

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

Monthly EM&A Report

April 2017

**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

(April 2017)

Certified by: Fredrick Leong 

Position: Environmental Team Leader

Date: 12 May 2017

Hyder-Arup-Black & Veatch Joint Venture  
c/o Arcadis  
20/F, AXA Tower, Landmark East,  
100 How Ming Street,  
Kwun Tong, Hong Kong  
Attn: **Mr. James Penny**

**Your Reference**

**Our Reference**

JFP/EC/ST/p/T329380/22  
.05/L-0166

20/F AIA Kowloon Tower  
Landmark East  
100 How Ming Street  
Kwun Tong  
Kowloon  
Hong Kong

T +852 2828 5757  
F +852 2827 1823  
mottmac.hk

**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/E Condition 3.3 – Submission of Monthly EM&A Report – April 2017 for the portion of Stage 2 works entrusted to Civil Engineering and Development Department (CEDD) under Contract No. CV/2012/09**

11 May 2017

By Fax (2805 5028) & Hand

We refer to the revised Monthly EM&A Report – April 2017 received on 11 May 2017 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – April 2017 (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



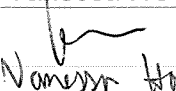


Steven Tang  
Independent Environmental Checker

c.c.

HyD  
CEDD/BCP  
AECOM  
Meinhardt

Mr. Chung Lok Chin  
Mr. Desmond Lam  
Mr. Alan Lee  
Mr. Fredrick Leong

By Fax (2714 5198)  
By Fax (3547 1659)  
By Fax (3922 9797)  
By Fax (2559 1613)

Date	Revision	Prepared By	Checked By	Approved By
12 May 2017	0	WK CHIU Vanessa HO 	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 April 2017. As informed by the Contractor, the major activities in the reporting month were:

- Boundary wall construction for DSD pumping station;
- Cable Detection and Trial Trenches;
- Footbridge Construction;
- Noise Barrier Construction;
- Pier Table Construction;
- Portal Construction;
- Roadworks;
- Viaduct Segment Erection;
- Water Main Laying Works;
- Gabion Wall Construction;
- Installation of Noise Barrier Steel Column & Panel;
- Pre-drilling for Noise Barrier;
- Pit Construction for Heading Works;
- Parapet Installation;
- Planter Wall Construction;
- Drainage Work;
- Mini-pile Installation;
- Construction of Profile Barrier on Viaduct deck; and
- Stressing of External Tendon.

### *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*

Two exceedances of Action Level were recorded at the monitoring location I5 in the reporting month.

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

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

### *Future Key Issues*

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

- Boundary Wall for Pumping Station;
- Cable Detection and Trial Trenches;
- Extended Podium Construction near Bored Pile Wall;
- Installation of Noise Barrier Steel Post & Panel;
- Footbridge Construction;
- Mini-pile Installation Works;
- Noise Barrier Construction ;
- Pier Table Construction ;
- Pipe Jacking Works for DN2200 Water Mains;
- Roadworks;
- Viaduct Segment Erection;
- Water Main Laying Works;
- Parapet Installation;
- Planter Wall Construction;
- Demolition of Existing Kiu Tau Footbridge ;
- Construction of Profile barrier on Viaduct Deck;
- Drainage Work; and
- Stressing of External Tendon.

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/E 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 on 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 April 2017.

### **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: Summary of EP Submission in the Reporting Month

Section 11: Environmental Non-Conformance

Section 12: Future Key Issues

Section 13: 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. Furthermore, an additional VEP has been applied on 9 March 2015 and the VEP (EP-324/2008/C) was subsequently granted on 27 March 2015. The previous VEP (EP-324/2008/D) was granted on 27 August 2015. The current VEP (EP-324/2008/E) was granted on 26 January 2017.

## 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 Re-provision; 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

- The major construction activities undertaken in the reporting month are summarized below:
- Boundary wall construction for DSD pumping station;
- Cable Detection and Trial Trenches;
- Footbridge Construction;
- Noise Barrier Construction;
- Pier Table Construction;
- Portal Construction;
- Roadworks;
- Viaduct Segment Erection;
- Water Main Laying Works;
- Gabion Wall Construction;
- Installation of Noise Barrier Steel Column & Panel;
- Pre-drilling for Noise Barrier;
- Pit Construction for Heading Works;
- Parapet Installation;
- Planter Wall Construction;
- Drainage Work;
- Mini-pile Installation;
- Construction of Profile Barrier on Viaduct deck; and
- Stressing of External Tendon.

2.3.1 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	2171 3303	2171 3498
		Resident Engineer (Environmental)	Mr. Perry Yam	2171 3350	
Mott MacDonald	Independent Environmental Checker (IEC)	IEC	Mr. Steven Tang	2828 5920	2827 1823
Chun Wo	Contractor	Site Agent	Mr. Daniel Ho	2638 6144	2638 7077
		Environmental Officer	Ms. Tiffany Tsang	2638 6150	
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		
<b>Environmental Permit</b>				
EP-324/2008/E	26 Jan 2017	--	Granted on 26 Jan 2017	
<b>Construction Noise Permit</b>				
GW-RN0795-16	5 Nov 2016	29 Apr 2017	Valid	For falsework modification of pier AD12
GW-RN0833-16	13 Nov 2016	10 May 2017	Valid	For segment erection crossing over MTRC's Rail Track of Pier AB11 and AD12 (0115-0500)
GW-RN0871-16	29 Nov 2016	20 May 2017	Valid	For segment stitches concreting between AA11 and AA12 crossing over Fanling Highway
GW-RN0872-16	29 Nov 2016	20 May 2017	Valid	For segment stitches concreting from AB3 to AB5 crossing over Fanling Highway
GW-RN0870-16	30 Nov 2016	13 May 2017	Valid	Road marking works in Fanling Highway bothbounds
GW-RN0901-16	11 Dec 2016	4 Jun 2017	Valid	Demolition of Vehicular Bridge at Fanling Highway Southbound in Sunday and Public Holidays
GW-RN0939-16	22 Dec 2016	21 Jun 2017	Valid	For general works at southward of site office
GW-RN0002-17	8 Jan 2017	4 Jun 2017	Valid	For welding work of steel truss on Fanling Highway

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
GW-RN0021-17	19 Jan 2017	8 Jul 2017	Valid	For traffic road works at a section of Fanling Highway both bounds
GW-RN0029-17	19 Jan 2017	8 Jul 2017	Valid	For loading and unloading along Fanling Highway both bounds
GW-RN0040-17	25 Feb 2017	24 Aug 2017	Valid	For general works at the northward of site office
GW-RN0048-17	25 Jan 2017	16 Jun 2017	Valid	For road diversion and maintenance of Fanling Highway Southbound
GW-RN0066-17	3 Feb 2017	15 Jul 2017	Valid	For installation of steel truss of Kiu Tau Footbridge at Fanling Highway Northbound
GW-RN0069-17	15 Feb 2017	14 Aug 2017	Valid	For tractor with trailer entering the Construction Site next to MTRC's East Rail Line at Tong Hang
GW-RN0070-17	3 Feb 2017	15 Jul 2017	Valid	For installation of steel truss of Kiu Tau Footbridge at Fanling Highway Southbound
GW-RN0071-17	16 Feb 2017	15 Aug 2017	Valid	For fuel delivery and tractor with trailer entering the construction site next to MTRC's East Rail Line at Tong Hang Tung
GW-RN0078-17	16 Feb 2017	21 Jun 2017	Valid	For dismantling of catch fence within MTR Protection Zone at Tong Hang Tung Chuen
GW-RN0084-17	8 Feb 2017	15 Jul 2017	Valid	For concreting slab of Kiu Tau Footbridge at Fanling Highway Both Bound

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
GW-RN0092-17	19 Feb 2017	30 Jul 2017	Valid	For loading and unloading along Fanling Highway both bounds on general holiday daytime
GW-RN0096-17	19 Feb 2017	10 Jul 2017	Valid	For road resurfacing of Fanling Highway Southbound
GW-RN0099-17	17 Feb 2017	12 Aug 2017	Valid	For road diversion and maintenance of Fanling Highway Northbound
GW-RN0111-17	26 Feb 2017	30 Jul 2017	Valid	For concreting the Bridge Deck of Kiu Tau Footbridge at Fanling Highway Both Bound
GW-RN0115-17	2 Mar 2017	26 Aug 2017	Valid	For concreting of stitch construction between AD12 and pier AB11R
GW-RN0130-17	10 Mar 2017	9 Jun 2017	Valid	For Segment Erection of Pier AD12
GW-RN0161-17	1 Apr 2017	30 Sep 2017	Valid	For segment erection across Fanling Highway
GW-RN0168-17	2 Apr 2017	25 Sep 2017	Valid	For lane shifting work at Northbound of Fanling Highway
GW-RN0185-17	1 Apr 2017	30 Sep 2017	Valid	For segment erection across Fanling Highway and MTRC's East Rail Line
GW-RN0204-17	30 Mar 2017	29 Sep 2017	Valid	For operating Water Pumping in Jacking Pit on Tai Wo Service Road West
GW-RN0213-07	6 Apr 2017	9 Sep 2017	Valid	For segment erection and rectification of the missing road markings at Fanling Highway both bounds

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
GW-RN0219-17	31 Mar 2017	30 Sep 2017	Valid	For segment erection crossing over MTRC's Rail Track of Pier AB11 and AD12 (1900 – 2300)
GW-RN0235-17	11 Apr 2017	7 Oct 2017	Valid	For installation of parapet at AC5 to AC6
GW-RN0236-17	10 Apr 2017	16 Sep 2017	Valid	For demolition of Kiu Tau Footbridge at Fanling Highway both bounds at Tai Wo Service Road East
GW-RN0302-17	30 Apr 2017	29 Oct 2017	Valid	For segment erection and traverser stitch joints crossing above MTRC's East Rail Line
GW-RN0305-17	30 Apr 2017	30 Jul 2017	Valid	For loading and unloading along Fanling Highway both bounds on general holiday daytime
<b>Wastewater Discharge License</b>				
WT00016832-2013	28 Aug 2013	31 Aug 2018	Valid	--
<b>Chemical Waste Producer Registration</b>				
5113-634-C3817-01	7 Oct 2013	--	Valid	--
<b>Billing Account for Construction Waste Disposal</b>				
7017914	2 Aug 2013	--	Account Active	--
<b>Notification Under Air Pollution Control (Construction Dust) Regulation</b>				
--	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 1hr- TSP and 24-hr TSP air quality monitoring were 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. 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
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 will be calibrated annually. Calibration certificate of the TE-5025A Calibration Kit 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

##### *1-hr and 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 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-weighed 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.
- 4.5.7 For 1-hr TSP monitoring, 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 ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
AM1(SR77) *	117.6	100.4 – 173.1	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 ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
AM1(SR77) *	59.2	52.9 – 68.1	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**.

## 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	Rion (Model No. NC-74)	1	34857296
Sound Level Meter	B&K (Model No. 2238)	1	2694908

5.2.2 The sound level calibrator and sound level meter were verified by a certified laboratory every year. 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 follows:

The sound level meter was set on a tripod at a height of 1.2 m above the ground for free-field measurements at monitoring station SR77;

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

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) <sup>(2)</sup>	Range, dB(A), Leq (30min) <sup>(2)</sup>	Action Level	Limit Level, dB(A)
M1(SR77) <sup>(1)</sup>	68.1	66.0 – 69.5	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 Introduction

- 6.1.1 The box culvert works have 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 been commenced in December 2016.
- 6.1.2 The 4-week post construction water quality monitoring has been commenced after the completion of box culvert works on 31 March 2017 in the same manner as the impact monitoring.
- 6.1.3 The post construction water quality monitoring were carried out eleven (11) times in the reporting month. The water quality monitoring was taken on 3, 5, 7, 10, 12, 18, 20, 22, 24, 26 and 28 April 2017.

### 6.2 Monitoring Requirements

- 6.2.1 In accordance with the Updated EM&A Manual, during the course of the culvert extension works, monitoring shall be undertaken on three occasions per week. The interval between two sets of monitoring shall not be less than 36 hours except where there are exceedances of Action and/or Limit levels. The results are included in **Appendix I** and **Appendix J**.

### 6.3 Monitoring Equipment

- 6.3.1 The equipment used in the water quality monitoring programme is summarised in **Table 6.1**.

**Table 6.1 Water Quality Monitoring Equipment**

Equipment	Model and Make
Turbidity meter	HACH Model 2100Q is (Serial No. 13120C004242)
Multifunctional Meter (Scope of Test: Conductivity, Dissolved Oxygen, pH, Salinity and Temperature)	Professional Plus (Serial No. 10D101566)

- 6.3.2 The monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS before use and subsequently re-calibrated at 3-monthly intervals throughout all stages of the water quality monitoring. Copies of the calibration certificates for the water quality monitoring equipment are attached in **Appendix C**.

### 6.4 Monitoring Parameters, Frequency and Duration

- 6.4.1 Measurements for each monitoring station were conducted 3 days per week for the reporting month. **Table 6.2** summarises the monitoring parameters, frequency and duration of the baseline water quality monitoring.

**Table 6.2 Water Quality Monitoring Parameters, Frequency and Duration**

Monitoring Stations	Parameter, unit	Frequency
Control Stations: C3a and C3b Impact Station: I5	- Depth, m - Temperature, °C - Salinity, ppt - pH - DO, mg/L - DO Saturation, % - Turbidity, NTU - SS, mg/L	3 days per week

## 6.5 Monitoring Locations

- 6.5.1 According to the Updated EM&A Manual, measurements were taken at all impact and control stations as summarised in **Table 6.3**. The locations of the monitoring stations are shown in **Figure 3**.

**Table 6.3 Locations of Water Quality Monitoring**

Station	Description	Easting	Northing
I5	Downstream of Ma Wat River (Yuen Leng)	833931	837859
C3a	Upstream of Ma Wat River (Nam Wa Po)	833816	837644
C3b	Upstream of Ma Wat River (Yuen Leng)	833931	837736

## 6.6 Monitoring Methodology

### *Instrumentation*

- 6.6.1 The parameters of in-situ measurements included water depth, dissolved oxygen (DO), dissolved oxygen saturation (DOS), turbidity level, pH value and water temperature.

### *Operating/Analytical Procedures*

- 6.6.2 Since water depths for all monitoring stations were less than 1m throughout the whole baseline measurement period, only mid-depth level was monitored.
- 6.6.3 At each monitoring station, at least duplicate readings of dissolved oxygen content and turbidity were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement.
- 6.6.4 Water samples were collected by the water sampler and filled into polyethylene bottles for laboratory determination of suspended solids. Sampling bottles were pre-rinsed with the same water samples, and filled up to the rim, capped tightly and labeled immediately. The sample bottles were then packed into a cool-box kept at 4°C, and delivered to a HOKLAS accredited laboratory, Enviro Labs Ltd. (HOKLAS no.: 128) for analysis. The results for laboratory analysis of suspended solids are presented in **Appendix I**.

## 6.7 Monitoring Schedule for the Reporting Month

6.7.1 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**.

## 6.8 Monitoring Results

6.8.1 The water quality criteria, namely Action and Limit Levels, as specified in the Updated EM&A Manual are shown in **Table 6.4**.

**Table 6.4 Action and Limit Levels for Water Quality Monitoring**

Parameters	Action	Limit
DO in mg/L	6.7 mg/L	4 mg/L or 40% saturation at 15 degree Celsius
SS in mg/L	42.6 mg/L or 120% of upstream control station's SS of the same day	46.8 mg/L or 130% of upstream station's SS of the same day and specific sensitive receiver water quality requirements
Turbidity (Tby) in NTU	81.9NTU or 120% of upstream control station's Tby of the same day	91.9NTU or 130% of upstream control station's Tby of the same day

Notes:

For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

For SS and Tby, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

6.8.2 The detailed water quality monitoring results and the graphical presentation of water quality monitoring data for the current and past three reporting months are presented in **Appendix J**.

6.8.3 The possible influences in monitoring results were suspected to be natural variation.

6.8.4 Two (2) exceedance of Action Level on Dissolved Oxygen was recorded at the monitoring location I5 on 20 April 2017 and 24 April 2017. Investigation for the exceedance was conducted which concluded that the exceedance was not related to the project works. The investigation report is presented in **Appendix M**.

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

## 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 1,003m<sup>3</sup> of excavated material has been generated. 903m<sup>3</sup> of inert C&D materials was disposed of at public fill to Tuen Mun Area 38. 36m<sup>3</sup> inert C&D materials were reused on site. 75m<sup>3</sup> of general refuse was disposed of at North East New Territories (NENT) Landfill. 4m<sup>3</sup> plastic was collected by recycling contractor in the reporting month. No paper/cardboard packaging was collected by recycling contractor in the reporting month. No metal was collected by recycling contractor in the reporting month. No chemical waste was collected by licensed contractor in the reporting period. Details of the waste management data are presented in **Appendix K**.

## 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, 4 site inspections were carried out on 3, 10, 19 and 24 April 2017. The one held on 24 April 2017 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	N/A	N/A	N/A
Air Quality	N/A	N/A	N/A
Noise	N/A	N/A	N/A
Water Quality	27 Mar 2017 <sup>(1)</sup>	Site surface runoff is observed at SA12. The contract is reminded to enhance the de-silting facilities to treat surface runoff before discharge.	A pump has been installed at the manhole to pump construction site runoff to sedimentation tank for de-silting treatment before discharge on 3 Apr 2017.
Waste / Chemical Management	N/A	N/A	N/A
Landscape & Visual	N/A	N/A	N/A
Permits / Licenses	N/A	N/A	N/A

Note: (1) Observations may refer to last month's Monthly EM&A Report (March 2017).

## **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**.



## 10 SUMMARY OF EP SUBMISSION IN THE REPORTING MONTH

10.1.1 The status of the required submission under the EP during the reporting period is summarized in **Table 10.1**.

**Table 10.1 Status of Required Submission under Environmental Permit**

EP Condition	Submission	Submission Date
Condition 3.3	Monthly EM&A Report for March 2017	12 April 2017

## **11 ENVIRONMENTAL NON-CONFORMANCE**

### **11.1 Summary of Monitoring Exceedances**

- 11.1.1 No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 11.1.2 No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 11.1.3 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.
- 11.1.4 Two (2) exceedance of Action Level was recorded for water quality monitoring at the monitoring location I5 in the reporting month. No Limit Level exceedance was recorded for water quality monitoring at the monitoring location I5 in the reporting month.

### **11.2 Summary of Environmental Non-Compliance**

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

### **11.3 Summary of Environmental Complaints**

- 11.3.1 No environmental complaints were received in the reporting month. The cumulative statistics are provided in **Appendix N**.

### **11.4 Summary of Environmental Summon and Successful Prosecutions**

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

## **12 FUTURE KEY ISSUES**

### **12.1 Construction Programme for the Next Month**

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

- Boundary Wall for Pumping Station;
- Cable Detection and Trial Trenches;
- Extended Podium Construction near Bored Pile Wall;
- Installation of Noise Barrier Steel Post & Panel;
- Footbridge Construction;
- Mini-pile Installation Works;
- Noise Barrier Construction ;
- Pier Table Construction ;
- Pipe Jacking Works for DN2200 Water Mains;
- Roadworks;
- Viaduct Segment Erection;
- Water Main Laying Works;
- Parapet Installation;
- Planter Wall Construction;
- Demolition of Existing Kiu Tau Footbridge ;
- Construction of Profile barrier on Viaduct Deck;
- Drainage Work; and
- Stressing of External Tendon.

### **12.2 Key Issues for the Coming Month**

12.2.1 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;
- Expose slopes and dusty stockpile should be covered up properly if no work will be conducted;
- Operation of construction plant should be sequenced where practicable;
- Good housekeeping should be maintained and general refuse should be removed regularly;
- Chemical waste should be stored, handled and disposed of properly;
- Properly store and label oils and chemicals on site; and

- A spill response procedure shall be in place and absorption material available for minor spillages.

### **12.3 Monitoring Schedule for the Next Month**

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

## 13 CONCLUSIONS AND RECOMMENDATIONS

### 13.1 Conclusions

- 13.1.1 The construction phase EM&A programme of the Project commenced on 5 November 2013.
- 13.1.2 The 1-hr TSP, 24-hr TSP, noise and water quality monitoring were carried out in the reporting period.
- 13.1.3 No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 13.1.4 No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 13.1.5 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.
- 13.1.6 Two (2) exceedance of Action Level on Dissolved Oxygen were recorded for water quality monitoring at the monitoring location I5 in the reporting month.
- 13.1.7 Four (4) 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.

### 13.2 Recommendations

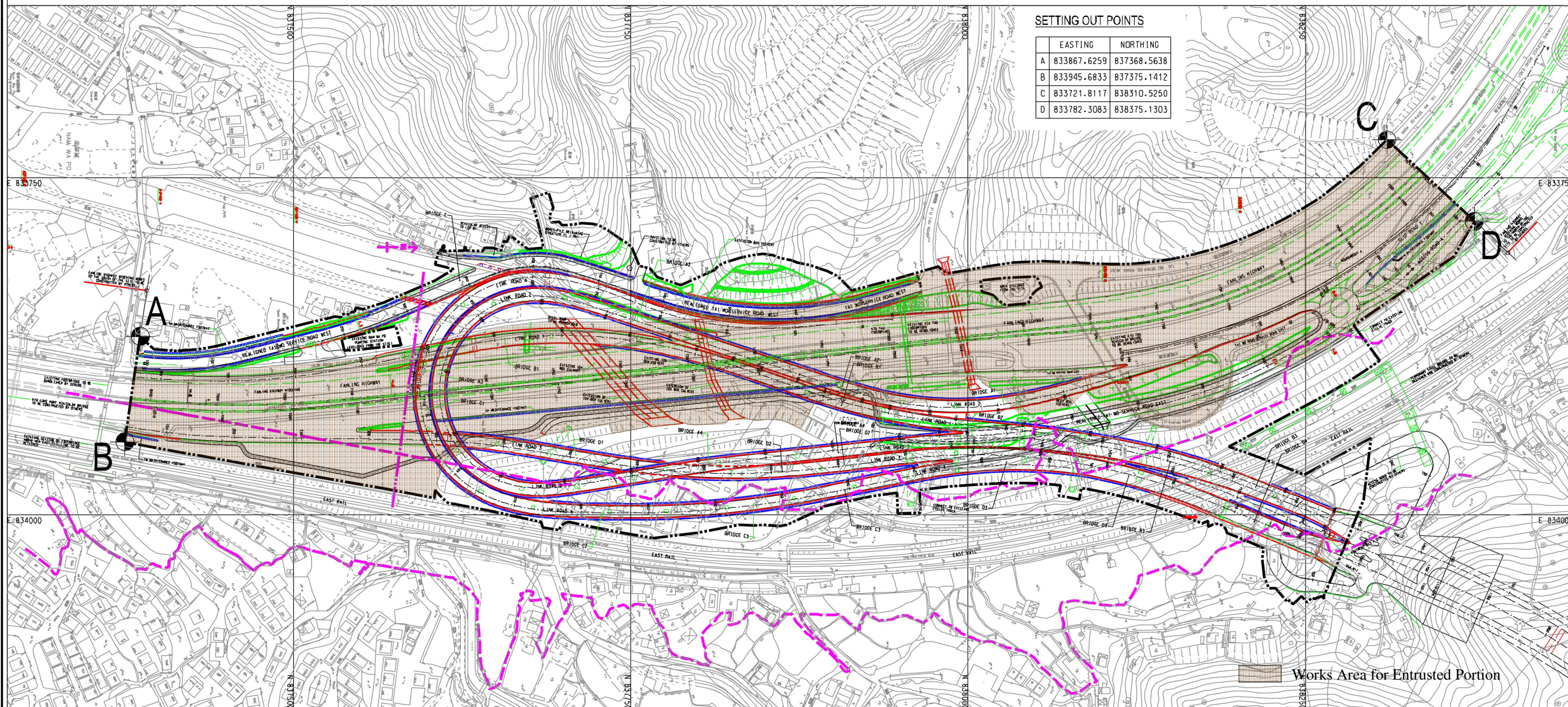
- 13.2.1 According to the environmental site inspections performed in the reporting month, the following recommendation was provided:

#### *Water Quality*

- Ensure the de-silting facilities are cleared frequently to prevent direct discharge of construction site runoff

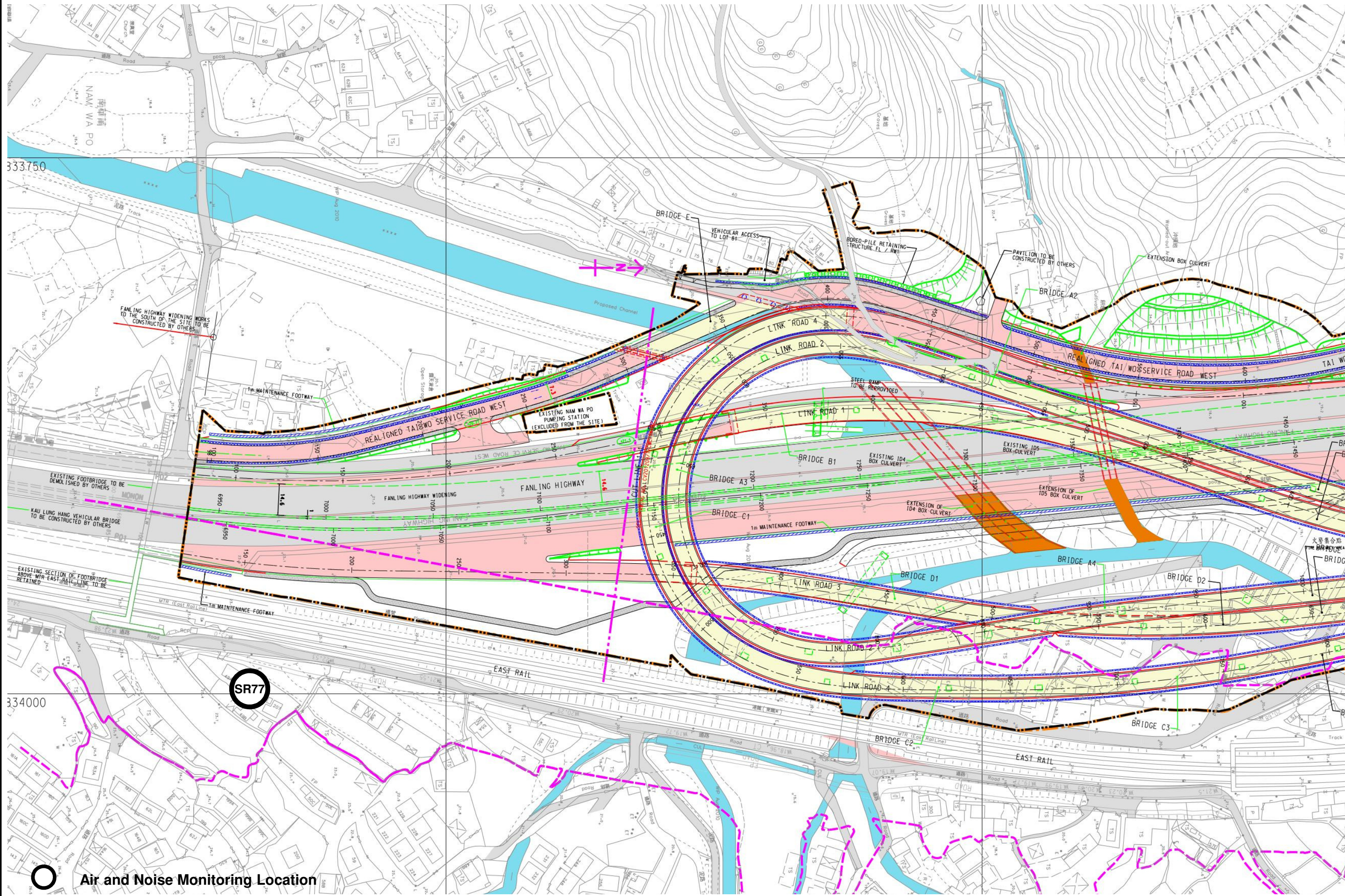
**Figure**





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# Appendix A Construction Programme

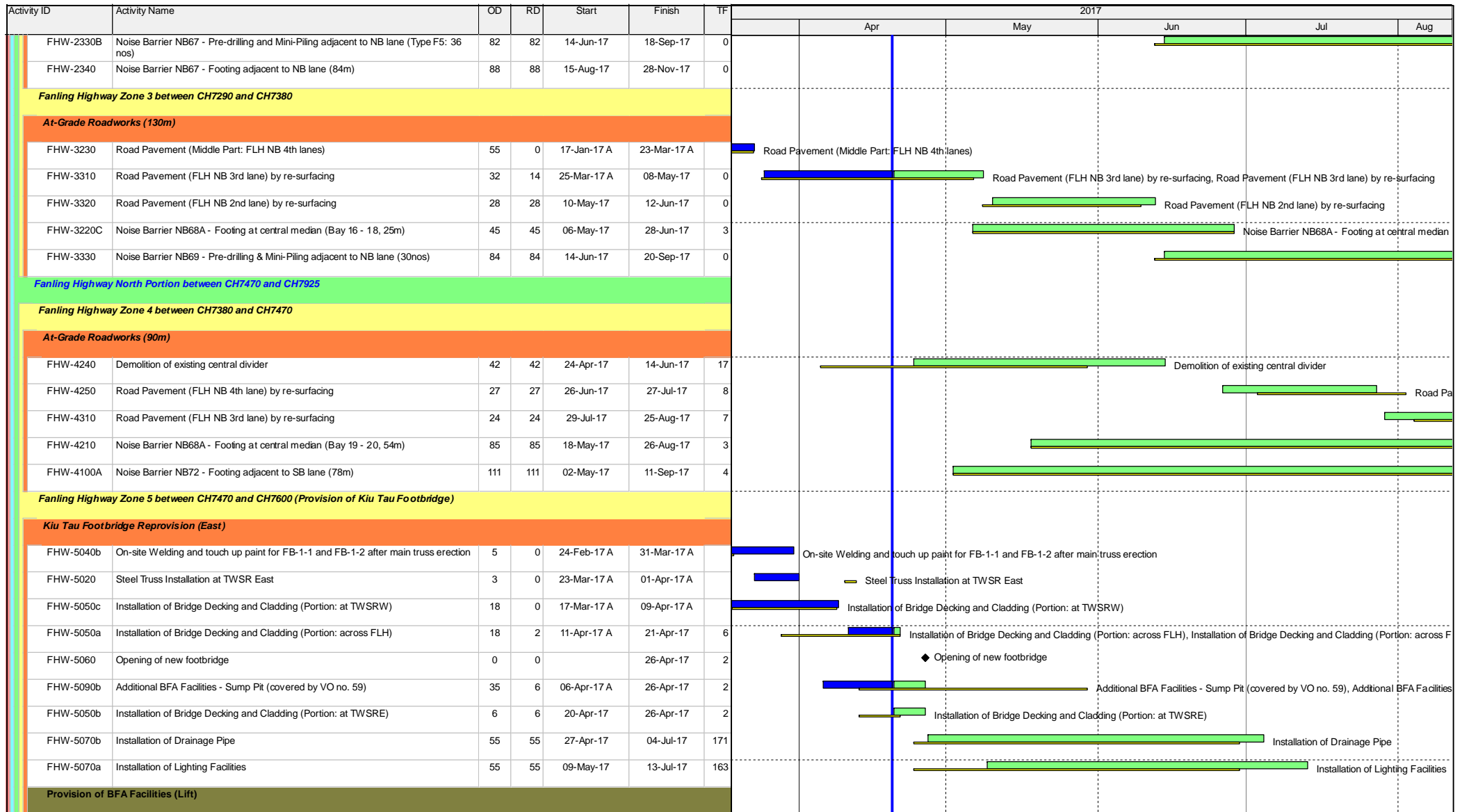
Activity ID	Activity Name	OD	RD	Start	Finish	TF	2017				
							Apr	May	Jun	Jul	Aug
<b>3-Month Rolling Programme 2017-03-21 (Based on UMP05)</b>											
<b>Key Dates (Contractual)</b>											
KD-1300	KD10: Stage S4 - Completion of road widening of Fanling Highway within SBZ2 and allow access for HY/2012/06	0	0		20-Apr-17*	-139		◆			
KD-0900	KD6A: Section 6 - All works in Portion FH9 of the Site but excluding works on the deck surfaces	0	0		21-Jul-17*	0				◆	
KD-1200	KD9: Stage 1C - Completion of viaduct structures and associated civil provisions for TCSS and allow access for other	0	0		11-Aug-17*	0					◆
<b>Key Dates (Forecast)</b>											
KD-1405	KD11: Stage N4 - Completion of road widening of Fanling Highway within NBZ1 and allow access for HY/2012/06	0	0		12-Aug-17*	0					
<b>Dependent Milestones from Other Contracts</b>											
<b>Related to South Buffer Zone</b>											
MS-SBZ120	Shift existing FLHS SB Fast Lane to future FLH 4th Lane by FHW3 Contractor	0	0	25-Jul-17*		0					◆
MS-SBZ220	Shift existing TWSRW SB to permanent alignment by FHW3 Contractor	0	0	31-Jul-17*		0					◆
MS-SBZ150	Shift existing FLHS NB 3 lanes westward by FHW3 Contractor	0	0	03-Aug-17*		0					◆
<b>Major Milestones and Events</b>											
MS-0310	Demolition of the whole Kiu Tau Vehicular Bridge	0	0		22-Mar-17 A		◆				
MS-1080a	T8a: TTA to shift FLH NB Fast Lane to the Permanent Alignment (4th lane) (South Portion)	1	0	24-Mar-17 A	24-Mar-17 A						
MS-1060a	T6a: TTA to shift FLH SB eastward (shift 2 Lanes) (North Portion)	1	1	23-Apr-17*	23-Apr-17	21					
MS-1080b	T8b: TTA to shift FLH NB Middle Lane to the Permanent Alignment (3rd lane) (South Portion)	1	1	09-May-17	09-May-17	0					
MS-1080c	T8c: TTA to shift FLH NB Slow Lane to the Permanent Alignment (2nd lane) (South Portion)	1	1	13-Jun-17	13-Jun-17	0					
MS-1060b	T6b: TTA to shift FLH SB eastward (shift 3 Lanes) (North Portion)	1	1	24-Jun-17	24-Jun-17	11					
MS-1180d	T8d: TTA to shift FLH NB Fast Lane to the Permanent Alignment (4th lane) (North Portion)	1	1	28-Jul-17	28-Jul-17	9					
MS-1090a	T9a: TTA to shift FLHS NB westward (shift 3 lanes), within SBZ	1	1	03-Aug-17	03-Aug-17	3					
MS-1070b	T7b: TTA to shift FLH SB Fast Lane to the Permanent Alignment (4th lane), within SBZ	1	1	08-Aug-17	08-Aug-17	23					
<b>Major Procurement &amp; Delivery</b>											
<b>Footbridge Steel Truss</b>											
MM-3040	On-Site Welding for Steel Truss (TWSRE)	20	0	11-Mar-17 A	22-Mar-17 A			■			
<b>Lift for New Kiu Tau Footbridge</b>											
MM-4000	Procurement, Fabrication and delivery of Lift	120	120	06-May-17	02-Sep-17	85					
<b>Design and Submissions</b>											
<b>Statutory Approval</b>											

3-Month Rolling Programme updated to 2017-04-21			
Date	Revision	Checked	Approved
21-Apr-17	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2017				
							Apr	May	Jun	Jul	Aug
PRE-1280	Consent for pre-drilling and mini-piling works within WSD Tau Pass Restricted Zone -WSD	60	0	03-Oct-16 A	27-Mar-17 A		Consent for pre-drilling and mini-piling works within WSD Tau Pass Restricted Zone -WSD				
PRE-1410	Approval of Lift for BFA for new Kiu Tau Footbridge - HyD	60	12	27-Jul-16 A	05-May-17	71	Approval of Lift for BFA for new Kiu Tau Footbridge - HyD, Approval of Lift for BFA for new Kiu Tau Footbridge -				
PRE-1060	Submission & approval of CDIA report for temporary works on nullah for construction of new retaining wall 3SW-D/FR32	90	90	02-May-17*	17-Aug-17	62					
<b>Design Confirmation</b>											
PRE-1590	Confirmation of Noise Barrier Footing Design (NB70) and associated watermain diversion works	0	0		20-Apr-17*	9	Confirmation of Noise Barrier Footing Design (NB70) and associated watermain diversion works				
PRE-1600	Confirmation of construction details of FL/C2 to cater for existing wall	0	0		31-May-17*	71	Confirmation of construction details of FL/C2 to cater for existing wall				
<b>Method Statement and Design (Major) Approved by AECOM</b>											
PRE-2030	Submission of E&M design for lighting of Kiu Tau Footbridge	60	14	05-Sep-16 A	08-May-17	163	Submission of E&M design for lighting of Kiu Tau Footbridge, Submission of E&M design for lighting of Kiu Tau				
PRE-2040	Submission of E&M design for lighting inside viaduct structures of Bridge A, B, C & D	60	14	01-Apr-16 A	08-May-17	35	Submission of E&M design for lighting inside viaduct structures of Bridge A, B, C & D, Submission of E&M de				
<b>Section IA &amp; IB - Fanling Highway Widening (KD-1 &amp; KD-2)</b>											
<b>Fanling Highway South Portion between CH6935 and CH7470</b>											
<b>Fanling Highway Zone 1 between CH6935 and CH7130 (within SBZ2)</b>											
<b>At-Grade Roadworks (195m)</b>											
FHW-1230	Road Formation (Middle Part: FLH NB Fast lanes), except CH.6935 - CH.7035	50	0	17-Jan-17 A	23-Mar-17 A		Road Formation (Middle Part: FLH NB Fast lanes), except CH.6935 - CH.7035				
FHW-1150	Road Formation and Temporary Road Pavement (FLH SB 1st lane)	48	0	19-Jan-17 A	01-Apr-17 A		Road Formation and Temporary Road Pavement (FLH SB 1st lane)				
FHW-1220b	Noise Barrier NB68 - Footing at central median (Bay 1 - 3, 63m)	68	19	05-Dec-16 A	13-May-17	4	Noise Barrier NB68 - Footing at central median (Bay 1 - 3, 63m), Noise Barrier NB68 - Footing at cent				
FHW-1140a	Watermain diversion for construction of NB70	55	55	20-Apr-17	26-Jun-17	9	Watermain diversion for construction of NB70				
FHW-1310	Remaining Road Drainage, Road Formation & Temporary Road Pavement (FLH NB 1st lane)	35	35	22-Jun-17	02-Aug-17	3	Remainin				
FHW-1160	Road Drainage, Road Formation & Pavement (FLH SB 4th lane)	90	90	20-Apr-17	07-Aug-17	20	Ro				
FHW-1140b	Noise Barrier NB70 - Footing adjacent to SB lane (30m)	70	70	27-Jun-17	16-Sep-17	9					
FHW-1170	Road Pavement (FLH SB 3rd lane) by re-surfacing	45	45	09-Aug-17	29-Sep-17	20					
FHW-1320	Road Formation & Pavement, Central Barrier (FLH NB 4th lane)	50	50	04-Aug-17	30-Sep-17	2					
<b>Fanling Highway Zone 2 between CH7130 and CH7290</b>											
<b>At-Grade Roadworks (160m)</b>											
FHW-2230	Road Pavement (Middle Part: FLH NB 4th lanes)	50	0	17-Jan-17 A	23-Mar-17 A		Road Pavement (Middle Part: FLH NB 4th lanes)				
FHW-2360	Temporary Platform for Mini-Pile Installation Works within WSD Restriction Zone	12	0	28-Mar-17 A	11-Apr-17 A		Temporary Platform for Mini-Pile Installation Works within WSD Restriction Zone				
FHW-2310	Road Pavement (FLH NB 3rd lane) by re-surfacing	32	14	25-Mar-17 A	08-May-17	0	Road Pavement (FLH NB 3rd lane) by re-surfacing, Road Pavement (FLH NB 3rd lane) by re-surfacing				
FHW-2320	Road Pavement (FLH NB 2nd lane) by re-surfacing	28	28	10-May-17	12-Jun-17	0	Road Pavement (FLH NB 2nd lane) by re-surfacing				
FHW-2330A	Noise Barrier NB67 - Pre-drilling and Mini-Piling adjacent to NB lane within WSD Restriction Zone (Type ID4-1A: 22 nos)	70	67	13-Apr-17 A	11-Jul-17	29	Noise Barrier N				

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

Date	Revision	Checked	Approved
21-Apr-17	Rev.1	SL	



Date	Revision	Checked	Approved
21-Apr-17	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2017														
							Apr	May	Jun	Jul	Aug										
FHW-L-1000	RC Works for Lift Shaft	38	38	20-Apr-17	06-Jun-17	86															
FHW-L-1010	Glazing & Louvre Installation	38	38	07-Jun-17	21-Jul-17	86															
FHW-L-1020	Metal Roof	20	20	22-Jul-17	14-Aug-17	86															
FHW-L-1050	E&M Works including T&C	60	60	07-Jun-17	16-Aug-17	134															
FHW-L-1040	Finishes / Builder's Works	30	30	15-Aug-17	18-Sep-17	106															
<b>Works at existing TWSRE</b>																					
FHW-5440	Demolition of existing Kiu Tau Footbridge	17	17	24-Apr-17	15-May-17	2															
FHW-5460	Preparation Works for TTA scheme E3B (Shifting TWSRE East Westward, at the area of existing Kiu Tau Footbridge)	38	38	16-May-17	29-Jun-17	2															
FHW-5470	Implementation of TTA - Scheme E3B (Shifting TWSRE East Westward, at the area of existing Kiu Tau Footbridge)	0	0	30-Jun-17		2															
FHW-5480A	Grouting Works for the existing DN1400 watermain and Removal of existing watermain	24	24	19-Aug-17	15-Sep-17	0															
FHW-5480	Noise Barrier NB72 & NB73 (Stage 1) - Footing adjacent to SB lane (97m)	125	125	30-Jun-17	27-Nov-17	2															
<b>At-Grade Road Works (130m)</b>																					
FHW-5230	Demolition of existing central divider	42	42	24-Apr-17	14-Jun-17	17															
FHW-5240	Road Pavement (FLH NB 4th lane) by re-surfacing	27	27	26-Jun-17	27-Jul-17	8															
FHW-5310	Road Pavement (FLH NB 3rd lane) by re-surfacing	24	24	29-Jul-17	25-Aug-17	7															
FHW-5210	Road Formation & Pavement, Central Barrier (South Side) (FLH SB 4th lane)	143	143	24-Apr-17	13-Oct-17	16															
<b>Fanling Highway Zone 6 between CH7600 and CH7660 (Existing Vehicular Bridge)</b>																					
<b>At-Grade Roadworks (60m)</b>																					
FHW-6110	Road Formation & Pavement (FLH SB 2nd - 3rd lanes)	50	0	17-Jan-17 A	19-Apr-17 A																
FHW-6130	Implementation of TTA - Scheme 6C-1 (Shifting TWSRE East Westward, at the area near existing J-Bridge)	0	0	13-May-17		33															
FHW-6230	Demolition of existing central divider	42	42	24-Apr-17	14-Jun-17	17															
FHW-6120	Road Formation & Pavement (FLH SB 1st lanes)	39	39	09-May-17	23-Jun-17	8															
FHW-6240	Road Pavement (FLH NB 4th lane) by re-surfacing	27	27	26-Jun-17	27-Jul-17	8															
FHW-6310	Road Pavement (FLH NB 3rd lane) by re-surfacing	24	24	29-Jul-17	25-Aug-17	7															
FHW-6140	Noise Barrier NB73 - Footing adjacent to SB lane (95m)	108	108	13-May-17	18-Sep-17	33															
FHW-6210	Road Drainage, Road Formation & Pavement and Central Barrier (South Side) (FLH SB 4th lane)	143	143	24-Apr-17	13-Oct-17	16															
<b>Remaining Works for Noise Barrier along widened Fanling Highway</b>																					
FHW-NB-210	Noise Barrier Steelworks & Panel for NB68 (14m), Fanling Highway central median at Zones 3	7	0	02-Mar-17 A	23-Mar-17 A																
FHW-NB-140	Noise Barrier Steelworks & Panel for NB71 (254m), adjacent to Fanling Highway SB lanes at Zones 2,3 & 4	40	0	24-Jan-17 A	01-Apr-17 A																

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							Apr	May	Jun	Jul	Aug				
FHW-NB-220	Noise Barrier Steelworks & Panel for NB68 (63m), Fanling Highway central median at Zones 1	13	13	15-May-17	29-May-17	78									
FHW-NB-230	Noise Barrier Steelworks & Panel for NB68A (225m), Fanling Highway central median at Zones 2 & 3	12	46	02-Mar-17 A	15-Jun-17	193									
<b>Section II - Remainder of the Works (KD-3)</b>															
<b>At Grade Link Road at Fanling Highway Interchange</b>															
<b>Link Road 1 (near Abutment AB1)</b>															
FHI-LR1-1200	Completion of Segment Erection Works at TWSRW	0	0		16-May-17	676									
FHI-LR1-1030	Noise Barrier NB66 - Footing adjacent NB lane (50m long, Bay 1 - Bay 4)	90	51	02-Mar-17 A	21-Jun-17	3									
FHI-LR1-1070	Noise Barrier NB67 - Pre-drilling & Mini-Piling (Cap 10-20 for raking piles, 26no.)	106	59	20-Feb-17 A	30-Jun-17	45									
FHI-LR1-1000	Completion of Realigned TWSR West and divert traffic onto the new carriageway (Stage S13)	0	0		31-Jul-17	19									
FHI-LR1-1040	Noise Barrier NB66 - Footing adjacent NB lane (24m long, Bay 5 - Bay 6)	54	54	22-Jun-17	24-Aug-17	49									
FHI-LR1-1320	Construction of Footing of sign gantry DS1	56	56	03-Jul-17	05-Sep-17	117									
FHI-LR1-1080	Noise Barrier NB67 - Footing (96m) (Bay 4 - Bay 11)	95	95	20-May-17	09-Sep-17	45									
FHI-LR1-1050	Noise Barrier NB67 - Pre-drilling & Mini-Piling (Cap 1-9 for raking piles, 18no.)	53	53	01-Aug-17	30-Sep-17	19									
FHI-LR1-1020	Construction of Retaining Wall beside Abutment AB1 and filling work	156	156	17-May-17	20-Nov-17	1									
<b>Link Road 2 (near Abutment AA1)</b>															
FHI-LR2-2000	Completion of Demolition of Existing Vehicular Bridge	0	0		22-Mar-17 A										
FHI-LR2-2040d	Footing of Sign Gantry FADS11	14	0	23-Mar-17 A	06-Apr-17 A										
FHI-LR2-2040c	Footing of Sign Gantry DS11	14	14	20-Apr-17	08-May-17	8									
FHI-LR2-2040b	Road Formation, Road Drainage, Kerb (SMH1302 - 1303 & MY2.4 - 2.5)	45	45	20-Apr-17	14-Jun-17	16									
FHI-LR2-2020	Construction of Retaining Wall beside Abutment AA1	120	120	27-Apr-17	18-Sep-17	33									
<b>Link Road 3 (near Abutment AD1)</b>															
FHI-LR3-3020	Construction of Retaining Wall beside Abutment AD1	120	120	19-Jun-17*	09-Nov-17	1									
<b>Link Road 4 (near Abutment AC1)</b>															
FHI-LR4-4020	Construction of Retaining Wall beside Abutment AC1	120	120	27-Apr-17*	18-Sep-17	8									
<b>WSD Works</b>															
<b>DN450 Fire Mains (CHA)</b>															
WA-3010b	Pipe Laying - CHA 705 - 720 (DN450) (saw-cut) along Ext. TWSR West SB, 15m (Disrupted by Ching Ming Festival)	37	37	20-Apr-17*	05-Jun-17	22									
WA-2010	Pipe Laying - CHA 460 - 508 (DN450) along Ext. TWSR West NB, 48m	188	58	01-Sep-16 A	29-Jun-17	113									
WA-1010	Pipe Laying - CHA 0 - 55 (DN450) near Ext. TWSR West, 55m	48	48	08-May-17	04-Jul-17	22									

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							Apr	May	Jun	Jul	Aug										
WA-1130	Pipe Laying - CHA 315 - 385 (DN450) near Ext. TWSR West, 70m	47	47	17-May-17*	12-Jul-17	18															
WA-2080	Pipe Laying - CHA 625 - 675 (DN450) along Ext. TWSR West SB, 50m	40	40	06-Jun-17	22-Jul-17	22															
WA-2060	Pipe Laying - CHA 590 - 625 (DN450) along Ext. TWSR West SB, 35m	32	32	24-Jul-17	29-Aug-17	22															
WA-1120	Pipe Laying - CHA 270 - 315 (DN450) near Ext. TWSR West, 45m	47	47	01-Aug-17	23-Sep-17	2															
<b>DN600 Water Mains (CHB)</b>																					
WB-1030C	Pipe Laying - CHB 410 - 430 (DN600), 20m, from IT inspection tee chamber to Pier AB7	24	24	28-Apr-17	27-May-17	10															
WB-1050	Pipe Laying - CHB 455 - 510 (DN600), 55m, from combined valve chamber to Realigned TWSR East	28	28	11-May-17	13-Jun-17	148															
WB-1040	Pipe Laying - CHB 430 - 455 (DN600), 25m, from Pier AB7 to combined valve chamber	28	28	14-Jun-17	17-Jul-17	148															
<b>DN1200 Water Mains (CHC)</b>																					
WC-1090C	Pipe Laying - CHC 660 - 705 (DN1200), 45m, from IT inspection tee chamber to combined valve chamber	24	24	28-Apr-17	27-May-17	10															
WC-1000B	Pipe Laying - CHC 0 - 70 (DN1200) near Realigned TWSR West (TW SRW: CH100-155), 70m long & 3m depth	45	45	10-May-17	03-Jul-17	5															
WC-1090B	Pipe Laying - CHC 610 - 660 (DN1200), 50m, from TWSRE to IT inspection tee chamber	50	50	23-Jun-17	21-Aug-17	68															
<b>Twin DN1400 Water Mains (CHE &amp; CHG)</b>																					
WE-1060a	Pipe Laying - CHG 280 - 325 (Twin DN1400) from Portal AB7/AD9/AC12 to combined valve chamber	33	7	09-Mar-17 A	27-Apr-17	10															
WE-1060b	Pipe Laying - CHE 280 - 325 (Twin DN1400) from Portal AB7/AD9/AC12 to combined valve chamber	38	25	06-Apr-17 A	20-May-17	58															
WE-1050	Pipe Laying - CHE & CHG 260 - 280 (Twin DN1400) near Pier AD8	28	28	28-Apr-17	02-Jun-17	12															
WE-1040	Pipe Laying - CHE & CHG 220 - 260 (Twin DN1400) near Pier AA4	43	43	25-Apr-17*	16-Jun-17	0															
WE-3010A	Pipe Cleaning for CHE (Stage 2 Diversion)	8	8	17-Jun-17	26-Jun-17	36															
WE-1080	Construction of combined valve chamber with MBV installation	109	59	25-Jan-17 A	30-Jun-17	5															
WE-3020A	Pressure Test for CHE (Stage 2 Diversion)	7	7	27-Jun-17	05-Jul-17	36															
WE-3010B	Pipe Cleaning for CHG (Stage 2 Diversion)	17	17	17-Jun-17	07-Jul-17	0															
WE-3020B	Pressure Test for CHG (Stage 2 Diversion)	7	7	08-Jul-17	15-Jul-17	0															
WE-3040B	CCTV Inspection and Sterilization for CHG (Stage 2 Diversion)	11	11	17-Jul-17	28-Jul-17	0															
WE-3050B	Connection to Existing Mains (CHG) (Stage 2 Diversion)	4	4	29-Jul-17	02-Aug-17	0															
WE-3030A	Installation of Connecting Pipe at ID5 (CHE)	4	4	03-Aug-17	07-Aug-17	8															
WE-3040A	CCTV Inspection and Sterilization for CHE (Stage 2 Diversion)	12	12	08-Aug-17	21-Aug-17	8															
<b>DN2200 Water Mains (CHF)</b>																					
WF-1000B	Construction of Launching Pit (Pit 2) for DN2200 (CHF), Section 1 (near Pier AB3)	33	0	17-Mar-17 A	11-Apr-17 A																
WF-1000A	Construction of Receiving Pit (Pit 1) for DN2200 (CHF), Section 1 (near Pier AA8)	21	9	27-Mar-17 A	29-Apr-17	33															

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							Apr	May	Jun	Jul	Aug
WF-1050 A	Construction of Launching Pit (Pit 3) for DN2200 (CHF), Section 3 (near Pier AA7)	33	22	03-Apr-17 A	17-May-17	56	Construction of Launching Pit (Pit 3) for DN2200 (CHF), Section 3 (near Pier AA7), Construction				
WF-1050 B	Construction of Receiving Pit (Pit 4) for DN2200 (CHF), Section 3 (near FLH NB)	30	25	25-Mar-17 A	20-May-17	58	Construction of Receiving Pit (Pit 4) for DN2200 (CHF)				
WF-1080	Trench Excavation from Pit 4 to Connection Point near FLH NB, Section 4	36	36	14-Jun-17	26-Jul-17	49					
WF-1100	Expose existing DN2200 bend block	18	18	11-Jul-17	31-Jul-17	49					
WF-1060	Excavation - CHF 73 - 91 (DN2200) across Box Culvert BC01 by Trenchless Method, 18m long	60	60	24-May-17	03-Aug-17	56					
WF-1010	Excavation - CHF 9 - 54 (DN2200) across ext. TWSRW by Trenchless Method, 45m long	115	115	20-Apr-17	05-Sep-17	28					
WF-1070	Pipe Laying - CHF 73 - 91 (DN2200) across Box Culvert BC01 & associated Grouting Works, 18m long	38	38	04-Aug-17	16-Sep-17	56					
WF-1110	Trimming existing bend block	60	60	01-Aug-17	11-Oct-17	49					
<b>DN1400 Water Mains (CHK &amp; CHKA)</b>											
WK-2010	Pressure Test for CHK/CHKA	7	7	17-Jun-17	24-Jun-17	172					
WK-2020	Cleaning & CCTV Inspection for CHK/CHKA	8	8	26-Jun-17	05-Jul-17	172					
<b>Existing Nam Wa Po Trunk Sewage Pumping Station (PST3)</b>											
PS-1010	Construction of New Boundary Wall for Pumping Station (PST3)	80	137	25-Nov-16 A	30-Sep-17	102					
<b>Stage 1A - Realignment of Tai Wo Service Road West (KD-7)</b>											
<b>TWSRW Zone 4 between CH315 and CH376</b>											
<b>Construction of Bridge E</b>											
TWSRW-4100C	Construction of Gabion Wall and Remaining Slope Reinstatement Works	68	9	03-Jan-17 A	29-Apr-17	230	Construction of Gabion Wall and Remaining Slope Reinstatement Works, Construction of Gabion Wall and Remaining S				
<b>TWSRW Zone 5 between CH376 and CH520</b>											
<b>Construction of Retaining Structures</b>											
TWSRW-5150	Slope Works for FL-C2 near Retaining Wall FL/RW4	60	60	01-Jun-17	10-Aug-17	71					
TWSRW-5120	Remaining works incl. railing, u-channel on top of Bored Pile Wall	50	50	24-Jul-17	19-Sep-17	112					
<b>At-Grade Roadworks</b>											
TWSRW-5120A	Filling Works between Retaining Wall RW7 and RW8	192	19	07-Jun-16 A	13-May-17	37	Filling Works between Retaining Wall RW7 and RW8, Filling Works between Retaining Wall RW7 and				
TWSRW-5120B	Permanent Vehicular Access to Lot 81 (incl. filling works behind retaining wall RW8)	58	58	15-May-17	22-Jul-17	37	Permanent Vehicular				
TWSRW-5170b	Construction of Pavilion (covered by VO No.137)	75	75	11-Aug-17	09-Nov-17	71					
TWSRW-5160	Construction of Extended Podium near RW7 incl. filling works & slope protection (covered by VO No.100)	85	186	27-Oct-16 A	30-Nov-17	53					
<b>Remainder of the Works</b>											
<b>Utilities Laying Works</b>											
UU-1030A	Utilities Duct Laying in Area 3, Phase 2, CLP - 132kV(150mVA), approx. 30m	27	27	17-May-17	17-Jun-17	552	Utilities Duct Laying in Area 3, Phase 2, CLP - 132kV(150mVA)				

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							Apr	May	Jun	Jul	Aug
UU-1040A	Utilities Duct Laying in Area 4, Phase 2, Towngas - DN600 & DN400, approx. 50m (by their own TTA)	121	59	15-Sep-16 A	30-Jun-17	508	Utilities Duct Laying in Area 4, Phase 2, Towngas				
UU-1040B	Utilities Duct Laying in Area 4, Phase 2, CLP - 132kV(150mVA), approx. 50m (by their own TTA)	33	33	03-Jul-17	09-Aug-17	508	Utilities Duct Laying in Area 4, Phase 2, Towngas				
UU-1010A	Utilities Duct Laying in Area 1, Phase 2, CLP - 132kV(150mVA), approx.30m at interface section	16	16	31-Jul-17	17-Aug-17	501	Utilities Duct Laying in Area 1, Phase 2, Towngas				
UU-1010B	Utilities Duct Laying in Area 1, Phase 2, Towngas - DN600, approx.20m at interface section	13	13	18-Aug-17	01-Sep-17	559	Utilities Duct Laying in Area 1, Phase 2, Towngas				
<b>Switch-Over of Existing Utilitiess</b>											
UU-SO-2500	Switch-over Works (CLP 132kV, 300mVA)	16	0	06-Mar-17 A	20-Mar-17 A		Switch-over Works (CLP 132kV, 300mVA)				
UU-SO-2020	Cabling Works for CLP 11kV	21	9	17-Dec-16 A	29-Apr-17	80	Cabling Works for CLP 11kV, Cabling Works for CLP 11kV				
UU-SO-2520	Switch-over Works (CLP 11kV)	16	16	30-Apr-17*	15-May-17	99	Switch-over Works (CLP 11kV)				
UU-SO-1010	Cabling Works for telecom utilities	101	101	20-Apr-17*	29-Jul-17	3	Cabling Work				
UU-SO-1500	Switch-over Works (Telecom)	0	0		29-Jul-17	2	◆ Switch-over V				
<b>Stage N4A &amp; N4B - Realignment of Tai Wo Service Road East (KD-13 &amp; KD-14)</b>											
<b>TWSRE Zone 1 between CH100 and CH270</b>											
<b>At-Grade Roadworks</b>											
TWSRE-1170	Remaining Noise Barrier NB3 Stem Wall (a total of 24m long)	30	30	20-Apr-17	26-May-17	0	Remaining Noise Barrier NB3 Stem Wall (a total of 24m long)				
TWSRE-1160	Road Formation, Road Drainage, Kerb, Planter and Pavement (Incl. FL/F8A, FL/F9)	116	116	20-Apr-17	06-Sep-17	0					
TWSRE-1140B*	Pipe laying - DN600 & DN1200 Watermains (CHB & CHC) along Realigned TWSR East	145	145	28-Apr-17	20-Oct-17	68					
<b>TWSRE Zone 2 between CH270 and CH380</b>											
<b>At-Grade Roadworks</b>											
TWSRE-2060C	Demolition of Existing Kiu Tau Vehicular Bridge (Portion 3), above new TWSRE	27	0	02-Mar-17 A	22-Mar-17 A		Demolition of Existing Kiu Tau Vehicular Bridge (Portion 3), above new TWSRE				
TWSRE-2080	Remaining Noise Barrier NB3 Stem Wall (total 2 bays)	45	45	20-Apr-17	14-Jun-17	1	Remaining Noise Barrier NB3 Stem Wall (total 2 bays)				
TWSRE-2090	Road Formation, Kerb, Footpath, Cycle Track, Planter and Pavement	70	70	15-Jun-17	05-Sep-17	1					
<b>TWSRE Zone 3 between CH380 and CH456</b>											
<b>At-Grade Roadworks</b>											
TWSRE-3040	Road Formation, Kerb, Footpath, Cycle Track, Planter and Pavement (Incl. FL/F10)	70	70	15-Jun-17	05-Sep-17	1					
<b>Roundabout A, Slip Road and Access Road</b>											
TWSRE-5010	Modification Works to new Roundabout A	90	0	29-Nov-16 A	30-Mar-17 A		Modification Works to new Roundabout A				
TWSRE-5020	Hand Over the area to BBI Contractor	0	0		31-Mar-17 A		◆ Hand Over the area to BBI Contractor				
<b>Stage 1C - Viaduct Structure &amp; TCSS Civil Provisions (KD-9)</b>											
<b>Foundation &amp; Pier Construction</b>											

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

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							Apr	May	Jun	Jul	Aug
<b>Bridge D</b>											
BD-11-1050	Portal AD11 - Portal Beam Construction together with Kicker	65	14	23-Feb-17 A	08-May-17	-115	Portal AD11 - Portal Beam Construction together with Kicker, Portal AD11 - Portal Beam Construction				
<b>Pier Table Construction</b>											
<b>Bridge A</b>											
PA-1020	Pier Table Construction at Portal AA2 (2 nos.)	15	0	10-Mar-17 A	27-Mar-17 A		Pier Table Construction at Portal AA2 (2 nos.)				
PA-1060	Pier Table Construction at Pier AA6 (3 nos.)	25	0	25-Feb-17 A	13-Apr-17 A		Pier Table Construction at Pier AA6 (3 nos.)				
<b>Bridge D</b>											
PD-1130	Pier Table Construction at Pier AD13 (4 nos.)	15	15	01-Apr-17 A	09-May-17	-66	Pier Table Construction at Pier AD13 (4 nos.), Pier Table Construction at Pier AD13 (4 nos.)				
PD-1110	Pier Table Construction at Portal AD11 (4 nos.)	15	15	16-May-17	02-Jun-17	-115	Pier Table Construction at Portal AD11 (4 nos.)				
<b>Vaduct Bridge Segement Erection</b>											
<b>Bridge A</b>											
EA-1010A	Erection of Segment AA1U0	20	0	08-Mar-17 A	24-Mar-17 A		Erection of Segment AA1U0				
EA-1020	Bridge Deck Construction at Portal AA2 by Crane (14 nos)	8	2	12-Apr-17 A	21-Apr-17	8	Bridge Deck Construction at Portal AA2 by Crane (14 nos), Bridge Deck Construction at Portal AA2 by Crane (14 nos)				
EA-1010B	Bridge Deck Construction at Abutment AA1 (End-span) by Falsework & Crane (6 nos)	6	6	19-Apr-17 A	26-Apr-17	16	Bridge Deck Construction at Abutment AA1 (End-span) by Falsework & Crane (6 nos), Bridge Deck Construction at Abutment AA1 (End-span) by Falsework & Crane (6 nos)				
EA-1060	Bridge Deck Construction at Pier AA6 by Typical Lifting Frame (22 nos)	38	38	24-Apr-17	09-Jun-17	3	Bridge Deck Construction at Pier AA6 by Typical Lifting Frame (22 nos)				
<b>Bridge B</b>											
EB-1040	Bridge Deck Construction at Pier AB4 by Typical Lifting Frame (22 nos)	33	3	03-Mar-17 A	22-Apr-17	3	Bridge Deck Construction at Pier AB4 by Typical Lifting Frame (22 nos), Bridge Deck Construction at Pier AB4 by Typical Lifting Frame (22 nos)				
EB-1010A	Erection of Segment AB1U0	20	13	18-Mar-17 A	06-May-17	0	Erection of Segment AB1U0, Erection of Segment AB1U0				
EB-1010B	Bridge Deck Construction at Abutment AB1 (End-span) by Falsework & Crane (11 nos)	4	4	12-May-17	16-May-17	0	Bridge Deck Construction at Abutment AB1 (End-span) by Falsework & Crane (11 nos)				
EB-1120A	Erection of Segment AB12U0	28	28	20-Apr-17	24-May-17	-121	Erection of Segment AB12U0				
EB-1120B	Bridge Deck Construction at Abutment AB12 (End-span) by Falsework & Crane (12 nos)	4	4	03-Jun-17	07-Jun-17	-121	Bridge Deck Construction at Abutment AB12 (End-span) by Falsework & Crane (12 nos)				
<b>Bridge D</b>											
ED-1120	Bridge Deck Construction at Pier AD12 by Special Lifting Frame (50 nos in which 21 nos above MTR Railway)	84	21	09-Mar-17 A	16-May-17	-115	Bridge Deck Construction at Pier AD12 by Special Lifting Frame (50 nos in which 21 nos above MTR Railway)				
ED-1130	Bridge Deck Construction at Pier AD13 by Crane (12 nos)	4	4	01-Jun-17	05-Jun-17	-84	Bridge Deck Construction at Pier AD13 by Crane (12 nos)				
ED-1140A	Erection of Segment AD14U0	35	35	22-Apr-17	05-Jun-17	-84	Erection of Segment AD14U0				
ED-1140B	Bridge Deck Construction at Abutment AD14 (End span) by Falsework & Crane (13 nos)	4	4	08-Jun-17	12-Jun-17	-86	Bridge Deck Construction at Abutment AD14 (End span) by Falsework & Crane (13 nos)				
ED-1110	Bridge Deck Construction at Portal AD11 by Special Lifting Frame (54 nos in which 12 nos above MTR Railway)	43	43	03-Jun-17	24-Jul-17	-115	Bridge Deck Construction at Portal AD11 by Special Lifting Frame (54 nos in which 12 nos above MTR Railway)				
<b>Key Segment Erection and Stitch Casting (Wide-box Section)</b>											
KS-D-1010	Stitching Works between AD1 End Span and AD3	12	0	17-Mar-17 A	21-Mar-17 A		Stitching Works between AD1 End Span and AD3				



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

**CEDD Contract No. CV/2012/09**

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

**3-Month Rolling Programme**

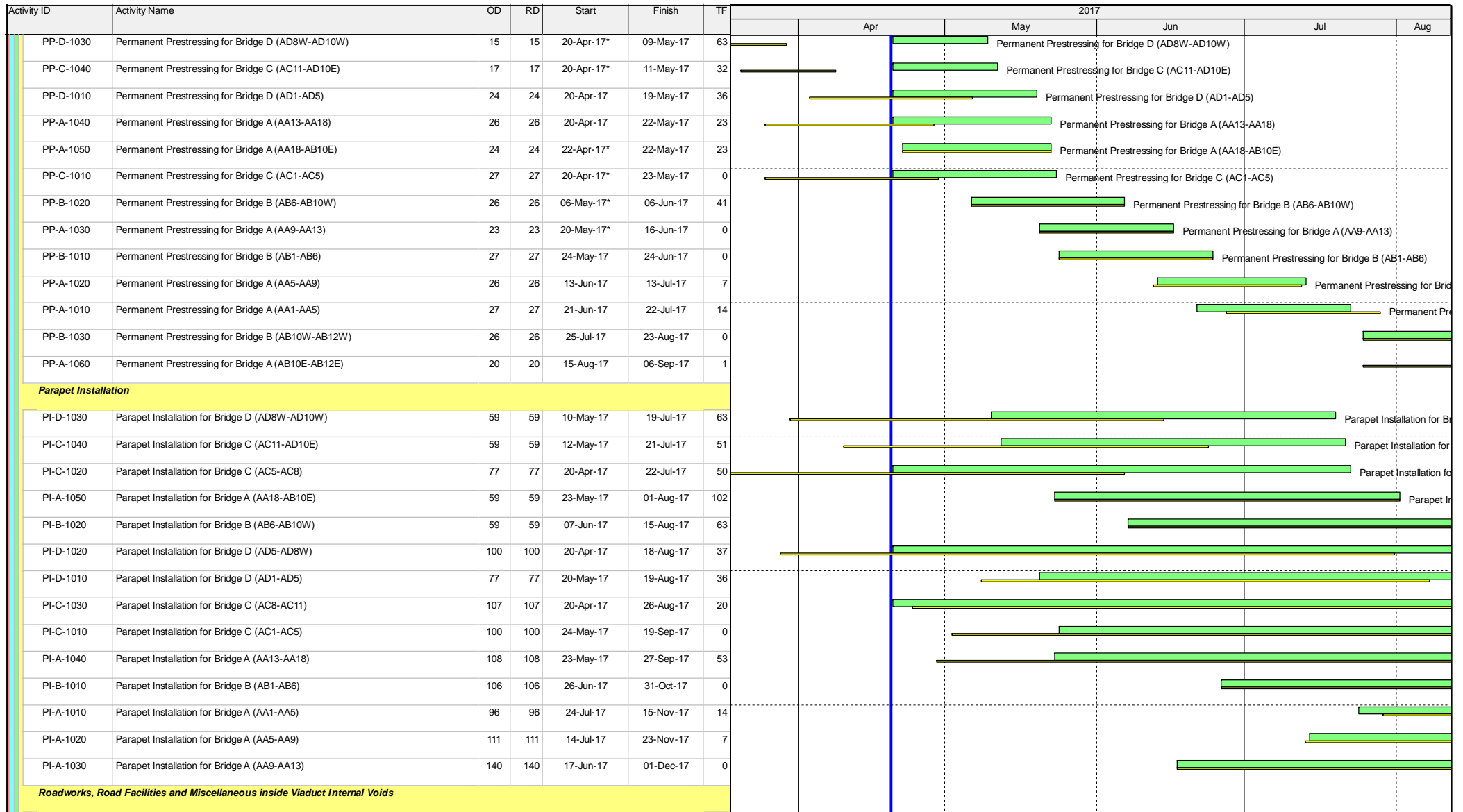
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3-Month Rolling Programme updated to 2017-04-21

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Activity ID	Activity Name	OD	RD	Start	Finish	TF	2017				
							Apr	May	Jun	Jul	Aug
KS-A-1100	Erection AA10K11 and stitching works	12	0	17-Mar-17 A	29-Mar-17 A		Erection AA10K11 and stitching works				
KS-B-1020	Erection AB2K3 and stitching works	12	0	21-Mar-17 A	05-Apr-17 A		Erection AB2K3 and stitching works				
KS-A-1090	Erection AA9K10 and stitching works	12	0	05-Jan-17 A	12-Apr-17 A		Erection AA9K10 and stitching works				
KS-A-1080	Erection AA8K9 and stitching works	12	5	25-Mar-17 A	25-Apr-17	5	Erection AA8K9 and stitching works, Erection AA8K9 and stitching works				
KS-A-1070	Erection AA7K8 and stitching works	12	12	08-Apr-17 A	05-May-17	36	Erection AA7K8 and stitching works, Erection AA7K8 and stitching works				
KS-B-1030	Erection AB3K4 and stitching works	12	12	24-Apr-17	09-May-17	6	Erection AB3K4 and stitching works				
KS-A-1020	Erection AA2K3 and stitching works	12	12	26-Apr-17	11-May-17	5	Erection AA2K3 and stitching works				
KS-A-1010	Stitching Works between AA1 End Span and AA2	6	6	12-May-17	18-May-17	5	Stitching Works between AA1 End Span and AA2				
KS-B-1010	Stitching Works between AB1 End Span and AB2	6	6	17-May-17	23-May-17	0	Stitching Works between AB1 End Span and AB2				
KS-B-1040	Erection AB4K5 and stitching works	12	12	19-May-17	02-Jun-17	5	Erection AB4K5 and stitching works				
KS-A-1050	Erection AA5K6 and stitching works	12	12	10-Jun-17	23-Jun-17	7	Erection AA5K6 and stitching works				
KS-A-1060	Erection AA6K7 and stitching works	12	12	10-Jun-17	23-Jun-17	7	Erection AA6K7 and stitching works				
<b>Key Segment Erection and Stitch Casting (Narrow-box Section)</b>											
KS-B-1100A	Stitching Works between AB10W and AB11W	12	9	10-Apr-17 A	29-Apr-17	-94	Stitching Works between AB10W and AB11W, Stitching Works between AB10W and AB11W				
KS-B-1100B	Stitching Works between AB10E and AB11E	12	12	06-May-17	19-May-17	-94	Stitching Works between AB10E and AB11E				
KS-D-1120A	Stitching Works between AD12W and AD13W	12	12	20-Jun-17	04-Jul-17	-80					
KS-D-1120B	Stitching Works between AD12E and AD13E	12	12	20-Jun-17	04-Jul-17	-80					
KS-B-1110A	Stitching Works between AB11W and AB12W End Span	12	12	22-Jun-17	06-Jul-17	-121	Stitching Works between AB11W and AB12W End Span				
KS-B-1110B	Stitching Works between AB11E and AB12E End Span	12	12	11-Jul-17	24-Jul-17	-121	Stitching Works between AB11E and AB12E End Span				
KS-D-1100A	Erection AD10WK11 and stitching works	12	12	01-Aug-17	14-Aug-17	-115					
KS-D-1100B	Erection AD10EK11 and stitching works	12	12	01-Aug-17	14-Aug-17	-115					
KS-D-1110A	Stitching Works between AD11W and AD12W	12	12	01-Aug-17	14-Aug-17	-115					
KS-D-1110B	Stitching Works between AD11E and AD12E	12	12	01-Aug-17	14-Aug-17	-115					
KS-D-1130A	Stitching Works between AD13W and AD14W End Span	12	12	08-Aug-17	21-Aug-17	-121					
KS-D-1130B	Stitching Works between AD13E and AD14E End Span	12	12	08-Aug-17	21-Aug-17	-121					
<b>Major Works on Deck Surfaces</b>											
<b>Permanent External Tendon Stressing Works</b>											
PP-D-1020	Permanent Prestressing for Bridge D (AD5-AD8W)	21	0	13-Feb-17 A	06-Apr-17 A		Permanent Prestressing for Bridge D (AD5-AD8W)				
PP-C-1030	Permanent Prestressing for Bridge C (AC8-AC11)	17	0	17-Mar-17 A	07-Apr-17 A		Permanent Prestressing for Bridge C (AC8-AC11)				

Date	Revision	Checked	Approved
21-Apr-17	Rev.1	SL	



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

**CEDD Contract No. CV/2012/09**

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

**3-Month Rolling Programme**

3-Month Rolling Programme updated to 2017-04-21

Date	Revision	Checked	Approved
21-Apr-17	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2017						
							Apr	May	Jun	Jul	Aug		
RS-1030	Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge D (AD1 to AD10)	120	120	20-May-17	11-Oct-17	55							
RS-1010	Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge B (AB1 to AB12)	120	120	26-Jun-17	16-Nov-17	25							
RS-1020	Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge C (AC1 to AD10)	150	150	24-May-17	20-Nov-17	22							
RS-1000	Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge A (AA1 to AB12)	150	150	16-Jun-17	12-Dec-17	3							
<b>Section VI - Works in Portion FH9 (KD-6A)</b>													
<b>Major Works</b>													
S6-4010	Falsework Erection for Installation of Bridge Deck at Abutment AB12	30	30	26-Apr-17	02-Jun-17	-121							
S6-4000	Falsework Erection for Installation of Bridge Deck at Abutment AD14	30	30	02-May-17	07-Jun-17	-86							
S6-6010	Removal of Falsework near Abutment AB12	12	12	25-Jul-17	07-Aug-17	-54							
<b>Landscaping &amp; Establishment Works (KD-4, 4A, 5, 5A, 6)</b>													
<b>Section III - Remainder of Landscaping Softworks Not Included in Section IIIA</b>													
S3-1020	Remaining Drainage Works and Land Formation at FH3, FH4, FH5	40	40	25-Jul-17	08-Sep-17	26							
S3-1010	Transplanting along Fanling Highway	140	140	20-Apr-17	06-Oct-17	64							
S3-1000	Transplanting along Realigned TWSR West	90	90	24-Jul-17	08-Nov-17	37							

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

**CEDD Contract No. CV/2012/09**

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

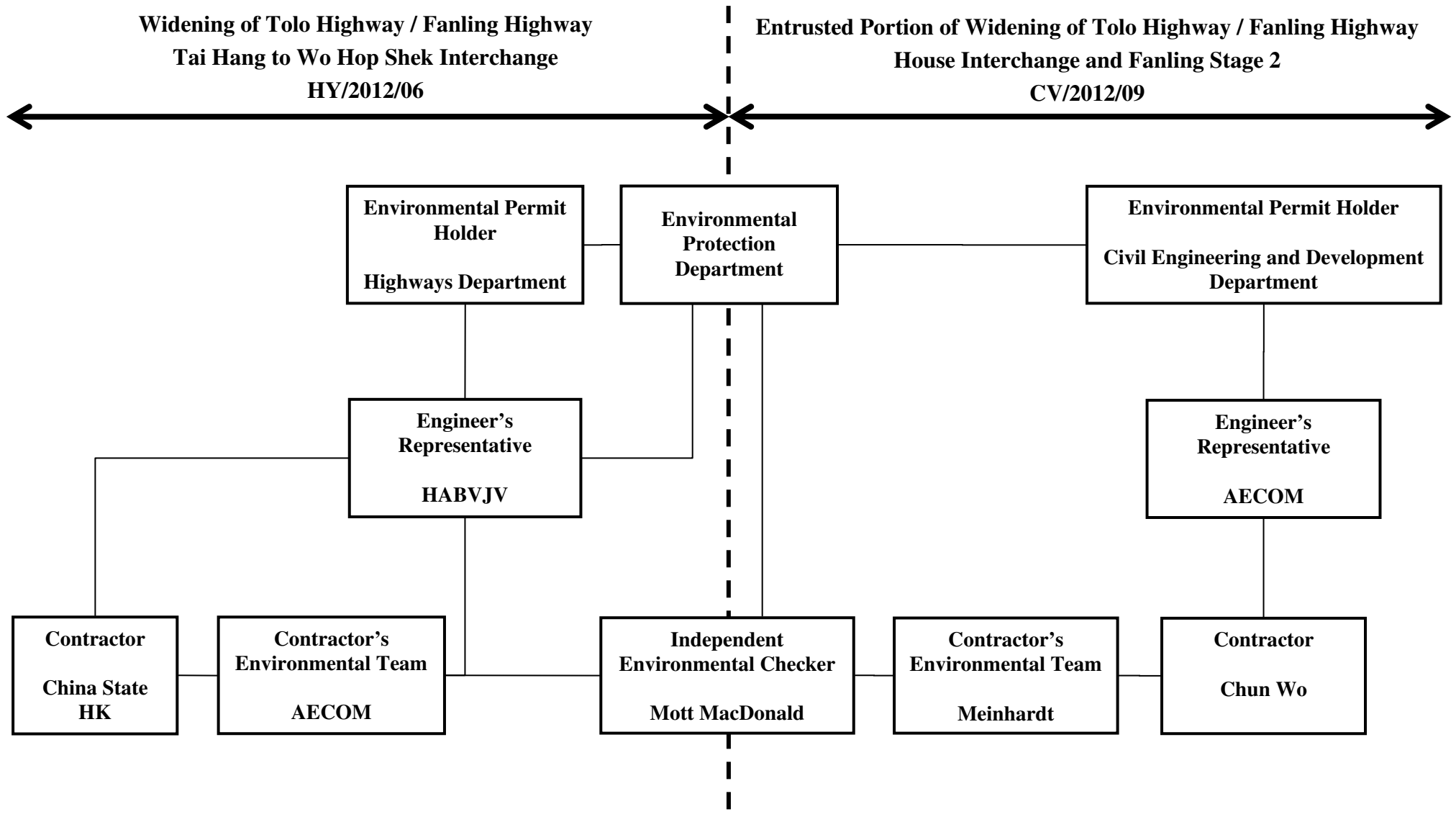
**3-Month Rolling Programme**

3-Month Rolling Programme updated to 2017-04-21

Date	Revision	Checked	Approved
21-Apr-17	Rev.1	SL	

# Appendix B

## Project Organization Structure



# **Appendix C Calibration Certificates of Monitoring Equipment**





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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 28, 2017 Rootmeter S/N 0438320 Ta (K) - 294  
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 750.57

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4600	3.2	2.00
2	NA	NA	1.00	1.0410	6.4	4.00
3	NA	NA	1.00	0.9280	7.9	5.00
4	NA	NA	1.00	0.8840	8.7	5.50
5	NA	NA	1.00	0.7290	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.6827	1.4149	0.9957	0.6820	0.8851
0.9925	0.9534	2.0010	0.9915	0.9524	1.2517
0.9904	1.0672	2.2372	0.9894	1.0661	1.3995
0.9894	1.1192	2.3464	0.9884	1.1181	1.4678
0.9840	1.3499	2.8299	0.9830	1.3485	1.7702
Qstd slope (m) = 2.11965			Qa slope (m) = 1.32729		
intercept (b) = -0.02696			intercept (b) = -0.01686		
coefficient (r) = 0.99991			coefficient (r) = 0.99991		
y axis = SQRT[H2O (Pa/760) (298/Ta)]			y axis = SQRT[H2O (Ta/Pa)]		

CALCULATIONS

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

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

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

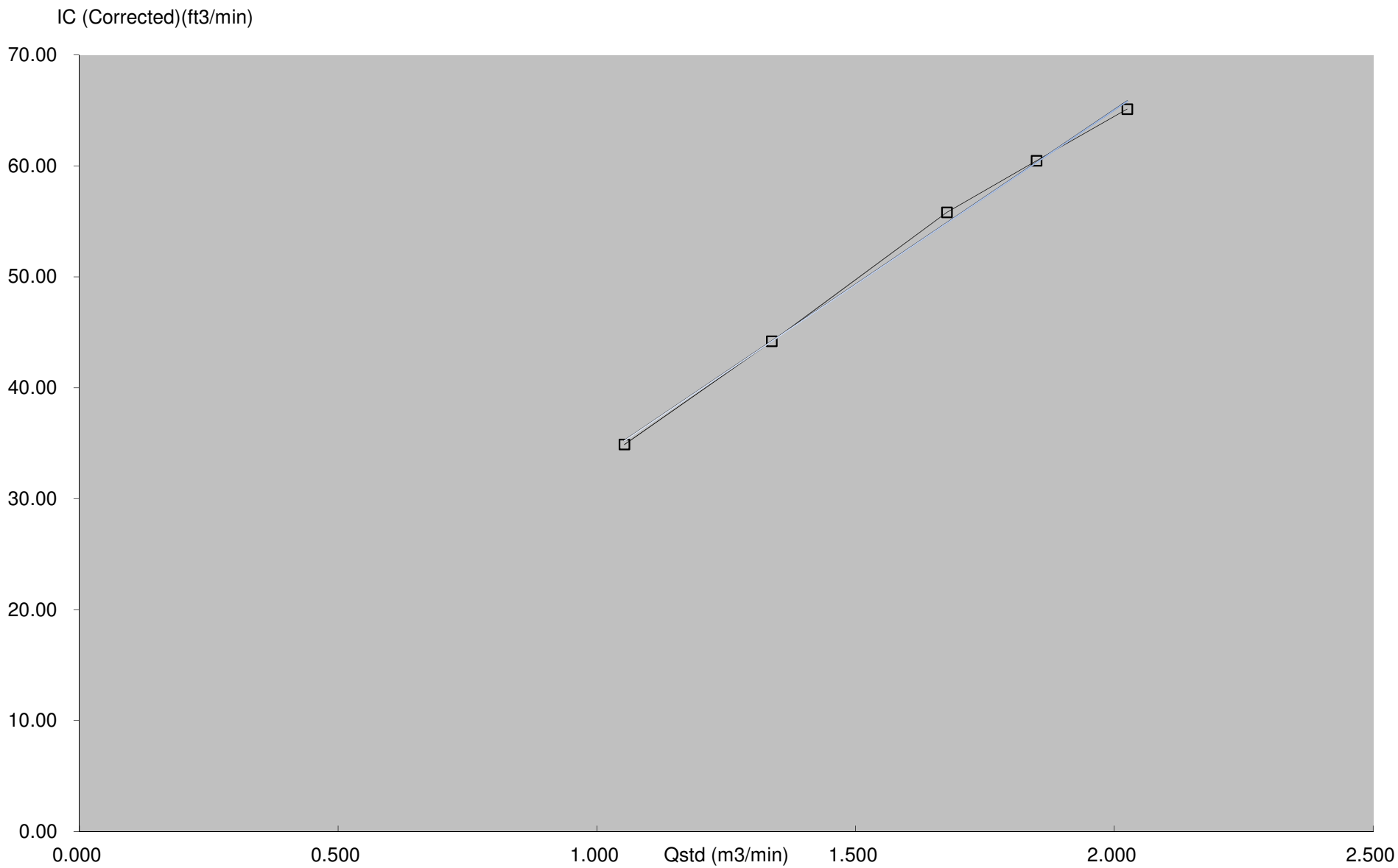
$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

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

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







# Calibration Certificate

Certificate No. **607984**

Page 1 of 2 Pages

**Customer :** Enovative Environmental Service Limited

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

**Order No. :** Q63261

**Date of receipt :** 6-Sep-16

## Item Tested

**Description :** Sound Level Calibrator

**Manufacturer :** Rion

**I.D. :** 215901

**Model :** NC-74

**Serial No. :** 34857296

## Test Conditions

**Date of Test :** 23-Sep-16

**Supply Voltage :** --

**Ambient Temperature :** (23 ± 3)°C

**Relative Humidity :** (50 ± 25) %

## Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02, IEC 60942.

## Test Results

All results were within the IEC 60942 Class 1 specification.

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

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	605758	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	601604	NIM-PRC & SCL-HKSAR
S041	Universal Counter	607883	SCL-HKSAR
S206	Sound Level Meter	605757	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), or by reference to a natural constant. The test results apply to the above Unit-Under-Test only

**Calibrated by :**   
Kin Wong

**Approved by :**   
Alan Chu

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

**Date:** 23-Sep-16



# Calibration Certificate

Certificate No. 607984

Page 2 of 2 Pages

Results :

## 1. Generated Sound Pressure Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94	94.1	$\pm 0.4$ dB

Uncertainty :  $\pm 0.1$  dB

## 2. Short-term Level Fluctuation : 0.0 dB

IEC 60942 Class 1 Spec. :  $\pm 0.1$  dB

Uncertainty :  $\pm 0.01$  dB

## 3. Frequency

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	1.002 1	$\pm 1$ %

Uncertainty :  $\pm 3.6 \times 10^{-6}$

## 4. Total Distortion : $< 1.3$ %

IEC 60942 Class 1 Spec. :  $< 3$  %

Uncertainty :  $\pm 2.3$  % 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 : 1018 hPa.

----- END -----





# Calibration Certificate

Certificate No. **608737**

Page 1 of 3 Pages

**Customer :** Enovative Environmental Service Limited

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

**Order No. :** Q63459

**Date of receipt :** 22-Sep-16

## Item Tested

**Description :** Sound Level Meter

**Manufacturer :** B&K

**I.D. :** --

**Model :** 2238

**Serial No. :** 2694908

## Test Conditions

**Date of Test :** 3-Oct-16

**Supply Voltage :** --

**Ambient Temperature :** (23 ± 3)°C

**Relative Humidity :** (50 ± 25) %

## Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 651 and IEC 804.

## Test Results

All results were within the IEC 651 Type1 and IEC 804 Type1 specification.

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

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C147450	SCL-HKSAR
S240	Sound Level Calibrator	601604	NIM-PRC & 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), or by reference to a natural constant.  
The test results apply to the above Unit-Under-Test only

**Calibrated by :**   
Kin Wong

**Approved by :**   
Alan Chu

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

**Date:** 3-Oct-16



# Calibration Certificate

Certificate No. **608737**

Page 2 of 3 Pages

Results :

## 1. SPL Accuracy

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range	Freq. Wgt.	Bandwith	Center Freq.		
20 ~ 100	A	BB/F	--	94.0	94.0
	A	BB/S	--		94.0
	C	BB/F	--		94.0
40 ~ 120	A	BB/F	--	94.0	94.0
	A	BB/F	--	114.0	114.2

IEC 60651 Type 1 Spec. :  $\pm 0.7$  dB

Uncertainty :  $\pm 0.1$  dB

## 2. Level Stability : 0.0 dB

IEC 60651 Type 1 Spec. :  $\pm 0.3$  dB

Uncertainty :  $\pm 0.1$  dB

## 3. Linearity

### 3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 60651 Type 1 Spec. (Primary Indicator Range)
140	114.0	114.0	0.0	$\pm 0.7$ dB
130	104.0	104.0	0.0	
120	94.0	94.0 (Ref.)	--	
110	84.0	84.0	0.0	
100	74.0	74.0	0.0	
90	64.0	64.0	0.0	
80	54.0	54.0	0.0	

Uncertainty :  $\pm 0.1$  dB

### 3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 60651 Type 1 Spec.
120	84.0	84.1	+0.1	$\pm 0.4$ dB
	94.0	93.9 (Ref.)	--	
	95.0	95.0	0.0	$\pm 0.2$ dB

Uncertainty :  $\pm 0.1$  dB



# Calibration Certificate

Certificate No. 608737

Page 3 of 3 Pages

## 4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 60651 Type 1 Spec.
31.5 Hz	-39.3	- 39.4 dB, $\pm 1.5$ dB
63 Hz	-26.2	- 26.2 dB, $\pm 1.5$ dB
125 Hz	-16.2	- 16.1 dB, $\pm 1$ dB
250 Hz	-8.7	- 8.6 dB, $\pm 1$ dB
500 Hz	-3.2	- 3.2 dB, $\pm 1$ dB
1 kHz	0.0 (Ref)	0 dB, $\pm 1$ dB
2 kHz	+1.2	+ 1.2 dB, $\pm 1$ dB
4 kHz	+1.0	+ 1.0 dB, $\pm 1$ dB
8 kHz	-1.2	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	-6.7	- 6.6 dB, + 3 dB ~ - $\infty$

Uncertainty :  $\pm 0.1$  dB

## 5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 60804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.9	$\pm 0.5$ dB
1/10 <sup>2</sup>	40.0	39.9	
1/10 <sup>3</sup>	40.0	39.9	$\pm 1.0$ dB
1/10 <sup>4</sup>	40.0	39.5	

Uncertainty :  $\pm 0.1$  dB

- Remarks:
1. UUT : Unit-Under-Test
  2. The uncertainty claimed is for a confidence probability of not less than 95%.
  3. Atmospheric Pressure : 1013 hPa
  4. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

----- END -----





專業化驗有限公司

QUALITY PRO TEST-CONSULT LIMITED

Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong

Email: info@qualityprotest.com; Website: www.qualityprotest.com

Tel: (852) 3956 8717; Fax: (852) 3956 3928

## CALIBRATION REPORT

Test Report No. : AG030104  
Date of Issue : March 17, 2017  
Page No. : 1 of 1

### PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.  
Rm 811, Hin Pui House,  
Hin Keng Estate, Tai Wai  
New Territories, Hong Kong  
Attn: Mr. Thomas Wong

### PART B – SAMPLE INFORMATION

Description of Samples : HACH 2100Q Portable Turbidimeter  
Brand Name : HACH  
Model Number : 2100Q  
Serial Number : 13120C004242  
Equipment Number : --  
Date of Received : Mar 16, 2017  
Date of Calibration : Mar 16, 2017  
Date of Next Calibration<sup>(a)</sup> : Jun 16, 2017

### PART C – CALIBRATION REQUESTED

<u>Parameter</u>	<u>Reference Method</u>
Turbidity	APHA 21e 2130 B

### PART D – RESULT<sup>(bc)</sup>

#### Turbidity

Expected Reading (NTU)	Displayed Reading <sup>(d)</sup> (NTU)	Tolerance <sup>(e)</sup> (%)	Results
0	0	--	Satisfactory
4	4.05	+1.3	Satisfactory
20	20.9	+4.5	Satisfactory
100	107	+7.0	Satisfactory
800	783	-2.1	Satisfactory

Tolerance limit of turbidity should be less than  $\pm 10.0$  (%)

~ END OF REPORT ~

#### Remark(s)

<sup>(a)</sup> The "Date of Next Calibration" is recommended according to best practice principals as practiced by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.

<sup>(b)</sup> The results relate only to the tested sample as received

<sup>(c)</sup> the performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

<sup>(d)</sup> "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

<sup>(e)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.

APPROVED SIGNATORY :

  
\_\_\_\_\_  
FUNG Yuen-ching Aries  
Laboratory Manager



專業化驗有限公司

QUALITY PRO TEST-CONSULT LIMITED

Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong

Email: info@qualityprotest.com; Website: www.qualityprotest.com

Tel: (852) 3956 8717; Fax: (852) 3956 3928

## CALIBRATION REPORT

Report No. : AG030101  
Date of Issue : March 17, 2017  
Page No. : 1 of 2

### PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.  
Rm 811, Hin Pui House,  
Hin Keng Estate, Tai Wai  
New Territories, Hong Kong  
Attn: Mr. Thomas WONG

### PART B – DESCRIPTION

Name of Equipment : YSI Pro Plus (Multi-Parameters)  
Manufacturer : YSI (a xylem brand)  
Serial Number : IOD101566  
Date of Received : Mar 16, 2017  
Date of Calibration : Mar 16, 2017  
Date of Next Calibration<sup>(a)</sup> : Jun 16, 2017

### PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

<u>Parameter</u>	<u>Reference Method</u>
pH at 25°C	APHA 21e 4500-H <sup>+</sup> B
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
Salinity	APHA 21e 2520 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

### PART D – CALIBRATION RESULTS<sup>(b,c)</sup>

#### (1) pH at 25°C

Target (pH unit)	Displayed Reading <sup>(d)</sup> (pH Unit)	Tolerance <sup>(e)</sup> (pH Unit)	Results
4.00	4.09	+0.09	Satisfactory
7.42	7.45	+0.03	Satisfactory
10.01	10.08	+0.07	Satisfactory

Tolerance of pH should be less than  $\pm 0.10$  (pH unit)

#### (2) Temperature

Reading of Ref. thermometer (oC)	Displayed Reading (oC)	Tolerance (oC)	Results
10.0	9.9	-0.1	Satisfactory
22.0	21.7	-0.3	Satisfactory
35.0	37.30	+2.3	Satisfactory


Tolerance limit of temperature should be less than  $\pm 2.0$  (°C)

~ CONTINUED ON NEXT PAGE ~

#### Remark(s): -

- <sup>(a)</sup> The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted from relevant international standards.  
<sup>(b)</sup> The results relate only to the calibrated equipment as received  
<sup>(c)</sup> The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.  
<sup>(d)</sup> "Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.  
<sup>(e)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by QPT or quoted from relevant international standards.

APPROVED SIGNATORY :

  
FUNG Yuen-ching Aries  
Laboratory Manager



專業化驗有限公司

QUALITY PRO TEST-CONSULT LIMITED

Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong

Email: info@qualityprotest.com; Website: www.qualityprotest.com

Tel: (852) 3956 8717; Fax: (852) 3956 3928

## CALIBRATION REPORT

Report No. : AG030101  
Date of Issue : March 17, 2017  
Page No. : 2 of 2

### PART D – CALIBRATION RESULTS (Cont'd)

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.16	0.19	+0.03	Satisfactory
4.38	4.31	-0.07	Satisfactory
8.51	8.56	+0.05	Satisfactory

Tolerance limit of dissolved oxygen should be less than  $\pm 0.20$  (mg/L)

#### (4) Conductivity at 25°C

Expected Reading ( $\mu\text{S/cm}$ )	Displayed Reading ( $\mu\text{S/cm}$ )	Tolerance (%)	Results
146.9	149.8	+2.0	Satisfactory
1412	1431	+1.3	Satisfactory
12890	12286	-4.7	Satisfactory
58670	57728	-1.6	Satisfactory
111900	109852	-1.8	Satisfactory

Tolerance limit of conductivity should be less than  $\pm 10.0$  (%)

#### (5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.92	-0.8	Satisfactory
20	19.88	-0.6	Satisfactory
30	29.81	-0.6	Satisfactory

Tolerance limit of salinity should be less than  $\pm 10.0$  (%)

~ END OF REPORT ~

# 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 April 2017**

April 2017						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3 ET Site Walk(09:30am – 11:00am) Water (I5, C3a, C3b)	4 Ching Ming Festival	5 24-hour TSP + 3 x 1-hour TSP, Noise (SR77), Water (I5, C3a, C3b)	6	7 Water (I5, C3a, C3b)	8
9	10 ET Site Walk(09:30am – 11:00am) 24-hour TSP + 3 x 1-hour TSP, Noise (SR77), Water (I5, C3a, C3b)	11	12 Water (I5, C3a, C3b)	13 24-hour TSP + 3 x 1-hour TSP	14 Good Friday	15 The day following Good Friday
16	17 Easter Monday	18 Water (I5, C3a, C3b)	19 ET Site Walk(09:30 am – 11:00 am) with Liantang Project-wide ET and IEC + SSEMC 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	20 Water (I5, C3a, C3b)	21	22 Water (I5, C3a, C3b)
23	24 ET Site Walk(09:30am – 11:00 am) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC Water (I5, C3a, C3b)	25 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	26 Water (I5, C3a, C3b)	27	28 24-hour TSP + 3 x 1-hour TSP, Water (I5, C3a, C3b)	29
30						

**Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2  
Impact Monitoring & Site Auditing Schedule for May 2017**

May 2017						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	<b>1</b> Labour Day	<b>2</b> ET Site Walk(02:30pm – 4:00pm)	<b>3</b> The Birthday of the Buddha	<b>4</b> 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	<b>5</b>	<b>6</b>
<b>7</b>	<b>8</b> ET Site Walk(09:30am – 11:00am)	<b>9</b>	<b>10</b> 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	<b>11</b>	<b>12</b>	<b>13</b>
<b>14</b>	<b>15</b>	<b>16</b> 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	<b>17</b> ET Site Walk(09:30 am – 11:00 am) with Liantang Project-wide ET and IEC + SSEMC (To be confirmed)	<b>18</b>	<b>19</b>	<b>20</b>
<b>21</b>	<b>22</b> ET Site Walk(09:30am – 11:00 am) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC (To be confirmed) 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b> 24-hour TSP + 3 x 1-hour TSP	<b>27</b>
<b>28</b>	<b>29</b> ET Site Walk(09:30am – 11:00am)	<b>30</b> Tuen Ng Festival	<b>31</b>			



# **Appendix E**

## **Meteorological Data Extracted from Hong Kong Observatory**

## Daily Extract of Meteorological Observations , April 2017

Day	Hong Kong Observatory								King's Park	Waglan Island <sup>^</sup>	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1019.9	23.9	18.7	15.5	13.0	70	35	0.2	***	***	***
02	1021.5	24.2	19.9	17.0	12.5	64	17	0.0	***	***	***
03	1020.8	24.5	20.7	17.5	14.4	68	22	0.0	***	***	***
04	1018.4	26.0	21.9	19.3	17.6	77	51	0.0	***	***	***
05	1014.8	27.9	23.4	20.9	19.8	81	80	0.0	***	***	***
06	1012.5	25.0	23.5	22.5	21.3	87	86	0.3	***	***	***
07	1012.4	27.9	24.5	22.6	21.6	84	63	0.0	***	***	***
08	1012.2	27.5	25.0	23.0	22.1	85	62	0.0	***	***	***
09	1009.4	27.9	25.8	23.5	22.9	84	77	0.0	***	***	***
10	1006.6	28.1	27.0	26.3	23.8	83	87	Trace	***	***	***
11	1007.7	27.8	26.1	22.2	24.4	90	89	0.6	***	***	***
12	1013.2	22.8	20.6	18.2	18.8	89	88	21.5	***	***	***
13	1017.4	21.5	20.0	18.8	16.4	80	86	Trace	***	***	***
14	1015.2	24.7	21.9	19.9	17.9	78	81	0.0	***	***	***
15	1013.5	26.9	23.6	21.6	21.1	86	84	0.0	***	***	***
16	1013.3	30.2	25.7	23.0	22.2	82	58	Trace	***	***	***
17	1010.9	29.4	26.0	23.7	22.0	79	61	Trace	***	***	***
18	1008.9	30.7	26.7	23.9	22.6	79	48	0.0	***	***	***
19	1009.1	29.4	26.7	24.7	22.5	78	49	0.0	***	***	***
20	1009.8	27.5	26.1	25.1	23.6	86	84	3.1	***	***	***
21	1008.1	29.4	26.2	22.8	24.0	88	90	7.8	***	***	***
22	1012.9	24.5	20.6	18.5	16.7	79	90	6.6	***	***	***
23	1014.8	21.8	20.8	19.9	17.7	83	88	1.4	***	***	***
24	1014.3	22.8	21.5	20.9	18.5	83	88	Trace	***	***	***
25	1012.4	22.9	21.9	20.7	20.6	92	89	10.9	***	***	***
26	1010.9	26.8	23.7	22.4	22.9	95	89	2.9	***	***	***
27	1012.5	24.0	22.3	20.6	20.2	88	89	3.5	***	***	***
28	1015.2	24.8	21.8	20.2	16.8	74	67	0.0	***	***	***
29	1014.4	27.3	23.0	19.9	18.3	75	35	0.0	***	***	***
30	1013.3	28.2	24.0	21.4	19.3	75	25	0.0	***	***	***
Mean/Total	1013.2	26.2	23.3	21.2	19.8	81	69	58.8	***	***	***
Normal <sup>§</sup>	1012.9	25.0	22.6	20.8	19.4	83	81	174.7	101.7	070	20.9

\*\*\* unavailable

<sup>^</sup> Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since January 1989

Trace means rainfall less than 0.05 mm

<sup>§</sup> 1981-2010 Climatological Normal, unless otherwise specified

# **Appendix F**

## **Air Quality Monitoring Results and their Graphical Presentation**

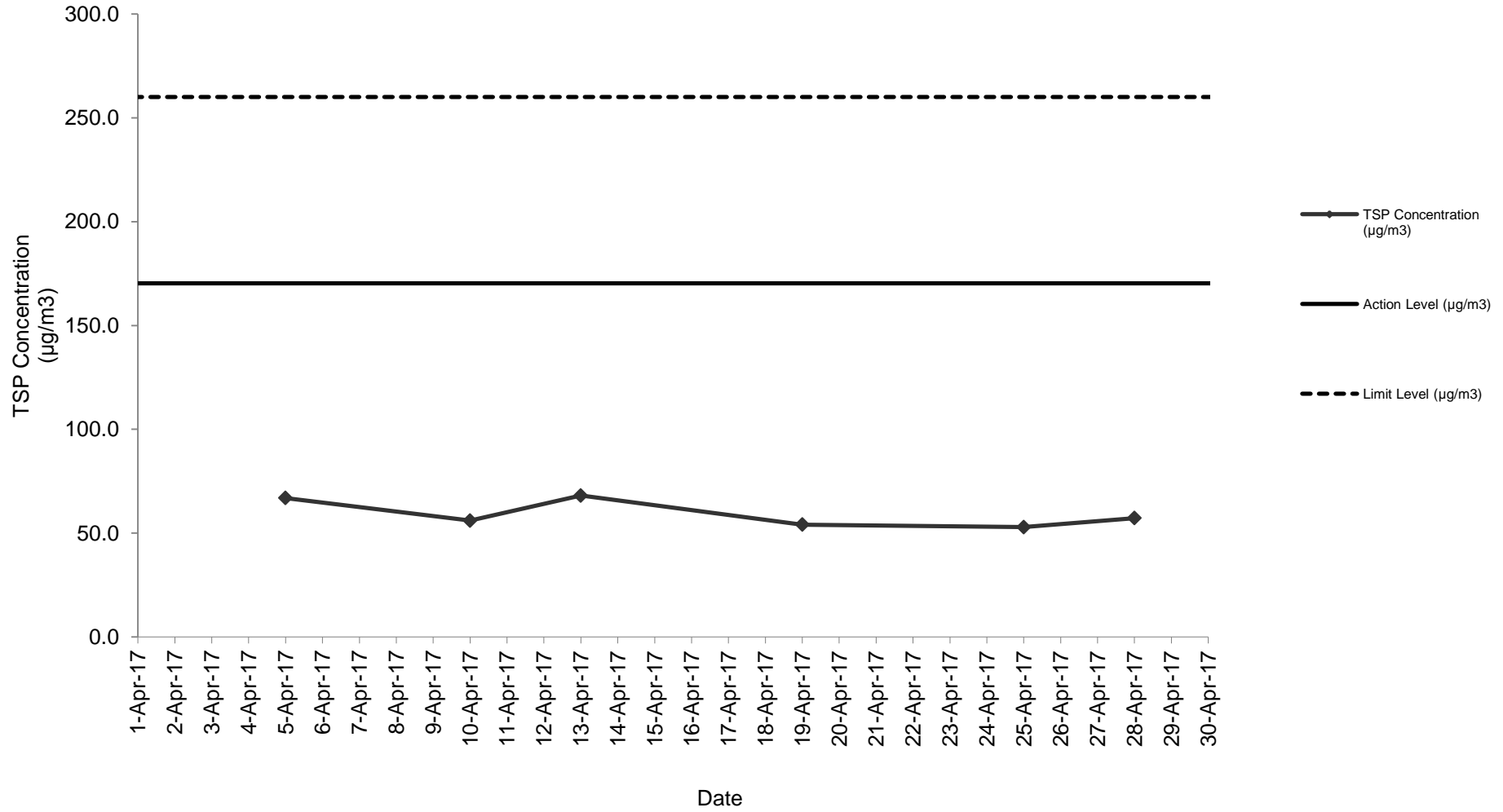
Appendix F  
Air Quality Monitoring Results and their Graphical Presentation

24-Hour TSP Monitoring Result at Station: SR77

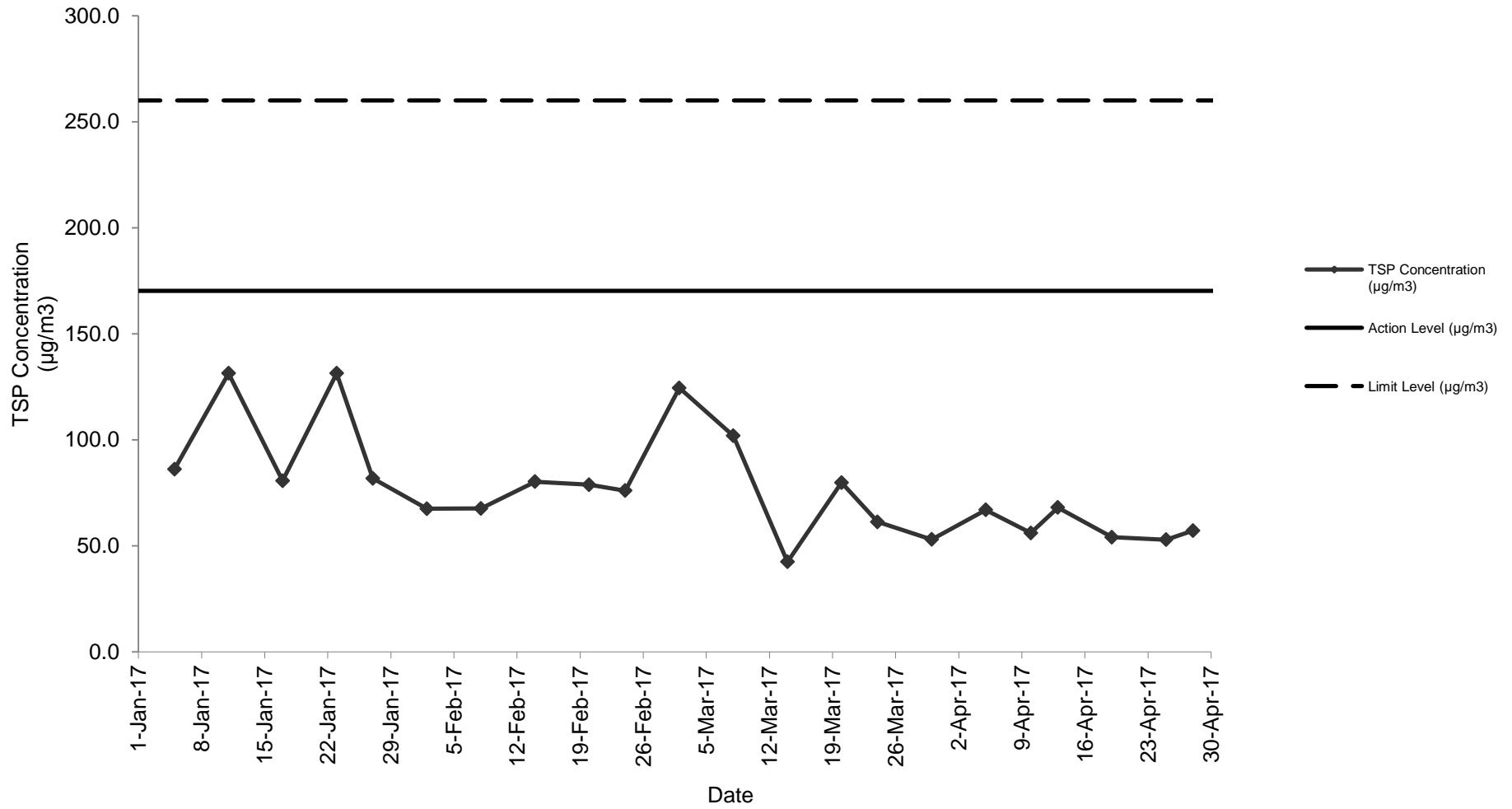
Sampling Date	Weather Condition	Starting Time	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Flow Rate (m <sup>3</sup> /min)			Total Volume (m <sup>3</sup> )	TSP Concentration (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )	Wind speed m/s	Wind direction	NOE	IR
				Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate								
5-Apr-17	Fine	12:09	CC28	2.9007	3.0399	0.1392	6277.67	6301.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	66.9	170.3	260.0	<5	N		
10-Apr-17	Cloudy	12:11	CC30	2.8960	3.0126	0.1166	6304.67	6328.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	56.1	170.3	260.0	<5	N		
13-Apr-17	Fine	12:12	CC32	2.8663	3.0079	0.1416	6331.67	6355.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	68.1	170.3	260.0	<5	N		
19-Apr-17	Sunny	12:12	CC34	2.8840	2.9965	0.1125	6358.67	6382.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	54.1	170.3	260.0	<5	N		
25-Apr-17	Cloudy	12:11	CC36	2.8690	2.9790	0.1100	6385.67	6409.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	52.9	170.3	260.0	<5	N		
28-Apr-17	Sunny	12:10	CC38	2.8575	2.9765	0.1190	6412.67	6436.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	57.2	170.3	260.0	<5	N		
																<b>Average</b>	59.2						
																<b>Min</b>	52.9						
																<b>Max</b>	68.1						

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

### 24-Hour TSP Monitoring Result at Station: SR77



### 24-Hour TSP Monitoring Result at Station: SR77 (January 2017 - April 2017)





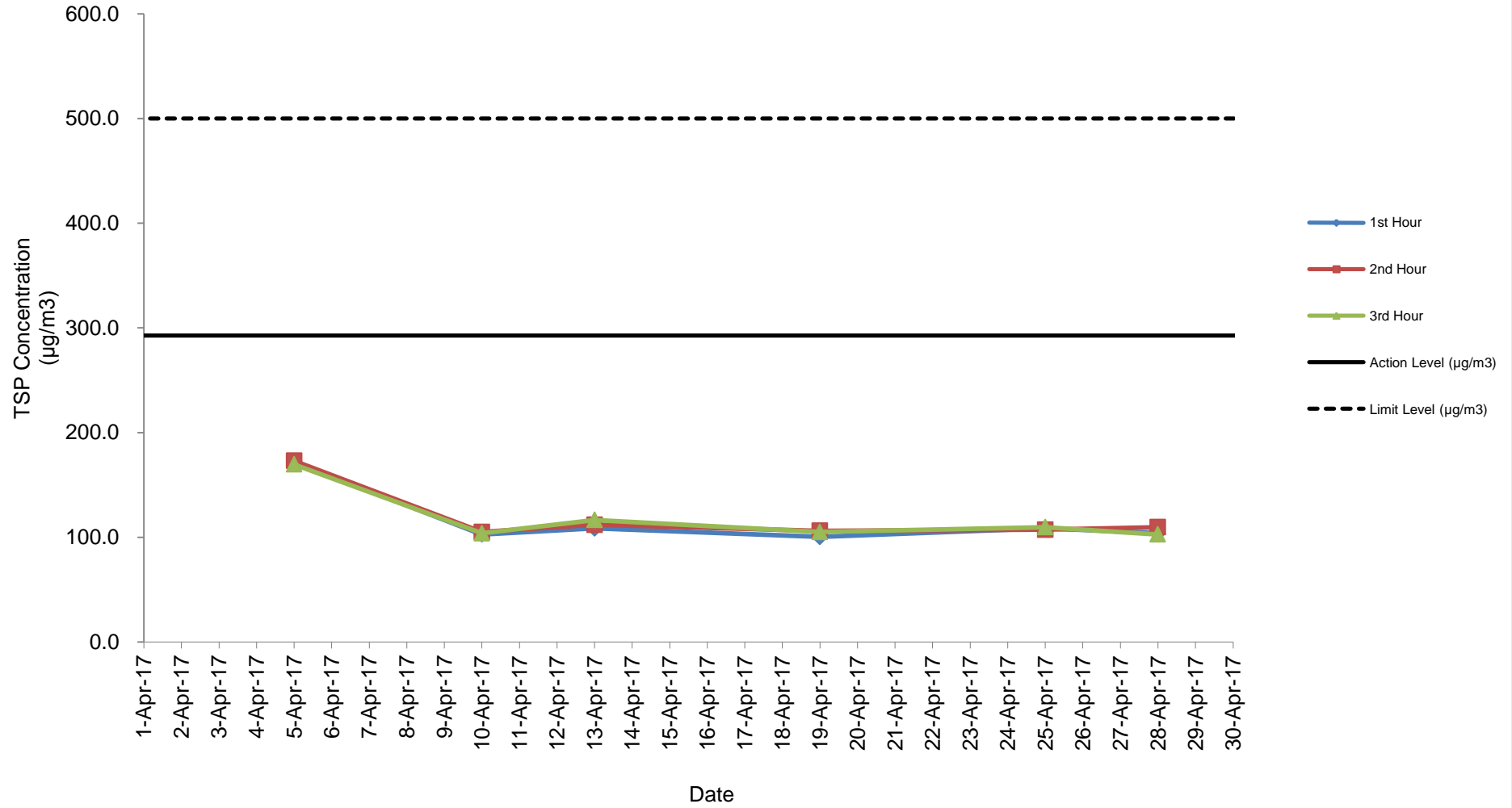
Appendix F  
Air Quality Monitoring Results and their Graphical Presentation

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

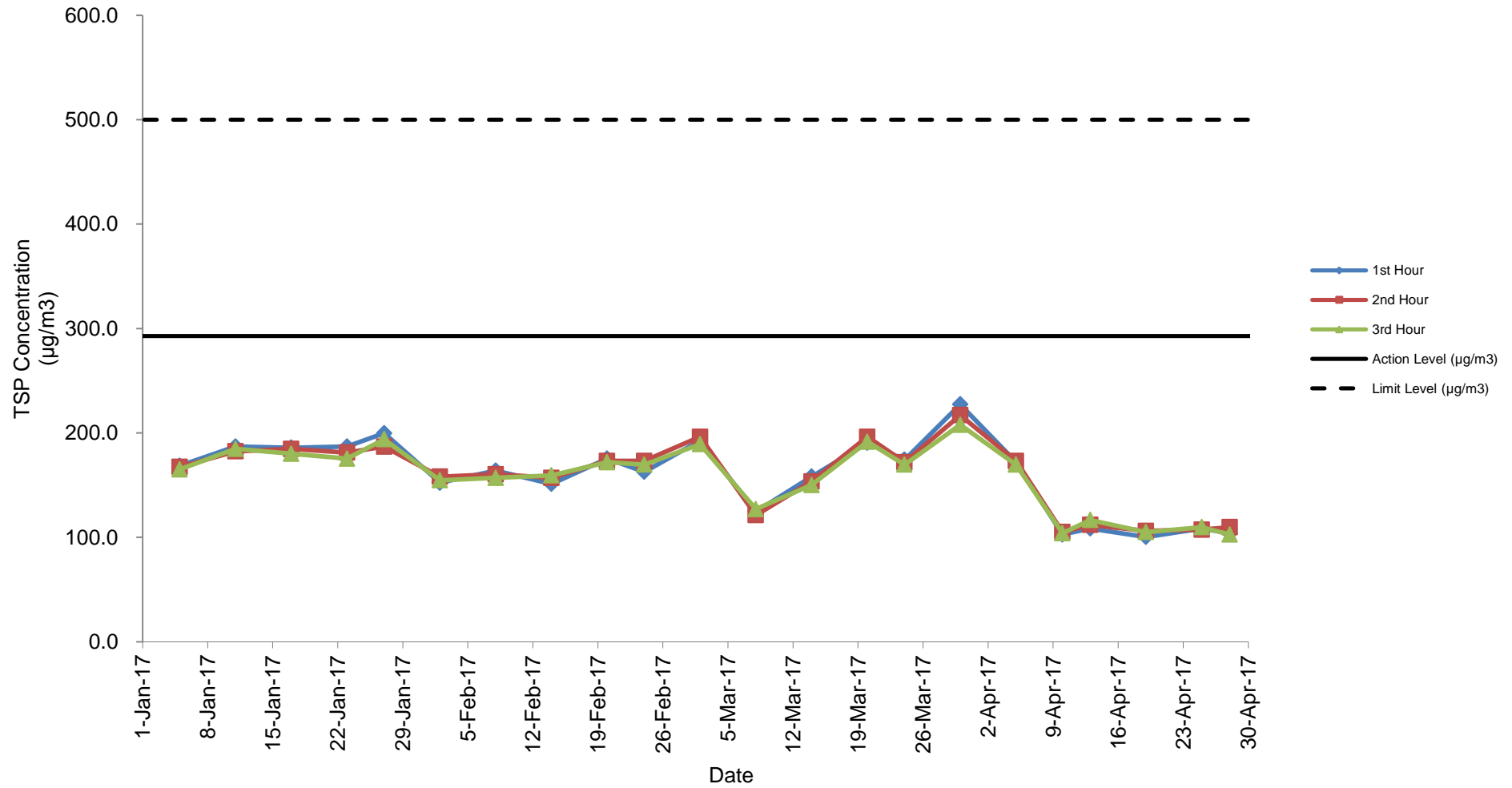
Sampling Date	Weather Condition	Starting Time	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Flow Rate (m <sup>3</sup> /min)			Total Volume (m <sup>3</sup> )	TSP Concentration (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )	Wind speed m/s	Wind direction
				Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate						
5-Apr-17	Sunny	09:00	CC29A	2.9122	2.9271	0.0149	6274.67	6275.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	172.0	292.7	500.0	<5	N
	Sunny	10:02	CC29B	2.9031	2.9181	0.0150	6275.67	6276.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	173.1	292.7	500.0	<5	N
	Sunny	11:05	CC29C	2.9103	2.9250	0.0147	6276.67	6277.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	169.6	292.7	500.0	<5	N
10-Apr-17	Fine	09:00	CC31A	2.8943	2.9032	0.0089	6301.67	6302.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	102.7	292.7	500.0	<5	N
	Fine	10:03	CC31B	2.8905	2.8996	0.0091	6302.67	6303.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	105.0	292.7	500.0	<5	N
	Fine	11:06	CC31C	2.8914	2.9004	0.0090	6303.67	6304.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	103.9	292.7	500.0	<5	N
13-Apr-17	Cloudy	09:00	CC33A	2.8851	2.8945	0.0094	6328.67	6329.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	108.5	292.7	500.0	<5	N
	Cloudy	10:05	CC33B	2.8664	2.8761	0.0097	6329.67	6330.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	111.9	292.7	500.0	<5	N
	Cloudy	11:08	CC33C	2.8717	2.8818	0.0101	6330.67	6331.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	116.6	292.7	500.0	<5	N
19-Apr-17	Sunny	09:00	CC35A	2.8714	2.8801	0.0087	6355.67	6356.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	100.4	292.7	500.0	<5	N
	Sunny	10:04	CC35B	2.8729	2.8821	0.0092	6356.67	6357.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	106.2	292.7	500.0	<5	N
	Sunny	11:08	CC35C	2.8598	2.8689	0.0091	6357.67	6358.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	105.0	292.7	500.0	<5	N
25-Apr-17	Cloudy	09:00	CC37A	2.8727	2.8821	0.0094	6382.67	6383.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	108.5	292.7	500.0	<5	N
	Cloudy	10:05	CC37B	2.8694	2.8787	0.0093	6383.67	6384.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	107.3	292.7	500.0	<5	N
	Cloudy	11:08	CC37C	2.8656	2.8751	0.0095	6384.67	6385.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	109.6	292.7	500.0	<5	N
28-Apr-17	Sunny	09:00	CC39A	2.8591	2.8681	0.0090	6409.67	6410.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	103.9	292.7	500.0	<5	N
	Sunny	10:05	CC39B	2.8559	2.8654	0.0095	6410.67	6411.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	109.6	292.7	500.0	<5	N
	Sunny	11:08	CC39C	2.8672	2.8761	0.0089	6411.67	6412.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	102.7	292.7	500.0	<5	N
																<b>Average</b>	117.6				
																<b>Min</b>	100.4				
																<b>Max</b>	173.1				

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

### 1-Hour TSP Monitoring Result at station: SR77



### 1-Hour TSP Monitoring Result at station: SR77 (January 2017 - April 2017)



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



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

**Event and Action Plan for Noise**

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

**Event and Action Plan for Water Quality**

Event	Action			
	ET Leader	IEC	ER	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement on next day of exceedance to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor &amp; ER;</li> <li>4. Check monitoring data, all plant, equipment &amp; contractor's working methods;</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET &amp; Contractor's working methods;</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing; Notify, Contractor</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER &amp; confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Amend working methods if appropriate.</li> </ol>
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat measurement on next day of exceedance to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor, ER &amp; EPD;</li> <li>4. Check monitoring data, all plant, equipment &amp; Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER &amp; Contractor;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Increase monitoring to daily until no exceedance of Action level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Checking monitoring data submitted by ET &amp; Contractor's working method;</li> <li>2. Discuss with ET &amp; Contractor on possible remedial actions;</li> <li>3. Review the proposed mitigation measures submitted by Contractor &amp; advise the ER accordingly;</li> <li>4. Supervise the implementation of mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC on the proposed mitigation measures;</li> <li>2. Ensure mitigation measures properly implemented;</li> <li>3. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the Engineer &amp; confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant &amp; equipment &amp; consider changes of working methods;</li> <li>4. Submit proposal of mitigation measures to ER within 3 working days of notification &amp; discuss with ET, IEC &amp; ER;</li> <li>5. Implement the agreed mitigation measures.</li> </ol>

Event	Action			
	ET Leader	IEC	ER	Contractor
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Repeat measurement on next day of exceedance to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, contractor, ER &amp; EPD;</li> <li>4. Check monitoring data, all plant, equipment &amp; contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, Contractor &amp; ER.</li> </ol>	<ol style="list-style-type: none"> <li>1. Checking monitoring data submitted by ET &amp; Contractor's working method;</li> <li>2. Discuss with ET &amp; Contractor on the possible mitigation measures;</li> <li>3. Review the proposed mitigation measures submitted by Contractor &amp; advise the ER accordingly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Discuss with IEC, ET &amp; Contractor on the proposed mitigation measures;</li> <li>3. Request Contractor to review the working methods.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER &amp; confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant &amp; equipment &amp; consider changes of working methods;</li> <li>4. Submit proposal of mitigation measures to ER within 3 working days of notification &amp; discuss with ET, IEC &amp; ER.</li> </ol>
Limit level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat measurement on the next day of exceedance to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor, ER &amp; EPD;</li> <li>4. Check monitoring data, all plant, equipment &amp; Contractor's working methods;</li> <li>5. Discuss mitigation measures within IEC, Contractor &amp; ER;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</li> </ol>	<ol style="list-style-type: none"> <li>1. Checking monitoring data submitted by ET &amp; Contractor's working method;</li> <li>2. Discuss with ET &amp; Contractor on potential remedial actions;</li> <li>3. Review Contractor's mitigation measures whenever necessary to assure their effectiveness &amp; advise the ER accordingly;</li> <li>4. Supervise the implementation of mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET &amp; Contractor on the proposed mitigation measures;</li> <li>2. Request Contractor to critically review the working methods;</li> <li>3. Make agreement on the mitigation measures to be implemented;</li> <li>4. Ensure mitigation measures are properly implemented;</li> <li>5. Consider &amp; instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposal of mitigation measures to ER within 3 working days of notification &amp; discuss with ET, IEC &amp; ER;</li> <li>3. Implement the agreed mitigation measures;</li> <li>4. Resubmit proposals of mitigation measures if problem still not under control;</li> <li>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.</li> </ol>

# **Appendix H Noise Monitoring Results and their Graphical Presentation**

**Appendix H**  
**Noise Monitoring Results and their Graphical Presentation**

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)				
2017/04/05	Sunny	11:30	12:00	93.5	58.0	66.0	-	67.8	75.0	N
2017/04/10	Fine	11:30	12:00	95.0	63.0	69.5	-	67.8	75.0	N
2017/04/19	Sunny	11:30	12:00	98.0	65.0	68.0	-	67.8	75.0	N
2017/04/25	Cloudy	11:30	12:00	89.0	59.0	69.0	-	67.8	75.0	N
						<b>Average</b>	68.1			
						<b>Minimum</b>	66.0			
						<b>Maximum</b>	69.5			

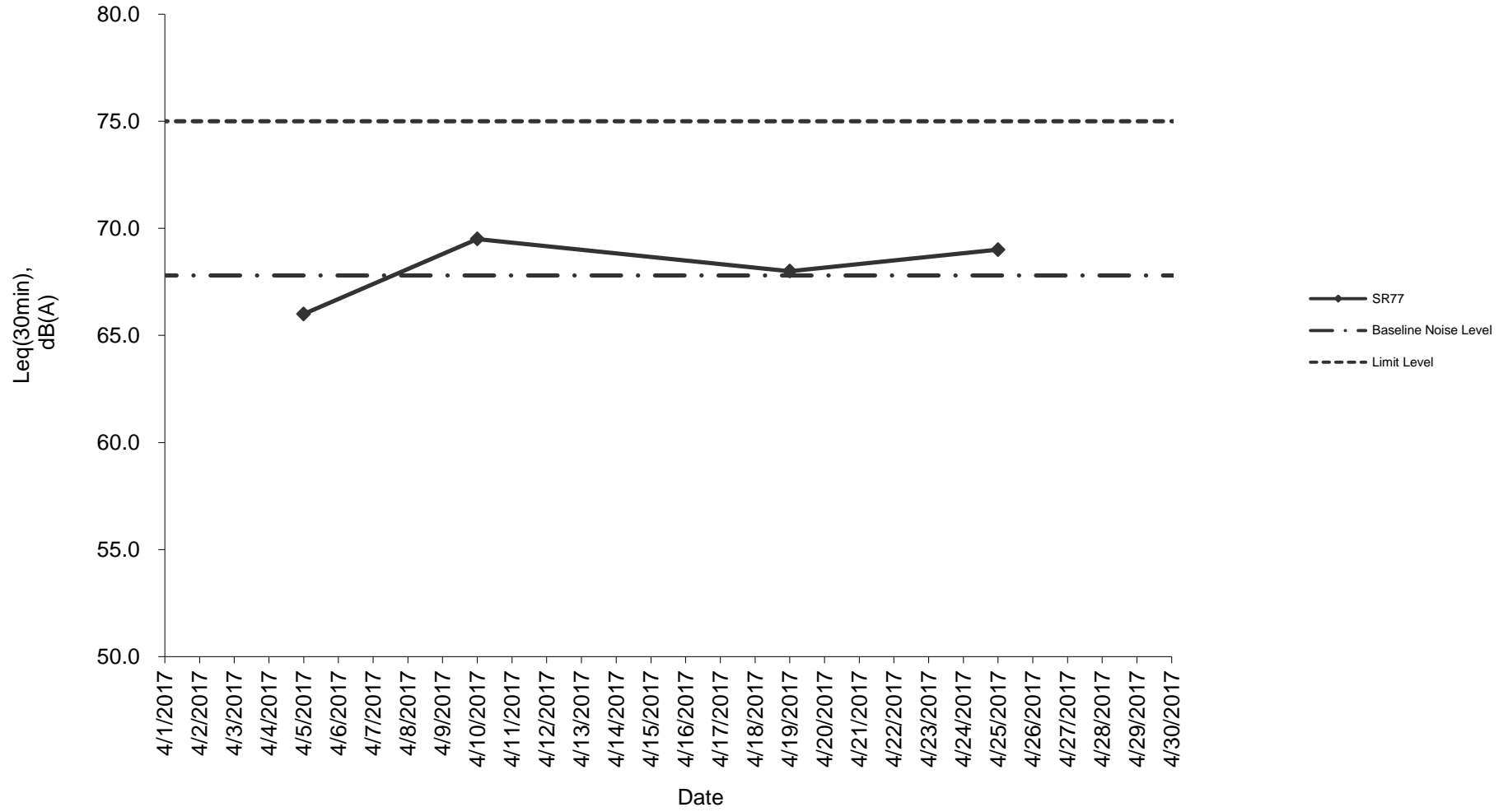
**Remarks**

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

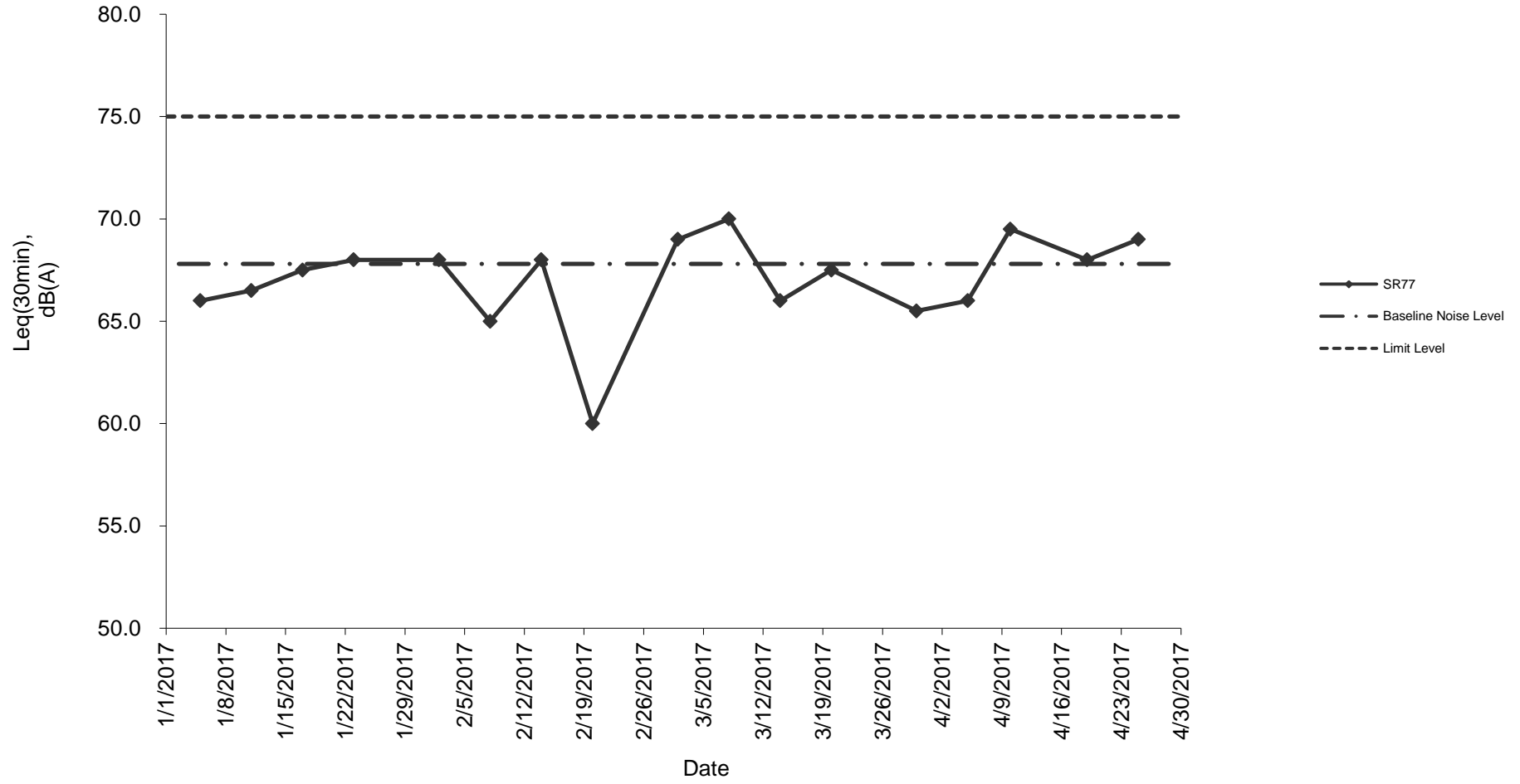
\*\* Baseline corrected level is only calculated when measured noise level (Leq) > limit level.



### Noise monitoring result: SR77



Noise monitoring result: SR77  
(January 2017 - April 2017)



# Appendix I

## Laboratory Results for Water Quality



# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.  
Tel: (852) 2676 2983 Fax: (852) 2676 2860  
e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO. : N17040039  
DATE OF ISSUE : 06 April 2017  
PAGE : Page 1 of 1

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 03 Apr 2017  
Received Date : 03 Apr 2017  
Testing Period : 03 Apr 2017 to 06 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 3/4/2017	001	Total Suspended Solids	11	mg/L
LT3 I5-2 3/4/2017	002	Total Suspended Solids	11	mg/L
LT3 C3a-1 3/4/2017	003	Total Suspended Solids	13	mg/L
LT3 C3a-2 3/4/2017	004	Total Suspended Solids	15	mg/L
LT3 C3b-1 3/4/2017	005	Total Suspended Solids	6.2	mg/L
LT3 C3b-2 3/4/2017	006	Total Suspended Solids	5.7	mg/L

--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

Kenneth, Kar-kin LAM  
Senior Lab. Manager



# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.

Tel: (852) 2676 2983 Fax: (852) 2676 2860

e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO. : N17040072  
DATE OF ISSUE : 07 April 2017  
PAGE : Page 1 of 1

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 05 Apr 2017  
Received Date : 05 Apr 2017  
Testing Period : 05 Apr 2017 to 07 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 5/4/2017	001	Total Suspended Solids	3.8	mg/L
LT3 I5-2 5/4/2017	002	Total Suspended Solids	3.6	mg/L
LT3 C3a-1 5/4/2017	003	Total Suspended Solids	13	mg/L
LT3 C3a-2 5/4/2017	004	Total Suspended Solids	17	mg/L
LT3 C3b-1 5/4/2017	005	Total Suspended Solids	6.3	mg/L
LT3 C3b-2 5/4/2017	006	Total Suspended Solids	5.3	mg/L

--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

  
Kenneth, Kar-kin LAM  
Senior Lab. Manager



# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.

Tel: (852) 2676 2983 Fax: (852) 2676 2860

e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO. : N17040216  
DATE OF ISSUE : 11 April 2017  
PAGE : Page 1 of 1

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 07 Apr 2017  
Received Date : 07 Apr 2017  
Testing Period : 07 Apr 2017 to 11 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 7/4/2017	001	Total Suspended Solids	3.9	mg/L
LT3 I5-2 7/4/2017	002	Total Suspended Solids	6.0	mg/L
LT3 C3a-1 7/4/2017	003	Total Suspended Solids	120	mg/L
LT3 C3a-2 7/4/2017	004	Total Suspended Solids	120	mg/L
LT3 C3b-1 7/4/2017	005	Total Suspended Solids	13	mg/L
LT3 C3b-2 7/4/2017	006	Total Suspended Solids	9.0	mg/L


--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

  
Kenneth, Kar-kin LAM  
Senior Lab. Manager





# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.

Tel: (852) 2676 2983 Fax: (852) 2676 2860

e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO.	: N17040296	PAGE	: Page 1 of 1
DATE OF ISSUE	: 12 April 2017		

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 10 Apr 2017  
Received Date : 10 Apr 2017  
Testing Period : 10 Apr 2017 to 12 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 10/4/2017	001	Total Suspended Solids	6.0	mg/L
LT3 I5-2 10/4/2017	002	Total Suspended Solids	4.6	mg/L
LT3 C3a-1 10/4/2017	003	Total Suspended Solids	74	mg/L
LT3 C3a-2 10/4/2017	004	Total Suspended Solids	82	mg/L
LT3 C3b-1 10/4/2017	005	Total Suspended Solids	6.6	mg/L
LT3 C3b-2 10/4/2017	006	Total Suspended Solids	6.3	mg/L


--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

  
John Chi-wai YAU  
Assistant Lab. Manager



# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.

Tel: (852) 2676 2983 Fax: (852) 2676 2860

e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO.	: N17040343	PAGE	: Page 1 of 1
DATE OF ISSUE	: 18 April 2017		

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 12 Apr 2017  
Received Date : 12 Apr 2017  
Testing Period : 12 Apr 2017 to 18 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 12/4/2017	001	Total Suspended Solids	5.7	mg/L
LT3 I5-2 12/4/2017	002	Total Suspended Solids	6.1	mg/L
LT3 C3a-1 12/4/2017	003	Total Suspended Solids	50	mg/L
LT3 C3a-2 12/4/2017	004	Total Suspended Solids	56	mg/L
LT3 C3b-1 12/4/2017	005	Total Suspended Solids	28	mg/L
LT3 C3b-2 12/4/2017	006	Total Suspended Solids	32	mg/L

--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

Kenneth, Kar-kin LAM  
Senior Lab. Manager



# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.  
Tel: (852) 2676 2983 Fax: (852) 2676 2860  
e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO. : N17040417  
DATE OF ISSUE : 20 April 2017  
PAGE : Page 1 of 1

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 18 Apr 2017  
Received Date : 18 Apr 2017  
Testing Period : 18 Apr 2017 to 20 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 18/4/2017	001	Total Suspended Solids	2.5	mg/L
LT3 I5-2 18/4/2017	002	Total Suspended Solids	3.6	mg/L
LT3 C3a-1 18/4/2017	003	Total Suspended Solids	19	mg/L
LT3 C3a-2 18/4/2017	004	Total Suspended Solids	20	mg/L
LT3 C3b-1 18/4/2017	005	Total Suspended Solids	8.1	mg/L
LT3 C3b-2 18/4/2017	006	Total Suspended Solids	8.4	mg/L

--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

Kenneth, Kar-kin LAM  
Senior Lab. Manager



# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.

Tel: (852) 2676 2983 Fax: (852) 2676 2860

e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO.	: N17040470	PAGE	: Page 1 of 1
DATE OF ISSUE	: 24 April 2017		

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 20 Apr 2017  
Received Date : 20 Apr 2017  
Testing Period : 20 Apr 2017 to 24 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 20/4/2017	001	Total Suspended Solids	5.7	mg/L
LT3 I5-2 20/4/2017	002	Total Suspended Solids	5.5	mg/L
LT3 C3a-1 20/4/2017	003	Total Suspended Solids	24	mg/L
LT3 C3a-2 20/4/2017	004	Total Suspended Solids	29	mg/L
LT3 C3b-1 20/4/2017	005	Total Suspended Solids	18	mg/L
LT3 C3b-2 20/4/2017	006	Total Suspended Solids	16	mg/L

--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

Kenneth, Kar-kin LAM  
Senior Lab. Manager





# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.

Tel: (852) 2676 2983 Fax: (852) 2676 2860

e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO. : N17040548  
DATE OF ISSUE : 25 April 2017 PAGE : Page 1 of 1

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 22 Apr 2017  
Received Date : 24 Apr 2017  
Testing Period : 24 Apr 2017 to 25 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 22/4/2017	001	Total Suspended Solids	19	mg/L
LT3 I5-2 22/4/2017	002	Total Suspended Solids	20	mg/L
LT3 C3a-1 22/4/2017	003	Total Suspended Solids	26	mg/L
LT3 C3a-2 22/4/2017	004	Total Suspended Solids	25	mg/L
LT3 C3b-1 22/4/2017	005	Total Suspended Solids	23	mg/L
LT3 C3b-2 22/4/2017	006	Total Suspended Solids	25	mg/L

--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

Kenneth, Kar-kin LAM  
Senior Lab. Manager



# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.

Tel: (852) 2676 2983 Fax: (852) 2676 2860

e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO.	: N17040568	PAGE	: Page 1 of 1
DATE OF ISSUE	: 26 April 2017		

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 24 Apr 2017  
Received Date : 24 Apr 2017  
Testing Period : 24 Apr 2017 to 26 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 24/4/2017	001	Total Suspended Solids	14	mg/L
LT3 I5-2 24/4/2017	002	Total Suspended Solids	13	mg/L
LT3 C3a-1 24/4/2017	003	Total Suspended Solids	36	mg/L
LT3 C3a-2 24/4/2017	004	Total Suspended Solids	41	mg/L
LT3 C3b-1 24/4/2017	005	Total Suspended Solids	12	mg/L
LT3 C3b-2 24/4/2017	006	Total Suspended Solids	12	mg/L

--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

Kenneth, Kar-kin LAM  
Senior Lab. Manager





# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.

Tel: (852) 2676 2983 Fax: (852) 2676 2860

e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO. : N17040644  
DATE OF ISSUE : 28 April 2017  
PAGE : Page 1 of 1

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 26 Apr 2017  
Received Date : 26 Apr 2017  
Testing Period : 26 Apr 2017 to 28 Apr 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 26/4/2017	001	Total Suspended Solids	4.5	mg/L
LT3 I5-2 26/4/2017	002	Total Suspended Solids	4.9	mg/L
LT3 C3a-1 26/4/2017	003	Total Suspended Solids	21	mg/L
LT3 C3a-2 26/4/2017	004	Total Suspended Solids	18	mg/L
LT3 C3b-1 26/4/2017	005	Total Suspended Solids	14	mg/L
LT3 C3b-2 26/4/2017	006	Total Suspended Solids	11	mg/L


--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

  
Kenneth, Kar-kin LAM  
Senior Lab. Manager



# ENVIRO LABS LIMITED

Rm. 510 & 611-612, Hong Leong Plaza, 33 Lok Yip Rd., Fanling, N.T., H.K.  
Tel: (852) 2676 2983 Fax: (852) 2676 2860  
e-mail: [ell@envirolabs.com.hk](mailto:ell@envirolabs.com.hk) website: <http://www.envirolabs.com.hk>

## TEST REPORT

JOB NO.	: N17040738	PAGE	: Page 1 of 1
DATE OF ISSUE	: 04 May 2017		

### 1. Customer

Enovative Environmental Service Limited  
Room 811, Hin Pui House,  
Hin Keng Estate,  
Tai Wai, Shatin, N.T., Hong Kong  
Attn.: Mr. Thomas Wong

### 2. Sample Identification

Sample Description : Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.  
Sampling : Conducted by the customer.  
Sampling Date<sup>a</sup> : 28 Apr 2017  
Received Date : 28 Apr 2017  
Testing Period : 28 Apr 2017 to 04 May 2017

### 3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA <sup>b</sup> 17e 2540 D	2.5 mg/L

### 4. Test Results<sup>c</sup>

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
LT3 I5-1 28/4/2017	001	Total Suspended Solids	2.5	mg/L
LT3 I5-2 28/4/2017	002	Total Suspended Solids	<2.5	mg/L
LT3 C3a-1 28/4/2017	003	Total Suspended Solids	21	mg/L
LT3 C3a-2 28/4/2017	004	Total Suspended Solids	19	mg/L
LT3 C3b-1 28/4/2017	005	Total Suspended Solids	11	mg/L
LT3 C3b-2 28/4/2017	006	Total Suspended Solids	9.4	mg/L

--- END OF REPORT ---

<sup>a</sup> Information is provided by the customer

<sup>b</sup> APHA Standard Methods for the Examination of Water and Wastewater, AWWA

<sup>c</sup> Test results relate only to the items received

APPROVED SIGNATORY:

Kenneth, Kar-kin LAM  
Senior Lab. Manager

# **Appendix J**

## **Water Quality 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

Date of Monitoring: 4/3/2017 Weather : Sunny

Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	12:19	<0.5	25.0	25.0	5.9	5.9	7.1	7.1	86.2	86.2	31.6	31.6	<0.1	<0.1	11.0	11.0
			25.0		5.9		7.1		86.2		31.6					
C3b	12:43	<0.5	22.5	22.5	6.2	6.2	6.5	6.5	74.7	74.7	10.9	10.9	<0.1	<0.1	13.0	14.0
			22.5		6.2		6.5		74.7		10.9					
I5	12:54	<0.5	23.8	23.8	6.7	6.7	8.5	8.5	100.0	100.0	12.7	12.7	<0.1	<0.1	6.2	6.0
			23.8		6.7		8.5		100.0		12.7					

Date of Monitoring: 4/5/2017 Weather : Sunny

Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	11:58	<0.5	27.2	27.2	6.2	6.2	6.5	6.5	82.4	82.4	24.6	24.6	<0.1	<0.1	13	15.0
			27.2		6.2		6.5		82.4		24.6					
C3b	12:19	<0.5	24.7	24.7	6.4	6.4	6.1	6.1	73.5	73.5	9.9	9.9	<0.1	<0.1	6.3	5.8
			24.7		6.4		6.1		73.5		9.9					
I5	12:28	<0.5	26.1	26.1	6.7	6.7	7.9	7.9	97.1	97.1	7.0	7.0	<0.1	<0.1	3.8	3.7
			26.1		6.7		7.9		97.1		7.0					

Date of Monitoring: 4/7/2017 Weather : Cloudy

Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	12:43	<0.5	27.2	27.2	6.1	6.1	5.4	5.4	68.6	68.6	135.0	135.0	<0.1	<0.1	120	120.0
			27.2		6.1		5.4		68.6		135.0					
C3b	13:00	<0.5	24.8	24.8	5.9	5.9	5.8	5.8	70.4	70.4	13.2	13.2	<0.1	<0.1	13	11.0
			24.8		5.9		5.8		70.4		13.2					
I5	13:11	<0.5	25.6	25.6	6.6	6.6	7.8	7.8	95.9	95.9	7.0	7.0	<0.1	<0.1	3.9	5.0
			25.6		6.6		7.8		95.9		7.0					

Date of Monitoring: 4/10/2017 Weather : Cloudy

Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	12:07	<0.5	25.6	25.6	6.0	6.0	5.1	5.1	62.3	62.3	67.5	67.5	<0.1	<0.1	74	78.0
			25.6		6.0		5.1		62.3		67.5					
C3b	12:32	<0.5	24.6	24.6	6.2	6.2	5.4	5.4	65.2	65.2	10.2	10.2	<0.1	<0.1	6.6	6.5
			24.6		6.2		5.4		65.2		10.2					
I5	12:45	<0.5	25.3	25.3	6.6	6.6	7.1	7.1	86.2	86.2	6.5	6.5	<0.1	<0.1	6	5.3
			25.3		6.6		7.1		86.2		6.5					

Date of Monitoring: 4/12/2017 Weather : Rainy

Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	10:30	<0.5	22.7	22.7	6.0	6.0	5.1	5.1	63.4	63.4	56.0	55.8	<0.1	<0.1	50	53.0
			22.7		6.0		5.1		63.4		56.0					
C3b	10:57	<0.5	21.1	21.1	6.9	6.9	5.6	5.6	66.7	66.7	26.3	26.6	<0.1	<0.1	28	30.0
			21.1		6.9		5.6		66.7		26.8					
I5	11:10	<0.5	21.3	21.3	7.3	7.3	7.2	7.2	87.9	87.9	9.9	9.7	<0.1	<0.1	5.7	5.9
			21.3		7.3		7.2		87.9		9.4					

Date of Monitoring: 4/18/2017 Weather : Sunny

Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	12:40	<0.5	29.2	29.2	6.2	6.2	6.1	6.1	79.3	79.3	28.2	28.2	<0.1	<0.1	19	19.5
			29.2		6.2		6.1		79.3		28.2					
C3b	12:59	<0.5	26.8	26.8	6.6	6.6	5.8	5.8	72.2	72.2	15.2	15.2	<0.1	<0.1	6.1	7.3
			26.8		6.6		5.8		72.2		15.2					
I5	13:11	<0.5	27.7	27.7	6.8	6.8	6.7	6.7	85.3	85.3	6.9	6.9	<0.1	<0.1	2.5	3.1
			27.7		6.8		6.7		85.3		6.9					

Date of Monitoring: 4/20/2017 Weather : Cloudy

Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	10:41	<0.5	27.1	27.1	5.8	5.8	5.3	5.3	66.4	66.4	29.6	29.6	<0.1	<0.1	24.0	26.5
			27.1		5.8		5.3		66.4		29.6					
C3b	10:57	<0.5	25.9	25.9	6.5	6.5	5.5	5.5	67.3	67.3	18.6	18.6	<0.1	<0.1	18.0	17.0
			25.9		6.5		5.5		67.3		18.6					
I5	11:07	<0.5	26.3	26.3	6.7	6.7	5.9	5.9	73.3	73.3	8.3	8.3	<0.1	<0.1	5.7	5.6
			26.3		6.7		5.9		73.3		8.3					

Date of Monitoring: 4/22/2017 Weather : Rainy

Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	10:26	<0.5	22.2	22.2	6.8	6.8	5.4	5.4	62.3	62.3	46.5	46.5	<0.1	<0.1	26.0	25.5
			22.2		6.8		5.4		62.3		46.5					
C3b	10:48	<0.5	21.6	21.6	6.8	6.8	6.8	6.8	77.6	77.6	49.8	49.8	<0.1	<0.1	23.0	24.0
			21.6		6.8		6.8		77.6		49.8					
I5	11:11	<0.5	19.6	19.6	6.9	6.9	8.6	8.6	93.6	93.6	31.2	31.2	<0.1	<0.1	19.0	19.5
			19.6		6.9		8.6		93.6		31.2					

Date of Monitoring: 4/24/2017 Weather : Cloudy

Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	11:06	<0.5	23.5	23.5	6.5	6.5	5.7	5.7	67.0	67.0	45.6	45.6	<0.1	<0.1	36.0	38.5
			23.5		6.5		5.7		67.0		45.6					
C3b	11:21	<0.5	22.4	22.4	7.1	7.1	6.9	6.9	79.8	79.8	25.2	25.2	<0.1	<0.1	12.0	12.0
			22.4		7.1		6.9		79.8		25.2					
I5	11:31	<0.5	22.6	22.6	7.1	7.1	6.0	6.0	69.1	69.1	16.9	16.9	<0.1	<0.1	14.0	13.5
			22.6		7.1		6.0		69.1		16.9					

Date of Monitoring: 4/26/2017 Weather : Cloudy

NOTE:  
Data in **Bold** denotes exceedance of respective Action Level  
Data in **Bold Underline** denotes exceedance of respective Limit Level

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

Monitoring Location	Time	Water Depth (m)	Temperature (°C)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	11:57	<0.5	24.9	24.9	8.0	8.0	5.5	5.5	66.1	66.1	37.2	37.2	<0.1	<0.1	21.0	19.5
			24.9		8.0		5.5		66.1		37.2		<0.1		18.0	
C3b	12:14	<0.5	24.4	24.4	7.7	7.7	6.4	6.4	76.7	76.7	18.0	18.0	<0.1	<0.1	14.0	12.5
			24.4		7.7		6.4		76.7		18.0		<0.1		11.0	
I5	12:24	<0.5	25.2	25.2	7.4	7.4	6.7	6.7	82.1	82.1	13.5	13.5	<0.1	<0.1	4.5	4.7
			25.2		7.4		6.7		82.1		13.5		<0.1		4.9	

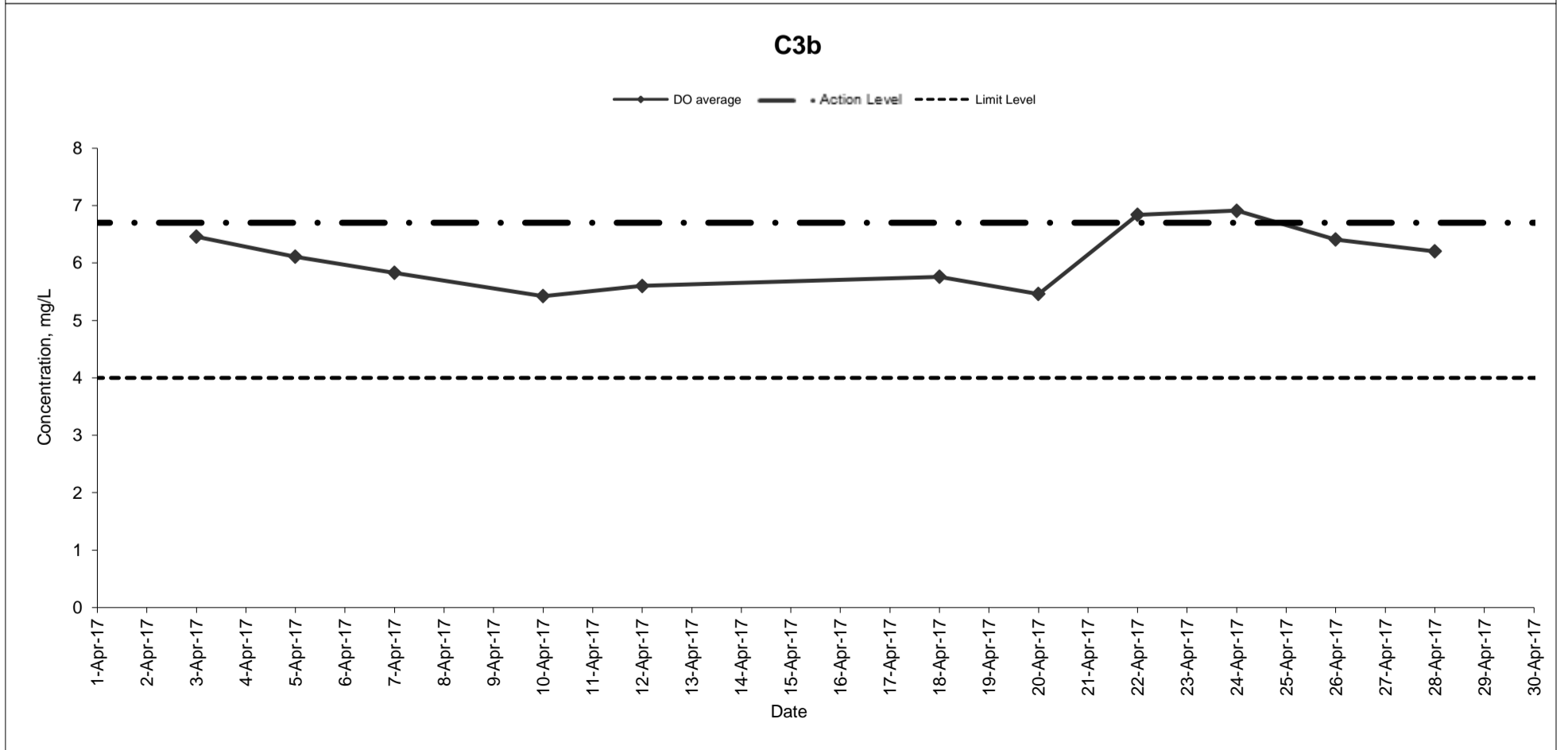
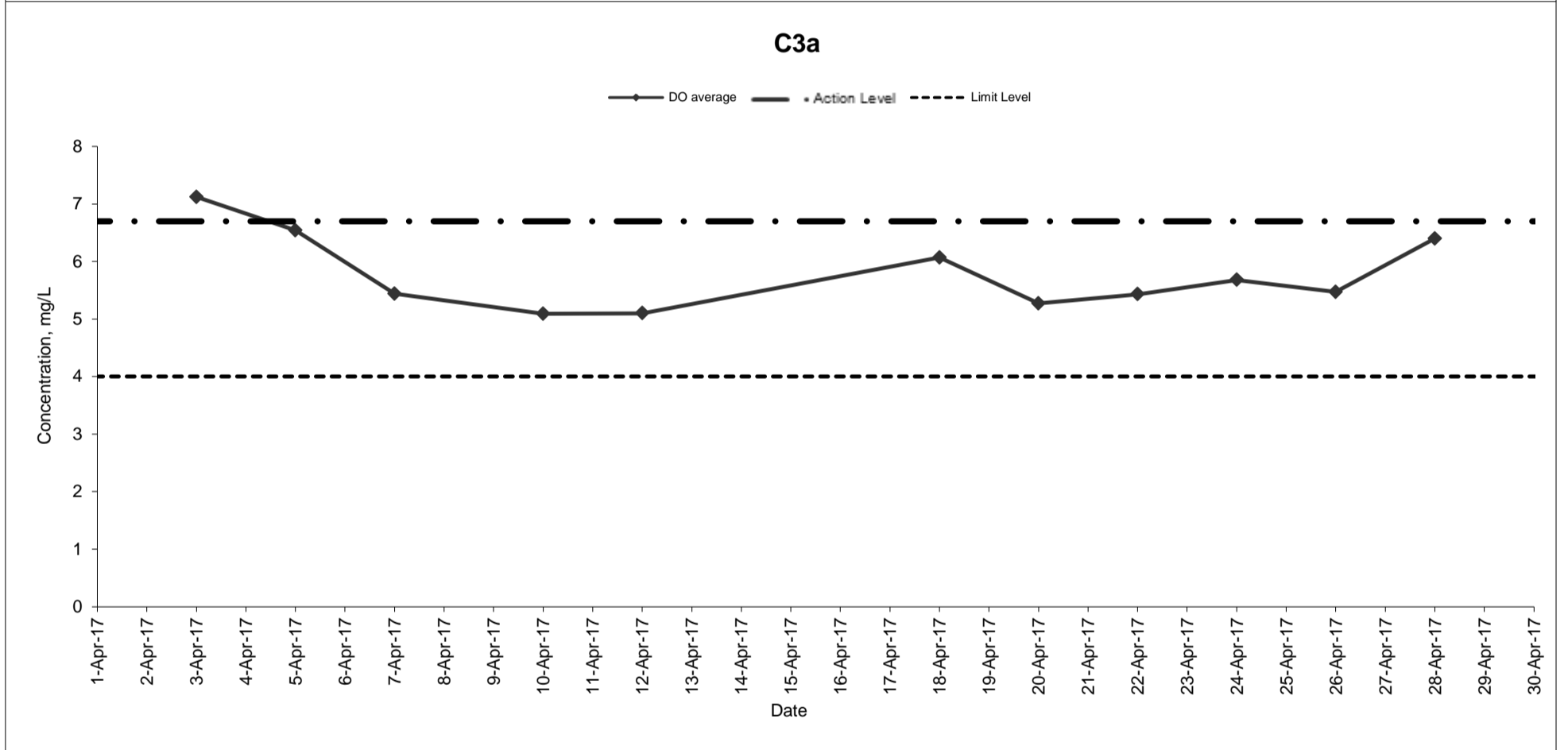
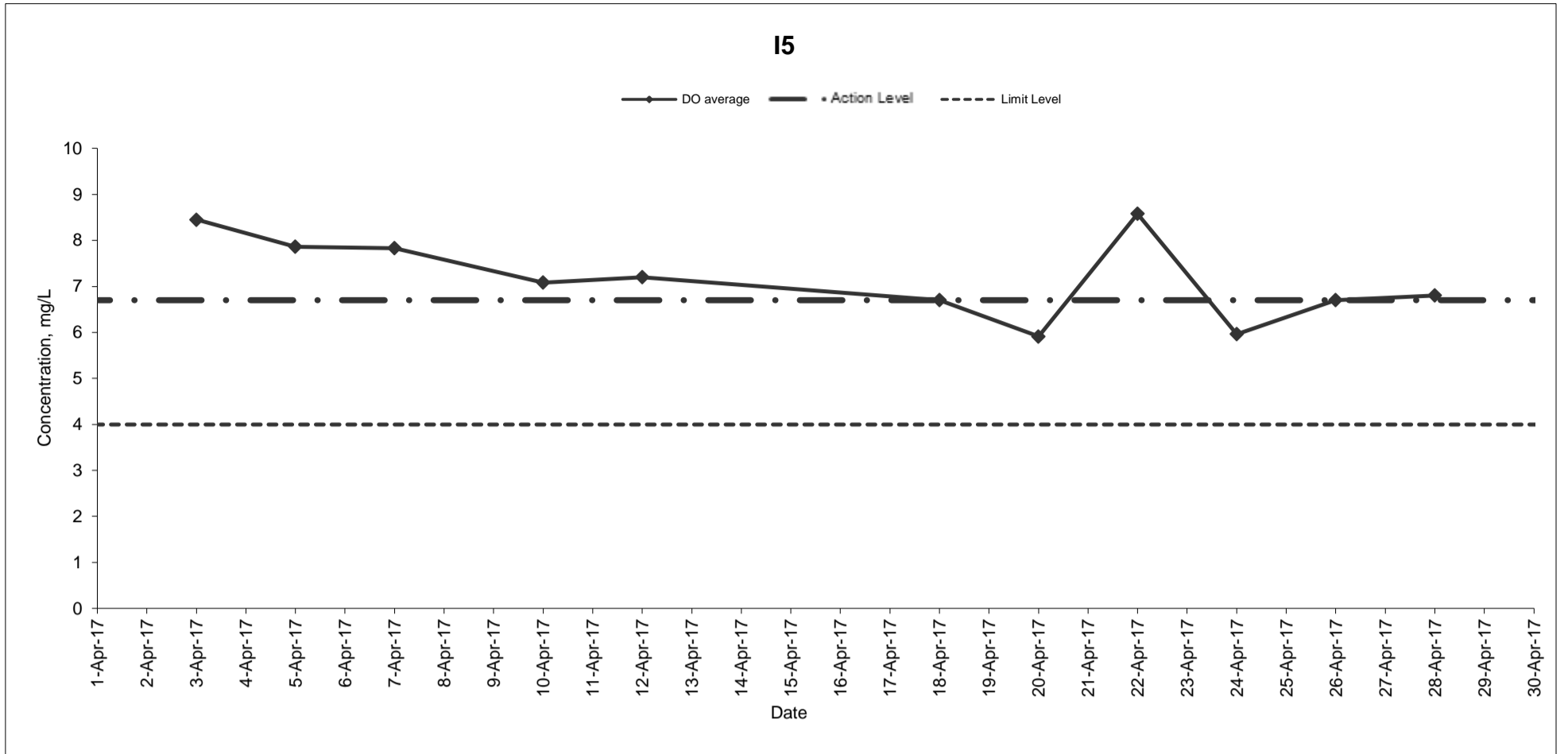
Date of Monitoring: 4/28/2017 Weather : Sunny

Monitoring Location	Time	Water Depth (m)	Temperature (°C)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	11:53	<0.5	25.1	25.1	6.5	6.5	6.4	6.4	73.1	73.1	22.7	22.7	<0.1	<0.1	21.0	20.0
			25.1		6.5		6.4		73.1		22.7		<0.1		19.0	
C3b	12:19	<0.5	24.7	24.7	6.9	6.9	6.2	6.2	72.0	72.0	11.4	11.4	<0.1	<0.1	11.0	10.2
			24.7		6.9		6.2		72.0		11.4		<0.1		9.4	
I5	12:30	<0.5	24.9	24.9	7.1	7.1	6.8	6.8	84.1	84.1	2.8	2.8	<0.1	<0.1	2.5	2.5
			24.9		7.1		6.8		84.1		2.8		<0.1		<2.5	

NOTE:  
 Data in **Bold** denotes exceedance of respective Action Level  
 Data in **Bold Underline** denotes exceedance of respective Limit Level

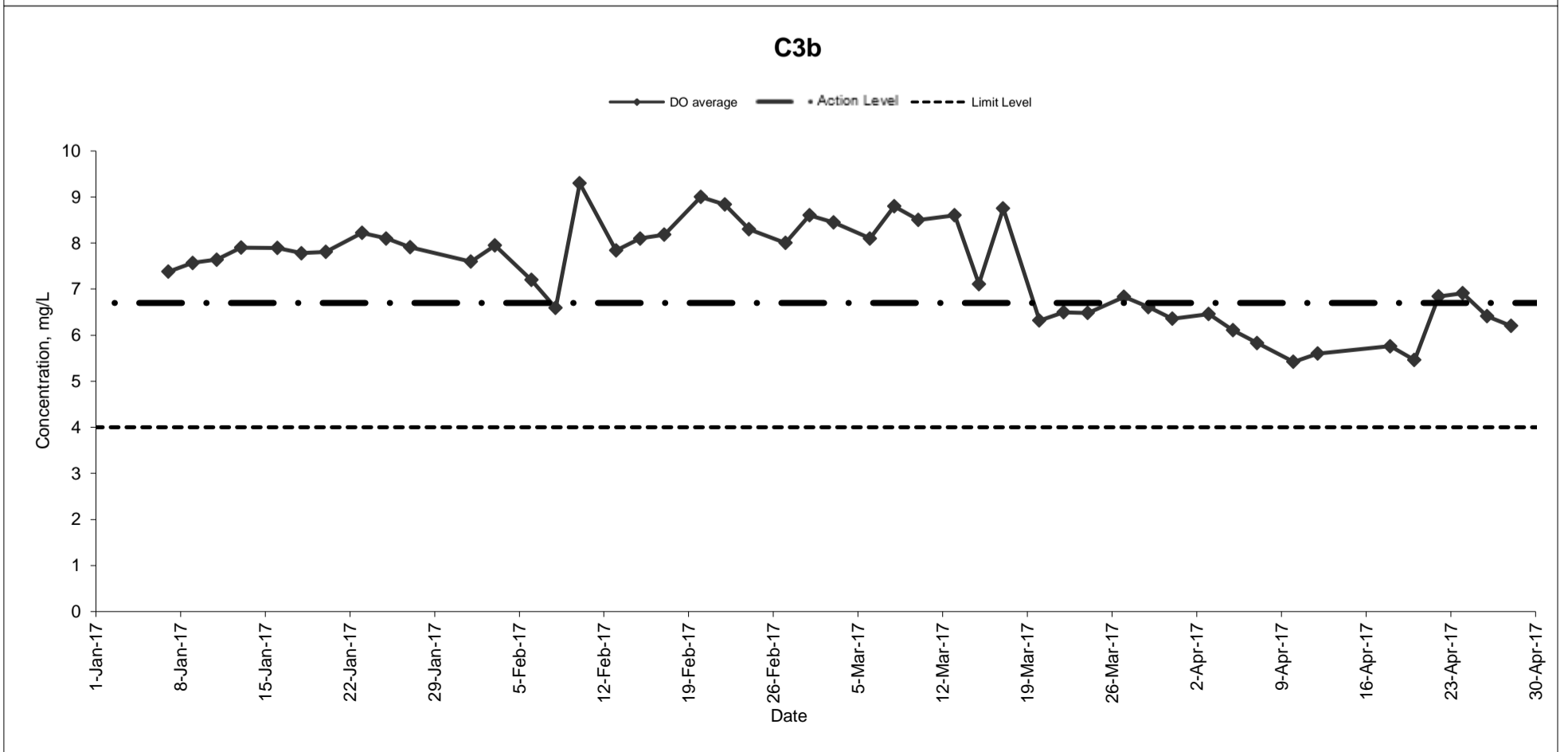
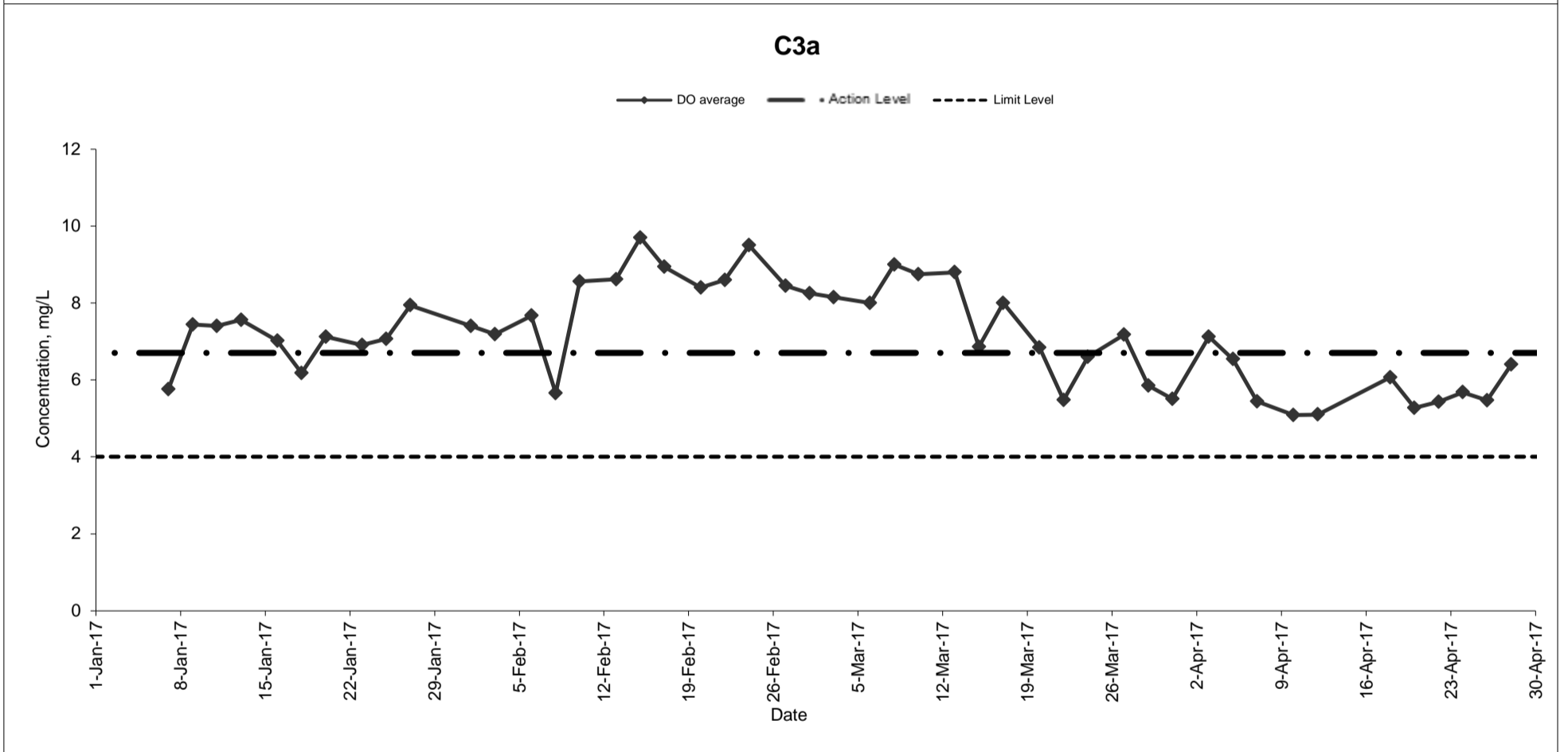
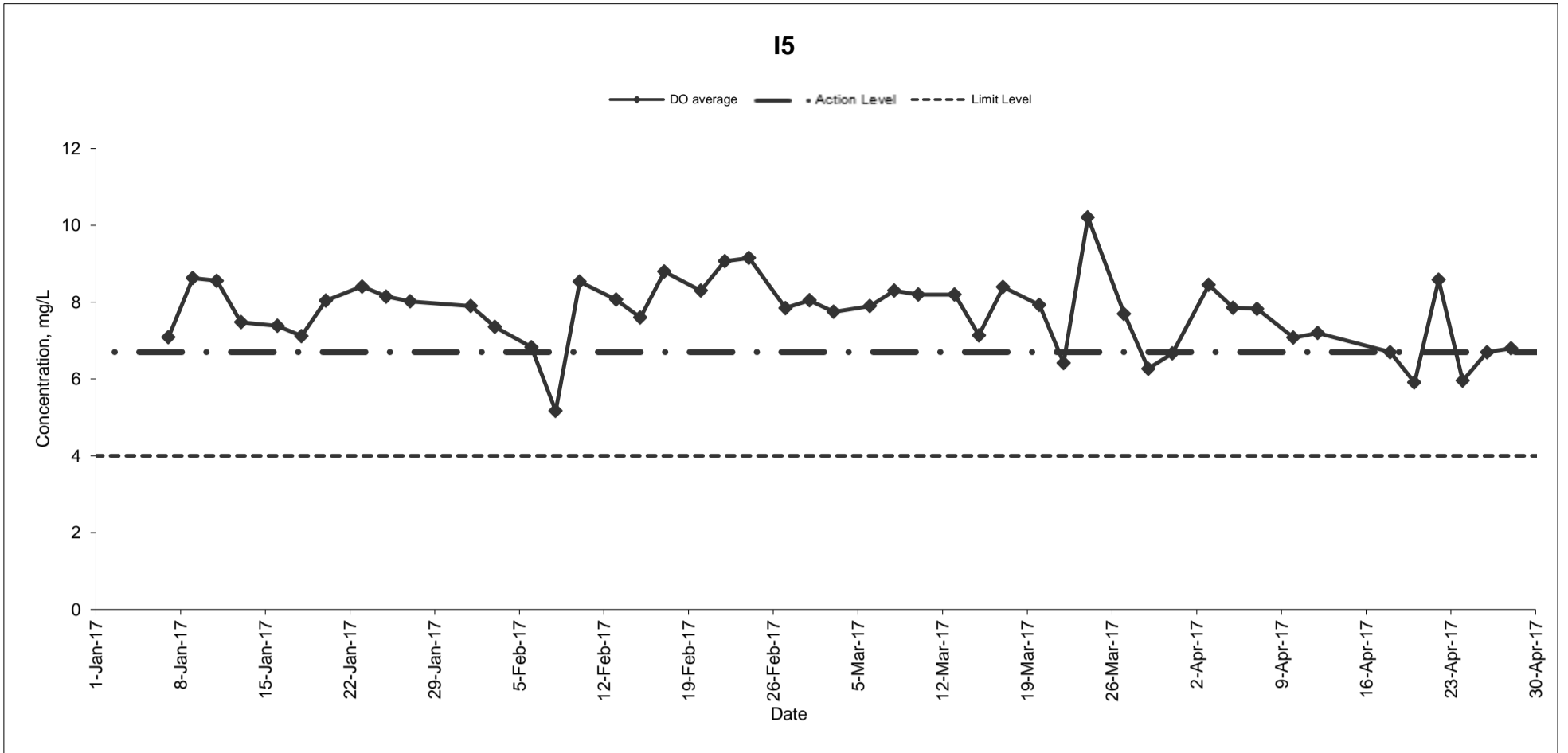


# Dissolved Oxygen

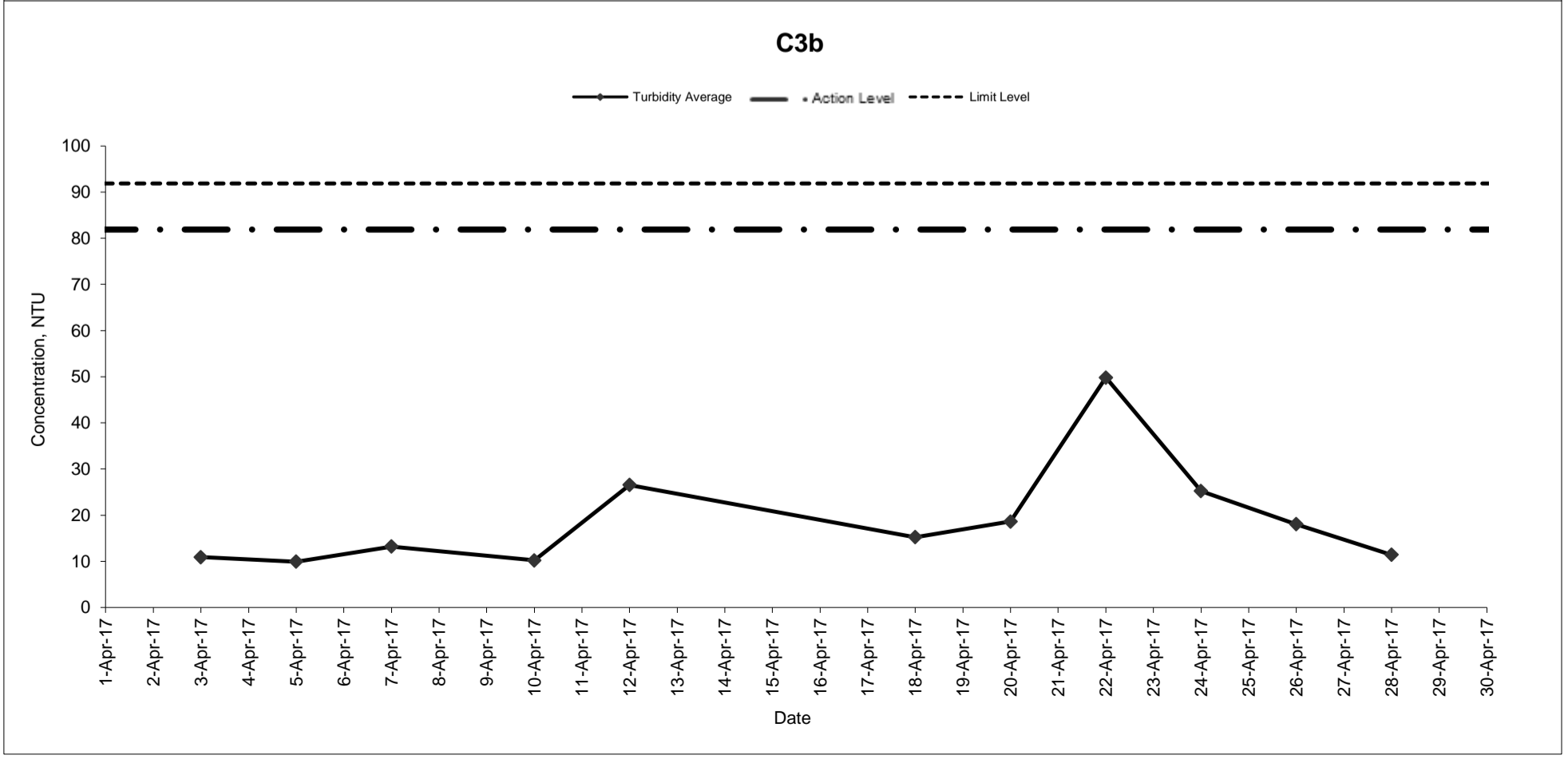
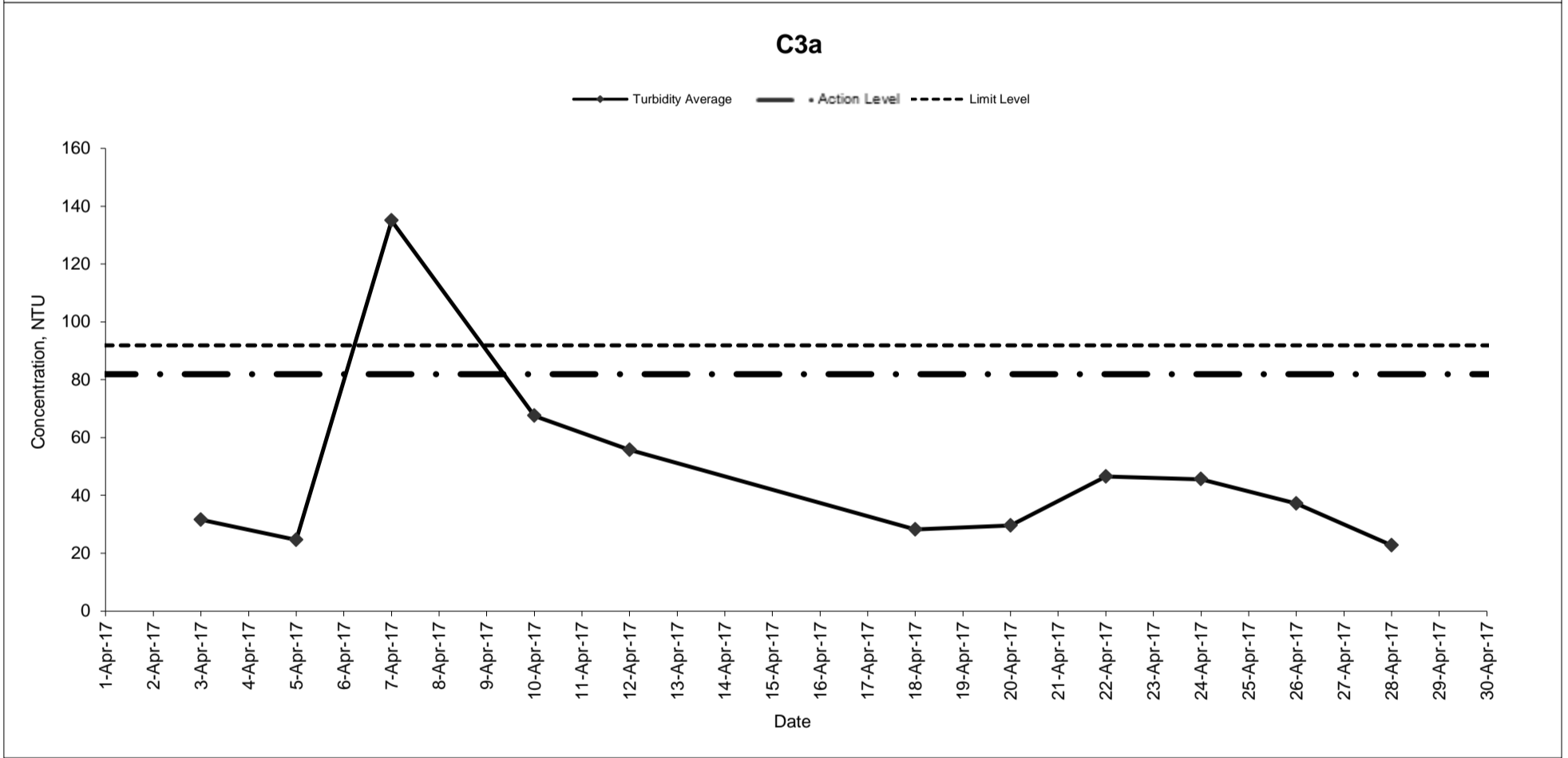
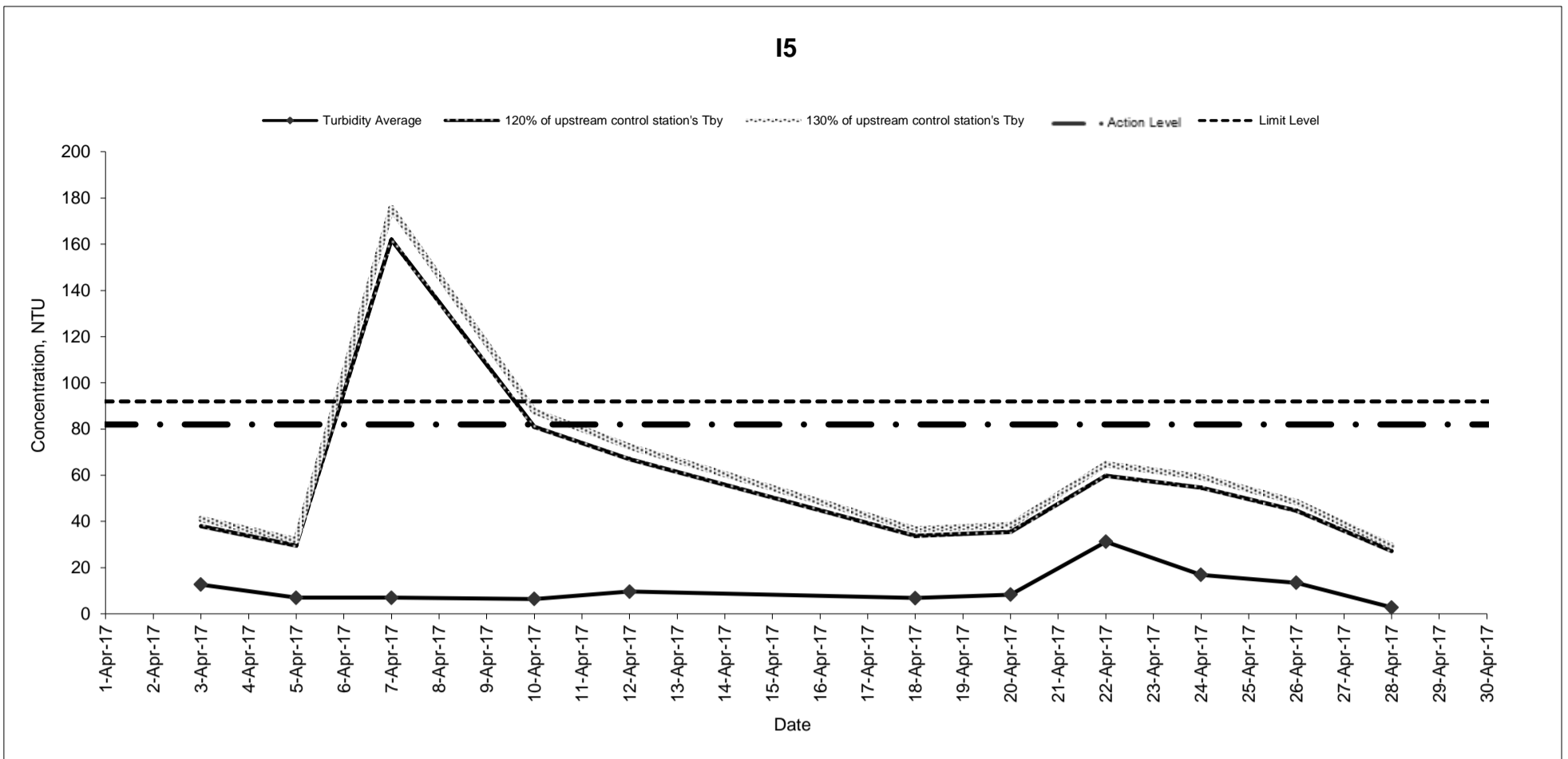




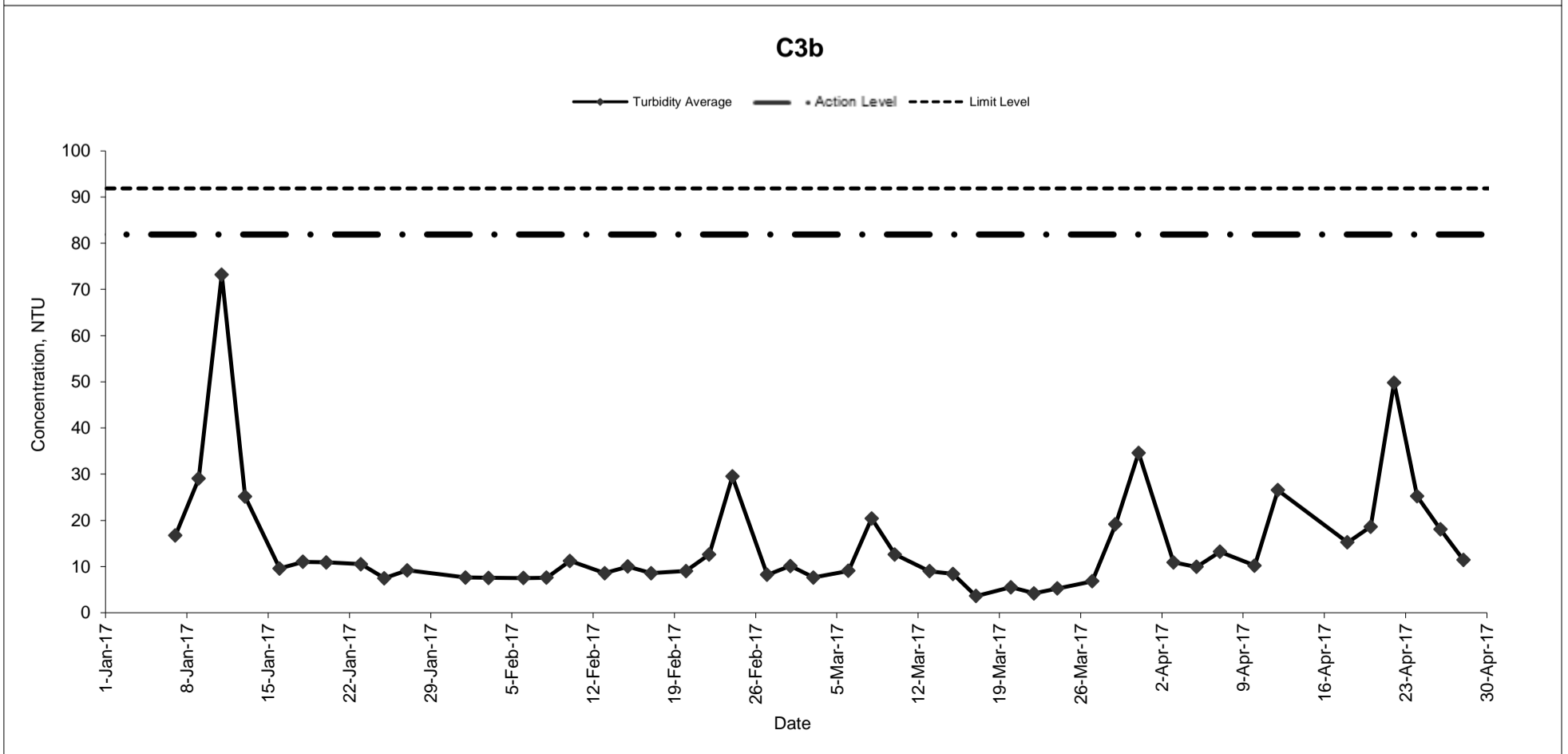
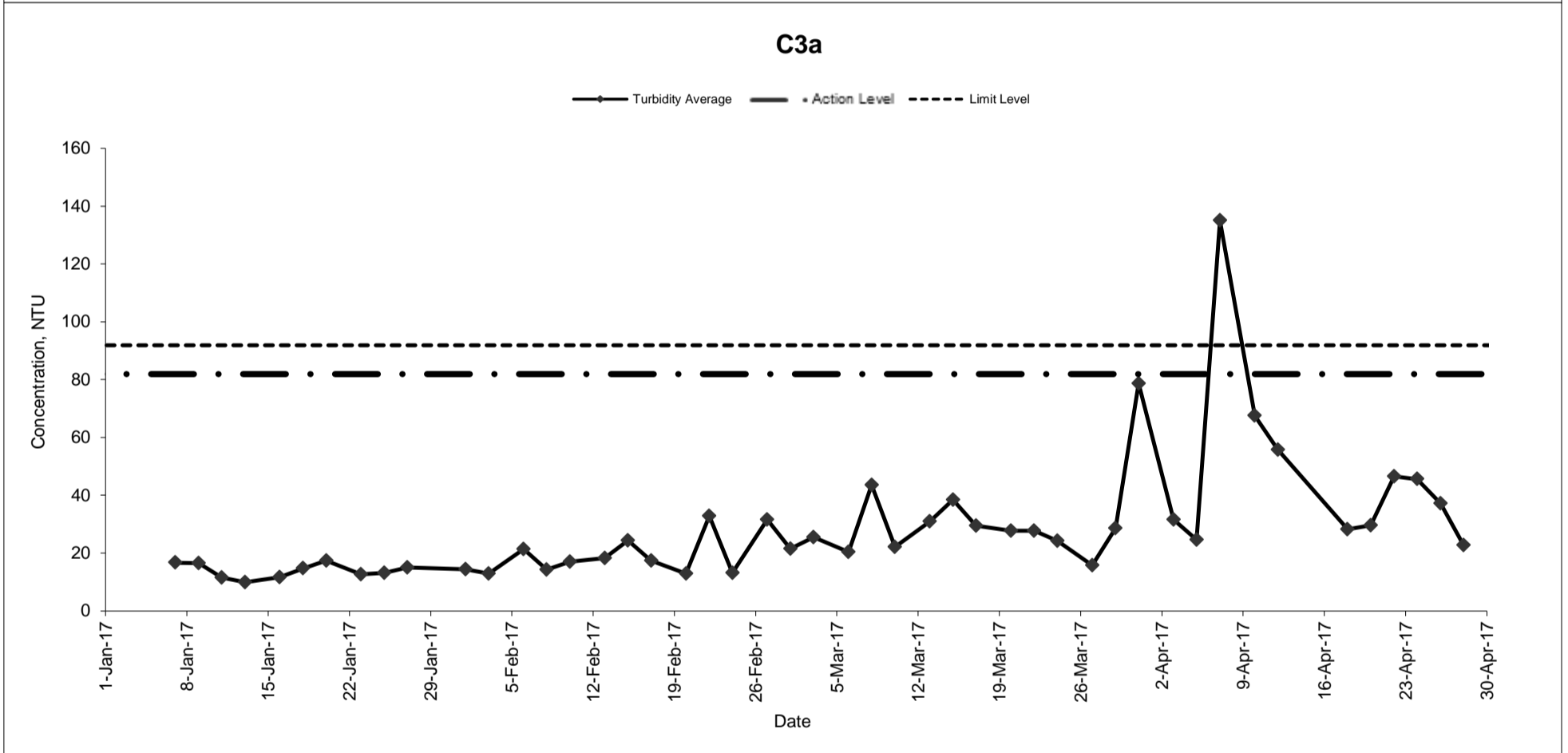
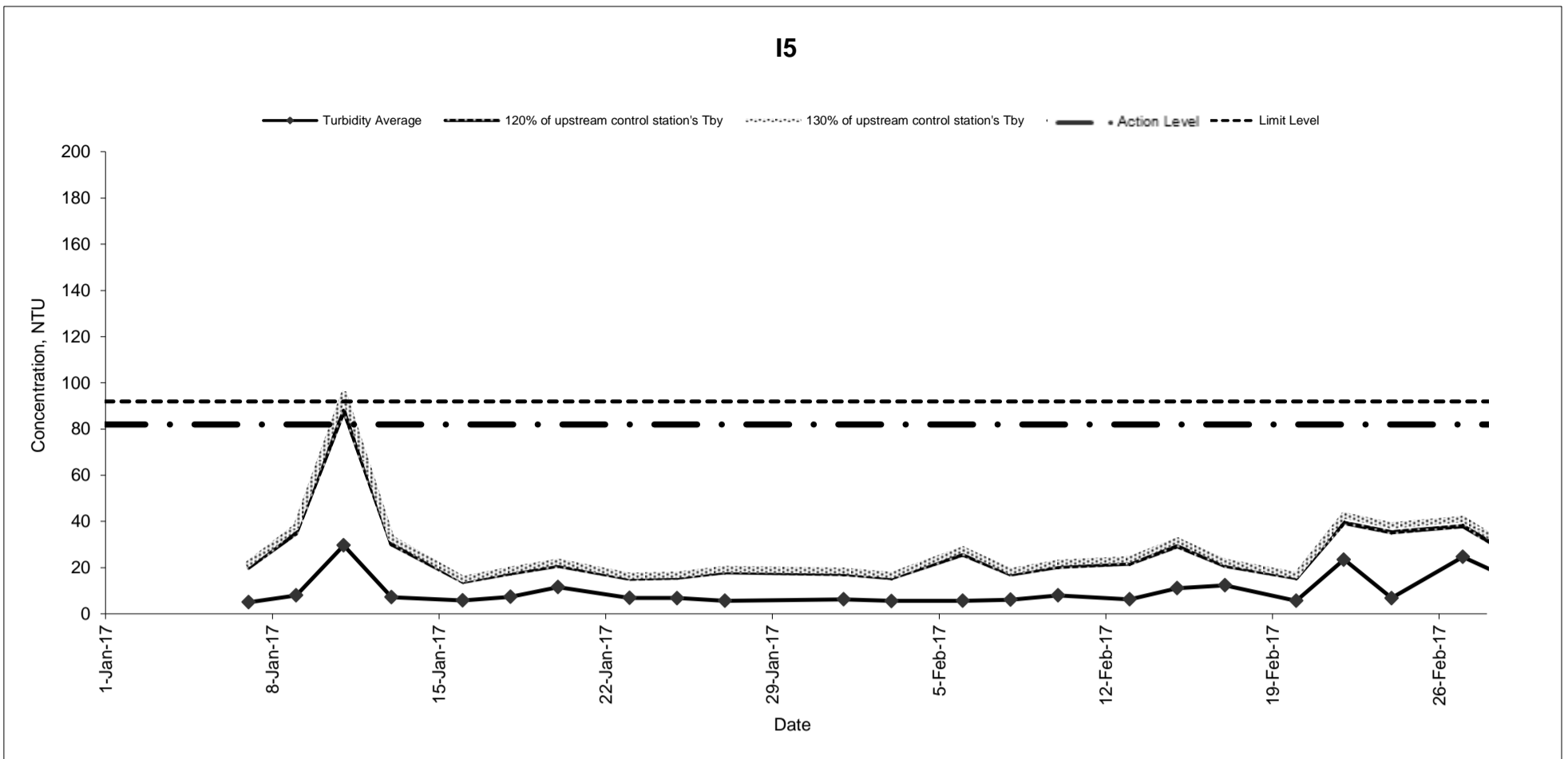
# Dissolved Oxygen (January 2017 - April 2017)



# Turbidity

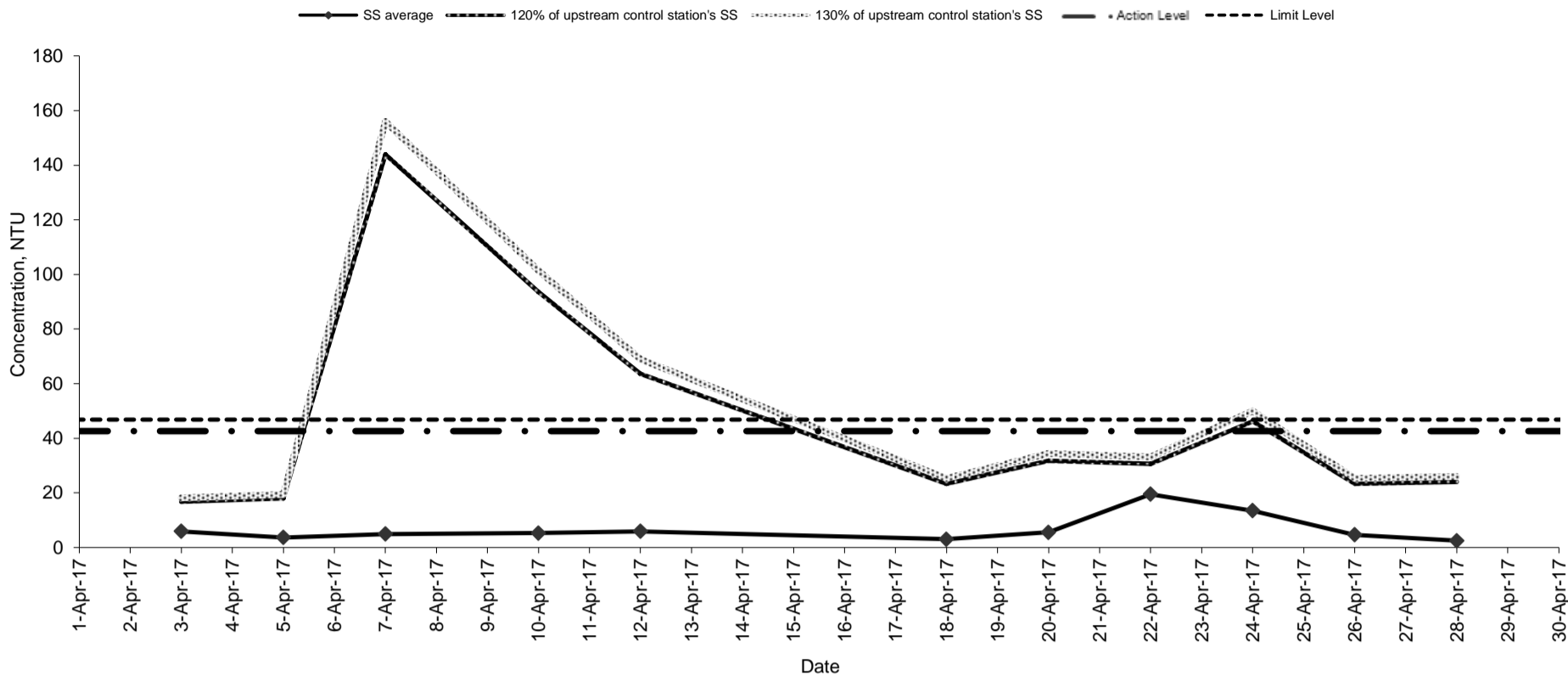


# Turbidity (January 2017 - April 2017)

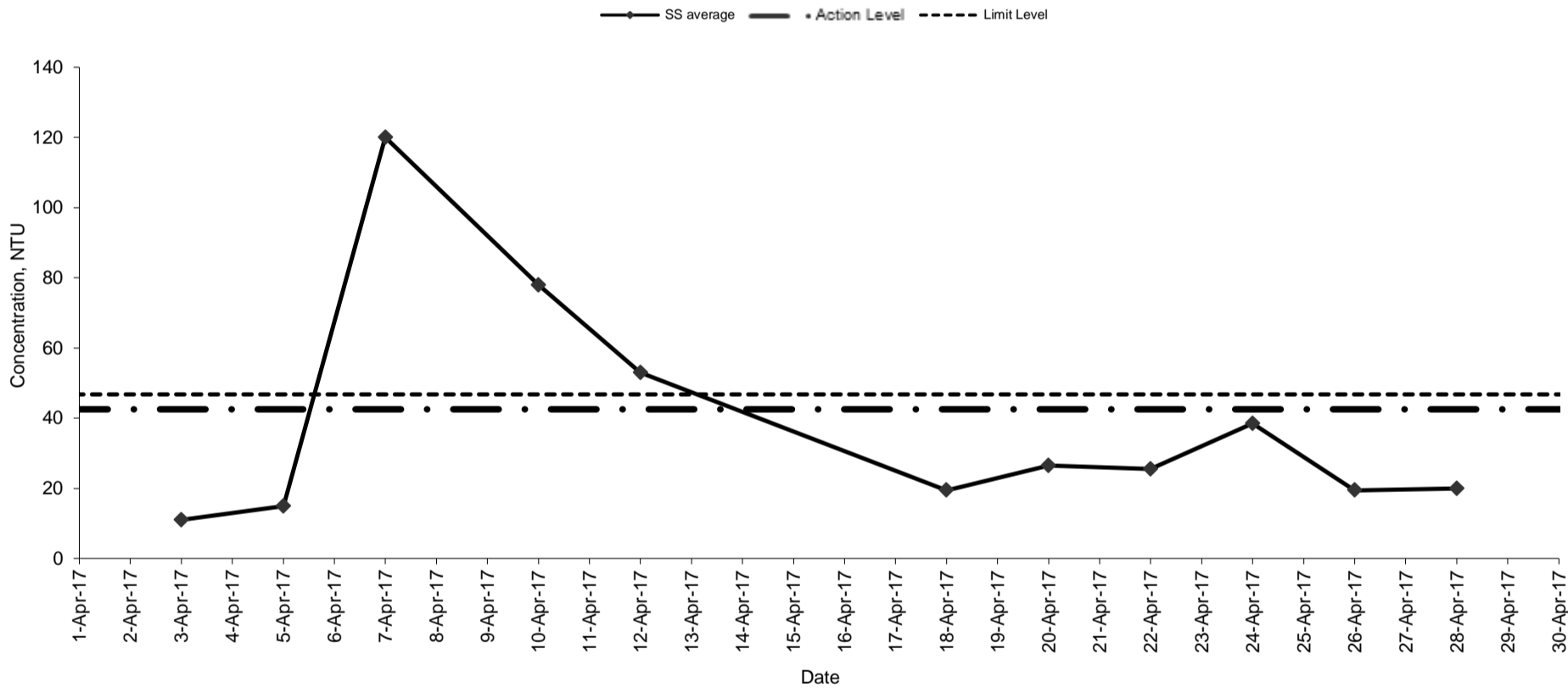


# Suspended Solid

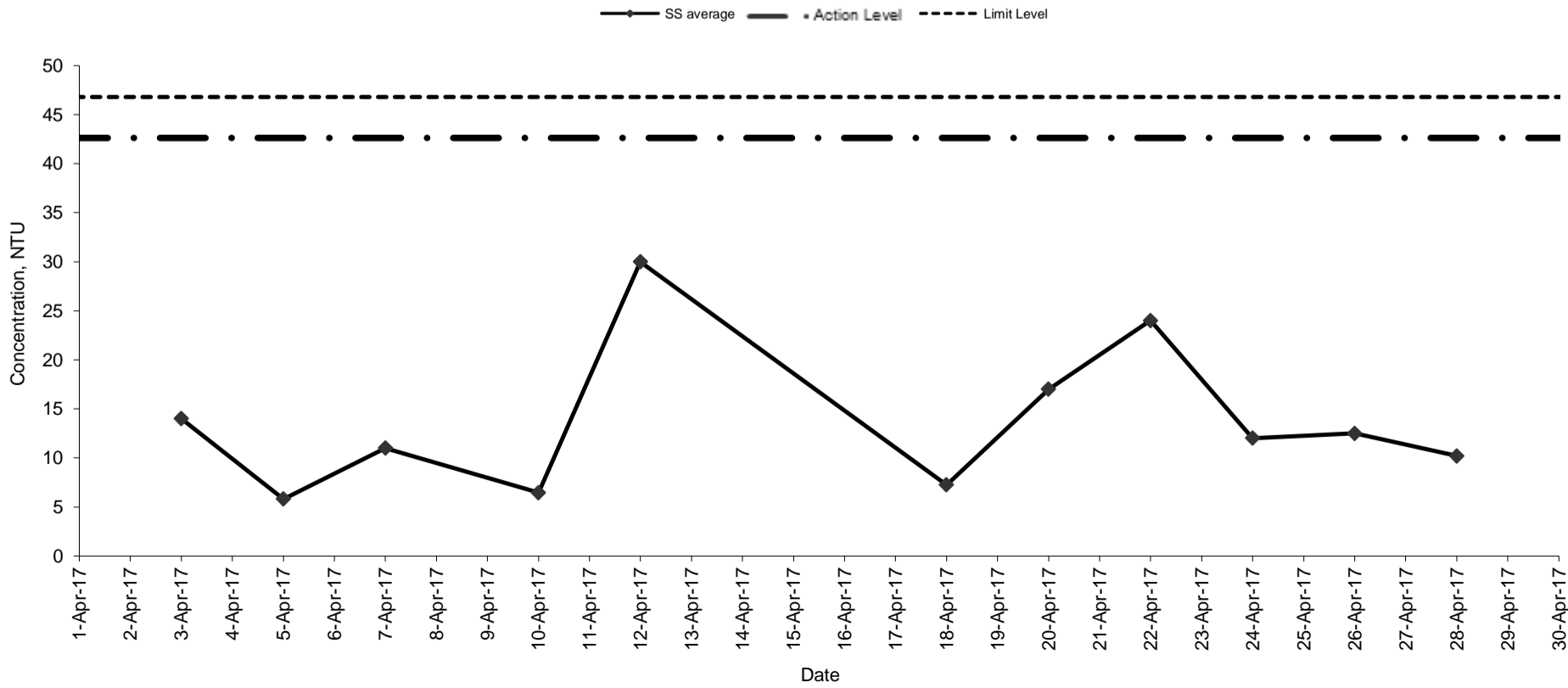
I5



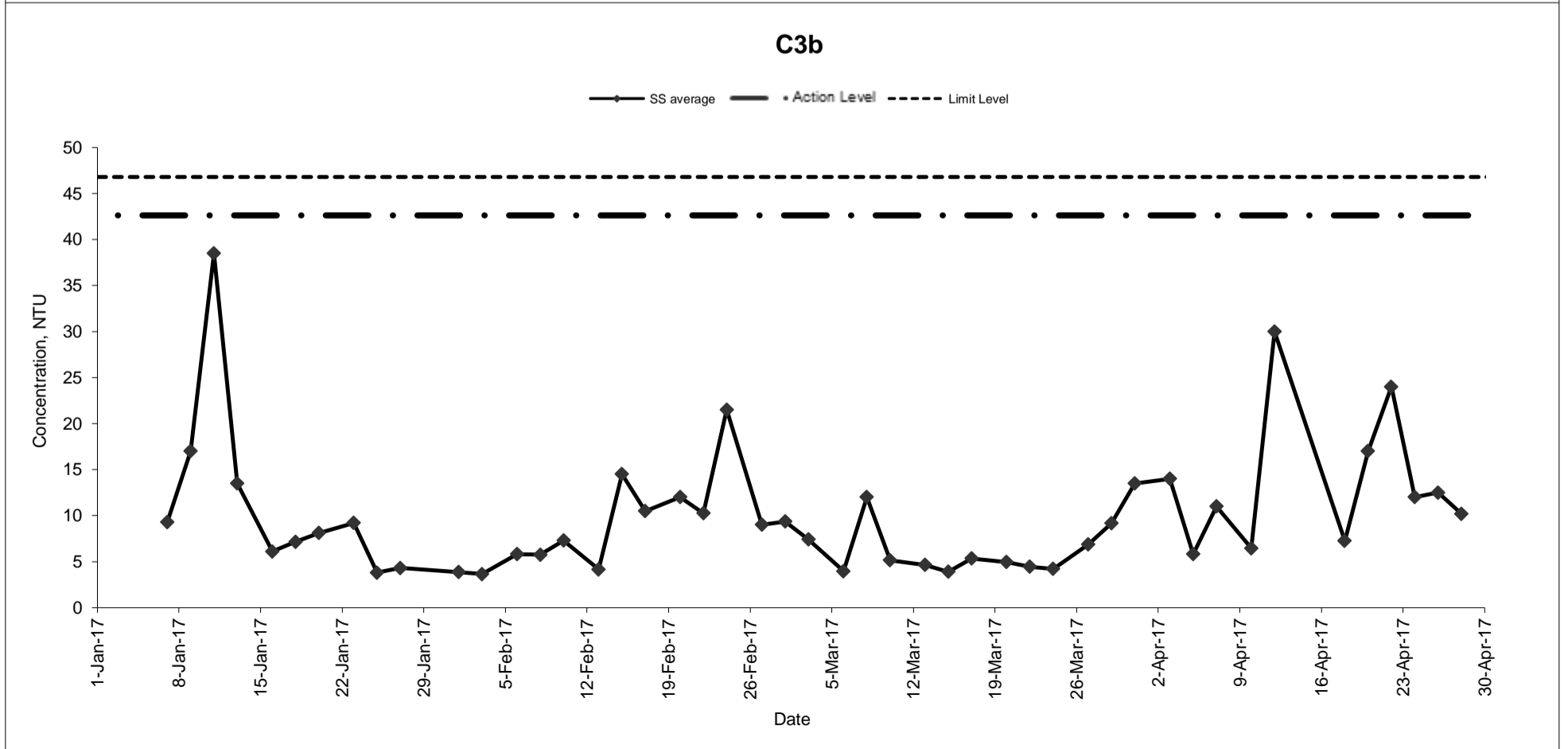
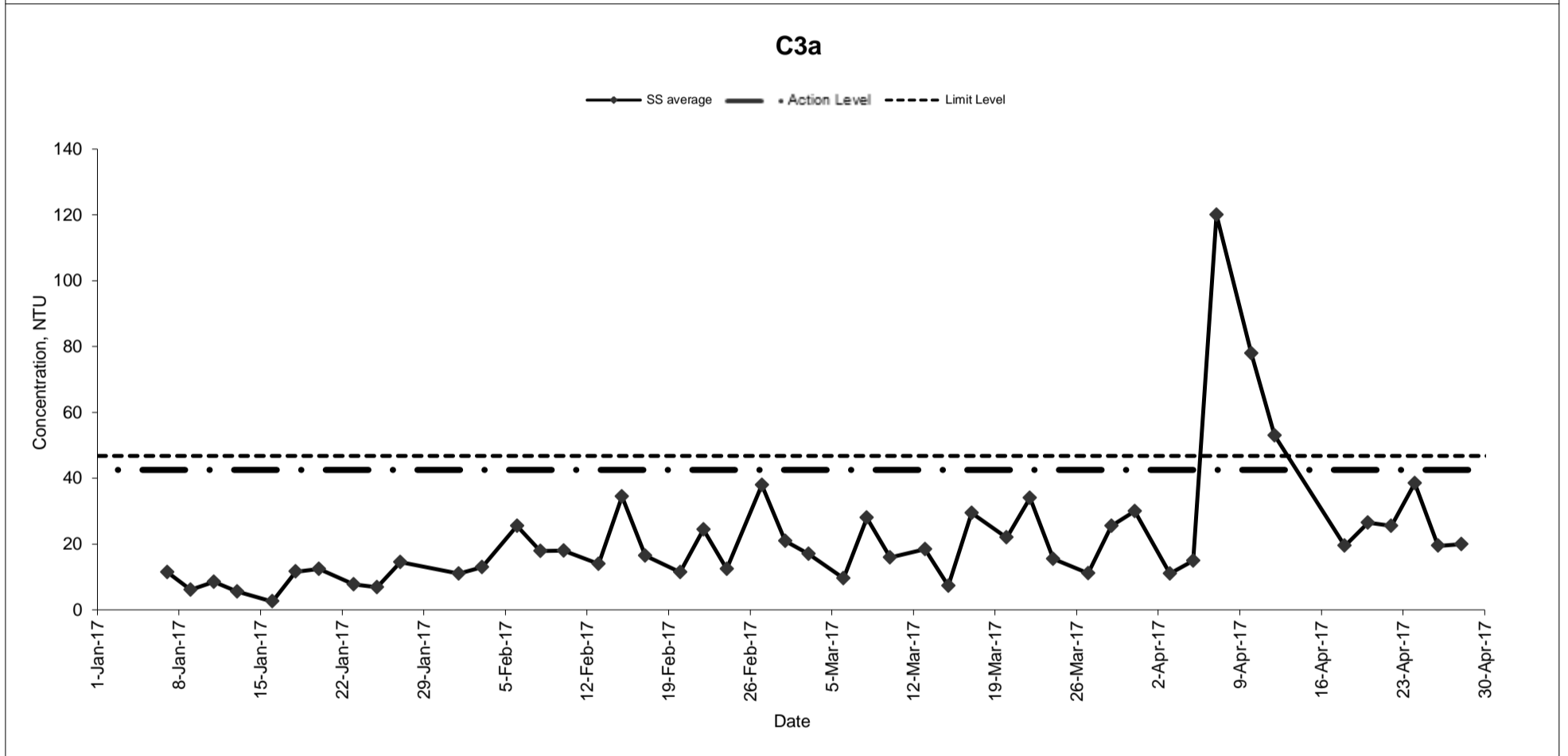
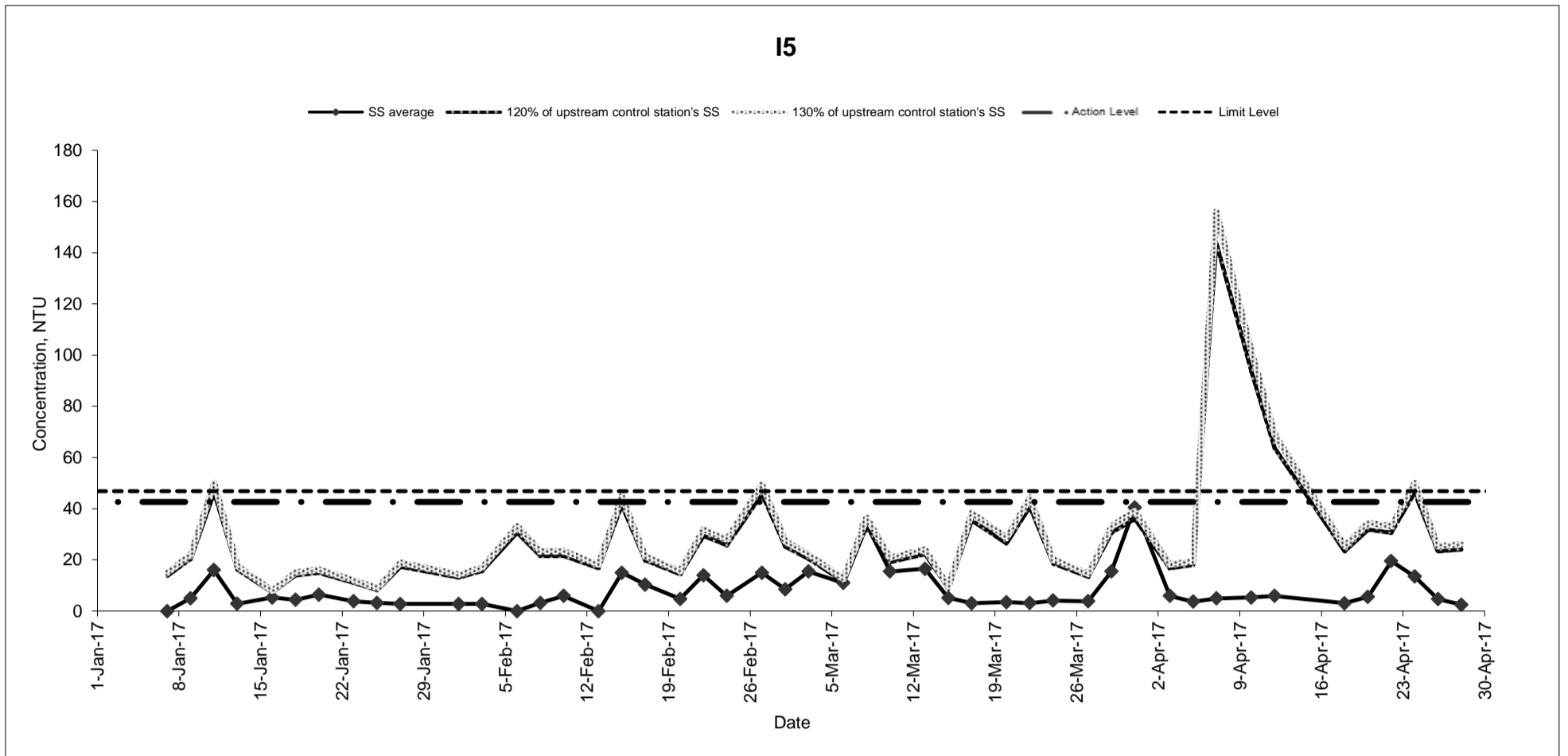
C3a



C3b



## Suspended Solid (January 2017 - April 2017)



# Appendix K Waste Flow Table



### Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly				
	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 '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in m <sup>3</sup> )	(in '000m <sup>3</sup> )
Jan-17	1.150	0.204	0.946	0.150	-	0.796	1.150	-	-	0.001	-	0.170
Feb-17	1.160	0.308	0.852	0.192	-	0.660	0.926	-	-	0.001	-	0.140
Mar-17	2.287	0.565	1.722	0.060	-	1.662	1.055	-	-	-	-	0.115
Apr-17	1.003	0.064	0.939	0.036	-	0.903	0.463	-	-	0.004	-	0.075
May-17	-	-	-	-	-	-	-	-	-	-	-	-
Jun-17	-	-	-	-	-	-	-	-	-	-	-	-
Sub-Total	5.600	1.141	4.459	0.438	-	4.021	3.594	-	-	0.006	-	0.500
Jul-17	-	-	-	-	-	-	-	-	-	-	-	-
Aug-17	-	-	-	-	-	-	-	-	-	-	-	-
Sep-17	-	-	-	-	-	-	-	-	-	-	-	-
Oct-17	-	-	-	-	-	-	-	-	-	-	-	-
Nov-17	-	-	-	-	-	-	-	-	-	-	-	-
Dec-17	-	-	-	-	-	-	-	-	-	-	-	-
Total	5.600	1.141	4.459	0.438	-	4.021	3.594	-	-	0.006	-	0.500

- Note:
1. Assume the density of soil fill is 2 ton/m<sup>3</sup>.
  2. Assume the density of rock and broken concrete is 2.5 ton/m<sup>3</sup>.
  3. Assume each truck of C&D wastes is 5m<sup>3</sup>.
  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/m<sup>3</sup>.

# **Appendix L Implementation Schedule of Environmental Mitigation Measures (EMIS)**

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
<b>Air Quality</b>				
Air Quality during Construction	<ul style="list-style-type: none"> <li>Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading.</li> <li>All stockpiles of excavated materials or spoil of more than 50m<sup>3</sup> shall be enclosed, covered or dampened during dry or windy conditions.</li> <li>Effective water sprays shall be used to control potential dust emission sources such as unpaved haul roads and active construction areas.</li> <li>All spraying of materials and surfaces shall avoid excessive water usage.</li> <li>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.</li> <li>Materials shall be dampened, if necessary, before transportation.</li> <li>Travelling speeds shall be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks.</li> <li>Vehicle washing facilities shall be provided to minimise the quantity of material deposited on public roads.</li> </ul>	During Construction	Contractor	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul>
Air Quality during Operation	Not required	N/A	N/A	N/A
<b>Noise</b>				
Noise during Construction	<ul style="list-style-type: none"> <li>Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant.</li> <li>Reduce the number of equipment and their percentage on-time.</li> </ul>	During Construction	Contractor	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>
Noise during Operation	Not required	N/A	N/A	N/A
<b>Water Quality</b>				
Water Quality during Construction	<u>Road Widening Works, Earthworks and Culvert Extension Works</u> <ul style="list-style-type: none"> <li>Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settleable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required.</li> </ul>	During Construction	Contractor	<ul style="list-style-type: none"> <li>✓</li> </ul>

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

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<ul style="list-style-type: none"> <li>• Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained.</li> <li>• Runoff from exposed working areas, unfinished slopes and from unlined temporary channels should be directed to stilling basins and/or silt traps before discharging to the drainage outfalls.</li> <li>• Regular inspections of stilling basins and/or silt traps is required to ensure that sediment is not conveyed into the existing drainage system.</li> <li>• Open stockpiles should be covered with a tarpaulin cover.</li> <li>• During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded.</li> <li>• Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains.</li> <li>• Fuels should be stored in bunded areas such that spillage can be easily collected.</li> </ul>			<p>✓</p> <p>Rem</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>
Water Quality during Operation	Not required	N/A	N/A	N/A
<b>Waste Management</b>				
Waste Management during Construction	<p><u>General Waste</u></p> <ul style="list-style-type: none"> <li>• Transport of wastes off site as soon as possible.</li> <li>• Maintenance of accurate waste records.</li> <li>• Minimisation of waste generation for disposal (via reduction/recycling/re-use).</li> <li>• No on-site burning will be permitted.</li> <li>• Use of re-useable metal hoardings/signboards.</li> </ul> <p><u>Vegetation from site clearance</u></p> <ul style="list-style-type: none"> <li>• Segregation of materials to facilitate disposal.</li> <li>• Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.</li> </ul>	<p>During Construction</p> <p>During Construction</p>	<p>Contractor</p> <p>Contractor</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

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

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<p><u>Demolition Wastes</u></p> <ul style="list-style-type: none"> <li>• Segregation of materials to facilitate disposal.</li> <li>• Appropriate stockpile management.</li> </ul> <p><u>Excavated Materials</u></p> <ul style="list-style-type: none"> <li>• Segregation of materials to facilitate disposal / reuse.</li> <li>• Appropriate stockpile management.</li> <li>• Re-use of excavated material on or off site (where possible).</li> <li>• Special handling and disposal procedures in the event that contaminated materials are excavated.</li> </ul> <p><u>Construction Wastes</u></p> <ul style="list-style-type: none"> <li>• Segregation of materials to facilitate recycling/reuse (within designated area in appropriate containers/stockpiles).</li> <li>• Appropriate stockpile management.</li> <li>• Planning to reduce over ordering and waste generation.</li> <li>• Recycling and re-use of materials where possible (e.g. metal, wood from formwork)</li> <li>• For material which cannot be re-used/recycled, collection should be carried out by an approved waste contractor for landfill disposal.</li> </ul> <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> <li>• Bentonite slurries should be reused as far as possible.</li> <li>• Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94.</li> </ul> <p><u>Chemical Wastes</u></p> <ul style="list-style-type: none"> <li>• Storage within locked, covered and bunded area.</li> <li>• The storage area shall not be located adjacent to sensitive receivers e.g. drains.</li> <li>• Minimise waste production and recycle oils/solvents where possible.</li> </ul>	<p>During Construction</p> <p>During Construction</p> <p>During Construction</p> <p>During Construction</p>	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>N/A</p> <p>✓</p> <p>✓</p> <p>✓</p>

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





Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<ul style="list-style-type: none"> <li>● all temporary site access roads shall be sprayed with water to suppress dust as necessary;</li> <li>● all dusty materials should be sprayed with water immediately prior to any handling; and</li> <li>● all debris should be covered entirely by impervious sheeting or stored in a sheltered debris collection area.</li> </ul> <p><u>Surface Run-off</u></p> <p>In general, mitigation measures shall be in accordance with ProPECC PN1/94 on 'Construction Site Drainage'. Key measures include:</p> <ul style="list-style-type: none"> <li>● Bund and cover stockpiles to avoid run-off;</li> <li>● Channel any run-off through a system of oil, grease and sediment / silt traps and reuse water on site where ever practical;</li> <li>● All vehicle maintenance to be undertaken within a bunded area; and</li> <li>● Maximise vegetation retention on-site to maximise absorption (minimise transport).</li> </ul>	During Construction	Contractor	✓  ✓  ✓  ✓  ✓
Ecology during Operation	<ul style="list-style-type: none"> <li>● To conduct compensatory ecological planting as specified in the latest landscape plans approved by EPD (Clause 2.6 of the Environmental Permit refers).</li> </ul>	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
<b>Landscape and Visual</b>				
Landscape and Visual during Construction	<p><u>Preservation of Existing Vegetation</u></p> <ul style="list-style-type: none"> <li>● Trees identified for retention within the project limit would be protected during the works</li> <li>● The tree transplanting and planting works shall be implemented by approved Landscape Contractors</li> </ul>	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 #
	<p><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.</p> <p><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.</p> <p><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.</p> <p><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.</p>	During Construction	Contractor	✓
		During Construction	Contractor	✓
		During Construction	Contractor	N/A
		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 M Investigation Report for Exceedances

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

**Investigation Report of Environmental Quality Exceedance(s)**

Ref. No.: W170420\_DO

<b>Date</b>	20 April 2017
<b>Time</b>	11:07 AM
<b>Monitoring Location</b>	I5 - downstream of Ma Wat River at Yuen Leng
<b>Parameter</b>	Dissolved Oxygen
<b>Action / Limit Levels</b>	Action Level: 6.7 mg/L Limit Level: 4 mg/L or 40% saturation at 15 degree Celsius
<b>Measured Level</b>	5.9mg/L (Action level being exceeded)
<b>Possible reason for the exceedance</b>	The exceedance has been investigated and was considered not related to the project works as DO levels were low among all monitoring stations, including the control stations. The construction works at box culvert has been completed in March 2017. No abnormal condition was observed during the monitoring. As such, the natural variation of water quality has been considered attributed to the low DO level.
<b>Action taken / to be taken</b>	As the non-compliance was non-project related, no further investigation and remedial measure(s) would be required.
<b>Remarks</b>	-

Site photos during water sampling (Date: 20 April 2017)



(At C3a)



(At I5)

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

**Investigation Report of Environmental Quality Exceedance(s)**

Ref. No.: W170424\_DO

<b>Date</b>	24 April 2017
<b>Time</b>	11:31 AM
<b>Monitoring Location</b>	I5 - downstream of Ma Wat River at Yuen Leng
<b>Parameter</b>	Dissolved Oxygen
<b>Action / Limit Levels</b>	Action Level: 6.7 mg/L Limit Level: 4 mg/L or 40% saturation at 15 degree Celsius
<b>Measured Level</b>	6.0mg/L (Action level being exceeded)
<b>Possible reason for the exceedance</b>	The exceedance has been investigated and was considered not related to the project works as DO levels were low among all monitoring stations, including the control stations. The construction works at box culvert has been completed in March 2017. No abnormal condition was observed during the monitoring. As such, the natural variation of water quality has been considered attributed to the low DO level.
<b>Action taken / to be taken</b>	As the non-compliance was non-project related, no further investigation and remedial measure(s) would be required.
<b>Remarks</b>	-



Site photos during water sampling (Date: 24 April 2017)



(At C3a)



(At I5)



# **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	26, November, 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	<p>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.</p> <p>An EM&amp;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.</p> <p>The complaint is considered an invalid complaint under this Project.</p>	Completed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
C141120	20 November, 2014	EPD	Ng Tung River and Ma Wat River nearby the site of the Liantang/ Heung Yuen Wai BCP Project (Contract Number CV/2012/09)	At Bridge NF426 in Fanling, the whole Ng Tung River showed milky and suspected illegal discharge by nearby factory has undertaken. (粉嶺近天橋編號 NF426 梧桐河整條河河水呈奶白色懷疑附近有工廠非法排放污水)	<p>Water Supplies Department (WSD) conducted a washout procedure on 20 November 2014 at about 9:30am to flush the newly installed water pipe of diameter of 1400mm which has recently finished disinfection. It is understood that the procedure has lasted for about 1 hour and large amount of freshwater has been discharged into the Ma Wat River through a washout port.</p> <p>Although water was observed seeping from the gantry switch and flew into the works sites, the area is a sump pit and the water was unlikely to run off and entered the river directly. As such, it is anticipated that only freshwater has been discharged into Ma Wat River through the washout port.</p> <p>Both site inspections conducted by the ET before the complaint (19 November 2014), and after the complaint (24 November 2014) did not identify any deficiencies on environmental mitigation measures. Also, there were no rains during the period and the risk of construction site run-off is considered minimal.</p>	Completed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					<p>The water from the Ma Wat Channel adjoins the Ng Tung River before passing through the complaint location, so other pollution sources may also occur at upstream of Ng Tung River</p> <p>The complaint is considered unlikely due to the construction works of this project.</p>	



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

10/F Genesis  
33-35 Wong Chuk Hang Road  
Hong Kong  
香港黃竹坑道33-35號  
創協坊10樓

Tel 電話: +852 2858 0738  
Fax 傳真: +852 2540 1580

[mail@meinhardt.com.hk](mailto:mail@meinhardt.com.hk)  
[www.meinhardt-china.com](http://www.meinhardt-china.com)  
[www.meinhardtgroup.com](http://www.meinhardtgroup.com)