18*	*11:15 - 12:15*	*27.7*	*80*	*0.06661*	*2679*	*44.65*
4	*05-05-18*	*12:15 - 13:15*	*27.7*	*79*	*0.06335*	*2546*	*42.43*

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: *0.9994*

Validity of Calibration Record: *5 May 2019*

Remarks:

QC Reviewer: *YW Fung* Signature: Date: 07 May 2018

EQUIPMENT CALIBRATION RECORD

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

Standard Equipment

Equipment:	*Rupprecht & Patashnick TEOM®*		
Venue:	*Cyberport (Pui Ying Secondary School)*		
Model No.:	*Series 1400AB*		
Serial No:	Control: *140AB219899803*		
	Sensor: *1200C143659803*	K_o: *12500*	
Last Calibration Date*:	*3 May 2018*		

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

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

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			Temp (°C)	R.H. (%)			
1	*06-05-18*	*10:15 - 11:15*	*27.9*	*80*	*0.05124*	*2057*	*34.28*
2	*06-05-18*	*11:15 - 12:15*	*27.9*	*81*	*0.05453*	*2179*	*36.32*
3	*06-05-18*	*12:15 - 13:15*	*28.0*	*81*	*0.05658*	*2273*	*37.88*
4	*06-05-18*	*13:15 - 14:15*	*28.0*	*80*	*0.05736*	*2307*	*38.45*

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: *0.9968*

Validity of Calibration Record: *6 May 2019*

Remarks:

QC Reviewer: *YW Fung* Signature: Date: 07 May 2018

EQUIPMENT CALIBRATION RECORD

Type:	***Laser Dust Monitor***
Manufacturer/Brand:	***SIBATA***
Model No.:	***LD-3B***
Equipment No.:	***A.005.16a***
Sensitivity Adjustment Scale Setting:	***521 CPM***
Operator:	*Mike Shek (MSKM)*

Standard Equipment

Equipment:	*Rupprecht & Patashnick TEOM®*		
Venue:	*Cyberport (Pui Ying Secondary School)*		
Model No.:	*Series 1400AB*		
Serial No:	Control: *140AB219899803*		
	Sensor: *1200C143659803*	K_o:	*12500*
Last Calibration Date*:	*3 May 2018*		

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): *521* CPM
Sensitivity Adjustment Scale Setting (After Calibration): *521* CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			Temp (°C)	R.H. (%)			
1	*14-07-18*	*10:15 - 11:15*	*29.1*	*79*	*0.04328*	*1742*	*29.03*
2	*14-07-18*	*11:15 - 12:15*	*29.1*	*78*	*0.04673*	*1874*	*31.23*
3	*14-07-18*	*12:15 - 13:15*	*29.2*	*79*	*0.04904*	*1961*	*32.68*
4	*14-07-18*	*13:15 - 14:15*	*29.2*	*79*	*0.04734*	*1897*	*31.62*

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: *0.9974*

Validity of Calibration Record: *14 July 2019*

Remarks:

QC Reviewer: *YW Fung* Signature: Date: 16 July 2018

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

HOKLAS 028
CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 19CA0327 01-02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	B & K
Type/Model No.:	4231
Serial/Equipment No.:	3006428 / N004.03
Adaptors used:	-

Item submitted by

Curstomer:	AECOM ASIA CO LIMITED
Address of Customer:	-
Request No.:	-
Date of receipt:	27-Mar-2019

(N.004.03)

Date of test: 27-Mar-2019

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	20-Apr-2019	SCL
Preamplifier	B&K 2673	2743150	27-Apr-2019	CEPREI
Measuring amplifier	B&K 2610	2346941	08-May-2019	CEPREI
Signal generator	DS 360	33873	24-Apr-2019	CEPREI
Digital multi-meter	34401A	US36087050	23-Apr-2019	CEPREI
Audio analyzer	8903B	GB41300350	23-Apr-2019	CEPREI
Universal counter	53132A	MY40003662	24-Apr-2019	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

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

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

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

Test results

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

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

Approved Signatory: Feng Junqi **Date:** 29-Mar-2019 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 19CA0327 01-02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.23	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.014 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 1000.0 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 0.3 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 27-Mar-2019

Checked by: Fong Chun Wai **Date:** 29-Mar-2019

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
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CERTIFICATE OF CALIBRATION

Certificate No.: 18CA1008 02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Rion Co., Ltd.
Type/Model No.:	NC-74
Serial/Equipment No.:	34246490 / N.004.10
Adaptors used:	-

Item submitted by

Curstomer:	AECOM ASIA CO LIMITED
Address of Customer:	-
Request No.:	-
Date of receipt:	08-Oct-2018

Date of test: 10-Oct-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	20-Apr-2019	SCL
Preamplifier	B&K 2673	2743150	27-Apr-2019	CEPREI
Measuring amplifier	B&K 2610	2346941	08-May-2019	CEPREI
Signal generator	DS 360	61227	24-Apr-2019	CEPREI
Digital multi-meter	34401A	US36087050	23-Apr-2019	CEPREI
Audio analyzer	8903B	GB41300350	23-Apr-2019	CEPREI
Universal counter	53132A	MY40003662	24-Apr-2019	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1. The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
2. The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
3. The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

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

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

Approved Signatory: Feng Junqi **Date:** 10-Oct-2018 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA1008 02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.89	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.030 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 1002.0 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 2.3 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 10-Oct-2018

Checked by: Shek Kwong Tat **Date:** 10-Oct-2018

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 18CA0914 03 **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.:	2800927	,	2791211
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	14-Sep-2018

Date of test: 17-Sep-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2019	CIGISMEC
Signal generator	DS 360	33873	24-Apr-2019	CEPREI
Signal generator	DS 360	61227	23-Apr-2019	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

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

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

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 18-Sep-2018 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA0914 03 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertanity (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertanity (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 17-Sep-2018

Checked by: Shek Kwong Tat **Date:** 18-Sep-2018

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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CERTIFICATE OF CALIBRATION

Certificate No.: 18CA1019 01-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250	4950	ZC0032
Serial/Equipment No.:	3001291	2665582	17190
Adaptors used:	-	-	-

Item submitted by

Customer Name:	AECOM ASIA CO LIMITED
Address of Customer:	-
Request No.:	-
Date of receipt:	19-Oct-2018

Date of test: 19-Oct-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2019	CIGISMEC
Signal generator	DS 360	33873	24-Apr-2019	CEPREI
Signal generator	DS 360	61227	23-Apr-2019	CEPREI

Ambient conditions

Temperature:	20 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

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

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

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 20-Oct-2018 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD 綜合試驗有限公司

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

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CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA1019 01-01 Page 2 of 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip Date: 19-Oct-2018

Checked by: shek Kwong Tat Date: 20-Oct-2018

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

APPENDIX F
EM&A MONITORING SCHEDULES

Contract No. HY/2012/06
Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange
Impact Monitoring and Audit Schedule for April 2019

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

Contract No. HY/2012/06
Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange
Tentative Impact Monitoring and Audit Schedule for May 2019

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

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

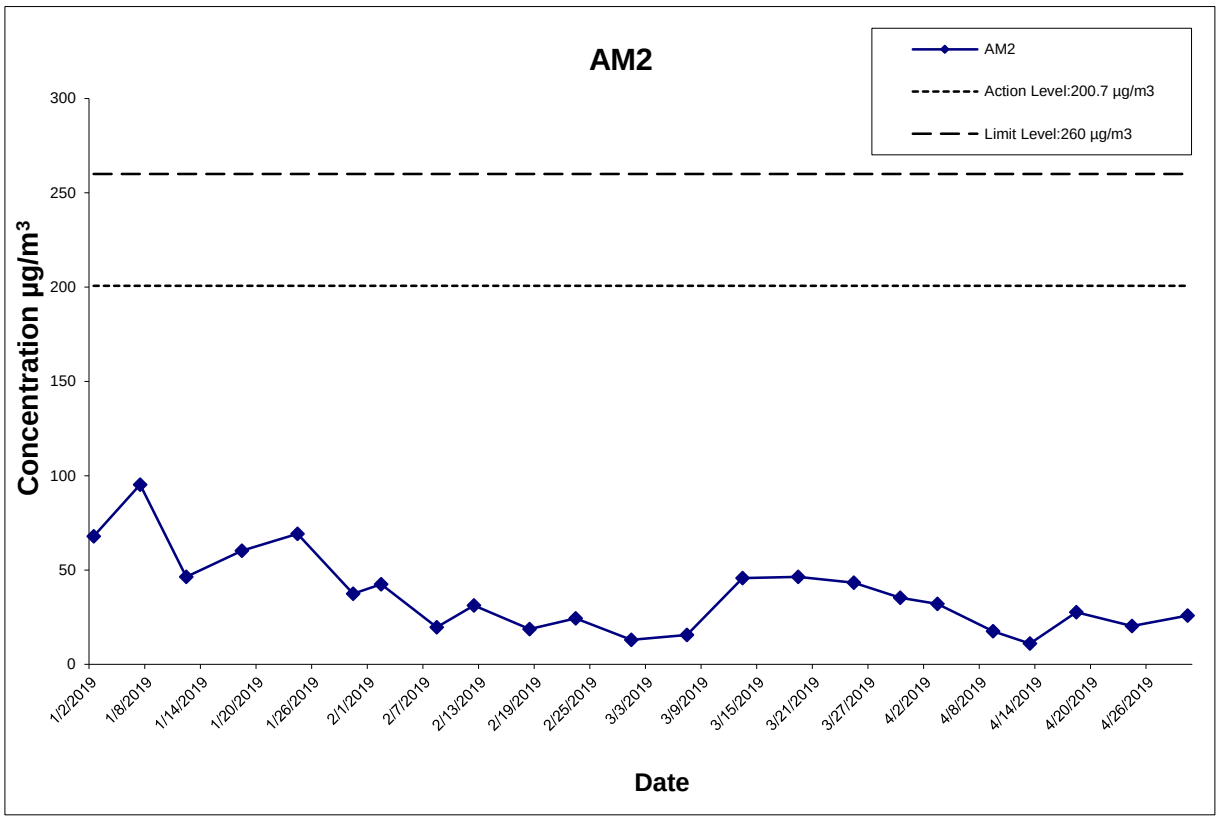
APPENDIX G
IMPACT AIR QUALITY MONITORING RESULTS AND THEIR GRAPHICAL PRESENTATION

Appendix G
Impact Air Quality Monitoring Results

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

Date	Weather Condition	Air Temp. (^{o}C)	Atmospheric Pressure(hPa)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
				Initial	Final			Initial	Final		Initial	Final				
3-Apr-19	Sunny	22.8	1016.9	1.324	1.324	1.324	1906.6	2.6710	2.7321	0.0611	11658.02	11682.02	24.00	32.0	200.7	260
9-Apr-19	Sunny	26.6	1011.1	1.324	1.324	1.324	1906.6	2.6838	2.7174	0.0336	11682.02	11706.02	24.00	17.6	200.7	260
13-Apr-19	Cloudy	21.2	1014.3	1.324	1.324	1.324	1906.6	2.6810	2.7020	0.0210	11706.02	11730.02	24.00	11.0	200.7	260
18-Apr-19	Cloudy	24.0	1010.0	1.324	1.324	1.324	1906.6	2.6672	2.7200	0.0528	11730.02	11754.02	24.00	27.7	200.7	260
24-Apr-19	Sunny	28.0	1009.9	1.324	1.324	1.324	1906.6	2.6885	2.7272	0.0387	11754.02	11778.02	24.00	20.3	200.7	260
30-Apr-19	Cloudy	26.7	1008.0	1.324	1.324	1.324	1906.6	2.6584	2.7075	0.0491	11778.02	11802.02	24.00	25.8	200.7	260

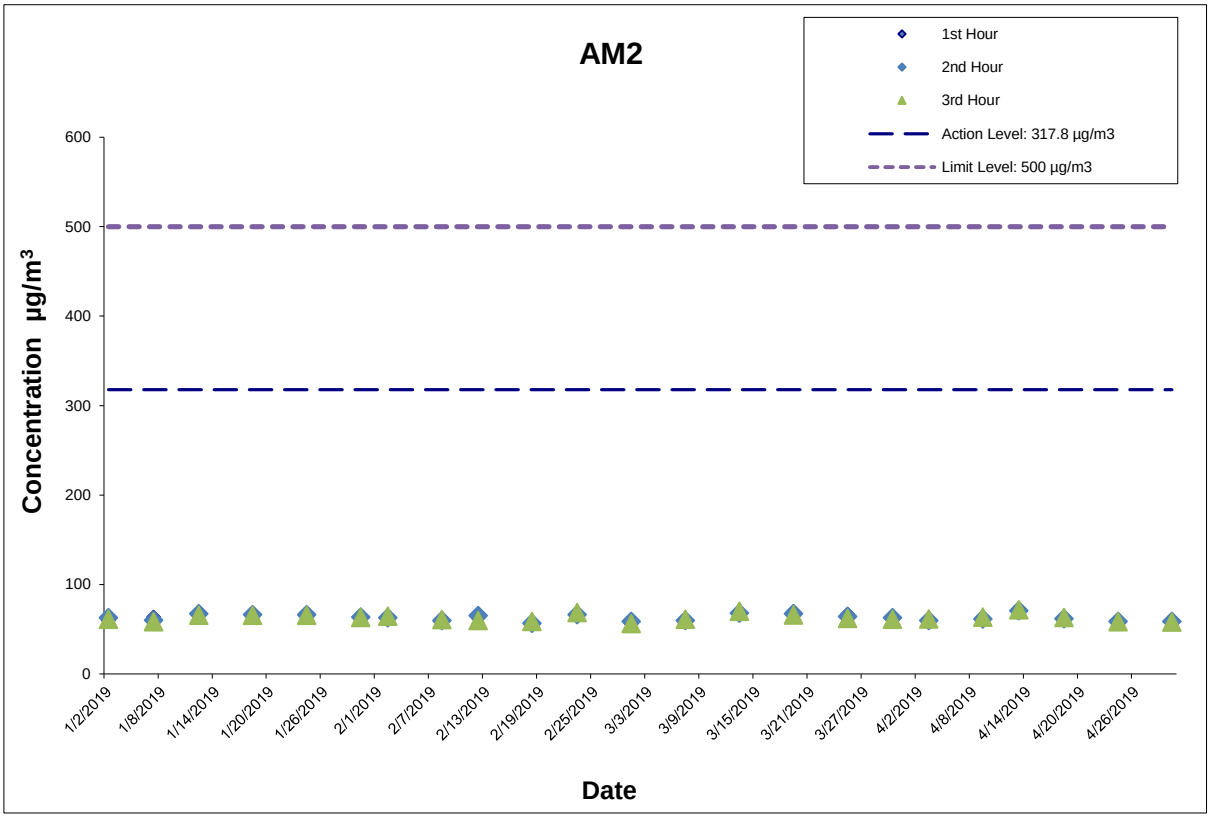
Average	22.4
Min	11.0
Max	32.0



Appendix G
Impact Air Quality Monitoring Results

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

Date	Start Time (hh:mm)	1st Hour Conc. ($\mu g/m^3$)	2nd Hour Conc. ($\mu g/m^3$)	3rd Hour Conc. ($\mu g/m^3$)
3-Apr-19	10:05	58.2	59.7	61.3
9-Apr-19	10:05	62.3	61.3	63.5
13-Apr-19	13:15	71.3	70.8	71.9
18-Apr-19	10:00	59.9	61.9	63.3
24-Apr-19	9:30	57.2	58.6	58.3
30-Apr-19	13:00	58.2	58.6	57.9
			Average	61.9
			Min	57.2
			Max	71.9



APPENDIX H
METEOROLOGICAL DATA FOR THE REPORTING MONTH

Back

Daily Extract of Meteorological Observations , April 2019

Year 2019 Month 4 Go

Day	Hong Kong Observatory							
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)				
01	1019.3	21.6	20.3	19.7	16.8	81	91	Trace
02	1018.2	23.0	20.7	18.9	16.3	76	89	Trace
03	1016.9	25.7	22.8	20.7	19.0	80	85	Trace
04	1016.7	23.8	21.7	20.4	18.6	83	86	Trace
05	1014.5	27.4	24.0	20.9	19.5	76	37	0.0
06	1013.0	28.1	25.1	22.4	21.0	79	27	0.0
07	1012.5	28.0	25.7	23.7	21.9	80	48	0.0
08	1011.6	29.9	26.7	25.1	23.0	80	80	0.0
09	1011.1	28.9	26.6	25.5	23.1	81	79	0.0
10	1010.9	30.1	27.1	25.3	23.2	80	79	0.0
11	1010.0	29.9	27.3	25.3	23.7	81	84	0.7
12	1013.3	25.2	22.3	21.0	20.3	89	91	6.1
13	1014.3	22.3	21.2	20.3	19.9	92	98	3.8
14	1013.8	24.4	22.7	21.9	20.9	90	92	10.4
15	1014.4	23.1	22.1	20.9	19.4	85	91	1.1
16	1012.6	23.6	21.2	19.5	19.6	91	87	9.2
17	1012.2	26.1	23.5	21.5	20.7	85	77	0.0
18	1010.0	25.0	24.0	23.0	22.1	90	91	6.7
19	1007.7	28.6	23.7	21.3	22.3	93	90	75.8
20	1007.2	26.2	23.3	21.9	22.5	95	93	43.6
21	1008.0	30.1	26.2	23.2	24.0	88	81	0.3
22	1009.3	30.1	27.5	25.6	24.5	84	72	0.0
23	1010.4	31.0	28.0	26.0	24.3	81	58	0.0
24	1009.9	31.2	28.0	26.2	23.7	78	57	0.0
25	1009.3	31.1	28.5	26.4	24.0	77	39	0.0
26	1010.4	31.5	28.4	26.2	24.7	81	58	0.9
27	1012.8	26.4	24.9	22.3	22.4	86	91	16.6
28	1013.2	26.9	24.3	22.7	22.4	89	85	3.1
29	1010.9	29.2	26.4	24.7	23.8	86	71	0.0
30	1008.0	28.8	26.7	25.3	23.3	82	83	7.5
Mean/Total	1012.1	27.2	24.7	22.9	21.7	84	76	185.8
Normal§	1012.9	25.0	22.6	20.8	19.4	83	81	174.7

Trace means rainfall less than 0.05 mm

§ 1981-2010 Climatological Normal

Last revision date: <17 Jun 2016>

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

Appendix I Impact Daytime Construction Noise Monitoring Results

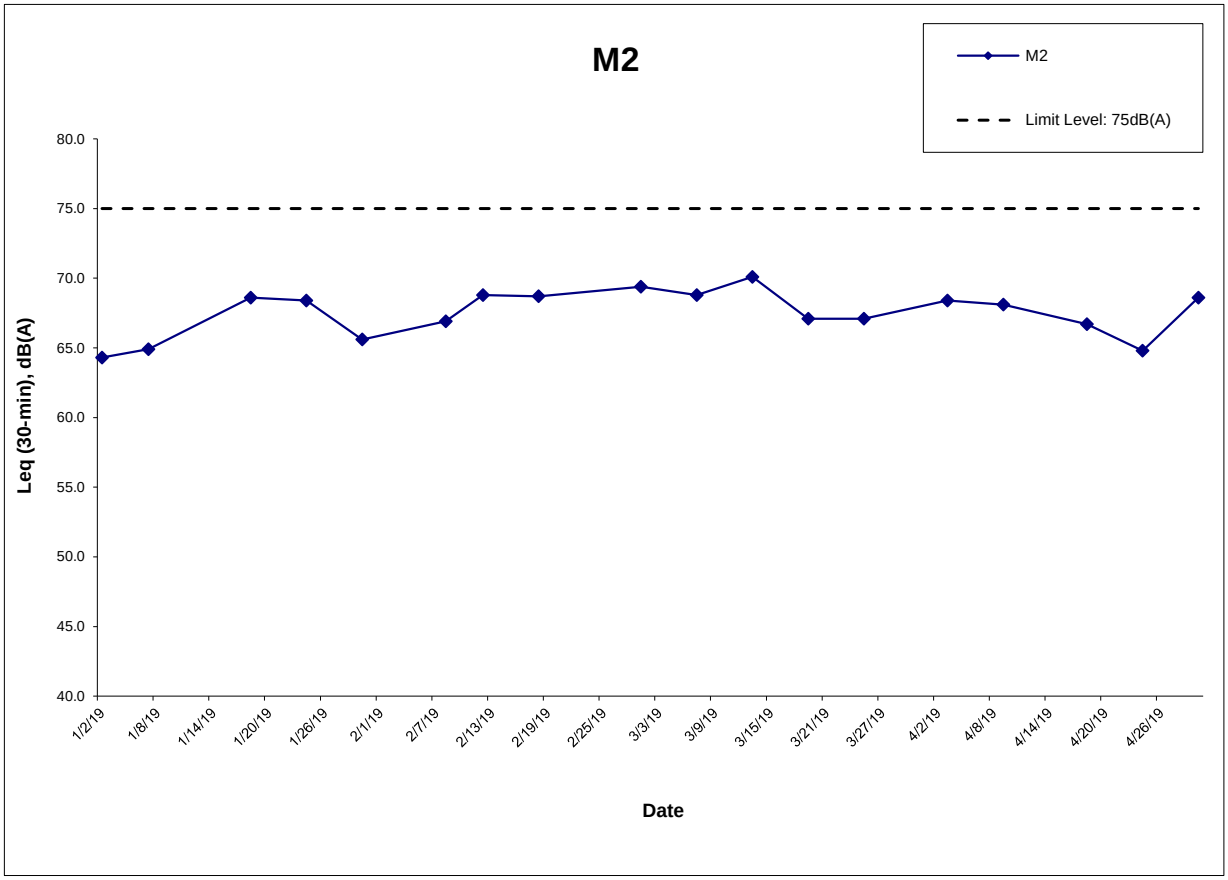
Location : M2 (West Tai Wo - Free Field)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

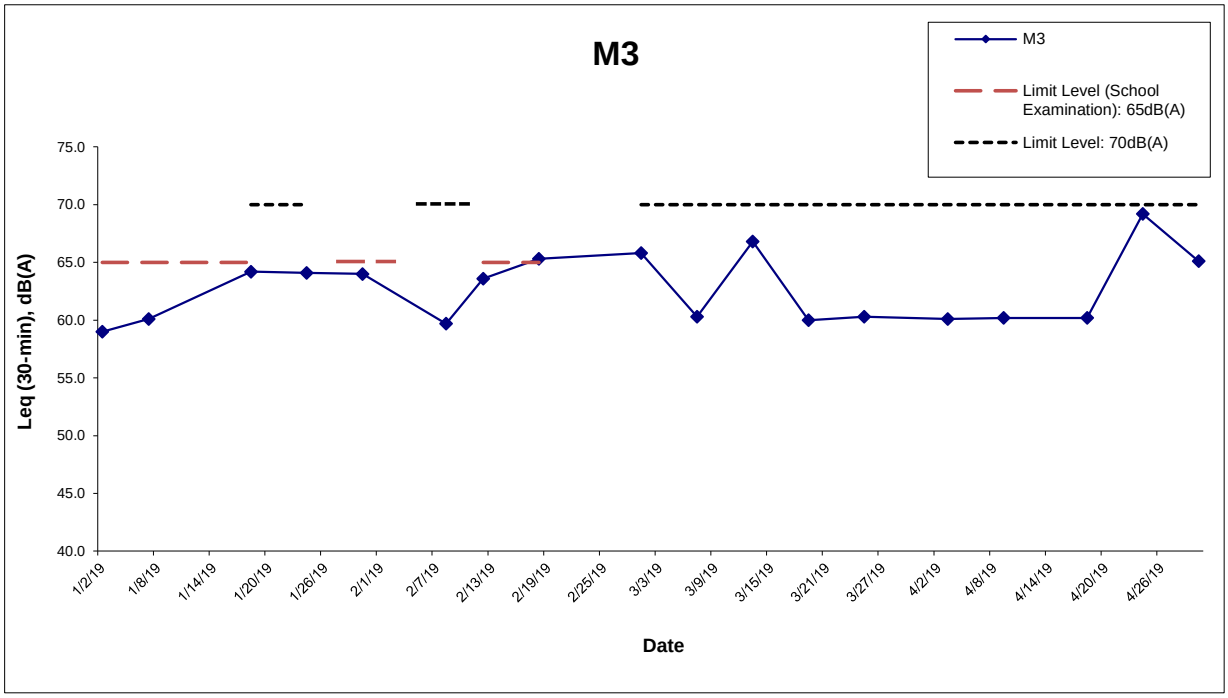
Date	Measured Noise Level for 30-min, dB(A)				Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq*	L10*	L90*		
3-Apr-19	11:00	68.4	69.5	65.0	75	N
9-Apr-19	11:00	68.1	69.5	66.0	75	N
18-Apr-19	10:55	66.7	68.5	64.0	75	N
24-Apr-19	10:00	64.8	66.5	62.7	75	N
30-Apr-19	13:30	68.6	70.2	66.9	75	N
	Min	64.8	66.5	62.7		
	Max	68.6	70.2	66.9		
	Average	67.5	69.0	65.2		

Location : M3 (Fanling Government Secondary School- Façade)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Limit Level, dB(A)^	Exceedance (Y/N)
	Start Time	Leq	L10	L90		
3-Apr-19	10:05	60.1	61.0	54.5	70	N
9-Apr-19	10:05	60.2	61.0	57.5	70	N
18-Apr-19	10:00	60.2	61.0	56.5	70	N
24-Apr-19	9:20	69.2	71.3	67.8	70	N
30-Apr-19	14:15	65.1	66.9	63.7	70	N
	Min	60.1	61.0	54.5		
	Max	69.2	71.3	67.8		
	Average	64.7	66.5	62.9		

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





Remark:

^ Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period. Examination period of Fanling Government Secondary School (M3) in this reporting period is 3 - 17 January 2019 and 25 January - 19 February 2019.

APPENDIX J
EVENT ACTION PLAN

Appendix J – Event Action Plan

Event / Action Plan for Air Quality

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

Event / Action Plan for Air Quality

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

Event / Action Plan for Noise Impact

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

APPENDIX K
SITE INSPECTION SUMMARIES

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	2 April 2019
Time:	14:00
Inspection No.:	281

Non-compliance

Nil

Observations

Follow-up Observation(s)

1. Exposed stockpile of dusty materials without proper cover observed at Tai Wo Bridge has been removed. (Closed)
2. Muddy water outside the site boundary observed at Tai Wo Bridge has been cleared. (Closed)

New Observation(s)

3. Exposed stockpiles of dusty materials without proper cover were observed at Tai Hang Bridge and W78. The Contractor was advised to cover the stockpiles entirely with impervious sheeting for dust suppression.

Reminder (s)

Nil.

Remarks

Nil

	Name	Signature	Date
Prepared by	Sammi Lam		2 April 2019
Checked by	Y W Fung	/	2 April 2019

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	9 April 2019
Time:	14:00
Inspection No.:	282

Non-compliance

Nil

Observations

Follow-up Observation(s)

1. Exposed stockpiles of dusty materials without proper cover observed at Tai Hang Bridge has been covered entirely with impervious sheeting for dust suppression and that observed at W78 has been removed. (Closed)

New Observation(s)

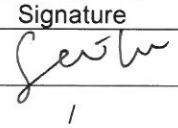
2. Excessive construction waste and general refuse were observed at SA328. The Contractor was advised to segregate construction waste and general refuse prior to disposing of regularly.

Reminder (s)

Nil.

Remarks

Nil

	Name	Signature	Date
Prepared by	Sammi Lam		9 April 2019
Checked by	Y W Fung	/	9 April 2019

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	18 April 2019
Time:	14:00
Inspection No.:	283

Non-compliance

Nil

Observations

	Follow-up Observation(s)
1.	Excessive construction waste and general refuse observed at SA328 have been removed. (Closed)
	New Observation(s)
	Nil.
	Reminder (s)
2.	The Contractor was reminded to remove the stagnant water observed at SA329 or apply larvicidal oil to prevent mosquito breeding.

Remarks

Nil

	Name	Signature	Date
Prepared by	Sammi Lam		18 April 2019
Checked by	Y W Fung	/	18 April 2019

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	23 April 2019
Time:	14:00
Inspection No.:	284

Non-compliance

Nil

Observations

Follow-up Observation(s)

1. The stagnant water observed at SA329 has been removed. (Closed)

New Observation(s)

2. Retained water in drip trays of chemical container and generator was observed at NB54. The Contractor was advised to clean up the drip trays to prevent overflow and potential leakage.

Reminder (s)

Nil.

Remarks

Nil

	Name	Signature	Date
Prepared by	Sammi Lam		23 April 2019
Checked by	Y W Fung	/	23 April 2019

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	30 April 2019
Time:	14:00
Inspection No.:	285

Non-compliance

Nil

Observations

Follow-up Observation(s)

1. Retained water in drip trays of chemical container and generator observed at NB54 has been cleaned up to prevent overflow and potential leakage. (Closed)

New Observation(s)

2. Chemical containers without secondary containment were observed at W76 and near Wo Hop Shek Bridge. The Contractor was advised to provide drip trays to the chemical containers to prevent potential leakage.

Reminder (s)

Nil.

Remarks

Nil

	Name	Signature	Date
Prepared by	Sammi Lam		30 April 2019
Checked by	Y W Fung	/	30 April 2019

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

Appendix L
Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Contract No. HY/2012/06 – Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange

	Date Received	Subject	Status	Total no. followed up by the ET this month	Total no. followed up by the ET since project commencement
Environmental complaints	19 December 2013	EPD referred a complaint from Lot no. 116 of Fui Sha Wai at Tai Hang of Tai Po which is concerned about the construction noise and diesel-like smell generated from construction activities nearby which caused nuisance and health problems on 19 December 2013 morning.	Closed	0	8
	24 February 2014	EPD referred an air-and-odour complaint on 24 February 2014. The complainant complained about the construction site located near the bus stop in Fui Sha Wai, Tai Hang, Tai Wo Service Road West. When construction works were carried out, odour, white smoke and dust were generated. The complainant asked for follow-up actions.	Closed		

	Date Received	Subject	Status	Total no. followed up by the ET this month	Total no. followed up by the ET since project commencement
	23 October 2014	EPD referred an air complaint on 24 October 2014. A resident complained against the excavation works of Tai Wo Service Road West between Nam Wah Po & Tai Hang Tsuen, which have piled up high stockpiles, causing serious dust nuisance to his house. The resident also complained that the stockpiles have not been covered and watered properly. He now requires the EPD to follow up. The location of complaint is near Lamppost Location EB5717.	Closed		
	31 December 2014	EPD referred a water complaint on 31 December 2014. The complainant complained about the muddy river outside Tai Hang Village Office on 29 December 2014. It was suspected that the muddy water was discharged from the construction works of the Project. He required the EPD to follow up.	Closed		
	25 March 2015	EPD referred a water complaint on 25 March 2015. The complainant complained about the generation of the smell of gasoline from the Widening of Fanling Highway construction site on Tai Wo Service Road West, causing serious nuisance to nearby houses. The situation has continued for a few weeks and she asked the EPD to follow up as soon as possible.	Closed		

	Date Received	Subject	Status	Total no. followed up by the ET this month	Total no. followed up by the ET since project commencement
	5 January 2017 (Referred by the Contractor on 13 January 2017)	A complaint was received by the 1823 enquiry and complaint hotline on 5 January 2017. The complaint was referred to the Environmental Team by the Contractor on 13 January 2017. The complainant complained against the dust emission generated by the Widening of Fanling Highway construction site on Tai Wo Service Road West near Tai Hang Village. The complainant also complained that Highway Department did not conduct road surface cleansing, which affects residents' health. He/she now requires the Highway Department to follow up.	Closed		
	22 May 2017 (Referred by the Contractor on 23 May 2017)	A complaint was received by the 1823 enquiry and complaint hotline on 22 May 2017. The complaint was referred to the Environmental Team by the Contractor on 23 May 2017. A complainant complained that construction noise was caused by the erection of noise barrier on Tai Wo Service Road West near Tai Hang Village on Sunday(s). The complainant concerned about if any Construction Noise Permit is issued by the Environmental Protection Department.	Closed		

	Date Received	Subject	Status	Total no. followed up by the ET this month	Total no. followed up by the ET since project commencement
	25 February 2018 (Referred by the Contractor on 1 March 2018)	The 1823 enquiry and complaint hotline received a complaint on 25 February 2018. The complaint was referred to the Environmental Team by the Contractor on 1 March 2018. A complainant complained that noise nuisance was caused continuously by road construction works at Fanling Highway near Tai Hang Village during 01:30 to 04:00 on 25 February 2018. The complainant concerned that the nuisance affects residence and asked for follow-up action from the related department.			
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0

Contract No. 02/HY/2015 – Provision of Bus-Bus Interchange on Fanling Highway Kowloon Bound

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