Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Monthly EM&A Report

June 2014

Submitted to

Environmental Protection Department

Prepared By

Meinhardt Infrastructure and Environment Ltd

Meinhardt Infrastructure and Environment Limited

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Monthly EM&A Report

(June 2014)

Certified by: Fredrick Leong

Position: Environmental Team Leader

Date: 9 July 2014

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9 July 2014
By Fax (2805 5028) & Post

Dear Sir,

Attn: Mr. James Penny

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) – Entrusted Works
Environmental Permit No. EP-324/2008/B
Condition 3.3 – Submission of Monthly EM&A Report – June 2014 for the portion of Stage 2 works entrusted to Civil Engineering and Development Department (CEDD) under Contract No. CV/2012/09

We refer to the revised Monthly EM&A Report – June 2014 received on 8 and 9 June 2014 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – June 2014 (Rev. 0) for the portion of works under Stage 2 of the captioned Project which is entrusted to CEDD under Contract No. CV/2012/09.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

Terence Kong
Independent Environmental Checker

c.c. HyD – Mr. Chung Lok Chin (Fax: 2714 5198) / Ms. Jackei Yin (Fax: 2761 4864)
CEDD/BCP – Mr. Chris Wong / Mr. Desmond Lam (Fax: 2714 0103)
AECOM – Mr. Alan Lee (Fax: 3922 9797)
Meinhardt Infrastructure and Environment Limited – Mr. Fredrick Leong (Fax: 2540 1580)

Date	Revision	Prepared By	Checked By	Approved By
9 July 2014	0	Ivan TING Cindy KWOK	Fredrick LEONG	Helen COCHRANE

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EXECUTIVE SUMMARY

The Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2 (hereafter called "the Project") covers part of the construction of the widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling which aimed 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 covers construction activities at Yuen Leng along the existing Fanling Highway.

The impact EM&A for the Project includes air quality, noise and water quality monitoring. The EM&A programme commenced on 5 November 2013.

This report documents the findings of EM&A works conducted in June 2014. As informed by the Contractor, the major activities in the reporting period were:

- Cable detection and trial trenches;
- Tree Felling Works;
- Pre-drilling works and piling works;
- Extension of box culvert ID04, ID05 and BC01;
- Bored pile and bored pile wall construction;
- Construction of haul road and temporary soil platform for geotechnical works;
- Slope upgrading works;
- Noise barrier installation;
- Water Pipe Installation; and
- Mini pile construction.

Breach of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month

No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.

Breach of Action and Limit Levels for Noise

No noise complaint was received in the reporting month, so no Action Level exceedance was recorded. Also, no Limit Level exceedance of noise monitoring was recorded in the reporting month.

Breach of Action and Limit Levels for Water Quality

The box culvert works has been partially completed by the end of March 2014 except the last construction activity, installation of a base slab at Box Culvert ID4. Due to the loading

requirement of a fresh water main under the box culvert, installation of the base slab at Box Culvert ID4 has to be scheduled to be carried out in November 2015 after the utilities diversions complete. The construction works are temporary suspended until the utilities diversion works complete. The 4-week post construction water quality monitoring will be commenced after the installation of the base slab finishes, hence the completion of the box culvert works.

Impact monitoring for water quality was not necessary in the reporting month due to temporary suspension of the construction works and is anticipated to be resumed in November 2015 during the course of remaining box culvert works.

Complaint, Notification of Summons and Successful Prosecution

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

Future Key Issues

The major construction works in the coming reporting month are anticipated to include:

- Cable detection and trial trenches;
- Pre-drilling works and piling works;
- Tree felling & Transplanting works;
- Pile cap works;
- Water Pipe Installation;
- Slope upgrading works;
- Noise barrier footing;
- Laying of concrete pipe works;
- Bored pile and bored pile wall construction;
- Pier Construction;
- Piling works for Bridge E;
- Site formation;
- Demolition;
- Diversion of DN600 and DN1400;
- Mini pile construction; and
- Installation of DN1200 Drainage Pipe by Pipe Jacking Method Across Fanling Highways.

Potential environmental impacts arising from the above construction activities are anticipated to be mainly associated with construction dust, noise, water quality and waste management.

1 INTRODUCTION

1.1.1 Chun Wo Construction & Engineering Co Ltd (Chun Wo) was commissioned by the Civil Engineering and Development Department (CEDD) as the Civil Contractor for the Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2. Meinhardt Infrastructure & Environment Ltd (MIEL) has been appointed by Chun Wo as the Environmental Team (ET) to fulfill the corresponding EM&A requirements pursuant to Environmental Permit No. EP-324/2008/B in accordance with the Updated EM&A Manual (dated October 2013) for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling Stage 2. The EM&A programme commenced in 5 November 2013.

1.2 Purpose of the Report

1.2.1 This is the monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting month of June 2014.

1.3 Report Structure

1.3.1 This monthly EM&A Report comprises the following sections:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Status of Environmental Licenses, Notifications and Permits
- Section 4: Air Quality Monitoring
- Section 5: Noise Monitoring
- Section 6: Water Monitoring
- Section 7: Waste Management
- Section 8: Environmental Site Inspection and Audit
- Section 9: Implementation Status of Environmental Mitigation Measures
- Section 10: Environmental Non-conformance
- Section 11: Future Key Issues
- Section 12: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

2.1.1 Tolo Highway and Fanling Highway are expressways in the North East New Territories connecting Sha Tin, Tai Po and Fanling. These highways form a vital part of the strategic Route 1, which links Hong Kong Island to Shenzhen. At present, this section of Route 1 is a dual 3-lane carriageway. However, at several major interchanges along this section of Route 1, the highway is only dual-2 lane. Severe congestion is a frequent occurrence during peak periods, particularly in the Kowloon bound direction.

2.1.2 The objective of the 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.

2.1.3 The construction works for the Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling are to be delivered in 2 stages:

- Stage 1 – Construction works between Island House Interchange and Tai Hang; and
- Stage 2 – Construction works between Tai Hang and Wo Hop Shek Interchange.

2.1.4 The construction works of Stage 1 under the EP commenced in November 2009 and was planned to be completed in December 2013 tentatively. The works of Stage 2 was planned to commence in November 2013 and complete by end of 2016. Hyder-Arup-Black and Veatch Joint Venture (HABVJV) was appointed by the Highways Department (HyD) as the consultants for the design and construction assignment for the Project. Mott MacDonald Hong Kong Ltd is the Independent Environmental Checker (IEC) of both Stage 1 and Stage 2 works.

2.1.5 A portion of Stage 2 works of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling (hereafter called “the Project”) is entrusted to the contractor of Contract No. CV/2012/09 Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 3, i.e. Chun Wo. AECOM Asia Co Ltd was appointed by the CEDD as the consultant for the design and construction assignment for the Liantang development.

2.1.6 The Project is a Designated Project under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499). An Environmental Impact Assessment (EIA) Report together with an Environmental Monitoring and Audit (EM&A) Manual were approved on 14 July 2000 (Register Number: EIA-043/2000). The Project is governed by an Environmental Permit (EP) (EP-324/2008) which was granted on 23 December 2008. A variation of EP (VEP) was applied and the VEP (EP-324/2008/A) was subsequently granted on 31 January 2012. An additional VEP has been applied on 24 February 2014 and the VEP (EP-324/2008/B) was subsequently granted on 17 March 2014.

2.2 Site Description

2.2.1 The major construction activities under the Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2 include:

- At-Grade Road Works – Temporary and permanent road formation, pipe laying, road drainage, footpath and noise barrier construction;
- Demolition of existing Kiu Tau Footbridge and Footbridge Reprovision; and
- Box Culvert Extension – Flow diversion of existing stream, excavation, sub-base and blinding, base, wall and top slab construction.

2.2.2 **Figure 1** shows the works areas for the Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2.

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarized below:

- Cable detection and trial trenches;
- Tree Felling Works;
- Pre-drilling works and piling works;
- Extension of box culvert ID04, ID05 and BC01;
- Bored pile and bored pile wall construction;
- Construction of haul road and temporary soil platform for geotechnical works;
- Slope upgrading works;
- Noise barrier installation;
- Water Pipe Installation; and
- Mini pile construction.

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1**.

Table 2.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
AECOM	Engineer's Representative	Senior Resident Engineer	Mr. Alan Lee	2472 7228	2472 0132
		Resident Engineer (Environmental)	Mr. Perry Yam	2674 2273	--
Mott MacDonald	Independent Environmental Checker (IEC)	IEC	Mr. Terence Kong	2828 5919	2827 1823

Party	Role	Position	Name	Telephone	Fax
Chun Wo	Contractor	Site Agent	Mr. Daniel Ho	2638 6144	2638 7077
		Environmental Officer	Mr. Victor Huang	2638 6181	
		Environmental Officer	Mr. Sam Lam	2638 6147	
Meinhardt	Environmental Team (ET)	ET Leader	Mr. Fredrick Leong	2859 1739	2540 1580

3 STATUS OF ENVIRONMENTAL LICENSES, NOTIFICATION AND PERMITS

3.1.1 The relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 3.1**.

Table 3.1 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-324/2008/B	17 Mar 2014	--	Granted on 17/03/2014	--
Construction Noise Permit				
GW-RN0136-14	9 Mar 2014	22 Jun 2014	Valid	For tree felling / transplanting works
GW-RN0397-14	29 Jun 2014	28 Dec 2014	Valid	For tree felling / transplanting works
Wastewater Discharge License				
WT00016832-2013	28 Aug 2013	31 Aug 2018	Valid	--
Chemical Waste Producer Registration				
5113-634-C3817-01	7 Oct 2013	--	Valid	--
Billing Account for Construction Waste Disposal				
7017914	2 Aug 2013	--	Account Active	--
Notification Under Air Pollution Control (Construction Dust) Regulation				
--	31 Jul 2013	30 Jul 2019	Notified	--

4 AIR QUALITY MONITORING

4.1 Monitoring Requirement

4.1.1 In accordance with the Updated EM&A Manual, 1-hr and 24-hr total suspended particulate (TSP) levels at the designated air quality monitoring station are required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. For the 1-hr TSP impact monitoring, the sampling frequency of at least three times in every 6 days should be undertaken when the highest dust impact occurs.

4.2 Monitoring Equipment

4.2.1 The 24-hr TSP air quality monitoring was performed using a High Volume Sampler (HVS), of which its location and operation satisfy, as far as practicable, all the requirements as specified in the Updated EM&A Manual. A portable direct reading dust meter, which was proven to be capable of achieving comparable results as that of the HVS, was used to carry out the 1-hr TSP monitoring until 6 June 2014. For TSP monitoring on 12 June 2014 and onwards, the HVS used in the 24-hr TSP sampling was adopted as the monitoring equipment. The brand and model of the equipment are given in **Table 4.1**.

Table 4.1 Air Quality Monitoring Equipment

Equipment	Brand and Model	Quantity	Serial Number
Handheld TSP meter (1-hr TSP)	TSI (Model No. AM 510)	1	11008019
High Volume Sampler (1-hr TSP and 24-hr TSP)	Tisch Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. TE-5170 MFC)	1	2359

4.2.2 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.

4.2.3 Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. The HVS calibration orifice and the handheld TSP meter will be calibrated annually. Calibration certificate of the TE-5025A Calibration Kit, the handheld TSP meter and the HVS are provided in **Appendix C**.

4.3 Monitoring Location

4.3.1 Air quality monitoring was conducted at the location specified in the Updated EM&A Manual. **Table 4.2** describes the details of the air quality monitoring station with its location as shown in **Figure 2**.

Table 4.2 Location of Air Quality Monitoring

Air Monitoring Station ID	Monitoring Location	Description
AM1(SR77) *	Yuen Leng 2 *	Residential, Ground floor

Remark:
* Location and Station / ASR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

4.4 Monitoring Parameters, Frequency and Duration

4.4.1 **Table 4.3** summarizes the monitoring parameters, frequency and duration of impact TSP monitoring.

Table 4.3 Air Quality Monitoring Parameters, Frequency and Duration

Parameter	Frequency and Duration
1-hour TSP	At least three times in every 6 days should be undertaken when the highest dust impact occur
24-hour TSP	Once every 6 days

4.5 Monitoring Methodology

24-hr TSP Monitoring

4.5.1 With the consideration of criteria stated in the Updated EM&A Manual, the HVS was installed in the vicinity of the air sensitive receivers.

4.5.2 The relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and any special phenomena observed were recorded. The weather information was referenced from Hong Kong Observatory (http://www.weather.gov.hk/wxinfo/pastwx/extractc.htm).

4.5.3 A HOKLAS accredited laboratory, Enviro Labs Ltd. (HOKLAS no.: 128), with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments, to handle the 24-hr TSP samples, was employed for sample analysis.

4.5.4 Filter papers of size 8"x10" were labelled before sampling. They were inspected to be clean with no pin holes and conditioned in a humidity controlled chamber for over 24-hr and were pre-weighed before use for the sampling.

4.5.5 The 24-hr TSP levels were measured by following the standard high volume sampling method for TSP as set out in the Title 40 of the United States Code of Federal Regulations, Chapter 1 (Part 50), Appendix B. TSP was sampled by drawing air through a conditioned, pre-weighted filter paper inside the HVS at a controlled air flow rate. After 24-hr sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg.

4.5.6 All the collected samples were kept in a good condition for 6 months before disposal.

1-hr TSP Monitoring

4.5.7 The 1-hr TSP measurement followed manufacturer's instruction manual. Before initiating a measurement, zeroing the portable dust monitor was carried out to ensure maximum accuracy of concentration measurements.

4.5.8 The 1-hr TSP was sampled by drawing air into the portable dust monitor where particular concentrations were measured instantaneously with an in-built silicon detector sensing light scattered by the particulates in the sampled air. Continuous TSP levels were indicated and logged by a built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

4.5.9 For 1-hr TSP monitoring conducted after 6 June 2014, monitoring methodology is the same as 24-hr TSP monitoring which has been presented in **Section 4.5.1** to **Section 4.5.6**, but with sampling period changed to 1 hour.

4.6 Monitoring Schedule for the Reporting month

4.6.1 The schedule for environmental monitoring for the reporting month is provided in **Appendix D**. Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in **Appendix E**.

4.7 Monitoring Results

4.7.1 The monitoring results for 1-hr and 24-hr TSP are summarised in **Table 4.4** and **Table 4.5** respectively. Detailed air quality monitoring results and the graphical presentation of air quality monitoring data for the current and past three reporting months are presented in **Appendix F**.

Table 4.4 Summary of 1-hr TSP Monitoring Results

ASR ID	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM1(SR77) *	90.5	34.6 – 178.9	292.7	500

Remark:
* Station / ASR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

Table 4.5 Summary of 24-hr TSP Monitoring Results

ASR ID	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM1(SR77) *	61.3	33.3 – 101.9	170.3	260

Remark:
* Station / ASR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

4.7.2 No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month

4.7.3 No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.

4.7.4 The Event and Action Plan for the occurrence of non-compliance of the air quality criteria is annexed in **Appendix G**.

4.7.5 Details of monitoring conditions including influencing factors such as weather conditions and site observation are presented in **Appendix E**.

5 NOISE MONITORING

5.1 Monitoring Requirements

5.1.1 In accordance with the Updated EM&A Manual, the impact noise monitoring frequency shall depend on the scale of the construction activities. An initial guide on the regular monitoring frequency should be at least once per week when noise generating activities are underway.

5.2 Monitoring Equipment

5.2.1 Noise monitoring was performed using a sound level meter at the monitoring station. The sound level meter deployed complies with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. An acoustic calibrator was deployed to check the sound level meter at a known sound pressure level. The brand and model of the equipment is given in **Table 5.1**.

Table 5.1 Noise Monitoring Equipment

Equipment	Brand and Model	Quantity	Serial Number
Sound Level Calibrator	B&K (Model No. 4231)	1	2685684
Sound Level Meter	Rion (Model No. NL-52)	1	00220553

5.2.2 The sound level calibrator and sound level meter were verified by the certified laboratory once every two years. Calibration certificates of the sound level meter and acoustic calibrator are provided in **Appendix C**.

5.3 Monitoring Locations

5.3.1 Impact noise monitoring was conducted at the location specified in the Updated EM&A Manual. **Table 5.2** describes the details of the noise monitoring station with its location as shown in **Figure 2**.

Table 5.2 Location of Noise Monitoring

NSR ID	Monitoring Location	Description
M1(SR77) *	Yuen Leng 2 *	Residential, Ground floor

Remark:
* Location and Station / NSR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

5.4 Monitoring Parameters, Frequency and Duration

5.4.1 **Table 5.3** summarizes the monitoring parameters, frequency and duration of impact noise monitoring.

Table 5.3 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at between 0700 and 1900 on normal weekdays. Leq, L10 and L90 would be recorded.	At least once per week

5.5 Monitoring Methodology

5.5.1 The monitoring procedures are summarised as below:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
- frequency weighting: A
- time weighting: Fast
- parameters: Leq, L10 and L90
- time measurement: Leq(30-minutes) during non-restricted hours i.e. 07:00 – 19:00 hrs on normal weekdays; Leq(5-minutes) during restricted hours i.e. 19:00 – 23:00 hrs and 23:00 – 07:00 hrs of normal weekdays, whole day of Sundays and Public Holidays
- 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 1dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- At the end of the monitoring period, the Leq, L10 and L90 were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB (A) shall be made to the noise parameter obtained by free field measurement.

5.6 Monitoring Schedule for the Reporting Month

5.6.1 The schedule for environmental monitoring for the reporting month is provided in **Appendix D**. Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in **Appendix E**.

5.7 Monitoring Results

5.7.1 The monitoring results for noise are summarized in **Table 5.4** and the monitoring results and the graphical presentation of noise level for the current and past three reporting months are presented in **Appendix H**.

Table 5.4 Summary of Noise Monitoring Results

Noise Monitoring Station ID	Average, dB(A), Leq (30min) (2)	Range, dB(A), Leq (30min) (2)	Action Level	Limit Level, dB(A)
M1(SR77) (1)	59.0	58.5 – 59.8	When one documented valid complaint is received	75

Remark:
(1) Station / NSR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling
(2) +3dB(A) façade correction included

5.7.2 Major noise sources during the noise monitoring included construction activities of the Project and that along Tai Wo Service Road East, and nearby traffic noise.

5.7.3 No noise complaint was received in the reporting month, so no Action Level exceedance was recorded. Also, no Limit Level exceedance of noise monitoring was recorded in the reporting month.

5.7.4 The Event and Action Plan for the occurrence of non-compliance of the noise criteria is annexed in **Appendix G**.

6 WATER MONITORING

6.1.1 The box culvert works has been partially completed by the end of March 2014 except the last construction activity, installation of a base slab at Box Culvert ID4. Due to the loading requirement of a fresh water main under the box culvert, installation of the base slab at Box Culvert ID4 has to be scheduled to be carried out in November 2015 after the utilities diversions complete. The construction works are temporary suspended until the utilities diversion works complete. The 4-week post construction water quality monitoring will be commenced after the installation of the base slab finishes, hence the completion of the box culvert works.

6.1.2 Impact monitoring for water quality was not necessary in the reporting month due to temporary suspension of the construction works and is anticipated to be resumed in November 2015 during the course of remaining box culvert works.

7 WASTE MANAGEMENT

7.1.1 The Contractor has registered as a chemical waste producer of the Project. The C&D materials and waste sorting were carried out on-site. Receptacles were provided for general refuse collection.

7.1.2 As advised by the Contractor, a total of 2473m^3 of excavated material has been generated. 1540m^3 of inert C&D materials was disposed of at public fill to Tuen Mun Area 38. 675m^3 of inert C&D materials was reused on site. 180m^3 of general refuse was disposed of at North East New Territories (NENT) Landfill. No plastics, paper/cardboard packaging was collected, and no metals were collected by recycling contractor in the reporting month. 1m^3 of chemical waste was collected by licensed contractor in the reporting period. Details of the waste management data are presented in **Appendix K**.

7.1.3 In the reporting month, the Contractor was reminded to properly maintain the site tidiness and dispose of wastes accumulated site regularly and properly.

8 ENVIRONMENTAL SITE INSPECTION AND AUDIT

8.1 Site Inspection

8.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the site inspection is provided in **Appendix L**.

8.1.2 In the reporting month, 5 site inspections were carried out on 3, 9, 18, 23 and 30 June 2014. The one held on 9 June 2014 was a joint inspection with the IEC, ER, ET and Contractor. No site inspection was conducted by the EPD during the reporting month. No non-compliance was recorded during the site inspection. A summary of the reminders and observations recorded during the site inspections are presented in **Table 8.1**.

Table 8.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	9 Jun 2014	Reminder: The contractor was reminded to cover the exposed slopes with tarpaulin or impervious sheetings at SA13.	Tarpaulin has been used to cover the exposed slope and stockpiles at SA13 as observed during the ET site inspection on 18 June 2014.
Air Quality	3 Jun 2014	Observation: Muddy trail was observed at the exit at SA16. The contractor was reminded to ensure all vehicles are being washed to remove dusty materials before leaving the construction site.	The muddy trail has been cleaned as observed during the ET site inspection on 9 Jun 2014.
	9 Jun 2014	Reminder: The contractor was reminded to improve the condition of wheel washing facility at SA16 to ensure muddy materials are removed from vehicles before leaving construction site.	Wheel washing facilities have been provided near the site entrance SA16 as observed during the ET site inspection on 23 June 2014.
Noise	N/A	N/A	N/A
Waste / Chemical Management	3 Jun 2014	Observation: An empty chemical container was observed at SA12. The contractor was reminded to enhance good site cleanliness and tidiness.	The chemical container was removed by the Contractor and the site cleanliness was improved as observed during the ET site inspection on 9 Jun 2014.
	23 Jun 2014	Observation: Empty oil drum and fuel drums are found within site without a drip tray near SA12.	Drip tray has been provided for the oil drums near SA12 as observed during the ET site inspection on 30 June 2014.
Landscape & Visual	N/A	N/A	N/A
Permits / Licenses	N/A	N/A	N/A

9 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

9.1.1 The Contractor has implemented the relevant environmental mitigation measures as specified in the EIA Reports, EPs and updated EM&A Manual. The implementation status of environmental mitigation measures during the reporting period is summarized in **Appendix L**. The status of the required submissions under the EP during the reporting period is summarized in **Table 9.1**.

Table 9.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.3	Monthly EM&A Report	13 June 2014

10 ENVIRONMENTAL NON-CONFORMANCE

10.1 Summary of Monitoring Exceedances

10.1.1 No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month

10.1.2 No noise complaint was received in the reporting month, so no Action Level exceedance was recorded. Also, no Limit Level exceedance of noise monitoring was recorded in the reporting month.

10.2 Summary of Environmental Non-Compliance

10.2.1 No environmental non-compliance was recorded in the reporting month. The cumulative statistics are provided in **Appendix N**.

10.3 Summary of Environmental Complaints

10.3.1 No environmental complaint was received in the reporting month. The cumulative statistics are provided in **Appendix N**.

10.4 Summary of Environmental Summon and Successful Prosecutions

10.4.1 No environmental related prosecution or notification of summons was received in the reporting month. The cumulative statistics are provided in **Appendix N**.

11 FUTURE KEY ISSUES

11.1 Construction Programme for the Next Month

11.1.1 The major construction works in the coming reporting month are anticipated to include:

- Cable detection and trial trenches;
- Pre-drilling works and piling works;
- Tree felling & Transplanting works;
- Pile cap works;
- Water Pipe Installation;
- Slope upgrading works;
- Noise barrier footing;
- Laying of concrete pipe works;
- Bored pile and bored pile wall construction;
- Pier Construction;
- Piling works for Bridge E;
- Site formation;
- Demolition;
- Diversion of DN600 and DN1400;
- Mini pile construction; and
- Installation of DN1200 Drainage Pipe by Pipe Jacking Method Across Fanling Highways.

11.2 Key Issues for the Coming Month

11.2.1 Key issues to be considered in the coming month are anticipated to include:

- Site discharges should be properly collected and treated prior to discharge;
- Properly maintain all drainage facilities and wheel washing facilities on site;
- Chemical, chemical waste and waste management;
- Tree protective measures for all retained trees should be well maintained;
- Expose slopes and dusty stockpile should be covered up properly if no temporary work will be conducted; and

- Operation of construction plant should be sequenced where practicable.

11.3 Monitoring Schedule for the Next Month

11.3.1 The tentative schedule for environmental monitoring for the coming month is provided in **Appendix D**.

12 CONCLUSIONS AND RECOMMENDATIONS

12.1 Conclusions

12.1.1 The construction phase EM&A programme of the Project commenced on 5 November 2013.

12.1.2 The 1-hr TSP, 24-hr TSP, noise and water monitoring were carried out in the reporting period.

12.1.3 No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month

12.1.4 No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.

12.1.5 No noise complaint was received in the reporting month, so no Action Level exceedance was recorded. Also, no Limit Level exceedance of noise monitoring was recorded in the reporting month.

12.1.6 Five (5) environmental site inspections were carried out in the reporting month. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audit.

Temporary Suspension of Box Culvert Works and Water Quality Monitoring

12.1.7 The box culvert works has been partially completed by the end of March 2014 except the last construction activity, installation of a base slab at Box Culvert ID4. Due to the loading requirement of a fresh water main under the box culvert, installation of the base slab at Box Culvert ID4 has to be scheduled to be carried out in November 2015 after the utilities diversions complete. The construction works are temporary suspended until the utilities diversion works complete. The 4-week post construction water quality monitoring will be commenced after the installation of the base slab finishes, hence the completion of the box culvert works.

12.1.8 Impact monitoring for water quality was not necessary in the reporting month due to temporary suspension of the construction works and is anticipated to be resumed in November 2015 during the course of remaining box culvert works.

12.2 Recommendations

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

Air Quality

- Water spraying should be properly implemented whenever necessary for the unpaved roads, access roads and construction areas..
- All vehicles should be washed to remove any dusty materials before leaving the construction site.
- Wheel washing facilities should be properly maintained to ensure proper functioning.

Water Quality

- Channels or earth bunds or sand bag barriers should be provided on site to prevent surface runoff and properly direct stormwater to silt removal facilities.

- Silty effluent should be treated/desilted before discharged. Untreated effluent should be prevented from entering public drain channel.

- Temporarily exposed slopes should be covered by tarpaulin or similar fabric during rainy seasons.

Chemical and Waste Management

- All chemicals stored on site should be provided with drip trays.

- All types of wastes, both on land and floating in the river stream, should be collected and sorted properly, and also be disposed timely and properly.

Figure

Contract No. CV/2012/09
Liantang / Heung Yuen Wai Boundary Control Point
Site Formation and Infrastructure Works - Contract 3

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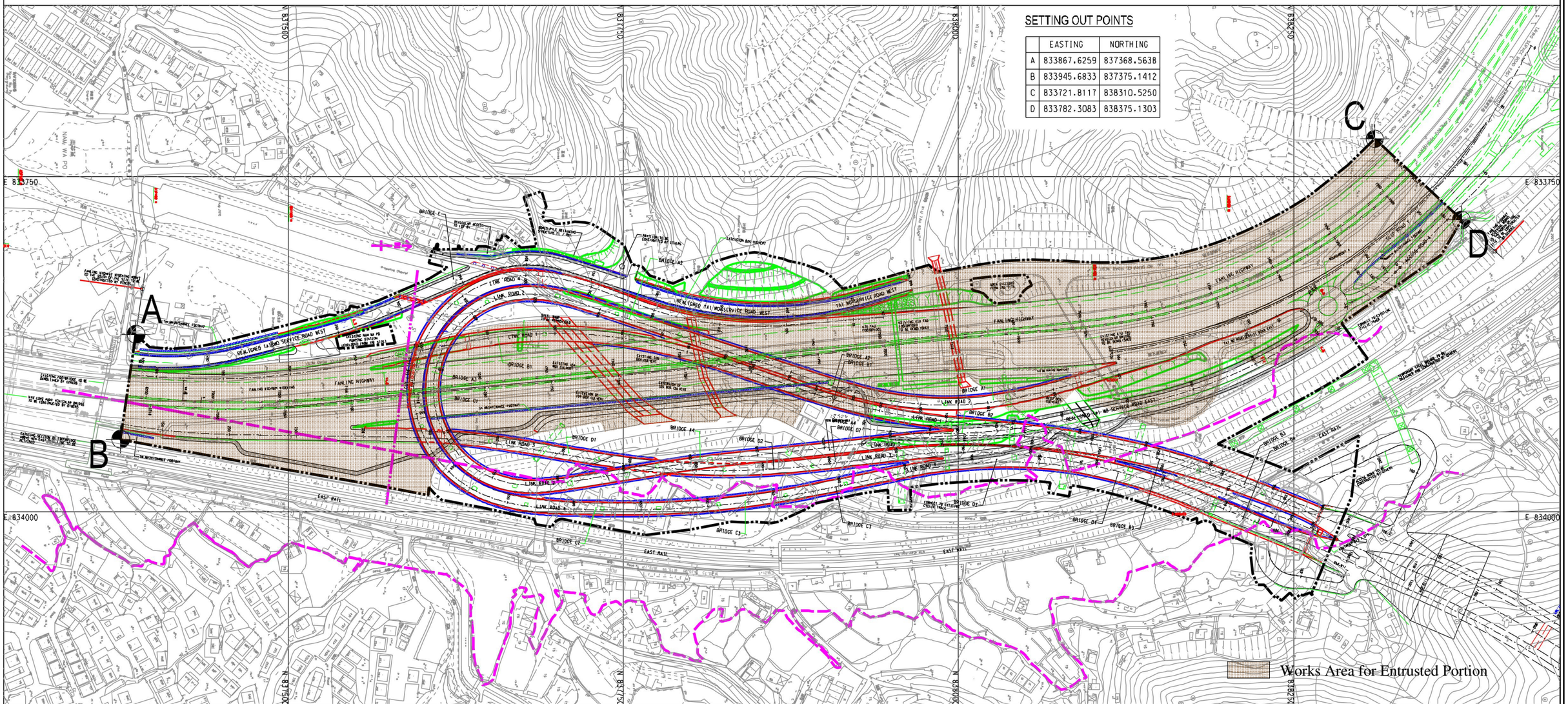
SETTING OUT POINTS

	EASTING	NORTHING
A	833867.6259	837368.5638
B	833945.6833	837375.1412
C	833721.8117	838310.5250
D	833782.3083	838375.1303



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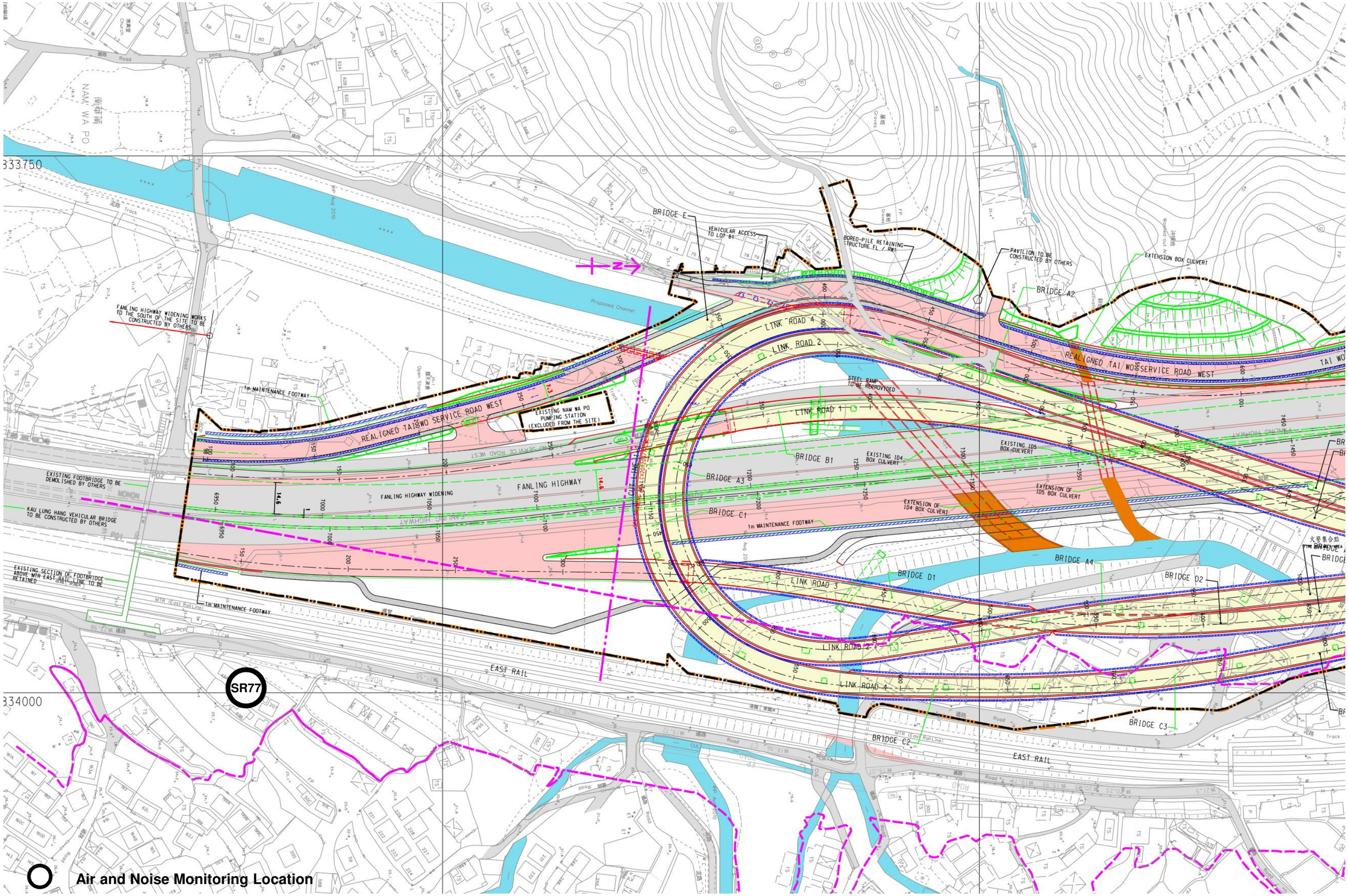
MEINHARDT

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

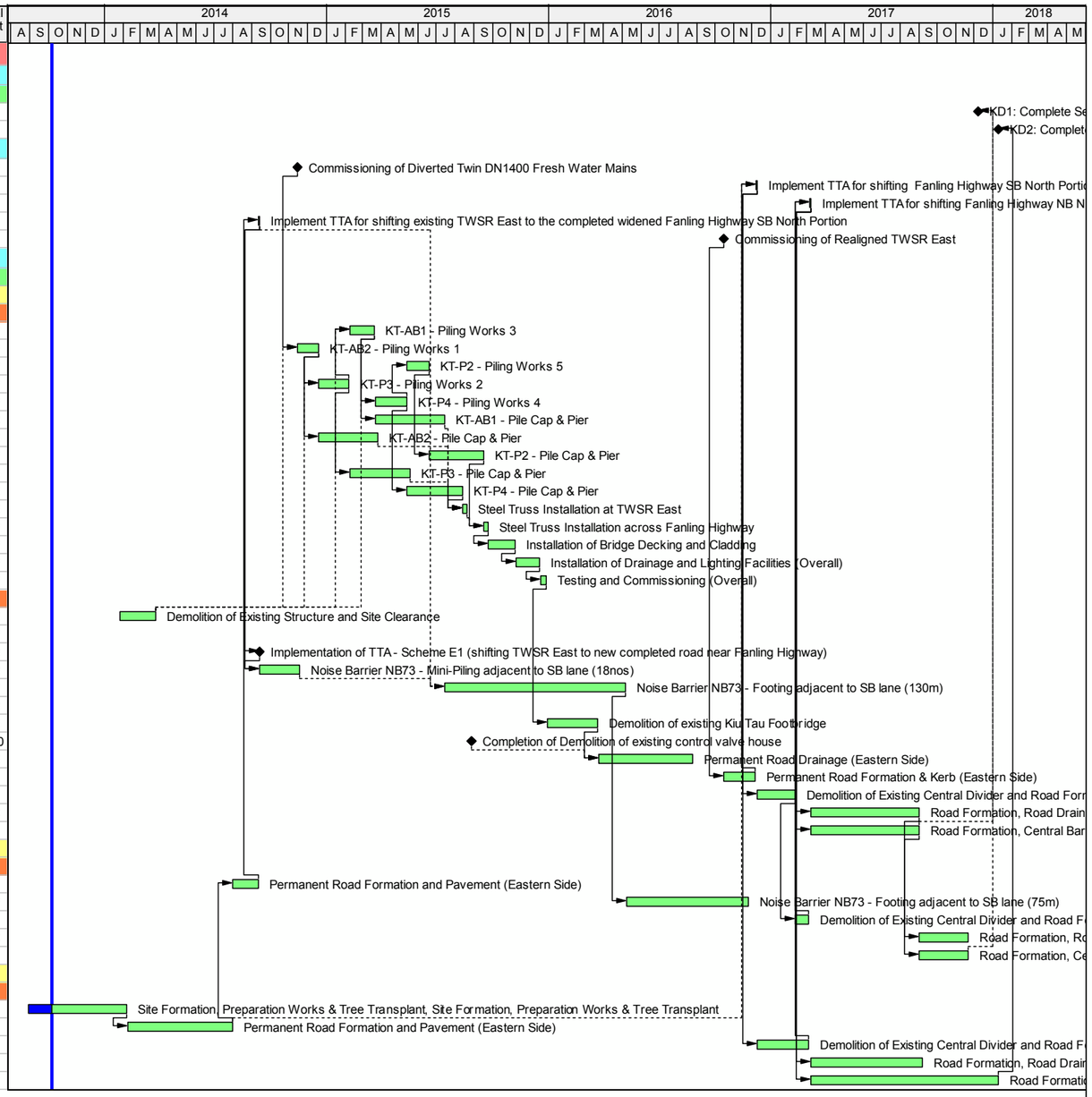
Figure 1: Demarcation of Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling – Stage 2



MEINHARDT	Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2	**Figure 2: Air and Noise Monitoring Locations**

Appendix A
Construction Programme

Activity ID	Activity Name	OD	Start	Finish	Total Float
CWP - Under Development (Postpone Pipe Jacking)					
Key Dates (Forecast)					
Major Works					
KD-0105	KD1: Complete Section 1A - all HyD's entrustment works in Zone3 and SBZ2 except for landscaping works	0		07-Dec-17	53
KD-0205	KD2: Complete Section 1B - all HyD's entrustment works in NBZ1 except for landscaping works	0		09-Jan-18	234
Major Milestones and Events					
MS-0220	Commissioning of Diverted Twin DN1400 Fresh Water Mains	0		14-Nov-14	132
MS-1000A	Implement TTA for shifting Fanling Highway SB North Portion (CH7470-7925) eastward to the completed road near TWSI	2	07-Dec-16	08-Dec-16	3
MS-1000B	Implement TTA for shifting Fanling Highway NB North Portion (CH7470-7925) eastward to the designed alignment	2	06-Mar-17	07-Mar-17	3
MS-3000	Implement TTA for shifting existing TWSR East to the completed widened Fanling Highway SB North Portion	2	11-Sep-14	12-Sep-14	7
MS-3010	Commissioning of Realigned TWSR East	0	15-Oct-16		3
Section IA & IB - Fanling Highway Widening (KD-1 & KD-2)					
Fanling Highway North Portion between CH7470 and CH7925					
Fanling Highway Zone 6 between CH7470 and CH7600 (Provision of Kiu Tau Footbridge)					
Kiu Tau Footbridge Reprovision (East)					
FHW-5000A	KT-AB1 - Piling Works 3	30	09-Feb-15	21-Mar-15	612
FHW-5000B	KT-AB2 - Piling Works 1	30	15-Nov-14	19-Dec-14	132
FHW-5000C	KT-P2 - Piling Works 5	30	14-May-15	18-Jun-15	612
FHW-5000D	KT-P3 - Piling Works 2	40	20-Dec-14	07-Feb-15	612
FHW-5000E	KT-P4 - Piling Works 4	40	23-Mar-15	13-May-15	612
FHW-5010A	KT-AB1 - Pile Cap & Pier	90	23-Mar-15	14-Jul-15	660
FHW-5010B	KT-AB2 - Pile Cap & Pier	75	20-Dec-14	27-Mar-15	745
FHW-5010C	KT-P2 - Pile Cap & Pier	75	19-Jun-15	16-Sep-15	612
FHW-5010D	KT-P3 - Pile Cap & Pier	75	09-Feb-15	19-May-15	705
FHW-5010E	KT-P4 - Pile Cap & Pier	75	14-May-15	12-Aug-15	635
FHW-5020	Steel Truss Installation at TWSR East	7	13-Aug-15	20-Aug-15	635
FHW-5030	Steel Truss Installation across Fanling Highway	7	17-Sep-15	24-Sep-15	612
FHW-5040	Installation of Bridge Decking and Cladding	35	25-Sep-15	07-Nov-15	612
FHW-5050	Installation of Drainage and Lighting Facilities (Overall)	35	09-Nov-15	18-Dec-15	612
FHW-5060	Testing and Commissioning (Overall)	7	19-Dec-15	29-Dec-15	612
At-Grade Road Works (130m)					
FHW-5100	Demolition of Existing Structure and Site Clearance	45	27-Jan-14	26-Mar-14	135
FHW-5110*	Pipe Laying & Connection - Twin DN1400 Watermains (CHE & CHG) adjacent to existing TWSRE (90m, 9m depth)	186	31-Mar-14	14-Nov-14	132
FHW-5120	Implementation of TTA - Scheme E1 (shifting TWSR East to new completed road near Fanling Highway)	0	13-Sep-14		573
FHW-5130	Noise Barrier NB73 - Mini-Piling adjacent to SB lane (18nos)	54	13-Sep-14	17-Nov-14	573
FHW-5140	Noise Barrier NB73 - Footing adjacent to SB lane (130m)	240	14-Jul-15	07-May-16	332
FHW-5150*	Pipe Laying - DN1200 &DN600 Watermains (CHB & CHC) along existing TWSRE (120m long, 3m depth)	240	04-Sep-15	02-Jul-16	373
FHW-5160	Demolition of existing Kiu Tau Footbridge	65	30-Dec-15	22-Mar-16	885
FHW-5170	Completion of Demolition of existing control valve house	0		28-Aug-15	1050
FHW-5180	Permanent Road Drainage (Eastern Side)	125	23-Mar-16	24-Aug-16	885
FHW-5190	Permanent Road Formation & Kerb (Eastern Side)	45	15-Oct-16	06-Dec-16	3
FHW-5200	Demolition of Existing Central Divider and Road Formation (Middle Part, Pavement Only)	45	09-Dec-16	09-Feb-17	3
FHW-5300	Road Formation, Road Drainage, Kerb, Noise Barrier (Western Side)	145	08-Mar-17	01-Sep-17	520
FHW-5400	Road Formation, Central Barrier (Remaining Works at Middle Part)	145	08-Mar-17	01-Sep-17	57
Fanling Highway Zone 7 between CH7600 and CH7660 (Existing Vehicular Bridge)					
At-Grade Roadworks (60m)					
FHW-6100	Permanent Road Formation and Pavement (Eastern Side)	35	31-Jul-14	10-Sep-14	7
FHW-6110	Noise Barrier NB73 - Footing adjacent to SB lane (75m)	166	09-May-16	24-Nov-16	332
FHW-6200	Demolition of Existing Central Divider and Road Formation (Middle Part, Pavement Only)	20	10-Feb-17	04-Mar-17	3
FHW-6300	Road Formation, Road Drainage, Kerb (Western Side)	65	02-Sep-17	20-Nov-17	520
FHW-6400	Road Formation, Central Barrier (Remaining Works at Middle Part)	65	02-Sep-17	20-Nov-17	57
Fanling Highway Zone 8 between CH7660 and CH7925					
At-Grade Roadworks (265m)					
FHW-7100	Site Formation, Preparation Works & Tree Transplant	127	30-Aug-13 A	07-Feb-14	7
FHW-7110	Permanent Road Formation and Pavement (Eastern Side)	140	08-Feb-14	30-Jul-14	7
FHW-7200	Demolition of Existing Central Divider and Road Formation (Middle Part, Pavement Only)	65	09-Dec-16	04-Mar-17	3
FHW-7300	Road Formation, Road Drainage, Kerb (Western Side)	150	08-Mar-17	07-Sep-17	3
FHW-7400	Road Formation, Central Barrier (Remaining Works at Middle Part)	250	08-Mar-17	09-Jan-18	187



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Actual Work
Remaining Work
Critical Remaining Work
Milestone

CEDD Contract No. CV/2012/09

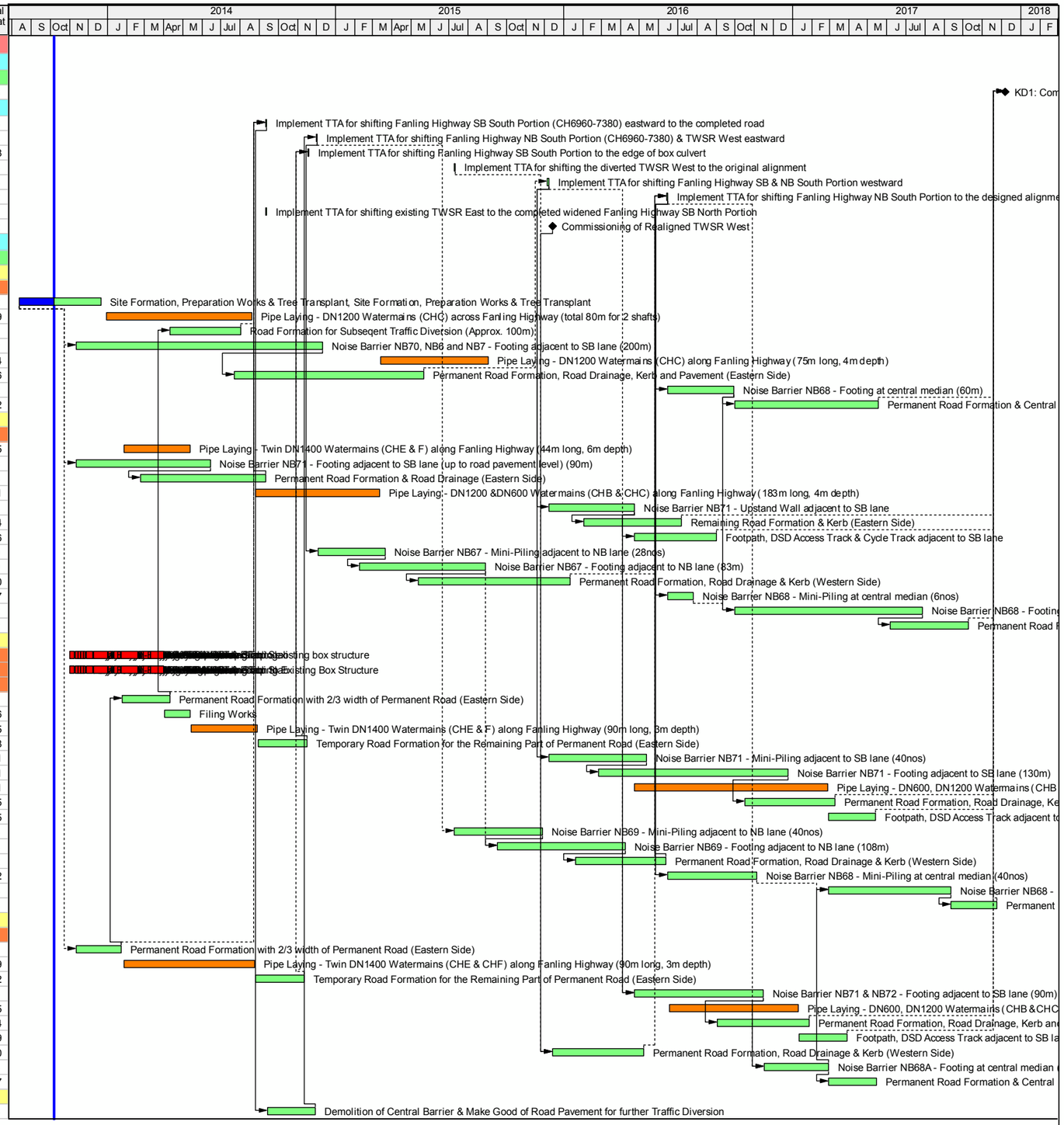
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

Works Sequence for Fanling Highway North Portion

CWP004-1 Page 1 of 1 11-Oct-13

Date	Revision	Checked	Approved
11-Oct-13		SL	

Activity ID	Activity Name	OD	Start	Finish	Total Float
CWP - Under Development (Postpone Pipe Jacking)					
Key Dates (Forecast)					
Major Works					
KD-0105	KD1: Complete Section 1A - all HyD's entrustment works in Zone3 and SBZ2 except for landscaping works	0		07-Dec-17	53
Major Milestones and Events					
MS-2010	Implement TTA for shifting Fanling Highway SB South Portion (CH6960-7380) eastward to the completed ro	2	11-Sep-14	12-Sep-14	58
MS-2020	Implement TTA for shifting Fanling Highway NB South Portion (CH6960-7380) & TWSR West eastward	2	01-Dec-14	02-Dec-14	58
MS-2030	Implement TTA for shifting Fanling Highway SB South Portion to the edge of box culvert	2	17-Nov-14	18-Nov-14	238
MS-2040	Implement TTA for shifting the diverted TWSR West to the original alignment	2	09-Jul-15	10-Jul-15	54
MS-2050	Implement TTA for shifting Fanling Highway SB & NB South Portion westward	2	05-Dec-15	07-Dec-15	54
MS-2060	Implement TTA for shifting Fanling Highway NB South Portion to the designed alignment	2	13-Jun-16	14-Jun-16	92
MS-3000	Implement TTA for shifting existing TWSR East to the completed widened Fanling Highway SB North Portion	2	11-Sep-14	12-Sep-14	7
MS-3020	Commissioning of Realigned TWSR West	0	14-Dec-15		42
Section IA & IB - Fanling Highway Widening (KD-1 & KD-2)					
Fanling Highway South Portion between CH6935 and CH7470					
Fanling Highway Zone 1 between CH6935 and CH7130 (within SBZ2)					
At-Grade Roadworks (195m)					
FHW-1100	Site Formation, Preparation Works & Tree Transplant	65	12-Aug-13 A	21-Dec-13	32
FHW-1110*	Pipe Laying - DN1200 Watermains (CHC) across Fanling Highway (total 80m for 2 shafts)	185	30-Dec-13	19-Aug-14	999
FHW-1130	Road Formation for Subseqent Traffic Diversion (Approx. 100m)	90	11-Apr-14	01-Aug-14	91
FHW-1140	Noise Barrier NB70, NB6 and NB7 - Footing adjacent to SB lane (200m)	320	11-Nov-13	11-Dec-14	32
FHW-1150*	Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (75m long, 4m depth)	140	13-Mar-15	01-Sep-15	644
FHW-1160	Permanent Road Formation, Road Drainage, Kerb and Pavement (Eastern Side)	245	22-Jul-14	22-May-15	216
FHW-1300	Noise Barrier NB68 - Footing at central median (60m)	90	15-Jun-16	29-Sep-16	92
FHW-1310	Permanent Road Formation & Central Barrier (Middle Part)	180	30-Sep-16	17-May-17	212
Fanling Highway Zone 2 between CH7130 and CH7290					
At-Grade Roadworks (160m)					
FHW-2100*	Pipe Laying - Twin DN1400 Watermains (CHE & F) along Fanling Highway (44m long, 6m depth)	80	27-Jan-14	13-May-14	145
FHW-2110	Noise Barrier NB71 - Footing adjacent to SB lane (up to road pavement level) (90m)	170	11-Nov-13	14-Jun-14	58
FHW-2120	Permanent Road Formation & Road Drainage (Eastern Side)	163	22-Feb-14	10-Sep-14	58
FHW-2130*	Pipe Laying - DN1200 &DN600 Watermains (CHB & CHC) along Fanling Highway (183m long, 4m depth)	160	25-Aug-14	12-Mar-15	741
FHW-2140	Noise Barrier NB71 - Upstand Wall adjacent to SB lane	105	08-Dec-15	22-Apr-16	54
FHW-2150	Remaining Road Formation & Kerb (Eastern Side)	120	02-Feb-16	06-Jul-16	464
FHW-2190	Footpath, DSD Access Track & Cycle Track adjacent to SB lane	108	23-Apr-16	31-Aug-16	416
FHW-2200	Noise Barrier NB67 - Mini-Piling adjacent to NB lane (28nos)	84	03-Dec-14	20-Mar-15	70
FHW-2210	Noise Barrier NB67 - Footing adjacent to NB lane (83m)	160	07-Feb-15	28-Aug-15	70
FHW-2220	Permanent Road Formation, Road Drainage & Kerb (Western Side)	200	13-May-15	11-Jan-16	210
FHW-2300	Noise Barrier NB68 - Mini-Piling at central median (6nos)	35	15-Jun-16	26-Jul-16	147
FHW-2310	Noise Barrier NB68 - Footing at central median (157m)	240	30-Sep-16	28-Jul-17	92
FHW-2320	Permanent Road Formation & Central Barrier (Middle Part)	105	06-Jun-17	09-Oct-17	92
Fanling Highway Zone 3 between CH7290 and CH7380					
Box Culvert Extension - ID4					
Box Culvert Extension - ID5					
At-Grade Roadworks (90m)					
FHW-3100	Permanent Road Formation with 2/3 width of Permanent Road (Eastern Side)	60	23-Jan-14	10-Apr-14	91
FHW-3110	Filing Works	30	01-Apr-14	12-May-14	146
FHW-3120*	Pipe Laying - Twin DN1400 Watermains (CHE & F) along Fanling Highway (90m long, 3m depth)	90	14-May-14	28-Aug-14	145
FHW-3120B	Temporary Road Formation for the Remaining Part of Permanent Road (Eastern Side)	65	29-Aug-14	15-Nov-14	238
FHW-3130	Noise Barrier NB71 - Mini-Piling adjacent to SB lane (40nos)	120	08-Dec-15	11-May-16	181
FHW-3140	Noise Barrier NB71 - Footing adjacent to SB lane (130m)	249	26-Feb-16	24-Dec-16	181
FHW-3150*	Pipe Laying - DN600, DN1200 Watermains (CHB &CHC) along Fanling Highway (90m long, 3m depth)	249	23-Apr-16	25-Feb-17	181
FHW-3160	Permanent Road Formation, Road Drainage, Kerb and Pavement (Eastern Side)	115	17-Oct-16	09-Mar-17	265
FHW-3190	Footpath, DSD Access Track adjacent to SB lane	60	27-Feb-17	13-May-17	215
FHW-3200	Noise Barrier NB69 - Mini-Piling adjacent to NB lane (40nos)	120	09-Jul-15	28-Nov-15	54
FHW-3210	Noise Barrier NB69 - Footing adjacent to NB lane (108m)	160	17-Sep-15	08-Apr-16	54
FHW-3220	Permanent Road Formation, Road Drainage & Kerb (Western Side)	112	19-Jan-16	11-Jun-16	92
FHW-3300	Noise Barrier NB68 - Mini-Piling at central median (40nos)	120	15-Jun-16	05-Nov-16	142
FHW-3310	Noise Barrier NB68 - Footing at central median (98m)	160	28-Feb-17	11-Sep-17	54
FHW-3320	Permanent Road Formation & Central Barrier (Middle Part)	60	12-Sep-17	23-Nov-17	54
Fanling Highway Zone 4 between CH7380 and CH7470					
At-Grade Roadworks (90m)					
FHW-4100	Permanent Road Formation with 2/3 width of Permanent Road (Eastern Side)	60	11-Nov-13	22-Jan-14	91
FHW-4110*	Pipe Laying - Twin DN1400 Watermains (CHE & CHF) along Fanling Highway (90m long, 3m depth)	166	27-Jan-14	23-Aug-14	149
FHW-4120	Temporary Road Formation for the Remaining Part of Permanent Road (Eastern Side)	65	25-Aug-14	11-Nov-14	242
FHW-4130	Noise Barrier NB71 & NB72 - Footing adjacent to SB lane (90m)	170	23-Apr-16	15-Nov-16	54
FHW-4140*	Pipe Laying - DN600, DN1200 Watermains (CHB &CHC) along Fanling Highway (90m long, 3m depth)	170	18-Jun-16	10-Jan-17	215
FHW-4150	Permanent Road Formation, Road Drainage, Kerb and Pavement (Eastern Side)	120	03-Sep-16	27-Jan-17	294
FHW-4160	Footpath, DSD Access Track adjacent to SB lane	60	11-Jan-17	28-Mar-17	249
FHW-4200	Permanent Road Formation, Road Drainage & Kerb (Western Side)	112	14-Dec-15	07-May-16	120
FHW-4210	Noise Barrier NB68A - Footing at central median (40m)	80	16-Nov-16	27-Feb-17	54
FHW-4300	Permanent Road Formation & Central Barrier (Middle Part)	60	28-Feb-17	15-May-17	677
Miscellaneous Works for Facilitating Traffic Diversion of Fanling Highway					
FHW-M-1000	Demolition of Central Barrier & Make Good of Road Pavement for further Traffic Diversion	65	13-Sep-14	29-Nov-14	58



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CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

Actual Work
Remaining Work
Summary Bar
Critical Remaining Work
Milestone

CEDD Contract No. CV/2012/09

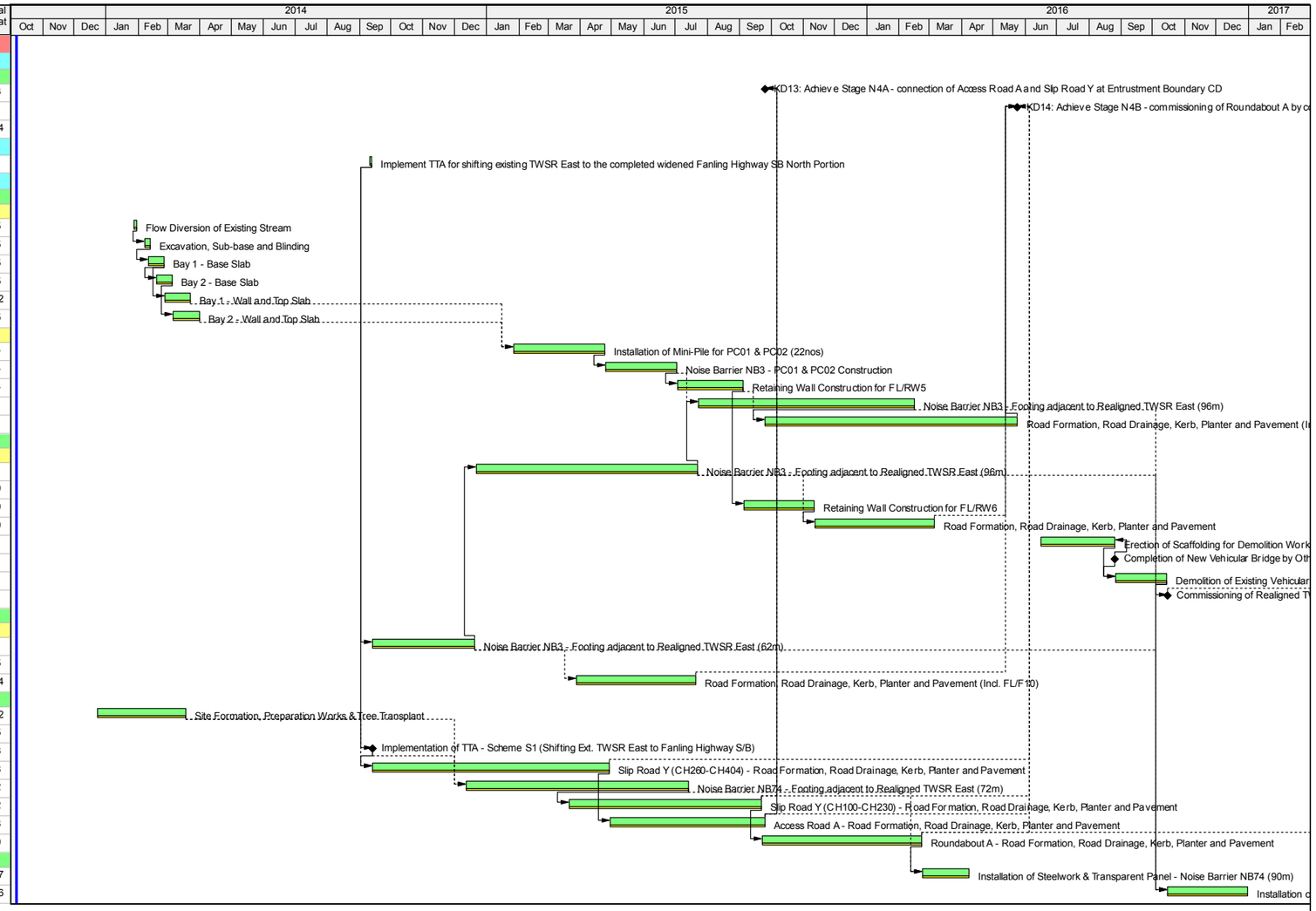
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

Works Sequence for Fanling Highway South Portion

CWP004-1 Page 1 of 1 11-Oct-13

Date	Revision	Checked	Approved
11-Oct-13		SL	

Activity ID	Activity Name	OD	Start	Finish	Total Float
CWP - Under Development (Postpone Pipe Jacking)					
Key Dates (Forecast)					
Major Works					
KD-0905	KD13: Achieve Stage N4A - connection of Access Road A and Slip Road Y at Entrustment Boundary CD	0		25-Sep-15	36
KD-1005	KD14: Achieve Stage N4B - commissioning of Roundabout A by connecting to Slip Rd Y, Access Rd A & th	0		24-May-16	8
KD-0205	KD2: Complete Section 1B - all HyD's entrustment works in NBZ1 except for landscaping works	0		09-Jan-18	234
Major Milestones and Events					
MS-3000	Implement TTA for shifting existing TWSR East to the completed widened Fanling Highway SB North Portio	2	11-Sep-14	12-Sep-14	7
Stage N4A & N4B - Realignment of Tai Wo Service Road East (KD-13 & KD-14)					
TWSRE Zone 1 between CH100 and CH270					
Box Culvert Extension - BC02					
TWSRE-1000	Flow Diversion of Existing Stream	4	27-Jan-14	30-Jan-14	95
TWSRE-1010	Excavation, Sub-base and Blinding	5	07-Feb-14	12-Feb-14	95
TWSRE-1020	Bay 1 - Base Slab	14	10-Feb-14	25-Feb-14	95
TWSRE-1030	Bay 2 - Base Slab	14	18-Feb-14	05-Mar-14	95
TWSRE-1040	Bay 1 - Wall and Top Slab	22	26-Feb-14	22-Mar-14	102
TWSRE-1050	Bay 2 - Wall and Top Slab	22	06-Mar-14	31-Mar-14	95
At-Grade Roadworks					
TWSRE-1100	Installation of Mini-Pile for PC01 & PC02 (22nos)	66	27-Jan-15	24-Apr-15	24
TWSRE-1110	Noise Barrier NB3 - PC01 & PC02 Construction	55	25-Apr-15	02-Jul-15	24
TWSRE-1130	Retaining Wall Construction for FL/RW5	55	03-Jul-15	04-Sep-15	24
TWSRE-1120	Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (96m)	166	23-Jul-15	15-Feb-16	7
TWSRE-1160	Road Formation, Road Drainage, Kerb, Planter and Pavement (Incl. FL/F8A, FL/F9)	190	25-Sep-15	24-May-16	7
TWSRE Zone 2 between CH270 and CH380					
At-Grade Roadworks					
TWSRE-2010	Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (96m)	166	22-Dec-14	22-Jul-15	7
TWSRE-2020*	Pipe laying - DN600, DN1400 & DN1200 Watermains (CHB, CHK & CHC) along Realigned TWSR East	172	20-Mar-15	17-Oct-15	89
TWSRE-2020	Retaining Wall Construction for FL/RW6	55	05-Sep-15	11-Nov-15	69
TWSRE-2030	Road Formation, Road Drainage, Kerb, Planter and Pavement	90	12-Nov-15	05-Mar-16	69
TWSRE-2050	Erection of Scaffolding for Demolition Works	60	16-Jun-16	25-Aug-16	3
TWSRE-2040	Completion of New Vehicular Bridge by Other Contractor	0		25-Aug-16	3
TWSRE-2060	Demolition of Existing Vehicular Bridge	40	26-Aug-16	14-Oct-16	3
TWSRE-2070	Commissioning of Realigned TWSR East	0	15-Oct-16		3
TWSRE Zone 3 between CH380 and CH456					
At-Grade Roadworks					
TWSRE-3010	Noise Barrier NB3 - Footing adjacent to Realigned TWSR East (62m)	83	13-Sep-14	20-Dec-14	7
TWSRE-3020*	Pipe Laying - DN600 & DN1200 Watermains (CHB & CHC) along Realigned TWSR East	53	19-Jan-15	27-Mar-15	75
TWSRE-3030	Road Formation, Road Drainage, Kerb, Planter and Pavement (Incl. FL/F10)	90	28-Mar-15	20-Jul-15	254
Roundabout A, Slip Road and Access Road					
TWSRE-4000	Site Formation, Preparation Works & Tree Transplant	65	23-Dec-13	18-Mar-14	172
TWSRE-4050*	Pipe laying - DN600, DN1200 & DN2300 Watermains (CHB, CHC & CHJ) along Access Road A & Round	111	13-Sep-14	26-Jan-15	75
TWSRE-4010	Implementation of TTA - Scheme S1 (Shifting Ext. TWSR East to Fanling Highway S/B)	0	13-Sep-14		28
TWSRE-4020	Slip Road Y (CH260-CH404) - Road Formation, Road Drainage, Kerb, Planter and Pavement	180	13-Sep-14	28-Apr-15	28
TWSRE-4030	Noise Barrier NB74 - Footing adjacent to Realigned TWSR East (72m)	166	12-Dec-14	13-Jul-15	32
TWSRE-4040	Slip Road Y (CH100-CH230) - Road Formation, Road Drainage, Kerb, Planter and Pavement	150	21-Mar-15	21-Sep-15	32
TWSRE-4060	Access Road A - Road Formation, Road Drainage, Kerb, Planter and Pavement	125	29-Apr-15	25-Sep-15	28
TWSRE-4070	Roundabout A - Road Formation, Road Drainage, Kerb, Planter and Pavement	120	22-Sep-15	22-Feb-16	80
Remaining Works for Noise Barrier along realigned TWSR East					
TWSRE-NB-110	Installation of Steelwork & Transparent Panel - Noise Barrier NB74 (90m)	35	23-Feb-16	07-Apr-16	537
TWSRE-NB-120	Installation of Steelwork & Transparent Panel - Noise Barrier NB3 (254m)	65	15-Oct-16	31-Dec-16	316



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

Actual Work
Remaining Work
Critical Remaining Work
Milestone
Project Baseline Bar

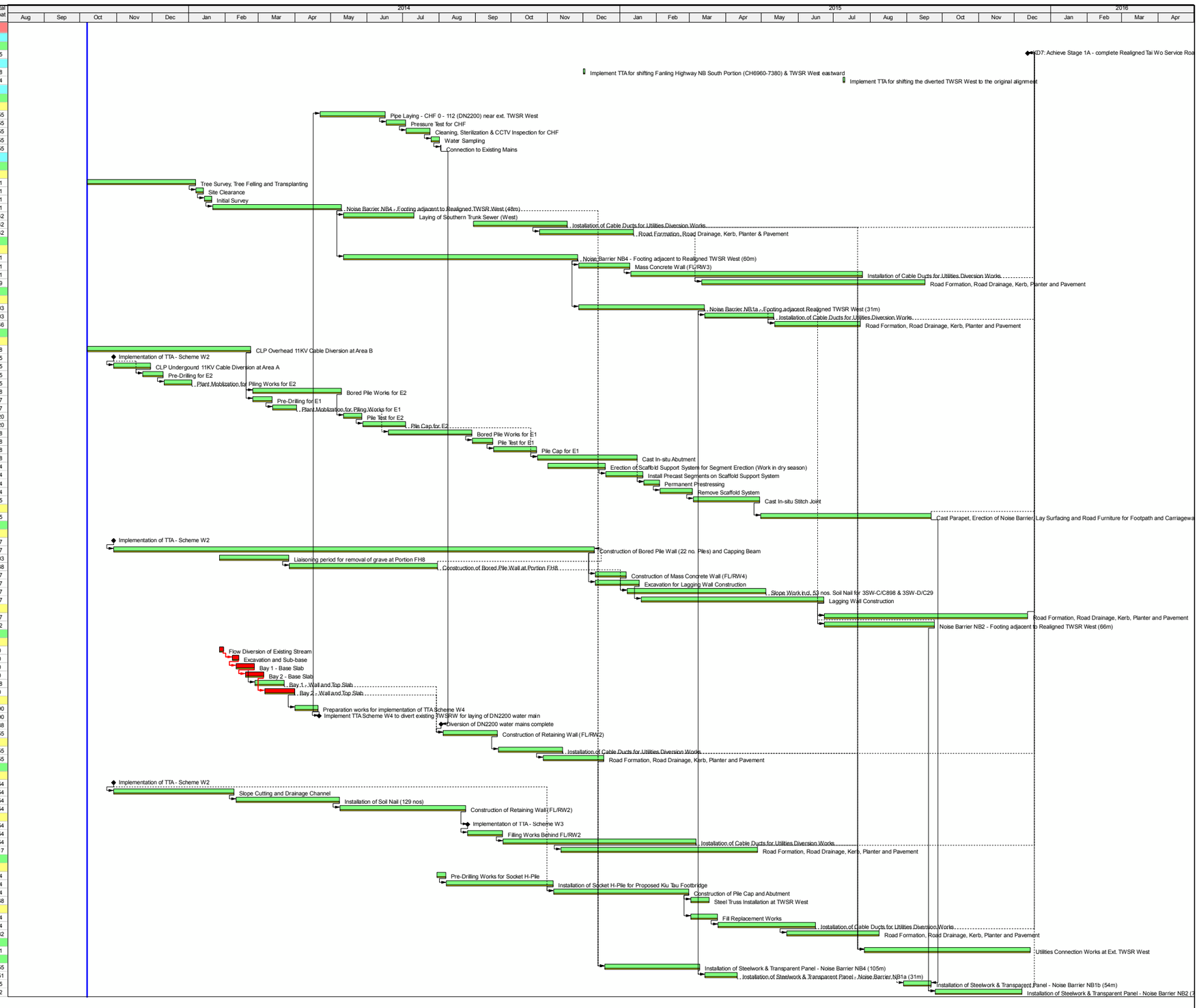
CEDD Contract No. CV/2012/09

Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

Works Sequence for TWSRE

Date	Revision	Checked	Approved
11-Oct-13		SL	

Activity ID	Activity Name	OD	Start	Finish	Total Float
CWP - Under Development (Postpone Pipe Jacking)					
Key Dates (Forecast)					
Major Works					
KD-0505	KD7: Achieve Stage 1A - complete Realigned Tai Wo Service Road West	0		12-Dec-15	35
Major Milestones and Events					
MS-2020	Implement TTA for shifting Fanling Highway NB South Portion (CH6960-7380) & TWSR West eastward	2	01-Dec-14	02-Dec-14	58
MS-2040	Implement TTA for shifting the diverted TWSR West to the original alignment	2	09-Jul-15	10-Jul-15	54
Section II - Remainder of the Works (KD-3)					
WSD Works					
DN2200 Water Mains (CHF)					
WF-1000	Pipe Laying - CHF 0 - 112 (DN2200) near ext. TWSR West	45	22-Apr-14	16-Jun-14	155
WF-2000	Pressure Test for CHF	14	17-Jun-14	03-Jul-14	155
WF-2010	Cleaning, Sterilization & CCTV Inspection for CHF	18	04-Jul-14	24-Jul-14	155
WF-2020	Water Sampling	7	25-Jul-14	01-Aug-14	155
WF-2030	Connection to Existing Mains	1	02-Aug-14	02-Aug-14	155
Stage 1A - Realignment of Tai Wo Service Road West (KD-7)					
TWSRW Zone 1 betweeen CH100 and CH155					
At-Grade Roadworks					
TWSRW-1100	Tree Survey, Tree Felling and Transplanting	75	07-Oct-13	06-Jan-14	41
TWSRW-1110	Site Clearance	6	07-Jan-14	13-Jan-14	41
TWSRW-1120	Initial Survey	6	14-Jan-14	20-Jan-14	41
TWSRW-1130	Noise Barrier NB4 - Footing adjacent to Realigned TWSR West (48m)	83	21-Jan-14	10-May-14	41
TWSRW-1140	Laying of Southern Trunk Sewer (West)	50	12-May-14	10-Jul-14	142
TWSRW-1150	Installation of Cable Ducts for Utilities Diversion Works	65	30-Aug-14	17-Nov-14	142
TWSRW-1160	Road Formation, Road Drainage, Kerb, Planter & Pavement	65	25-Oct-14	12-Jan-15	142
TWSRW Zone 2 betweeen CH155 and CH280					
At-Grade Roadworks					
TWSRW-2100	Noise Barrier NB4 - Footing adjacent to Realigned TWSR West (60m)	166	12-May-14	26-Nov-14	41
TWSRW-2110	Mass Concrete Wall (FL/RW3)	35	27-Nov-14	09-Jan-15	41
TWSRW-2120	Installation of Cable Ducts for Utilities Diversion Works	155	10-Jan-15	25-Jul-15	41
TWSRW-2130	Road Formation, Road Drainage, Kerb, Planter and Pavement	155	11-Mar-15	16-Sep-15	99
TWSRW Zone 3 between CH280 and CH315					
At-Grade Roadworks					
TWSRW-3100	Noise Barrier NB1a - Footing adjacent Realigned TWSR West (31m)	83	27-Nov-14	13-Mar-15	103
TWSRW-3110	Installation of Cable Ducts for Utilities Diversion Works	45	14-Mar-15	11-May-15	103
TWSRW-3120	Road Formation, Road Drainage, Kerb, Planter and Pavement	60	12-May-15	23-Jul-15	146
TWSRW Zone 4 between CH315 and CH376					
Construction of Bridge E					
TWSRW-4000A	CLP Overhead 11KV Cable Diversion at Area B	110	07-Oct-13	22-Feb-14	28
TWSRW-4000	Implementation of TTA - Scheme W2	0	29-Oct-13		65
TWSRW-4000A	CLP Undergound 11KV Cable Diversion at Area A	28	29-Oct-13	29-Nov-13	65
TWSRW-4010B	Pre-Drilling for E2	15	23-Nov-13	10-Dec-13	65
TWSRW-4020B	Plant Mobilization for Piling Works for E2	18	11-Dec-13	03-Jan-14	65
TWSRW-4030B	Bored Pile Works for E2	60	24-Feb-14	10-May-14	28
TWSRW-4010A	Pre-Drilling for E1	15	24-Feb-14	12-Mar-14	87
TWSRW-4020A	Plant Mobilization for Piling Works for E1	18	13-Mar-14	02-Apr-14	87
TWSRW-4040B	Pile Test for E2	14	12-May-14	27-May-14	120
TWSRW-4050B	Pile Cap for E2	30	28-May-14	03-Jul-14	120
TWSRW-4030A	Bored Pile Works for E1	60	19-Jun-14	28-Aug-14	28
TWSRW-4040A	Pile Test for E1	14	29-Aug-14	15-Sep-14	28
TWSRW-4050A	Pile Cap for E1	30	16-Sep-14	22-Oct-14	28
TWSRW-4070B	Cast In-situ Abutment	70	23-Oct-14	15-Jan-15	28
TWSRW-4060	Erection of Scaffold Support System for Segment Erection (Work in dry season)	42	01-Nov-14	19-Dec-14	24
TWSRW-4070A	Install Precast Segments on Scaffold Support System	24	20-Dec-14	20-Jan-15	24
TWSRW-4080	Permanent Prestressing	12	21-Jan-15	03-Feb-15	24
TWSRW-4090A	Remove Scaffold System	18	04-Feb-15	03-Mar-15	24
TWSRW-4090B	Cast In-situ Stitch Joint	45	04-Mar-15	29-Apr-15	35
At-Grade Roadworks					
TWSRW-4100	Cast Parapet, Erection of Noise Barrier, Lay Surfacing and Road Furniture for Footpath and Carriageway	120	30-Apr-15	21-Sep-15	35
TWSRW Zone 5 between CH376 and CH520					
Construction of Retaining Structures					
TWSRW-5000	Implementation of TTA - Scheme W2	0	29-Oct-13		27
TWSRW-5010	Construction of Bored Pile Wall (22 no. Piles) and Capping Beam	330	29-Oct-13	10-Dec-14	27
TWSRW-5020	Liaisoning period for removal of grave at Portion FH8	45	27-Jan-14	26-Mar-14	103
TWSRW-5030	Construction of Bored Pile Wall at Portion FH8	100	27-Mar-14	30-Jul-14	138
TWSRW-5040	Construction of Mass Concrete Wall (FL/RW4)	20	11-Dec-14	06-Jan-15	67
TWSRW-5060	Excavation for Lagging Wall Construction	30	11-Dec-14	17-Jan-15	27
TWSRW-5050	Slope Work incl. 53 nos. Soil Nail for 3SW-C/C898 & 3SW-D/C29	90	07-Jan-15	04-May-15	67
TWSRW-5070	Lagging Wall Construction	120	19-Jan-15	22-Jun-15	27
At-Grade Roadworks					
TWSRW-5110	Road Formation, Road Drainage, Kerb, Planter and Pavement	145	23-Jun-15	12-Dec-15	27
TWSRW-5100	Noise Barrier NB2 - Footing adjacent to Realigned TWSR West (66m)	80	23-Jun-15	24-Sep-15	32
TWSRW Zone 6 betweeen CH520 and CH530					
Box Culvert Extension - BC01					
TWSRW-6000	Flow Diversion of Existing Stream	4	27-Jan-14	30-Jan-14	0
TWSRW-6010	Excavation and Sub-base	5	07-Feb-14	12-Feb-14	0
TWSRW-6020	Bay 1 - Base Slab	14	10-Feb-14	25-Feb-14	0
TWSRW-6030	Bay 2 - Base Slab	14	18-Feb-14	05-Mar-14	0
TWSRW-6040	Bay 1 - Wall and Top Slab	22	26-Feb-14	22-Mar-14	88
TWSRW-6050	Bay 2 - Wall and Top Slab	22	06-Mar-14	31-Mar-14	0
Construction of Retaining Structures					
TWSRW-6057	Preparation works for implementation of TTA Scheme W4	20	01-Apr-14	20-Apr-14	190
TWSRW-6059	Implement TTA Scheme W4 to divert existing TWSRW for laying of DN2200 water main	0	21-Apr-14		190
TWSRW-6055	Diversion of DN2200 water mains complete	0		02-Aug-14	188
TWSRW-6060	Construction of Retaining Wall (FL/RW2)	40	04-Aug-14	19-Sep-14	155
At-Grade Roadworks					
TWSRW-6100	Installation of Cable Ducts for Utilities Diversion Works	45	20-Sep-14	13-Nov-14	155
TWSRW-6110	Road Formation, Road Drainage, Kerb, Planter and Pavement	45	28-Oct-14	18-Dec-14	155
TWSRW Zone 7 between CH530 and CH640					
Construction of Retaining Structures					
TWSRW-7000	Implementation of TTA - Scheme W2	0	29-Oct-13		154
TWSRW-7010	Slope Cutting and Drainage Channel	80	29-Oct-13	08-Feb-14	154
TWSRW-7020	Installation of Soil Nail (129 nos)	70	10-Feb-14	08-May-14	154
TWSRW-7030	Construction of Retaining Wall (FL/RW2)	90	09-May-14	23-Aug-14	154
At-Grade Roadworks					
TWSRW-7100	Implementation of TTA - Scheme W3	0	25-Aug-14		154
TWSRW-7110	Filling Works Behind FL/RW2	25	25-Aug-14	23-Sep-14	154
TWSRW-7120	Installation of Cable Ducts for Utilities Diversion Works	130	24-Sep-14	06-Mar-15	154
TWSRW-7140	Road Formation, Road Drainage, Kerb, Planter and Pavement	130	12-Nov-14	27-Apr-15	217
TWSRW Zone 8 between CH640 and CH695					
Kiu Tau Footbridge Reprovision (West)					
TWSRW-8000	Pre-Drilling Works for Socket H-Pile	7	30-Jul-14	06-Aug-14	74
TWSRW-8010	Installation of Socket H-Pile for Proposed Kiu Tau Footbridge	75	07-Aug-14	05-Nov-14	74
TWSRW-8020	Construction of Pile Cap and Abutment	90	06-Nov-14	28-Feb-15	74
TWSRW-8030	Steel Truss Installation at TWSR West	14	02-Mar-15	17-Mar-15	768
At-Grade Roadworks					
TWSRW-8100	Fill Replacement Works	20	02-Mar-15	24-Mar-15	74
TWSRW-8110	Installation of Cable Ducts for Utilities Diversion Works	65	25-Mar-15	15-Jun-15	74
TWSRW-8120	Road Formation, Road Drainage, Kerb, Planter and Pavement	65	22-May-15	08-Aug-15	132
Remainder of the Works					
TWSRW-9000	Utilities Connection Works at Ext. TWSR West	118	27-Jul-15	14-Dec-15	41
Remaining Works for Noise Barrier along realigned TWSR West					
TWSRW-NB-110	Installation of Steelwork & Transparent Panel - Noise Barrier NB4 (105m)	60	19-Dec-14	09-Mar-15	155
TWSRW-NB-120	Installation of Steelwork & Transparent Panel - Noise Barrier NB1a (31m)	20	14-Mar-15	10-Apr-15	151
TWSRW-NB-130	Installation of Steelwork & Transparent Panel - Noise Barrier NB1b (54m)	20	29-Aug-15	21-Sep-15	35
TWSRW-NB-140	Installation of Steelwork & Transparent Panel - Noise Barrier NB2 (77m)	60	25-Sep-15	07-Dec-15	32



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- Project Baseline Bar

CEDD Contract No. CV/2012/09

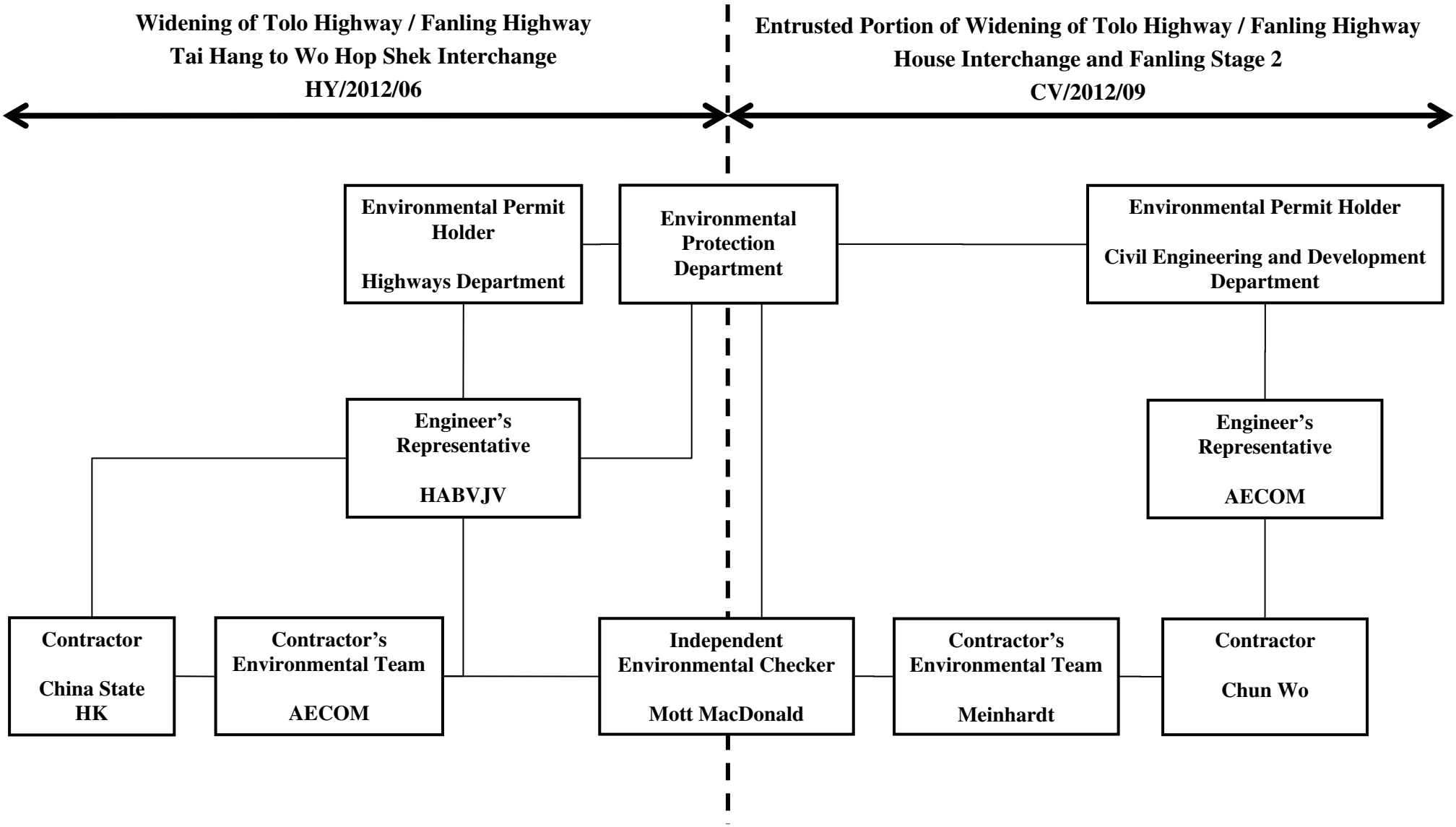
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

Works Sequence for TWSRW

CWP004-1 Page 1 of 1 12-Oct-13

Date	Revision	Checked	Approved
11-Sep-13		SL	

Appendix B
Project Organization Structure


Widening of Tolo Highway / Fanling Highway
Tai Hang to Wo Hop Shek Interchange
HY/2012/06
Entrusted Portion of Widening of Tolo Highway / Fanling Highway
House Interchange and Fanling Stage 2
CV/2012/09
Environmental Permit Holder
Highways Department
Environmental Protection Department
Environmental Permit Holder
Civil Engineering and Development Department
Engineer's Representative
HABVJV
Engineer's Representative
AECOM
Contractor
China State HK
Contractor's Environmental Team
AECOM
Independent Environmental Checker
Mott MacDonald
Contractor's Environmental Team
Meinhardt
Contractor
Chun Wo

Appendix C
Calibration Certificates of Monitoring Equipment

Enovative Environmental Service Limited

REPORT OF EQUIPMENT CALIBRATION

INSTRUMENT DESCRIPTION

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler and the filter paper is weighted by HOKLAS laboratory.

Instrument:	Handheld TSP meter
Brand Name:	TSI
Model No.:	AM510
Serial No.:	11008019
Date Received:	16/10/2013
Date of Issue:	27/10/2013
Date of Calibration:	22/10/2013
Date of Next Calibration :	22/10/2014

ISSUING ORGANISATION

Address

Enovative Environmental Service Limited

Flat 6, 3/F, Block E, Wah Lok Industrial Centre
31-35 Shan Mei Street
Shatin, N.T.
Hong Kong

Phone: 852-2242 1020
Fax: 852-3691 9240
Email: info@eno.com.hk

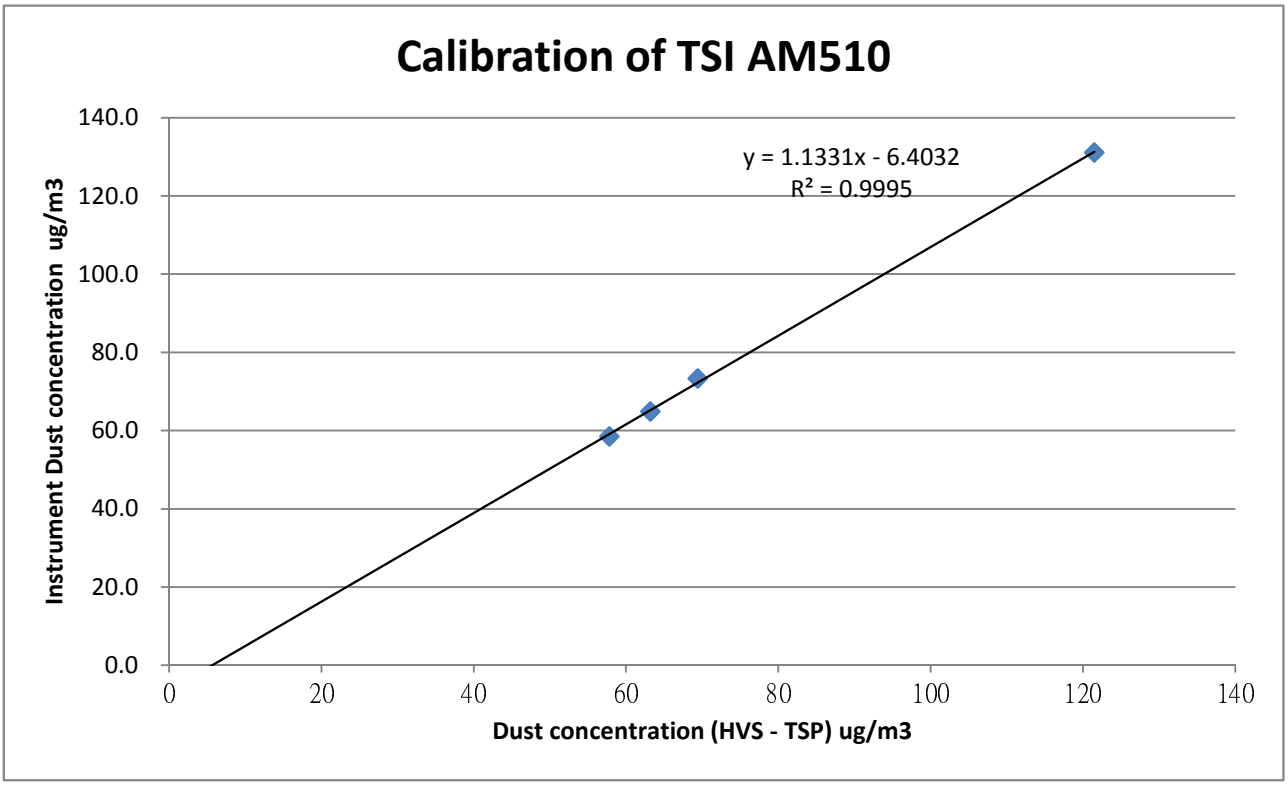
Mr Wong Siu Ho, Thomas
Manager

Enovative Environmental Service Limited

Brand Name:	TSI
Model No.:	AM510
Serial No.:	11008019
HVS No.:	A12-TSP-102
HVS Calibration Kit No.:	Tisch 1941
Date of Calibration:	22/10/2013
Date of next Calibration:	22/10/2014

Calibration Record

HVS - TSP ug/m3	121.5	57.8	63.2	69.4
TSI AM510	131.1	58.5	64.9	73.3



*** Filter paper being used in the calibratior 205472, 205476, 205480, 205483
Those filter papers are weighted by HOKLAS laboratory (ALS Technichem (HK) Pty Ltd.)

Mr Wong Siu Ho, Thomas
Manager

TISCH Environmental

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 07, 2014 Rootsmeter S/N 0438320 Ta (K) - 294
Operator Tisch Orifice I.D. - 1612 Pa (mm) - 742.95

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3940	3.2	2.00
2	NA	NA	1.00	0.9790	6.4	4.00
3	NA	NA	1.00	0.8800	7.8	5.00
4	NA	NA	1.00	0.8350	8.8	5.50
5	NA	NA	1.00	0.6910	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)
0.9866	0.7077	1.4077
0.9823	1.0034	1.9908
0.9804	1.1140	2.2258
0.9791	1.1726	2.3345
0.9739	1.4094	2.8155

Qstd slope (m) = 2.00757
intercept (b) = -0.01628
coefficient (r) = 0.99989

y axis = SQRT[H2O(Pa/760)(298/Ta)]

Va	(x axis) Qa	(y axis)
0.9957	0.7142	0.8896
0.9914	1.0127	1.2581
0.9894	1.1243	1.4066
0.9881	1.1834	1.4753
0.9829	1.4224	1.7793

Qa slope (m) = 1.25710
intercept (b) = -0.01029
coefficient (r) = 0.99989

y axis = SQRT[H2O(Ta/Pa)]

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

TSP Sampler Calibration

SITE

Location: Lian Tang 3 — Date: May 4, 2014
Sampler: TE-5170 MFC (Serial # : 2359) — Tech: Sam Wong

CONDITIONS

Barometric Pressure (in Hg):	39.94	Corrected Pressure (mm Hg):	1014
Temperature (deg F):	74	Temperature (deg K):	296
Average Press. (in Hg):	39.94	Corrected Average (mm Hg):	1014
Average Temp. (deg F):	74	Average Temp. (deg K):	296

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.00757
Model:	TE-5025A	Qstd Intercept:	-0.01628
Serial#:	1612	Date Certified:	April 7, 2014

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.00	2.007	58.0	67.20
2	10.00	1.833	52.0	60.25
3	8.20	1.661	48.0	55.61
4	5.20	1.324	38.0	44.03
5	3.20	1.040	30.0	34.76

LINEAR REGRESSION

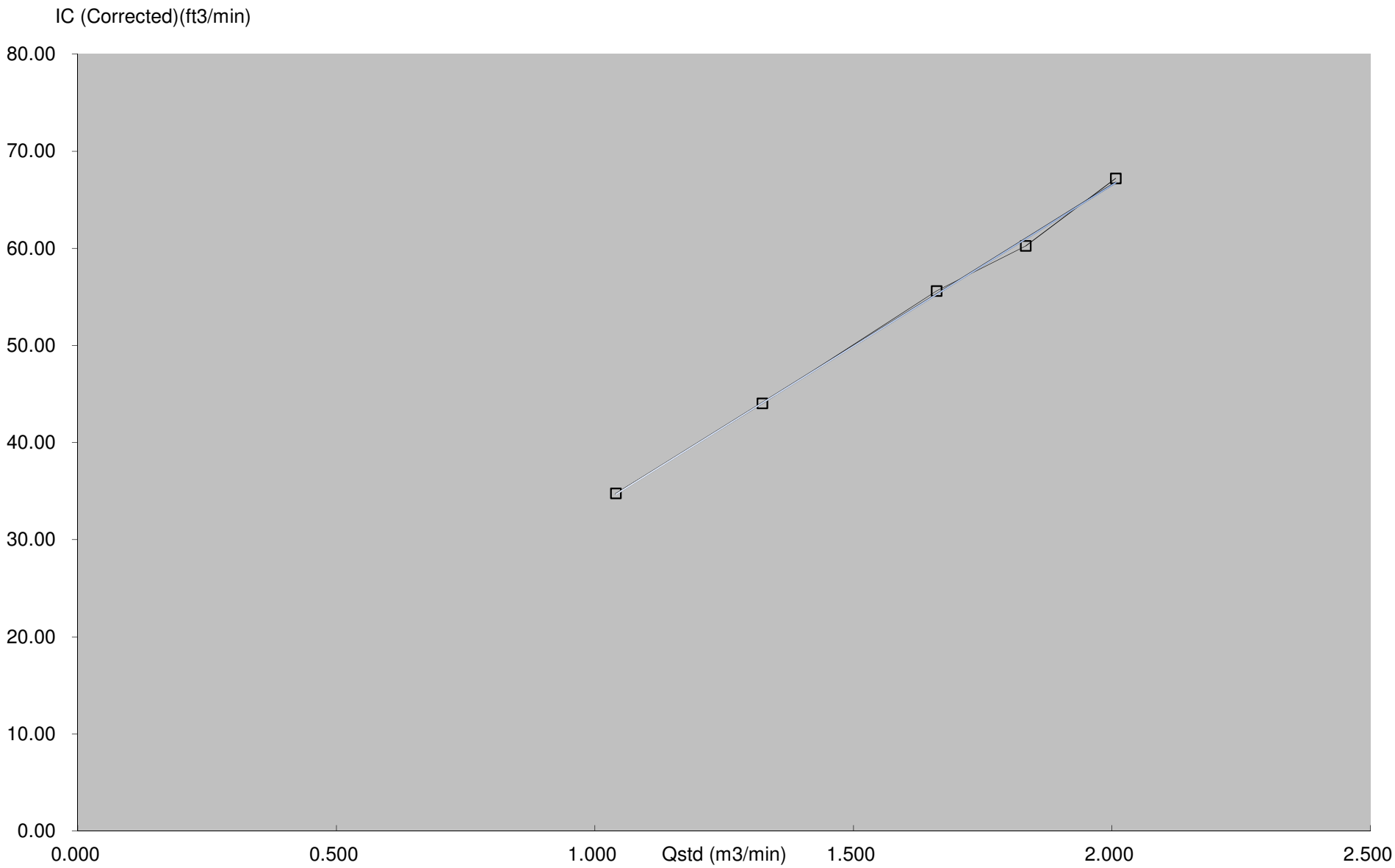
Slope =	33.1902
Intercept =	0.1555
Corr. coeff.=	0.9994
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure


IC (Corrected)(ft3/min)
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.000
0.500
1.000
Qstd (m3/min)
1.500
2.000
2.500

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 37521 Page 1 of 2 Pages

Customer : Enovative Environmental Service Limited

Address : Room 3, 12/F., New City Centre, 2 Lei Yue Mun Road, Kwun Tong, Kowloon, H.K.

Order No. : Q32432 **Date of receipt :** 16-Oct-13

Item Tested

Description : Sound Level Calibrator

Manufacturer : B&K

Model : Type 4231 **Serial No. :** 2685684

Test Conditions

Date of Test : 31-Oct-13 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02.

Test Results

All results were within the IEC 942 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	35730	NIM-PRC & SCL-HKSAR
S205	Ref. Sound Level Calibrator	PHCO40002	SCL-HKSAR
S041	Universal Counter	34621	SCL-HKSAR
S206	Sound Level Meter	36203	SCL-HKSAR
S031	6½ dgt. Multimeter	30128	NIM-PRC

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : Dorothy Cheuk

Approved by : Steve Kwan

Date: 31-Oct-13

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

E

Calibration Certificate

Results :

1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.08	± 0.3 dB
114	114.07	

Uncertainty : ± 0.1 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.002 kHz	± 2 %

Uncertainty : ± 3.6 x 10^{-6}

3. Level Stability : 0.0 dB
IEC 942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.7 %
IEC 942 Class 1 Spec. : < 3 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1014 hPa.

---------- END ----------

Hong Kong Calibration Ltd.
香 港 校 正 有限公司

Calibration Certificate

Certificate No. **36604** Page 1 of 4 Pages

Customer : Enovative Environmental Service Limited

Address : Room 3, 12/F., New City Centre, 2 Lei Yue Mun Road, Kwun Tong, Kowloon, H.K.

Order No. : Q32395 **Date of receipt :** 4-Sep-13

Item Tested

Description : Sound Level Meter (N12-RION-004)

Manufacturer : Rion

Model : NL-52 **Serial No. :** 00220553

Test Conditions

Date of Test : 10-Sep-13 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

All results were within the IEC 61672 Type1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C127181	SCL-HKSAR
S205	Ref. Sound Level Calibrator	PHCO40002	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : Dorothy Cheuk

Approved by : Steve Kwan

Date: 16-Sep-13

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. **Self-generated noise:** 16.4 dBA (Mfr's Spec ≤17 dBA)

2. **Acoustical signal test**

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Response		
30 – 130	L_A	Fast	94.0	94.0
		Slow		94.0
	L_C	Fast		94.0
	L_Z	Fast		94.0
	L_A	Fast	114.0	114.0
		Slow		114.0
	L_C	Fast		114.0
	L_Z	Fast		114.0

IEC 61672 Type 1 Spec. : ± 1.1 dB
Uncertainty : ± 0.1 dB

3 **Electrical signal tests of frequency weightings** (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.8	- 39.4 dB, ± 2 dB
63 Hz	-26.4	- 26.2 dB, ± 1.5 dB
125 Hz	-16.3	- 16.1 dB, ± 1.5 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1.4 dB
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1.6 dB
4 kHz	+0.9	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.1	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-8.0	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.0	94.0 (Ref.)	- -	± 0.4 dB
C	94.0	94.0	0.0	
Z	94.0	94.0	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.0	94.0 (Ref.)	- -	± 0.3 dB
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : ± 0.1 dB

5. Level linearity on the reference level range

UUT Range	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
130 dB (Ref Level)	129.0	129.0	0.0	± 1.1 dB
	124.0	124.0	0.0	
	119.0	119.0	0.0	
	114.0	114.0	0.0	
	109.0	109.0	0.0	
	104.0	104.0	0.0	
	99.0	99.0	0.0	
	94.0	94.0 (Ref)	--	
	89.0	89.0	0.0	
	84.0	84.0	0.0	
	79.0	79.0	0.0	
	74.0	74.0	0.0	
	69.0	69.0	0.0	
	64.0	64.0	0.0	
	59.0	59.0	0.0	
	54.0	54.0	0.0	
	49.0	49.0	0.0	
	44.0	44.0	0.0	

Uncertainty : ± 0.1 dB

Calibration Certificate

6. Toneburst response (4kHz)

UUT Setting	Tone Burst Duration(ms)	UUT Reading(dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	Steady	127.0(Ref)	--	--
	200	126.0	-1.0	-1.0 ± 0.8dB
	2	108.9	-18.1	-18.0, +1.3 dB ~ -1.8 dB
	0.25	99.9	-27.1	-27.0, +1.3 dB ~ -3.3 dB
Slow	Steady	127.0(Ref)	--	--
	200	120.2	-6.8	-7.4 ± 0.8dB
	2	100.6	-26.4	-27.0, +1.3 dB ~ -3.3 dB
Time averaging	Steady	127.0(Ref)	--	--
	200	120.1	-6.9	-7.0±0.8dB
	2	99.5	-27.5	-27.0, +1.3 dB ~ -1.8 dB
	0.25	91.7	-35.3	-36.0, +1.3 dB ~ -3.3 dB

Uncertainty : ± 0.1 dB

7. Overload indication (130 dB range, A-weighted, Time-average, 4kHz)

UUT Reading at overload (dB)		Difference (dB)	IEC 61672 Type 1 Spec.
+ ve one half cycle	- ve one half cycle		
138.4	138.2	0.2	< 1.8 dB

The overload indicator latched on until reset

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 996 hPa.
4. Preamplifier model : NH-25 , S/N : 10553
5. Firmware Version: 1.2
6. Power Supply Check: OK
7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

---------- END ----------

Appendix D
EM&A Monitoring Schedules

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2
Impact Monitoring & Site Auditing Schedule for June 2014

June 2014						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
1	2 Tuen Ng Festival	3 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC	4	5	6 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	7
8	9 ET Site Walk(09:30 – 11:00) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC	10	11	12 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	13	14
15	16	17	18 24-hour TSP + 3 x 1-hour TSP, Noise (SR77) ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC + SSEMC	19	20	21
22	23 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC	24 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	25	26	27	28
29	30 24-hour TSP + 3 x 1-hour TSP, Noise (SR77) ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC					

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2
Impact Monitoring & Site Auditing Schedule for July 2014

July 2014						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
		1 Hong Kong Special Administrative Region Establishment Day	2	3	4	5 24-hour TSP + 3 x 1-hour TSP
6	7 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC	8	9	10	11 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	12
13	14	15	16 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC + SSEMC	17 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	18	19
20	21 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC	22	23 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	24	25	26
27	28 ET Site Walk(09:30 – 11:00) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC	29 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	30	31		

Appendix E
Meteorological Data Extracted from Hong Kong Observatory

Climatological Information Services > Extracts of Climatological Data > Extract of Automatic Weather Station > Station: Sheung Shui Automatic Weather Station, Year: 2014, Month: June

Extract of Meteorological Observations for Sheung Shui Automatic Weather Station, June 2014 (Table 1)

Date	Mean Pressure at M.S.L. (hPa)	Air Temperature			Mean Dew Point Temperature (deg C)	Relative Humidity		
		Max. (deg C)	Mean (deg C)	Min. (deg C)		Max. (%)	Mean (%)	Min. (%)
Jun 1	1007.0	35.6	30.4	26.8	24.9	93	74	46
Jun 2	1005.0	34.7	30.5	27.5	24.9	90	73	55
Jun 3	1003.9	33.2	29.1	25.9	24.8	92	78	60
Jun 4	1003.9	35.0	29.8	25.4	24.3	95	74	43
Jun 5	1003.2	33.5	29.7	26.8	25.9	93	81	62
Jun 6	1002.9	31.4	27.2	25.1	24.8	95	87	69
Jun 7	1002.1	30.0	27.0	24.9	24.6	94	87	74
Jun 8	1000.9	34.2	29.5	26.3	25.1	94	78	55
Jun 9	1001.5	31.6	28.5	26.7	23.6	85	75	62
Jun 10	1001.4	31.9	28.8	26.6	23.7	84	74	61
Jun 11	1001.7	30.4	28.4	26.2	23.9	92	77	66
Jun 12	1002.0	32.3	28.8	26.8	21.4	84	66	37
Jun 13	1002.4	35.1	29.0	23.1	19.3	91	60	28
Jun 14	1003.1	35.4	30.5	25.8	21.1	76	59	38
Jun 15	1001.7	32.2	28.7	25.5	24.8	96	80	56
Jun 16	1001.9	34.7	30.2	27.0	25.8	94	78	59
Jun 17	1004.4	33.5	29.8	27.9	26.4	93	83	65
Jun 18	1004.3	34.2	30.3	27.2	25.9	94	78	60
Jun 19	1002.9	35.1	30.7	27.9	25.6	90	75	53
Jun 20	1002.4	31.8	29.6	27.3	26.5	96	84	73
Jun 21	1002.8	31.2	29.0	26.3	26.3	97	86	75
Jun 22	1003.8	28.2	26.5	25.5	25.9	99	96	86
Jun 23	1004.0	30.3	27.2	25.3	25.8	99	92	76
Jun 24	1004.1	29.4	26.9	25.4	25.8	99	93	79
Jun 25	1005.5	30.0	26.8	25.0	25.6	99	94	79
Jun 26	1006.1	34.8	29.7	26.1	25.6	99	81	54
Jun 27	1005.3	35.1	29.8	26.2	26.3	95	82	59
Jun 28	1004.0	34.4	29.9	26.6	25.9	95	80	61
Jun 29	1004.7	35.1	29.6	26.2	25.3	95	79	51
Jun 30	1007.2	31.7	28.8	26.8	26.1	97	86	71
Mean	1003.5	32.9	29.0	26.2	24.8	93	80	60
Maximum	1007.2	35.6	30.7	27.9	26.5	99	96	86
Minimum	1000.9	28.2	26.5	23.1	19.3	76	59	28

Extract of Meteorological Observations for Sheung Shui Automatic Weather Station, June 2014 (Table 2)

Date	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
Jun 1	0.0	***	*****
Jun 2	0.0	***	*****
Jun 3	0.0	***	*****
Jun 4	0.0	***	*****
Jun 5	0.0	***	*****
Jun 6	8.5	***	*****
Jun 7	1.5	***	*****
Jun 8	0.0	***	*****
Jun 9	0.0	***	*****
Jun 10	0.0	***	*****
Jun 11	0.0	***	*****
Jun 12	0.0	***	*****
Jun 13	0.0	***	*****
Jun 14	0.0	***	*****
Jun 15	5.0	***	*****
Jun 16	0.5	***	*****
Jun 17	8.5	***	*****
Jun 18	0.0	***	*****
Jun 19	0.0	***	*****
Jun 20	2.5	***	*****
Jun 21	5.0	***	*****
Jun 22	78.0	***	*****
Jun 23	54.0	***	*****
Jun 24	12.0	***	*****
Jun 25	30.5	***	*****
Jun 26	1.0	***	*****
Jun 27	1.5	***	*****
Jun 28	0.0	***	*****
Jun 29	1.5	***	*****
Jun 30	8.0	***	*****
Mean	-----	***	*****
Total	218.0	---	-----
Maximum	78.0	---	*****
Minimum	0.0	---	*****

*** unavailable

missing (less than 24 hourly observations a day)

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

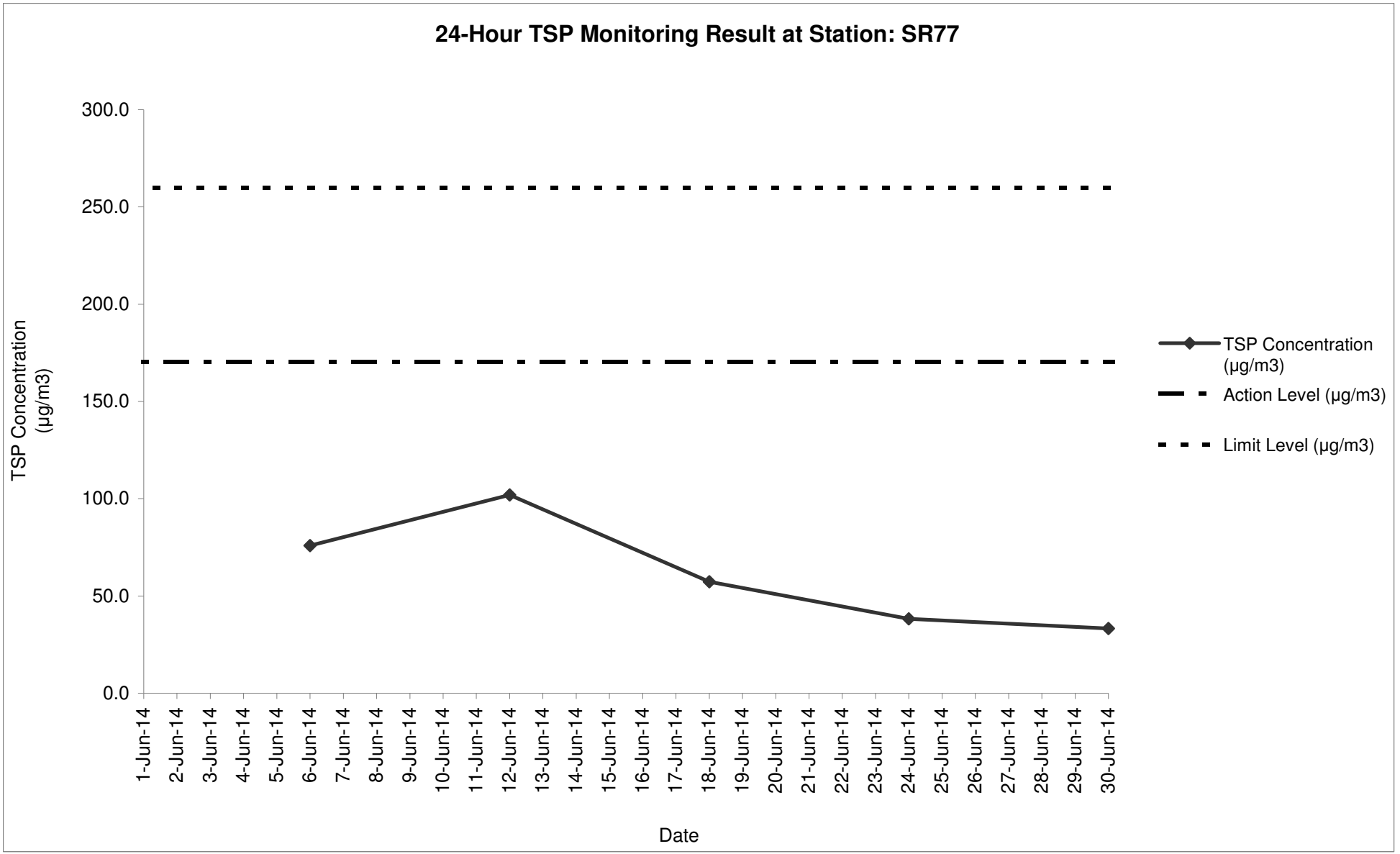
Appendix F
Air Quality Monitoring Results and their Graphical Presentation

Appendix F
Air Quality Monitoring Results and their Graphical Presentation

24-Hour TSP Monitoring Result at Station: SR77

Sampling Date	Weather Condition	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Flow Rate (m^3/min)			Total Volume (m^3)	TSP Concentration ($\mu g/m^3$)	Action Level (µg/m3)	Limit Level (µg/m3)	Wind speed m/s	Wind direction
			Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate						
6-Jun-14	Cloudy	41	2.6798	2.8375	0.1577	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	75.8	170.3	260.0	<5	N
12-Jun-14	Fine	50	2.6908	2.9028	0.2120	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	101.9	170.3	260.0	<5	N
18-Jun-14	Cloudy	44	2.7198	2.8389	0.1191	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	57.3	170.3	260.0	<5	N
24-Jun-14	Rainy	46	2.6996	2.7792	0.0796	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	38.3	170.3	260.0	<5	N
30-Jun-14	Rainy	47	2.7035	2.7728	0.0693	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	33.3	170.3	260.0	<5	N
															Average	61.3				
															Min	33.3				
															Max	101.9				

Note: No major dust source observed during the monitoring period
Data in **Bold** denotes exceedanece of respective Action Level
Data in **Bold Underline** denotes exceedance of respective Limit Level


24-Hour TSP Monitoring Result at Station: SR77
TSP Concentration (µg/m3)
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1-Jun-14
2-Jun-14
3-Jun-14
4-Jun-14
5-Jun-14
6-Jun-14
7-Jun-14
8-Jun-14
9-Jun-14
10-Jun-14
11-Jun-14
12-Jun-14
13-Jun-14
14-Jun-14
15-Jun-14
16-Jun-14
17-Jun-14
18-Jun-14
19-Jun-14
20-Jun-14
21-Jun-14
22-Jun-14
23-Jun-14
24-Jun-14
25-Jun-14
26-Jun-14
27-Jun-14
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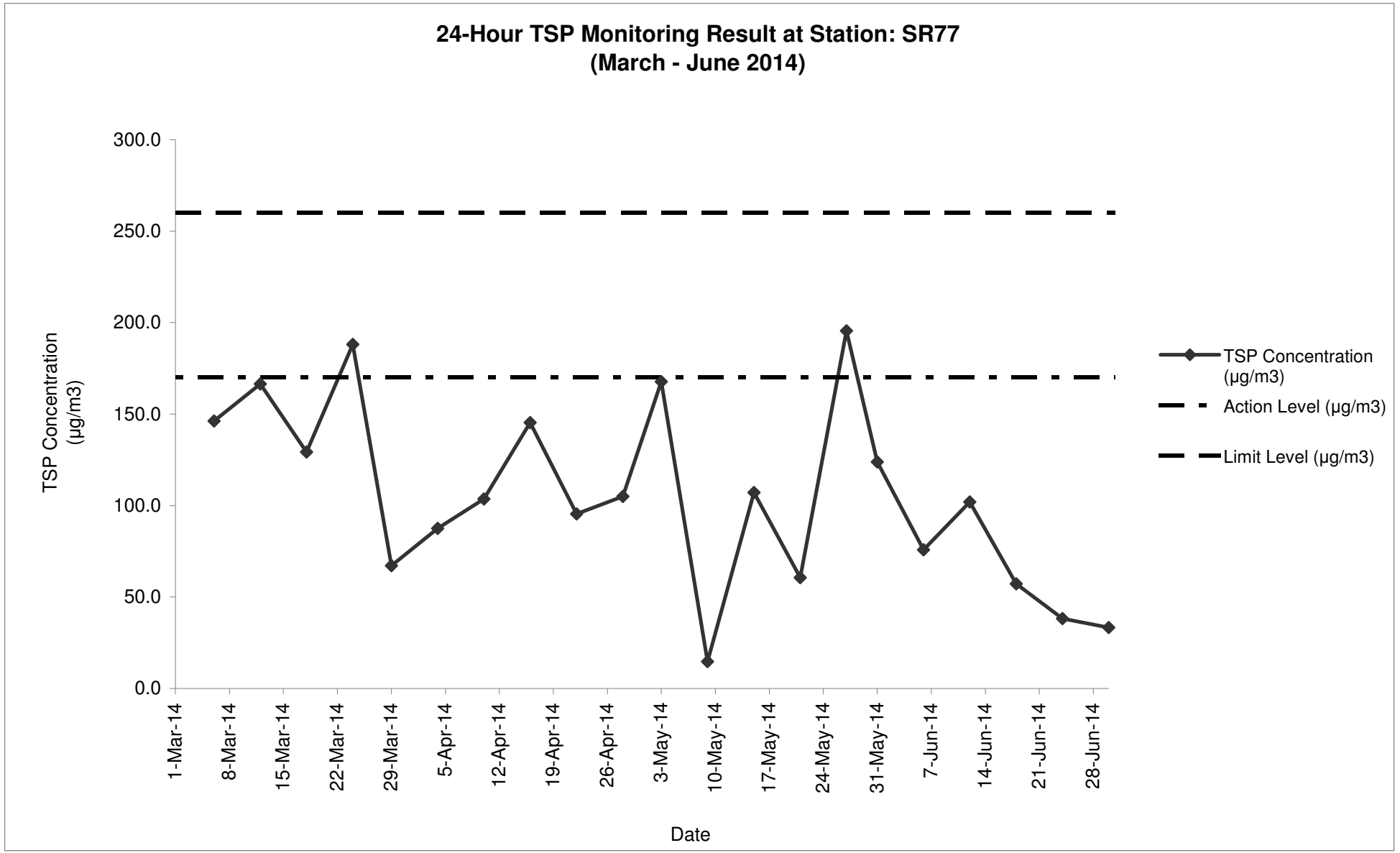
29-Jun-14
30-Jun-14
Date
TSP Concentration (µg/m3)
Action Level (µg/m3)
Limit Level (µg/m3)


24-Hour TSP Monitoring Result at Station: SR77
(March - June 2014)
TSP Concentration (µg/m3)
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1-Mar-14
8-Mar-14
15-Mar-14
22-Mar-14
29-Mar-14
5-Apr-14
12-Apr-14
19-Apr-14
26-Apr-14
3-May-14
10-May-14
17-May-14
24-May-14
31-May-14
7-Jun-14
14-Jun-14
21-Jun-14
28-Jun-14
Date
TSP Concentration (µg/m3)
Action Level (µg/m3)
Limit Level (µg/m3)

Appendix E
Air Quality Monitoring Results and their Graphical Presentation

1-Hour TSP Monitoring Result at Station: SR77

Date	Weather Condition	Time			Conc.(μg/m^3)			Action Level (μg/m3)	Limit Level (μg/m3)
					1st Hour	2nd Hour	3rd Hour		
6-Jun-14	Cloudy	14:30	-	17:34	166.0	173.0	158.0	292.7	500.0
12-Jun-14	Fine	9:00	-	12:04	178.9	161.6	130.4	292.7	500.0
18-Jun-14	Cloudy	9:00	-	12:00	58.9	61.2	54.2	292.7	500.0
24-Jun-14	Rainy	9:00	-	12:00	34.6	36.9	35.8	292.7	500.0
30-Jun-14	Rainy	9:00	-	12:00	35.8	34.6	38.1	292.7	500.0
						Average	90.5		
						Min	34.6		
						Max	178.9		

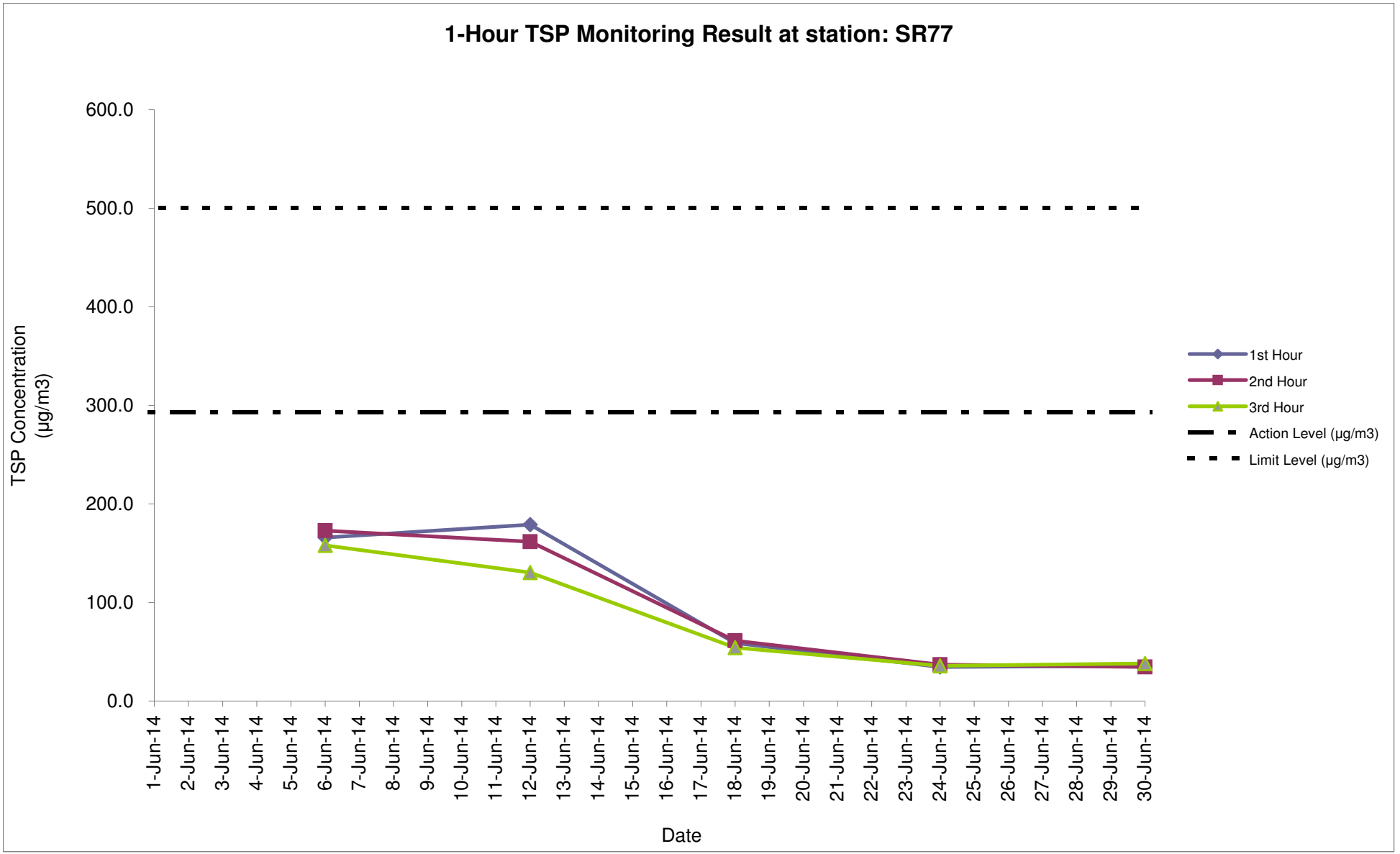
Note: No major dust source observed during the monitoring period

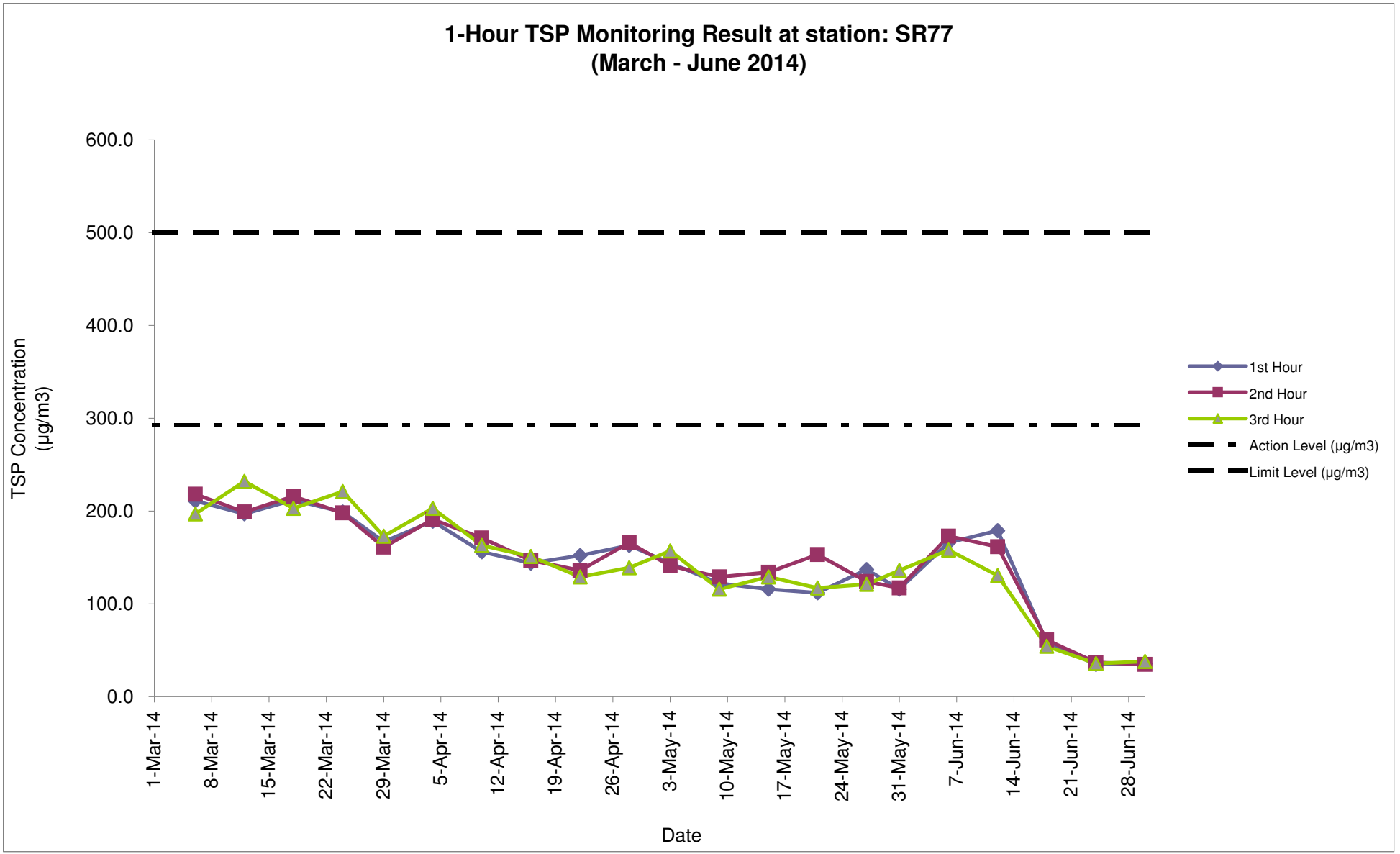
Appendix F
Air Quality Monitoring Results and their Graphical Presentation

Detailed Calculation of 1-Hour TSP Monitoring Result at Station: SR77

Sampling Date	Weather Condition	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Flow Rate (m^3/min)			Total Volume (m^3)	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m3$)	Limit Level ($\mu g/m3$)	Wind speed m/s	Wind direction
			Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate						
12-Jun-14	Fine	42A	2.7048	2.7203	0.0155	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	178.9	292.7	500.0	<5	N
		42B	2.7044	2.7184	0.0140	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	161.6	292.7	500.0	<5	N
		42C	2.7046	2.7159	0.0113	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	130.4	292.7	500.0	<5	N
18-Jun-14	Cloudy	44A	2.7152	2.7203	0.0051	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	58.9	292.7	500.0	<5	N
		44B	2.7144	2.7197	0.0053	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	61.2	292.7	500.0	<5	N
		44C	2.7155	2.7202	0.0047	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	54.2	292.7	500.0	<5	N
24-Jun-14	Rainy	46A	2.6520	2.6550	0.0030	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	34.6	292.7	500.0	<5	N
		46B	2.6524	2.6556	0.0032	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	36.9	292.7	500.0	<5	N
		46C	2.6447	2.6478	0.0031	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	35.8	292.7	500.0	<5	N
30-Jun-14	Rainy	47A	2.7266	2.7297	0.0031	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	35.8	292.7	500.0	<5	N
		47B	2.7248	2.7278	0.0030	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	34.6	292.7	500.0	<5	N
		47C	2.7243	2.7276	0.0033	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	38.1	292.7	500.0	<5	N
															Average	71.7				
															Min	34.6				
															Max	178.9				

Note: No major dust source observed during the monitoring period
Data in **Bold** denotes exceedanece of respective Action Level
Data in **Bold Underline** denotes exceedance of respective Limit Level


1-Hour TSP Monitoring Result at station: SR77
TSP Concentration (µg/m3)
600.0
500.0
400.0
300.0
200.0
100.0
0.0
1-Jun-14
2-Jun-14
3-Jun-14
4-Jun-14
5-Jun-14
6-Jun-14
7-Jun-14
8-Jun-14
9-Jun-14
10-Jun-14
11-Jun-14
12-Jun-14
13-Jun-14
14-Jun-14
15-Jun-14
16-Jun-14
17-Jun-14
18-Jun-14
19-Jun-14
20-Jun-14
21-Jun-14
22-Jun-14
23-Jun-14
24-Jun-14
25-Jun-14
26-Jun-14
27-Jun-14
28-Jun-14
29-Jun-14
30-Jun-14
Date
1st Hour
2nd Hour
3rd Hour
Action Level (µg/m3)
Limit Level (µg/m3)


1-Hour TSP Monitoring Result at station: SR77
(March - June 2014)
TSP Concentration (µg/m3)
600.0
500.0
400.0
300.0
200.0
100.0
0.0
1-Mar-14
8-Mar-14
15-Mar-14
22-Mar-14
29-Mar-14
5-Apr-14
12-Apr-14
19-Apr-14
26-Apr-14
3-May-14
10-May-14
17-May-14
24-May-14
31-May-14
7-Jun-14
14-Jun-14
21-Jun-14
28-Jun-14
Date
1st Hour
2nd Hour
3rd Hour
Action Level (µg/m3)
Limit Level (µg/m3)

Appendix G
Summary of Event and Action Plan

Event and Action Plan for Air Quality

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action level being exceeded by one sampling day	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	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.
Action level being exceeded by two or more consecutive sampling days	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			
	ET Leader	**IEC**	**ER**	**Contractor**
Limit level being exceeded by one sampling day	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.
Limit level being exceeded by two or more consecutive sampling days	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. Discus 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 and Action Plan for Noise Quality

Event	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.

Event and Action Plan for Water Quality

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action level being exceeded by one sampling day	1. Repeat in-situ measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor & ER; 4. Check monitoring data, all plant, equipment & contractor's working methods;	1. Check monitoring data submitted by ET & Contractor's working methods;	1. Confirm receipt of notification of failure in writing; Notify, Contractor	1. Inform the ER & confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling days	1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor, ER & EPD; 4. Check monitoring data, all plant, equipment & Contractor's working methods; 5. Discuss mitigation measures with IEC, ER & Contractor; 6. Ensure mitigation measures are implemented; 7. Increase monitoring to daily until no exceedance of Action level.	1. Checking monitoring data submitted by ET & Contractor's working method; 2. Discuss with ET & Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor & advise the ER accordingly; 4. Supervise the implementation of mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; 2. Ensure mitigation measures properly implemented; 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Engineer & confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant & equipment & consider changes of working methods; 4. Submit proposal of mitigation measures to ER within 3 working days of notification & discuss with ET, IEC & ER; 5. Implement the agreed mitigation measures.

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Limit level being exceeded by one sampling day	1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, ER & EPD; 4. Check monitoring data, all plant, equipment & contractor's working methods; 5. Discuss mitigation measures with IEC, Contractor & ER.	1. Checking monitoring data submitted by ET & Contractor's working method; 2. Discuss with ET & Contractor on the possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor & advise the ER accordingly.	1. Confirm receipt of notification of failure in writing; 2. Discuss with IEC, ET & Contractor on the proposed mitigation measures; 3. Request Contractor to review the working methods.	1. Inform the ER & confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant & equipment & consider changes of working methods; 4. Submit proposal of mitigation measures to ER within 3 working days of notification & discuss with ET, IEC & ER.
Limit level being exceeded by two or more consecutive sampling days	1. Repeat measurement on the next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor, ER & EPD; 4. Check monitoring data, all plant, equipment & Contractor's working methods; 5. Discuss mitigation measures within IEC, Contractor & ER; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	1. Checking monitoring data submitted by ET & Contractor's working method; 2. Discuss with ET & Contractor on potential remedial actions; 3. Review Contractor's mitigation measures whenever necessary to assure their effectiveness & advise the ER accordingly; 4. Supervise the implementation of mitigation measures.	1. Discuss with IEC, ET & Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Ensure mitigation measures are properly implemented; 5. Consider & instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.	1. Take immediate action to avoid further exceedance; 2. Submit proposal of mitigation measures to ER within 3 working days of notification & discuss with ET, IEC & ER; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; 5. As directed by the Engineer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

Appendix H
Noise Monitoring Results and their Graphical Presentation

Project Name: **Contract No. CV/2012/09 Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure works - Contract 3**
Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling - Stage 2

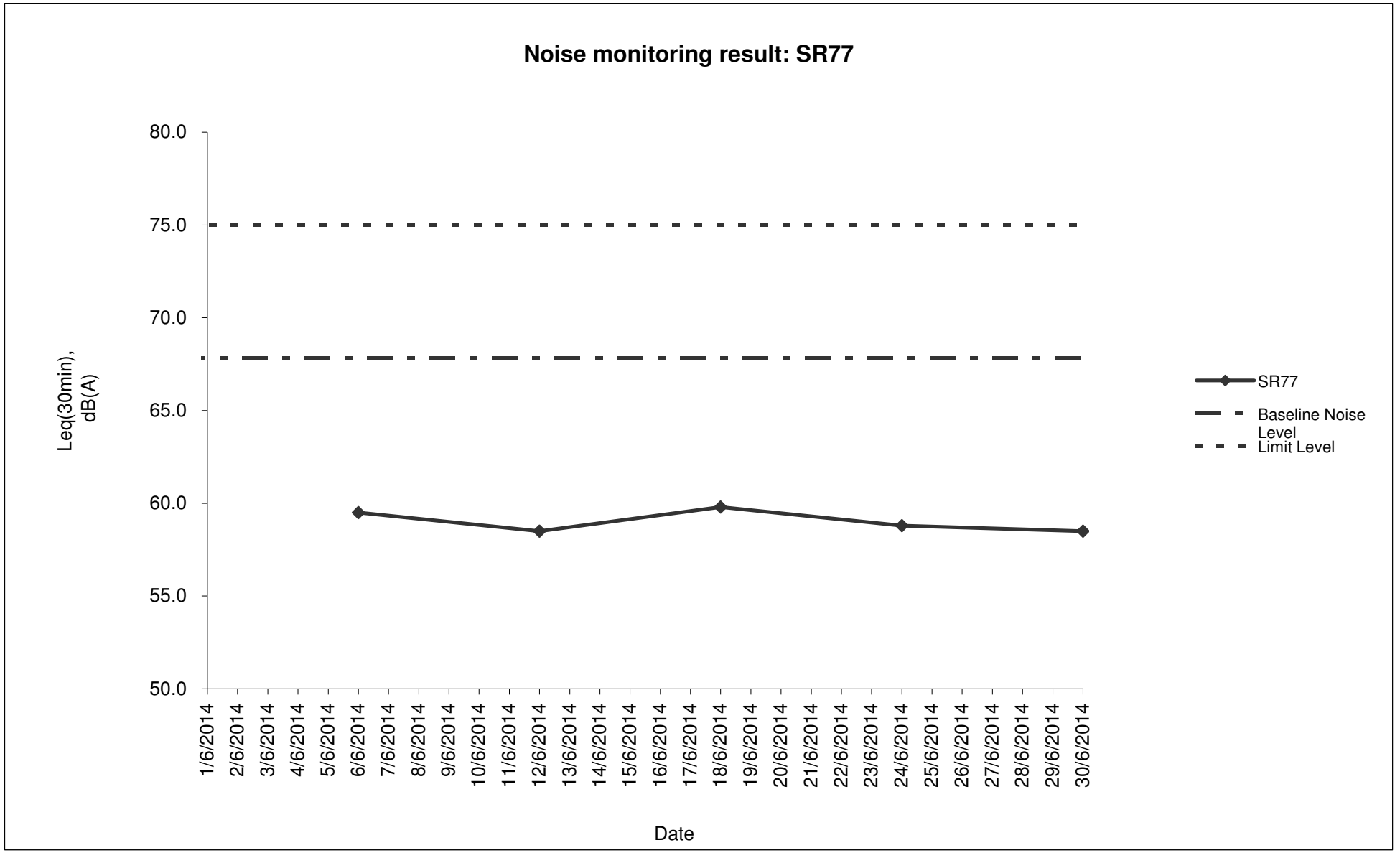
Noise Monitoring Result at SR77

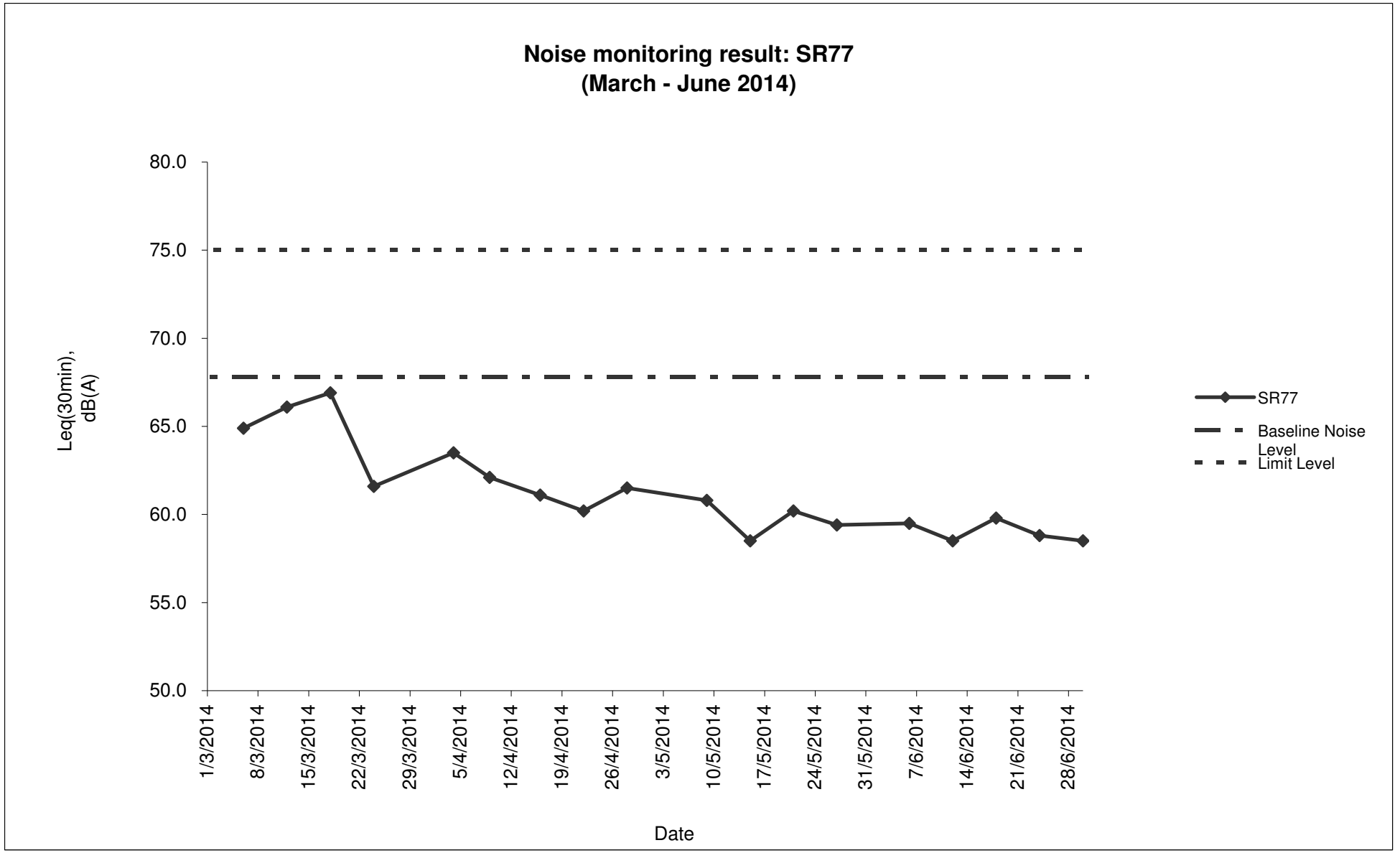
Date	Weather Condition	Start Time	End Time	Measured Noise Level (dB(A))*			Baseline Corrected Level, dB(A)**	Baseline Noise Level (dB(A)), Leq(30min)	Limit Level dB(A)	Exceedance (Y / N)
				L10(30min)	L90(30min)	Leq(30min)				
2014/06/06	Cloudy	14:30	15:00	62.5	70.5	59.5	-	67.8	75.0	N
2014/06/12	Fine	9:00	9:30	61.8	69.9	58.5	-	67.8	75.0	N
2014/06/18	Cloudy	13:00	13:30	61.8	68.6	59.8	-	67.8	75.0	N
2014/06/24	Rainy	11:00	11:30	62.4	70.6	58.8	-	67.8	75.0	N
2014/06/30	Rainy	14:30	15:00	63.1	69.3	58.5	-	67.8	75.0	N
					Average	59.0				
					Minimum	58.5				
					Maximum	59.8				

Remarks

* +3dB(A) Façade effect correction included

** Baseline corrected level is only calculated when measured noise level (Leq) > limit level.


Noise monitoring result: SR77
80.0
75.0
70.0
65.0
60.0
55.0
50.0
Leq(30min), dB(A)
1/6/2014
2/6/2014
3/6/2014
4/6/2014
5/6/2014
6/6/2014
7/6/2014
8/6/2014
9/6/2014
10/6/2014
11/6/2014
12/6/2014
13/6/2014
14/6/2014
15/6/2014
16/6/2014
17/6/2014
18/6/2014
19/6/2014
20/6/2014
21/6/2014
22/6/2014
23/6/2014
24/6/2014
25/6/2014
26/6/2014
27/6/2014
28/6/2014
29/6/2014
30/6/2014
Date
SR77
Baseline Noise Level
Limit Level


Noise monitoring result: SR77
(March - June 2014)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
Leq(30min), dB(A)
1/3/2014
8/3/2014
15/3/2014
22/3/2014
29/3/2014
5/4/2014
12/4/2014
19/4/2014
26/4/2014
3/5/2014
10/5/2014
17/5/2014
24/5/2014
31/5/2014
7/6/2014
14/6/2014
21/6/2014
28/6/2014
Date
SR77
Baseline Noise Level
Limit Level

Appendix K
Waste Flow Table

Monthly Summary Waste Flow Table

	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly				
Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Soil	Soil Reused in the Contract	Soil Reused in other Projects	Soil Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)
Unit	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)
Jul-13	-	-	-	-	-	-	-	-	-	-	-	-
Aug-13	-	-	-	-	-	-	-	-	-	-	-	-
Sep-13	-	-	-	-	-	-	-	-	-	-	-	0.004
Oct-13	-	-	-	-	-	-	-	-	-	-	-	0.003
Nov-13	1.351	-	1.351	0.473	-	0.878	-	-	-	-	-	0.055
Dec-13	0.177	0.007	0.170	0.030	-	0.140	0.600	-	-	-	-	0.055
Sub-Total	1.528	0.007	1.521	0.503	-	1.018	0.600	-	-	-	-	0.117
Jan-14	0.493	0.084	0.409	-	-	0.409	0.200	-	-	0.010	-	0.110
Feb-14	2.209	0.356	1.853	0.380	-	1.473	-	0.002	-	-	0.019	0.040
Mar-14	4.460	0.506	3.954	1.092	-	2.862	-	-	-	-	-	0.265
Apr-14	1.654	0.054	1.600	0.672	-	0.928	0.200	-	-	-	0.020	0.135
May-14	3.190	0.450	2.740	0.192	-	2.548	0.500	-	-	-	0.020	0.195
Jun-14	2.473	0.258	2.215	0.675	-	1.540	1.075	-	-	-	0.001	0.180
Total	16.007	1.715	14.292	3.514	-	10.778	2.575	0.002	-	0.010	0.060	1.042

Note:
1. Assume the density of soil fill is 2 ton/m3.
2. Assume the density of rock and broken concrete is 2.5 ton/m3.
3. Assume each truck of C&D wastes is 5m3.
4. The inert C&D materials except slurry and bentonite are disposed at Tuen Mun 38.
5. The slurry and bentonite are disposed at Tseung Kwun O 137.
6. The non-inert C&D wastes are disposed at NENT.
7. Assume the density of metal is 7,850 kg/m3.

Appendix L
Implementation Schedule of Environmental Mitigation Measures (EMIS)

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
Air Quality				
Air Quality during Construction	• Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading. • 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. • All spraying of materials and surfaces shall avoid excessive water usage. • 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. • Materials shall be dampened, if necessary, before transportation. • Travelling speeds shall be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks. • Vehicle washing facilities shall be provided to minimise the quantity of material deposited on public roads.	During Construction	Contractor	✓ ✓ ✓ ✓ ✓ ✓ ✓ Obs and Rem
Air Quality during Operation	Not required	N/A	N/A	N/A
Noise				
Noise during Construction	• Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant. • Reduce the number of equipment and their percentage on-time.	During Construction	Contractor	✓ ✓
Noise during Operation	Not required	N/A	N/A	N/A
Water Quality				
Water Quality during Construction	<u>Road Widening Works, Earthworks and Culvert Extension Works</u> • 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.	During Construction	Contractor	✓

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
	• Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained.			✓
	• Runoff from exposed working areas, unfinished slopes and from unlined temporary channels should be directed to stilling basins and/or silt traps before discharging to the drainage outfalls.			✓
	• Regular inspections of stilling basins and/or silt traps is required to ensure that sediment is not conveyed into the existing drainage system.			✓
	• Open stockpiles should be covered with a tarpaulin cover.			✓
	• During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded.			Rem
	• 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.			✓
Water Quality during Operation	Not required	N/A	N/A	N/A
Waste Management				
Waste Management during Construction	<u>General Waste</u>	During Construction	Contractor	✓
	• 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.			✓
	<u>Vegetation from site clearance</u>	During Construction	Contractor	✓
	• Segregation of materials to facilitate disposal.			
	• Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.			✓

Notes ([#]): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	Demolition Wastes	During Construction	Contractor	✓
	• Segregation of materials to facilitate disposal.			
	• Appropriate stockpile management.			✓
	Excavated Materials	During Construction	Contractor	✓
	• 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.			N/A
	Construction Wastes	During Construction	Contractor	✓
	• 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	During Construction	Contractor	N/A
	• Bentonite slurries should be reused as far as possible.			
	• Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94.			N/A
	Chemical Wastes	During Construction	Contractor	Obs
	• Storage within locked, covered and bunded area.			
	• The storage area shall not be located adjacent to sensitive receivers e.g. drains.			✓

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	• 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.			Obs
	• 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.			✓
	<u>Municipal Wastes</u>	During Construction	Contractor	✓
	• 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.			✓
Waste Management during Operation	Not required.	N/A	N/A	N/A
Ecology				
Ecology during Construction	<u>Accurate Delineation of Works Area</u>	During Construction	Contractor	✓
	• 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 show do not require removal are to be retained and fenced off to maximise protection.			✓
	<u>Dust generation</u>	During Construction	Contractor	Obs and Rem
	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;			

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	• 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. <u>Surface Run-off</u> 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).	During Construction	Contractor	✓ ✓ ✓ ✓ ✓ N/A ✓
Ecology during Operation	• To conduct compensatory ecological planting as specified in the latest landscape plans approved by EPD (Clause 2.6 of the Environmental Permit refers).	During Construction and operation	Contractor (during construction) / LCSD* (during operation) (Note: * The division of vegetation planting and maintenance responsibilities shall follow the guidelines stipulated in ETWB TCW No. 2/2004.)	N/A
Landscape and Visual				
Landscape and Visual during Construction	<u>Preservation of Existing Vegetation</u> • 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	Contractor	✓ ✓

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<u>Temporary Works Areas</u> • 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.	During Construction	Contractor	✓
	<u>Hoarding</u> • A hoarding would be erected where practicable in the most visually sensitive locations to screen the temporary construction works from the local VSRs.	During Construction	Contractor	✓
	<u>Top Soils</u> • 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.	During Construction	Contractor	N/A
	<u>Protection of Important Landscape Features</u> • Important features such as temples, Island House and kilns within the study area, although remote from the proposed works retained and adequately protected.	During Construction	Contractor	N/A
Landscape and Visual during Operation	Not required.	N/A	N/A	N/A

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Appendix N
Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
C131126	November 26, 2013	Mr. Tony Hung from WWF	Mat Wat River (works sites for box culvert extension)	Suspected unauthorised discharge of water from a construction site to Ma Wat River, Tai Wo Service Road East, Tai Po	1) It was found that the water leaving the end of the steel pipes was the diverted water from the upstream of the existing box culverts, instead of being discharged from the construction works sites. 2) An EM&A Programme is being undertaken to monitoring the environmental performance of the construction works, and the Contractor has also implemented appropriate mitigation measures to avoid silt-laden runoff discharging from the works sites into the river. 3) The complaint is considered an invalid complaint under this Project.	Completed

Cumulative Log for Notifications of Summons

Log No.	Date/Location	Subject	Status	Total Received in this reporting month	Total no. Received since project commencement

Cumulative log for Successful Prosecutions

Log No.	Date/Location	Subject	Status	Total Received in this reporting month	Total no. Received since project commencement

Meinhardt Infrastructure and Environment Ltd
邁進基建環保工程顧問有限公司

4/F Wah Ming Centre
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