

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

Monthly EM&A Report January 2019

Submitted to

Prepared By

Environmental Protection Department

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

(January 2019)

Certified by: Fredrick Leong

Position: Environmental Team Leader

Date: <u>11 February 2019</u>



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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 – January 2019 for the portion of Stage 2 works entrusted to Civil Engineering and Development Department (CEDD) under Contract No. CV/2012/09

11 February 2019 By Fax (2805 5028) & Hand

We refer to the revised Monthly EM&A Report – January 2019 received on 08 February 2019 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – January 2018 (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. Lu Pei Yu Mr. Alan Lee Mr. Fredrick Leong By Fax (2714 5198) By Fax (3547 1659) By Fax (3922 9797) By Fax (2559 1613)



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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 January 2019. As informed by the Contractor, the major activities in the reporting month were:

- Road Pavement Works;
- Water Main Laying Works;
- Road Drainage Works;
- Construction of Police Observation Platform on the Northbound Fanling Highway; and
- Remaining Works of Kiu Tau Footbridge.

Breach of Action and Limit Levels for Air Quality

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

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

Breach of Action and Limit Levels for Noise

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

Breach of Action and Limit Levels for Water Quality

The box culvert works have been completed in the end of March 2017. The 4-week post construction water quality monitoring has been completed in the end of April 2017 in the same manner as the impact monitoring.

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



- Road pavement works;
- Water main laying works;
- Road Drainage Works;
- Construction of Police Observation Platform on the Northbound Fanling Highway; and
- Remaining works of Kiu Tau footbridge.

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 February 2019.

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 Reprovision; and

Box Culvert Extension – Flow diversion of existing stream, excavation, sub-base and blinding, base, wall and top slab construction.

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

2.3 Construction Programme and Activities

- 2.3.1 The major construction activities undertaken in the reporting month are summarized below:
 - Road Pavement Works;
 - Water Main Laying Works ;
 - Road Drainage Works;
 - Construction of the Police Observation Platform on the Northbound Fanling Highway; and
 - Remaining Works of Kiu Tau Footbridge.
- 2.3.2 The construction programme is presented in **Appendix A**.

2.4 **Project Organisation**

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



Party	Role	Position	Name	Telephone	Fax	
A 500M	Engineer's	Senior Resident Engineer	Mr. Alan Lee	2171 3303	0474 0400	
Representative		Resident Engineer (Environmental)Mr. Perry Yam2171		2171 3350	2171 3498	
Mott MacDonald	Independent Environmental Checker (IEC)	IEC	Mr. Steven Tang	2828 5920	2827 1823	
		Site Agent	Mr. Daniel Ho	2638 6144		
Chun Wo C	Contractor	Environmental Officer	Mr. Yang Ran	2638 6147	2638 7077	
		Environmental Supervisor	Mr. Franki Leung	2638 7005		
Meinhardt	Environmental Team (ET)	ET Leader	Mr. Fredrick Leong	2859 1739	2540 1580	

Table 2.1 Contact Information of Key Personnel

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**.

Permit / License	Valid Period		Status	Demente	
No. / Notification / Reference No.	From	То	Status	Remarks	
Environmental Perr	nit	1			
EP-324/2008/E	26 Jan 2017		Granted on 26 Jan 2017		
Construction Noise	Permit	1		1	
GW-RN0388-18	25 Aug 2018	24 Feb 2019	Valid	For general works at the northward of site office	
GW-RN0424-18	01 Sep 2018	21 Feb 2019	Valid	Parapet installation works and remedial works on Tai Wo Service Road East, Fanling Highway.	
GW-RN0425-18	22 Aug 2018	21 Feb 2019	Valid	For traverse stitch joints and installation of longitudinal stitch panel over Fanling Highway and MTRC's East Rail line.	
GW-RN0454-18	06 Sep 2018	05 Mar 2019	Valid	For general works at the southward of site office.	
GW-RN0566-18	29 Oct 2018	4 Apr 2019	Valid	For sampling works Fanling Highway bothbound.	
GW-RN0693-18	18 Dec 2018	25 May 2019	Valid	For lane shifting work of Fanling Highway bothbound.	
GW-RN0694-18	19 Dec 2018	25 May 2019	Valid	For loading and unloading along Fanling Highway both bounds.	
GW-RN0696-18	19 Dec 2018	25 May 2019	Valid	For connection of DN600 Watermain near Kau Lung Hang.	

 Table 3.1
 Status of Environmental Licenses, Notifications and Permits



Permit / License No. / Notification /	Valid Period		Status	Remarks		
Reference No.	From	То	Sidius	Reinarks		
GW-RN0699-18	18 Dec 2018	25 May 2019	Valid	For road diversion and maintenance of Fanling Highway bothbound.		
Wastewater Discha	rge License					
WT00032188-2018	20 Sep 2018	31 Aug 2023	Valid			
Chemical Waste Pro	oducer Registra	tion				
5113-634-C3817- 01	7 Oct 2013		Valid			
Billing Account for	Construction W	aste Disposal	-			
7017914	2 Aug 2013		Account Active			
Notification Under	Notification Under Air Pollution Control (Construction Dust) Regulation					
	31 Jul 2013	30 Jul 2019	Notified			



4 AIR QUALITY MONITORING

4.1 Monitoring Requirement

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

4.2 Monitoring Equipment

4.2.1 The 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	Tisch Total Suspended Particulate		
Sampler	Mass Flow Controlled High Volume	1	2359
(1-hr TSP and	Air Sampler (Model No. TE-5170	I	2009
24-hr TSP)	MFC)		

- 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.



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-weighted filter paper inside the HVS at a controlled air flow rate. After 24-hr sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg.
- 4.5.6 All the collected samples were kept in a good condition for 6 months before disposal.
- 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 As informed by the contractor, all major construction activities of the Entrusted Portion Project of Section 1A and 1B were substantially completed on 28 September 2018 and 3 October 2018 respectively. In such regard, the EM&A Programme of the captioned project, including monthly EM&A reporting and the corresponding environmental monitoring and audit works, is no longer required and we proposed to cease it by the end of December 2018 and we have submitted the termination proposal to EPD on 24 December 2018. The EM&A monitoring and audit works will be carried until the termination proposal is approved. The tentative 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
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ASR ID	Average (μg/m³)	Range (µg/m³)	Action Level (μg/m³)	Limit Level (µg/m³)
AM1(SR77) *	154.9	96.9-202.0	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 (μg/m³)	Range (µg/m³)	Action Level (μg/m³)	Limit Level (µg/m³)
AM1(SR77) *	68.3	46.9-94.4	170.3	260

Remark:

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

- 4.7.2 No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 4.7.3 No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 4.7.4 The Event and Action Plan for the occurrence of non-compliance of the air quality criteria is annexed in **Appendix G**.
- 4.7.5 No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring the monitoring location AM1(SR77) in the reporting month.

Feb 2019



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	34678506
Sound Level Meter	Rion (Model No. NL-52)	1	01143484

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**.

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j

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 recalibration 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
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Noise Monitoring Station ID	Average, dB(A), Leq (30min) ⁽²⁾	Range, dB(A), Leq (30min) ⁽²⁾	Action Level	Limit Level, dB(A)
M1(SR77) ⁽¹⁾	67.0	64.5 – 70.1	When one documented valid complaint is received	75

Remark:

(1) Station / NSR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

(2) +3dB(A) façade correction included

- 5.7.2 Major noise sources during the noise monitoring included construction activities of the Project and that along Tai Wo Service Road East, and nearby traffic noise.
- 5.7.3 No noise complaint was received in the reporting month, so no Action Level exceedance was recorded. Also, no Limit Level exceedance of noise monitoring was recorded in the reporting month.
- 5.7.4 The Event and Action Plan for the occurrence of non-compliance of the noise criteria is annexed in **Appendix G**.



6 WATER MONITORING

6.1.1 The box culvert works had been completed in March 2017. The 4-week postconstruction water quality monitoring at I5 was completed in 28 April 2017.



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 2937m³ of excavated material has been generated. 2010m³ of inert C&D materials was disposed of at public fill to Tuen Mun Area 38. 0m³ of inert C&D materials were reused on site. 145m³ of general refuse was disposed of at North East New Territories (NENT) Landfill. No 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 metal 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, 5 site inspections were carried out on 2, 8, 16, 24 and 28 January 2019. The one held on 28 January 2019 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**.

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	N/A	N/A	N/A
Noise	N/A	N/A	N/A
Water Quality	N/A	N/A	N/A
Waste/ Chemical Management	2 Jan 2019	Chemicals were observed without secondary containment at TWSRE. The contactor was advised to provide secondary containment for all chemicals to prevent any potential spillage.	N/A
Landscape & Visual	N/A	N/A	N/A
Permits / Licenses	N/A	N/A	N/A

Table 8.1 Observations and Recommendations of Site Audit



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 Dec 2018	9 Jan 2019

- 17 -



11 ENVIRONMENTAL NON-CONFORMANCE

11.1 Summary of Monitoring Exceedances

- 11.1.1 No exceedance of Action and Limit Level were 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 The 4-week post-construction water quality monitoring at I5 was completed in April 2017.

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 remaining construction works in the coming reporting month are anticipated to include:
 - Road Pavement Works;
 - Water Main Laying Works;
 - Road Drainage Works;
 - Construction of the Police Observation Platform on the Northbound Fanling Highway;and
 - Remaining works of Kiu Tau Footbridge.

12.2 Key Issues for the Coming Month

- 12.2.1 Key issues to be considered in the coming month are anticipated to include:
 - 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;
 - Good housekeeping should be maintained and general refuse should be removed regularly; and
 - Watering shall be enhanced over the construction site.

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 The 4-week post-construction water quality monitoring at I5 was completed in April 2017.
- 13.1.7 Five (5) environmental site inspections were carried out in the reporting month. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audit.

13.2 Recommendations

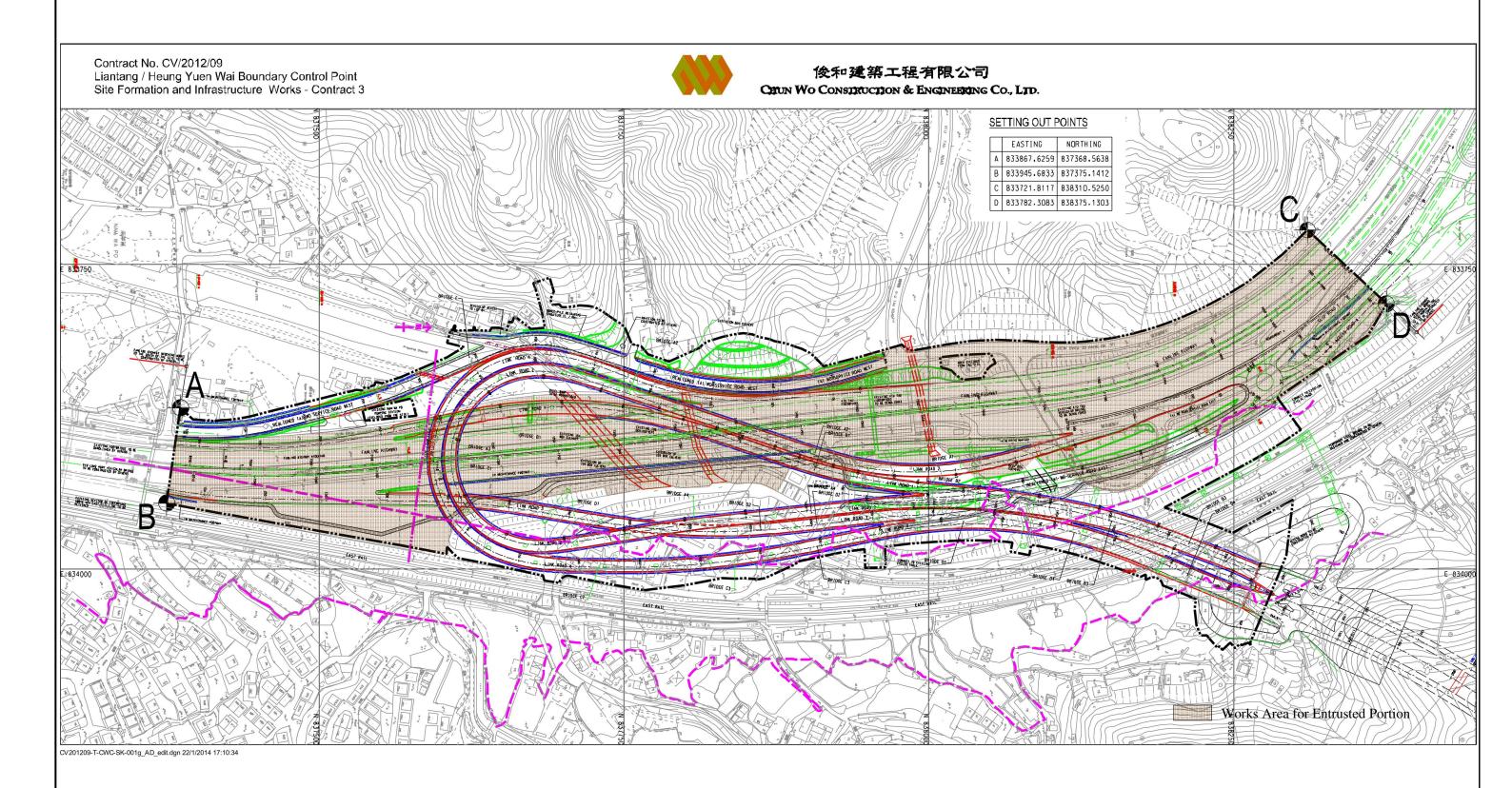
13.2.1 According to the environmental site inspections performed in the reporting month, the following recommendation was provided:

Waste/ Chemical Management

• Secondary containment shall be provided for chemical to prevent potential leakage.



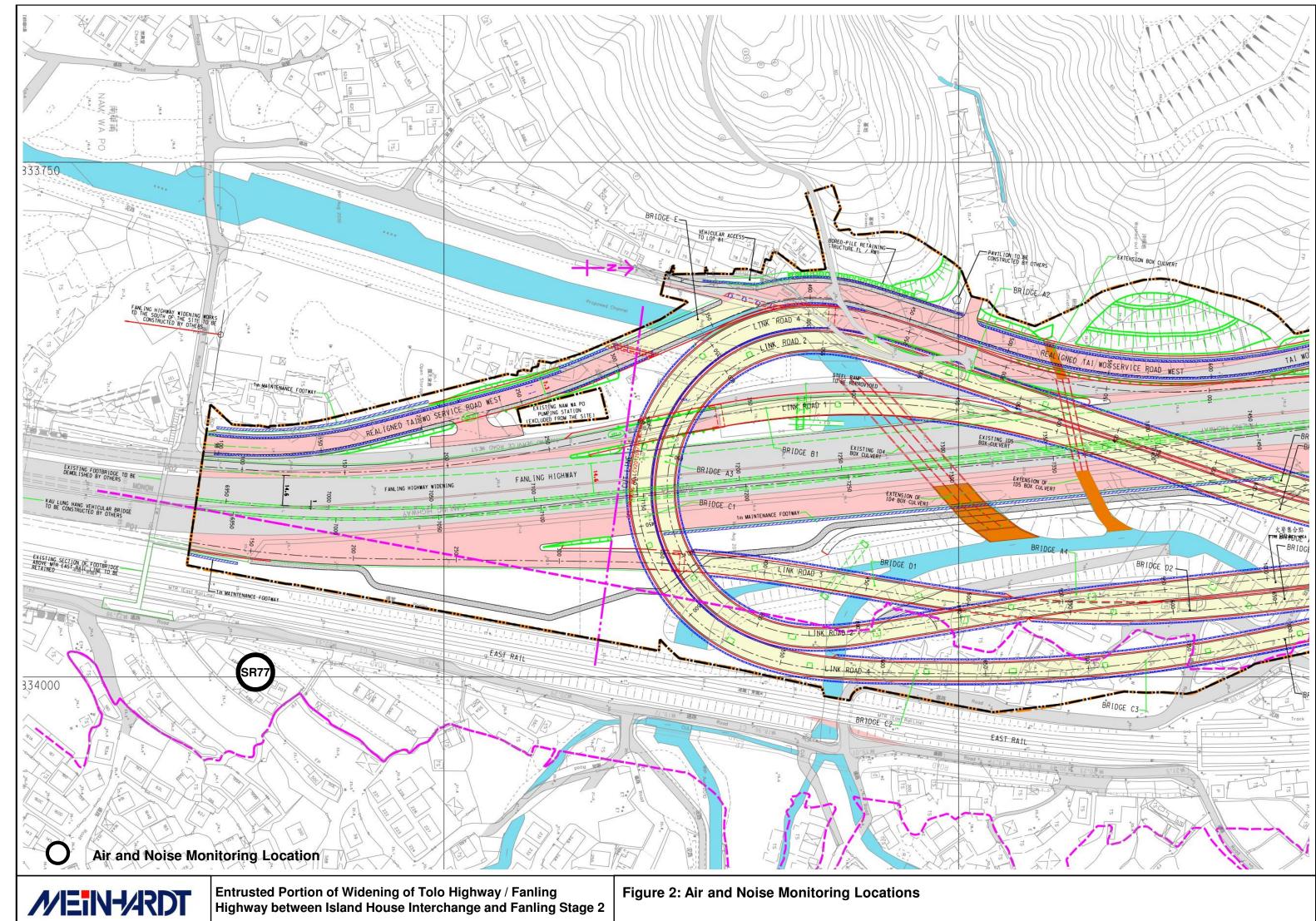
Figure





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

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





Appendix A Construction Programme

ctivity ID	Activity Name	OD	RD	Start	Finish	TF	2	018			2019		
0.11-1 0.11							Nov	Dec		Jan	Feb	Mar	Apr
	ng Programme 2018-11-21 (Based on (UMP06C)												
Key Dates (Co	ontractual)												
KD-0100b	KD1: Section 1A - all HyD's works in Zone3 & SBZ2 excl. Landscape Works (Potential EOT by Claim 63 & Inclement Weath e)	0	0		20-Dec-18*	-63			KD1: Section	A - all HyD's works in Zone3 & SBZ2 excl. La	indscape Works (Potential EOT by Claim	63 & Inclement Weather)	
KD-0300a	KD3: Section 2 - the remainder of the Works (Preliminary EOT by Claim No.56 & 58, Inclement Weather)	0	0		22-Oct-18 A		n 2 - the remainder of the Works (Prelimina	y EOT by Claim No.56 & 5	8, Indement Wea	ther)			
KD-0400a	KD4: Section 3 - Remainder of Landscape Softworks not included in Section 3A (Piel. EOT by Claim 56, 58)	0	0		20-Dec-18*	-62			KD4: Section	3 - Remainder of Landscape Softworks not in	duded in Section 3A (Prel. EOT by Claim	56, 58)	
KD-0500	KD4A: Section 3A - Landscape Softworks in NBZ1 (Potential EOT by Inclement	0	0		20-Dec-18*	-62			KD4A: Section	3A - Landscape Softworks in NB21 (Potenti	al EOT by Inclement Weather)		
Section IA & II	Weather) 3 - Fanling Highway Widening (KD-1 & KD-2)												
	av South Portion between CH6935 and CH7470												
	vay Zone 1 between CH6935 and CH7130 (within SBZ2)												
Noise Barrie	r												
FHW-1110	 Noise Barrier NB6 and NB7 - Remaining Stem Wall (28m, maintain access for extensioin of NB 70, VO199) 	30	34	16-Aug-18 A	31-Jan-19	-88					Noise Barrier NB6 and NB7 - Remaining	Stem Wall (28m, maintain access fo	or extensioin of NB
FHW-1140	Noise Barrier NB70 - Footing (extended 10m under VO199)	60	60	20-Dec-18*	09-Mar-19	-120						Noise Barrier NB70 - F	ooting (extended 10
At-Grade Ro	adworks (195m)												
	Road Pavement (FLH NB 1st lane and Hard Shoulder)	14	14	20-Dec-18*	08-Jan-19	-68				Road Pavement (FLH NB 1st la	abe and Hard Shoulder)		
				20 200 10	000001110								
	vay Zone 2 between CH7130 and CH7290												
Noise Barrie	r												
FHW-2340	 Noise Barrier NB67-2 - Cap ID4-1A_1 and Cap ID4-1A_2 head beam (affected by Tau Pass, VO 191) 	103	103	31-Dec-18*	14-May-19	-210							
FHW-2370	c Access Ramp at Tau Pass - Additional Mini-Piling (3 nos.) (under VO191)	61	61	20-Dec-18*	11-Mar-19	-220						Access Ramp at Ta	u Pass Additional
At-Grade Ro	adworks (160m)												
FHW-2240	Permanent Street Light Installation (due to Claim No. 63)	21	21	20-Jun-18 A	16-Jan-19	-86				Permanent Street I	ight Installation (due to Claim No. 63), Pe	manent Street Light Installation (due	to Claim No. 63)
	Road Pavement on FLH SB 4th lane after Removal of Temp. Street Light (due to Claim		11		29-Jan-19	-86					Road Pavement on FLH SB 4th lane after		
	No. 63)												
FHW-2350	a Road Drainage and Pavement (near NB67-2, MN7.9 to MN7.11)	58	33	29-Mar-18 A	30-Jan-19	-87					Road Drainage and Pavement (near NB6	37-2, MN7.9 to MN7.11), Road Draina	age and Pavement (
FHW-2350	Installation of Drain pipe and Manholes (MN7.12 & MN7.12A) (affected by Tau Pass under VO191)	29	157	26-Nov-18 A	10-Jul-19	-211							
Fanling High	vay Zone 3 between CH7290 and CH7380												
Noise Barrie	r												
FHW-3340	Noise Barrier NB69 - Pile cap/ Footing and Stem Wall adjacent to NB lane (108m)	77	35	16-Oct-17 A	01-Feb-19	-107					Noise Barrier NB69 - Pile cap/ Footing	and Stem Wall adjacent to NB lane (108m), Noise Barri
At-Grade Br	adworks (130m)												
		10	40	01 4	00 lan 40	-64							
	Road Pavement on FLH SB 4th lane after Removal of Temp. Street Light (due to Claim No. 63)		10		03-Jan-19					Road Pavement on FLH SB 4th lane a	tter Removal of Temp. Street Light (due to		
FHW-3350	a Road Drainage (FLH NB hard shoulder, next to NB69)	61	50	26-Feb-18 A	26-Feb-19	-129					F	oad Drainage (FLH NB hard shoulde	r, next to NB69), Ro
FHW-3350	 Road Formation and Pavement (FLH NB 1st lane and HS next to NB69, due to Tau Pass under VO191) 	25	25	27-Feb-19*	27-Mar-19	-129					=		Road Formatio
Fanling Highw	ay North Portion between CH7470 and CH7925												
Fanling High	vay Zone 4 between CH7380 and CH7470												
At-Grade Ro	adworks (90m)												
	Road Pavement (FLH SB 1st lane) by re-surfacing (due to Claim No. 63)	15	33	10-Sep-18 A	30-Jan-19	-87					Road Pavement (FLH SB 1st lane) by re-	surfacing (due to Claim No. 63). Dec.	d Pavament /ELLIC
11100-4150	noas ravenent (r Ei i ob i ist iane) by resultating (due to Galin No. 65)	15	33	10-300-10 M	30-Jan-19	-0/					HOAU PAVEITIENT (FLH SB ISTIANE) by re	isunading (due to Ulaim No. 63), Hoai	u ravement (FLH SI
			. .								3-Month Bolling F	Programme updated to 2018-12	2-20
				tual Work			CEDD C	Contract No.	CV/201	2/09	Date Revisi		Approved
				emaining Work			Liantang / Heung '	Yuen Wai B	CP - Site	e Formation &			
	📼			ummary Bar				cture Work					
			Cr	itical Remaininç	g Work			th Rolling P					
	· · · · · · · · · · · · · · · · · · ·	•	🔶 Mi	ilestone			3MPR065	Page 1	-	20-Dec-18			
			Pr	oject Baseline B	Bar		JIVIF NU03	Page I	010	20-Dec-10			
											·	•	

Activity ID	Activity Name	OD	RD	Start	Finish	TF		2018			2019		
ELW 41500	Road Drainage and Road Pavement (FLH H.S., Merging Lane)(due to Claim No. 63)	48	48	10-Sep-18 A	23-Feb-19	-102	Nov	Dec		Jan	Feb	Mar (Filling	Apr
												Drainage and Road Pavement (FLH H.	
FHW-4330c	Construction of FL/RW2 (mass concrete wall, VO not yet received)	38	38	27-Aug-18 A	12-Feb-19	-97					Construction of FL/RV	W2 (mass concrete wall, VO not yet rece	eived), Construction of
FHW-4330d	Remaining Gullies and Road Pavement after Construction of FL/RW2 (VO not yet received)	25	25	14-Jan-19*	18-Feb-19	-97	7				Remaining G	Bullies and Road Pavement after Constru	ruction of FL/RW2 (V
FHW-4330e	Road Drainage MN9.1 - MN9.3	24	0	23-Aug-18 A	20-Dec-18	-54	1		Road Drainag	e MN9.1 - MN9.3, Road Drainage MN9.1 - N	N9.3		
Fanling Highw	ay Zone 5 between CH7470 and CH7600 (Provision of Kiu Tau Footbridge)												
Kiu Tau Foot	ridge Reprovision (East)												
FHW-5070	Installation of Lighting Facilities (affect by design change which is under VO)	21	46	20-Jun-18 A	21-Feb-19	-100)				Installati	ion of Lighting Facilities (affect by design	n change which is ur
	Fabrication of Pillar Box (affect by design change which is under VO)	32	8	15-Jun-18 A	31-Dec-18	337				Fabrication of Pillar Box (affect by design			-
										Fabrication of Philar Box (arrest by design			
	Erection of Pillar Box (affect by design change which is under VO)	30	30	02-Jan-19*	12-Feb-19	337					Erection of Pillar Box	(affect by design change which is under	er VO)
FHW-5100	Power Cable Laying Works (affect by design change which is under VO)	36	36	20-Dec-18*	02-Feb-19	-111					Power Cable Laying Works (affect b	ay design change which is under VO)	
FHW-5110	Permanent Power Supply Connection (affect by design change which is under VO)	10	10	04-Feb-19	21-Feb-19	-100					Perman	ent Power Supply Connection (affect by	y design change whic
FHW-5110a	Installation of Drainage Pipe	32	38	10-Sep-18 A	12-Feb-19	-92	2					ge Pipe, Installation of Drainage Pipe	
FHW-5110b	Laying of Floor Tiles (affect by design change which is under VO)	72	62	28-Jun-18 A	12-Mar-19	-116	6					Laying of Floor Tiles	s (affect by design cf
FHW-5110c	Installation of Suspended Ceiling (affect by design change which is under VO)	104	55	21-May-18 A	04-Mar-19	-109)					Installation of Suspended Ceilin	ng (affect by design o
	BFA Facilities (Lift)												.g (a
		40	10	04 E-h 40t	01 E-th 40								
	Permanent Power Supply (affect by design change which is under VO)	10	10	04-Feb-19*	21-Feb-19						Perman	ent Power Supply (affect by design char	
FHW-L-106	Testing & Commissioning (affect by design change which is under VO)	11	11	22-Feb-19*	06-Mar-19	-111						Testing & Commissioning (at	uffect by design chan
Works at exi	ting TWSRE												
FHW-5481	Noise Barrier NB72 Bay 5 - 9 (after water shutdown for twin DN1400 WM, due to claim)	73	51	26-Feb-18 A	27-Feb-19	-121						Noise Barrier NB72 Bay 5 - 9 (after wate	er shutdown for twin
FHW-5490	Road Drainage, Pavement and TCSS duct laying (Merging lane next to NB72)(due to	2	2	28-Feb-19*	01-Mar-19	-107	7					Road Drainage, Pavement and TCS	SS duct laying (Mergi
FHW-5500	claim) Road Drainage (MS10.1-10.3A), Road Pavement and TCSS duct laying (Merging lane	31	44	21-Apr-18 A	19-Feb-19	-98	3				Road Drain	age (MS10.1-10.3A), Road Pavement a	and TCSS duct layin
At-Grade Roa	next to NB73) d Works (130m)												
	Road Pavement (FLH SB 1st lane) by re-surfacing (due to claim 63)	15	18	10-Sep-18 A	12-Jan-19	70				Dead Devement (ELLI SE	Hatlana) ku maufasina (duata slaim CO	Deed Devement (ELLCD 1st lens) by	una austra aine a (dua ta
						-12					3 1st lane) by re-surfacing (due to claim 63		
FHW-5330a	Road Drainage (MN10.1-10.3A, gullies affected by Slope F18)	60	15	16-Dec-17 A	09-Jan-19	-69)			Road Drainage (MN10.1-10.3	A, gullies affected by Slope F18), Road D	ainage (MN10.1-10.3A, gullies affected	by Slope F18)
FHW-5330c	Fill Replacement Works 3SW-D/F18 next to FLH NB (further modified by VO not yet received)	73	24	01-Aug-18 A	19-Jan-19	-117	7			Fill Replaceme	nt Works 3SW-D/F18 next to FLH NB (furt	her modified by VO not yet received), Fil	Il Replacement Work
FHW-5330d	Remaining Gullies, road formation and TCSS duct laying (log on effect by Slope F18 under VO)	25	25	21-Jan-19	25-Feb-19	-117	7				Re	maining Gullies, road formation and TC	CSS duct laying (log
FHW-5330e	Road Pavement (log on effect by Slope F18 under VO)	14	14	26-Feb-19*	13-Mar-19	-117	7					Road Pavement (lo	og on effect by Slope
Fanling Highw	y Zone 6 between CH7600 and CH7660 (Existing Vehicular Bridge)												
At-Grade Roa	dworks (60m)												
EHW-6330a	Road Drainage and Road Formation (FLH NB hard shoulder)	60	18	16-Dec-17 A	12-Jan-19	-72				Boad Drainage and Boa	d:Formation (FLH NB hard shoulder), Road	d Drainage and Boad Formation (FI H I	VB hard shoulder)
	ay Zone 7 between CH7660 and CH7925 at NBZ (Section 1 B)									rioda Bidanago ano rioda		i brainage and ribad ronnation (i 2111	
	dworks (265m)												
FHW-7330	Road Pavement (FLH NB 3rd lane at NBZ joint with CSHK) by re-surfacing	24	35	20-Aug-18 A	01-Feb-19	340					Road Pavement (FLH NB 3rd lane at	NBZ joint with CSHK) by re-surfacing, R	Road Pavement (FLH
FHW-7340	Road Pavement, Central Barrier (FLH NB 4th lane) by re-surfacing	24	24	20-Aug-18 A	19-Jan-19	351				Road Paveme	nt, Central Barrier (FLH NB 4th lane) by re-	surfacing, Road Pavement, Central Barr	rier (FLH NB 4th lane
								1		1			
			Act	tual Work			CEDD	Contract No.	. CV/201	12/09		Programme updated to 2018-12-2	
			Re	maining Work			Liantang / Heung				Date Revisi	ion Checked	Approved
			Sur	mmary Bar				cture Work					
			Crit	tical Remaining	g Work								
		• •		estone				th Rolling P					
				ject Baseline B	Bar		3MPR065	Page 2	of 6	20-Dec-18			
				, - 51 20001110 2									
1													

ty ID Activity Name	OD	RD	Start	Finish	TF	2	018		2019		
Remaining Works for Noise Barrier along widened Fanling Highway						Nov	Dec	Jan	Feb	Mar	Apr
FHW-NB-110a Installation of Steelworks & Panel for NB70 (25m, and extended 10m under VO199), adjacent to FLH SB lanes at Zone 1	6	6	11-Mar-19*	16-Mar-19	-120					Installation	of Steelworks & Par
FHW-NB-150 Installation of Steelworks & Panel for NB72 & NB73 (248m), adjacent to FLH SB lanes at Zones 4, 5 & 6	16	16	28-Feb-19	18-Mar-19	-121					Installati	on of Steelworks &
FHW-NB-220 Installation of Steelworks & Panel for NB68 (63m), FLH central median at Zones 1	36	0	10-Sep-18 A	24-Oct-18 A		on of Steelworks & Panel for NB68 (63m),	LH central median at Zone	s 1			
FHW-NB-320 Installation of Steelworks & Panel for NB67-2 (85m), adjacent to FLH NB lanes at Zones 2 & 3	14	14	20-Dec-18*	08-Jan-19	-86	i		Installation of Steelworks & P	anel for NB67-2 (85m), adjacent to FLH NE	lanes at Zones 2 & 3	
FHW-NB-330 Installation of Steelworks & Panel for NB69 (109m), adjacent to FLH NB lanes near	18	18	02-Feb-19*	01-Mar-19	-107	-				Installation of Steelworks & Pane	for NB69 (109m),
LR1 at Zone 3 Section I - Remainder of the Works (KD-3)											
At Grade Link Road at Fanling Highway Interchange											
Link Road 1 (near Abutment AB1)											
FHI-LR1-1010 Allow Contractor of Contract 4 for Installation of TCSS Cable at Abutment AB1	0	0		26-Oct-18 A		Contractor of Contract 4 for Installation of T	CSS Cable at Abutment AB				
		34	00 May 10 A		341	-				Der file Deurise et Alexterent AD4 De	d ciller a change a fra
FHI-LR1-1020 Backfilling works of abutment, Gully and Profile Barrier at Abutment AB1	20		28-May-18 A	31-Jan-19	_				 Backfilling works of abutment, Gully an 		-
FHI-LR1-1110 Road Formation and Pavement (CH 240 - CH 340, nr AB1)	15	15	19-Sep-18 A	09-Jan-19	360			Road Formation and Paver	enit (CH 240 - CH 340, nr AB1), Road Forn	ation and Pavement (CH 240 - CH 3	40, nr AB1)
FHI-LR1-1120 Road Formation, Road Drainage, TCSS ducting, Profile Barrier and Pavement (CH 80 - CH 240, nr NB66 & 67-1)	70	49	07-Feb-18 A	25-Feb-19	326				Ro	ad Formation, Road Drainage, TCS	S ducting, Profile B
Noise Barrier											
FHI-LR1-109 Noise Barrier NB67-1 - Remaining ground beam of Bay 3 (allow access from TWSRW)	7	7	20-Dec-18*	29-Dec-18	368			Noise Barrier NB67-1 - Remaining ground be	arh of Bay 3 (allow access from TWSRW)		
Link Road 2 (near Abutment AA1)											
FHI-LR2-2020 Construction of Fill slope FL/F10 and Road Formation of Link Road nr Abutment AA1	78	55	25-Apr-18 A	04-Mar-19	320					Construction of Fill slope FL/	-10 and Road For
FHI-LR2-2020 TCSS Duct Laying along Link Road next to FL/F10	52	52	28-Jul-18 A	28-Feb-19	323					TCSS Duct Laying along Link Roa	d next to FL/F10,
FHI-LR2-2030 3SW-D/FR32 Bay 3207 (including temporary works)	43	37	19-Jul-18 A	04-Feb-19	338				3SW-D/FR32 Bay 3207 (includin		
FHI-LR2-2030 3SW-D/FR32 Bay 3208 (including temporary works)	46	46	27-Aug-18 A	21-Feb-19	329						
			-							FR32 Bay 3208 (including temporary	
FHI-LR2-2030 3SW-D/FR32 Bay 3209 (including temporary works)	46	20	15-Aug-18 A	15-Jan-19	355			3SW-D/FR32 Bay 3	3209 (including temporary works), 3SW-D/F	R32 Bay 3209 (including temporary	works)
FHI-LR2-2030 3SW-D/FR32 Bay 3210 (including temporary works)	45	45	30-Jun-18 A	20-Feb-19	294				3SW-D/F	R32 Bay 3210 (including temporary v	vorks), 3\$W-D/FR3
FHI-LR2-2040 3SW-D/FR32 Bay 3212 (including temporary works)	37	37	20-Dec-18*	04-Feb-19	338				3SW-D/FR32 Bay 3212 (includin	g temporary works)	
FHI-LR2-2040 3SW-D/FR32 Bay 3213 (including temporary works)	35	35	14-Feb-19	26-Mar-19	294	-					3SW-D/FR32 E
FHI-LR2-2040 3SW-D/FR32 Bay 3214 (including temporary works)	36	36	21-Feb-19	03-Apr-19	294						351
FHI-LR2-2050 Road Pavement and Drainage next to Abutment (after completion of NB73 Bay 12&13	20	20	20-Dec-18	15-Jan-19	355	-		Road Pavement an	d Drainage next to Abutment (after com plet	on of NB73 Bay 12 & 13 Stem Wall)	
Stern Wall) FHI-LR2-2050 Road Formation, Road Drainage and Pavement (SMH1302 - 1303 & MY2.4 - 2.5) at	72	72	01-Mar-18 A	23-Mar-19	303		1			F	load Formation, Ro
grade FHW-SG-103(Fabrication and Delivery of Sign Gantry DS11	99	26	28-Dec-17 A	22-Jan-19	334			Fabricatio	n and Delivery of Sign Gantry DS11, Fabric	ation and Delivery of Sign Gantry DS	
FHW-SG-103(Erection of Sign Gantry DS11 (include On-site Fabrication)	15	15	23-Jan-19	15-Feb-19	334	-				Santry DS11 (include On-site Fabrica	
		34				_					
FHW-SG-104(Fabrication and Delivery of Sign Gantry FADS11 and DS64	99		02-Feb-18 A	31-Jan-19	326				Fabrication and Delivery of Sign Gantry		
FHW-SG-104(Erection of Sign Gantry FADS11 and DS64 (include On-site Fabrication)	15	15	01-Feb-19	25-Feb-19	326				En	action of Sign Gantry FADS11 and D	S64 (include On-si
Link Road 3 (near Abutment AD1)											
FHI-LR3-3020 Permanent Fill Slope, Construction of Guilies and Profile Barriers	48	35	25-Apr-18 A	01-Feb-19	315				Permanent Fill Slope, Construction of	Gullies and Profile Barriers, Permane	nt Fill Slope, Const
FHI-LR3-3030 Road Pavement	1	1	02-Feb-19*	02-Feb-19	315				Road Pavement		
								₽ /	OMarth Dallian D		
		Act	ual Work			CEDD (Contract No.	CV/2012/09	Date Revisi	Programme updated to 2018-1 on Checked	2-20 Approved
			maining Work			Liantang / Heung '	Yuen Wai B	CP - Site Formation &	Date		Αφισια
		Sur	mmary Bar			Infrastru	cture Work	s, Contract 3			
		Crit	tical Remainin	g Work			th Rolling P				
	•	🔶 Mil	estone			3MPR065	Page 3	-			
		Pro	ject Baseline E	Bar			raye s	20-Dec-10			

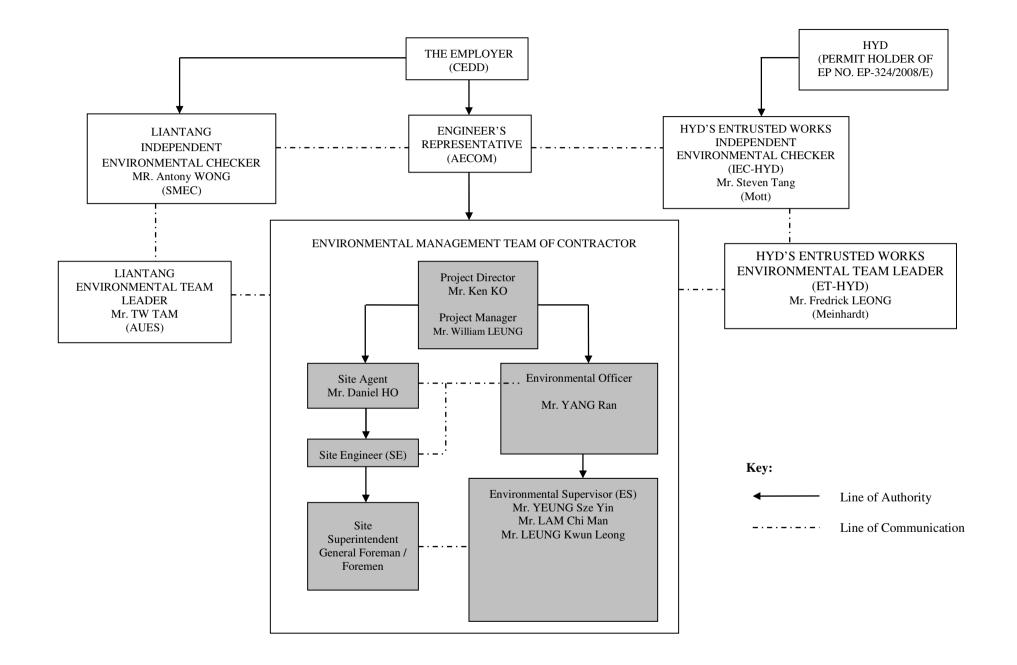
Activity ID	Activity Name	OD	RD	Start	Finish	T	2	018			2019				
							Nov	Dec		Jan	Feb		Mar	Apr	
FHI-LR3-304	Other Civil Works for TCSS duct laying - along Link Road 3	25	25	02-Feb-19	09-Mar-19	315						1	Other Civil Works for TCSS	duct laying - ald	
Link Road 4 (I	near Abutment AC1)														
FHI-LR4-403	Road Formation, Road Drainage, TCSS ducting and Pavement	55	35	27-Nov-17 A	01-Feb-19	296					Road Formation, Road Drainage,	TC\$S ducting a	nd Pavement, Road Formatio	n, Road Draina	
FHI-LR4-404	Remaining Section of Carriageway connect to FLH	44	44	02-Feb-19*	01-Apr-19	296								Remainin	
Viaduct - Pave	ment, Street Furnitures, Lighting inside Internal Voids and Others														
RS-1000a	MJ Installation for Pier AD5, AB6, AB12, AD1 and AC5	72	0	15-Mar-18 A	25-Oct-18 A		llation for Pier AD5, AB6, AB12, AD1 and A	5							
RS-1000b	MJ Installation for AC1, AC11, AA18, AA13 and AA9	33	0	28-May-18 A	31-Oct-18 A		MJ Installation for AC1, AC11, AA18, AA13	and AA9							
RS-1010d	Installation of Lighting	96	49	09-Mar-18 A	25-Feb-19	326						Installation of L	ighting, Installation of Lightin	g	
RS-1010e	Cable Connection	31	23	22-Oct-18 A	18-Jan-19	352				Cable Connectio	rt, Cable Connection				
RS-1020a	Allow Access for Street Lighting Installation	132	23	11-Jan-18 A	18-Jan-19	35/					Street Lighting Installation, Allow Acce	es for Street Link	ating Installation		
										AllowAccess for					
RS-1020b	Other Street Fumiture including Sign Gantry, NB, Handrail, traffic signs, etc, for Bridge A, B, C and D		49	26-Feb-18 A	25-Feb-19	326							miture including Sign Gantry,		
RS-1040b	Watermains Laying at PierAC4 on Viaduct (under VO171)	45	42	21-May-18 A	16-Feb-19	290					Watermains	Laying at Pier A	C4 on Viaduct (under VO171), Watemains I	
RS-1040c	Watermains Laying at Pier AD9 on Viaduct (under VO171)	36	36	18-Feb-19*	30-Mar-19	297								- Watermains	
RS-1040d	Watermains Laying at PierAB7 on Viaduct (under VO171)	43	43	18-Feb-19*	09-Apr-19	290									
RS-1040e	Watermains Laying at Pier AA12 on Viaduct (under VO171)	52	42	21-May-18 A	16-Feb-19	297					Watermains	Laying at Pier A	A12 on Viaduct (under VO17	1), Watermains	
RS-1040f	Watermains Laying at Pier AA7 on Viaduct (under VO171)	36	36	18-Feb-19*	30-Mar-19	297						-		Watermains	
RS-1070c	Road Pavement AA1 - AA18 (base coarse only)	6	10	28-May-18 A	03-Jan-19	365				Road Pavement AA1 - AA18 (base coa	atse only), Road Pavement AA1 - AA1	3 (base coarse o	only)		
RS-1080e	Waterproofing on Walkway AB6 - AB12	18	18	20-Dec-18*	12-Jan-19	357		E		Waterproofing on Walkw	ay AB6 - AB12				
RS-1090a2	Road Pavement AD8 - AD14 West (base coarse only)	3	0	27-Sep-18 A	20-Oct-18 A		ement AD8 - AD14 West (base coarse on ly)								
RS-1090b2	Road Pavement AD8 - AD14 East (base coarse only)	3	0	27-Sep-18 A	20-Oct-18 A		ement AD8 - AD14 East (base coarse only)								
RS-1090c	Waterproofing on Walkway (AD8-AD1 4 West and East Sides)	20	20	20-Dec-18*	15-Jan-19	355		c		Waterproofing on Wa	alkway (AD8-AD1 4 West and East Sid	es)			
RS-1110	Final Pavement and Road Marking	12	12	20-Dec-18*	05-Jan-19	363				Final Pavement and Road Marking					
	n inai r aventeni, anu muau iviaining	12	12	20-080-10	05041115	300		•							
WSD Works															
DN450 Fire M															
WA-1010c	Pipe Laying - CHA 38 - 113 (DN450) near Ext. TWSRW, 20m	11	102	16-Apr-18 A	03-May-19	-254									
WA-1020	Pipe Laying - CHA 113 - 135 (DN450) near Ext. TW SRW, 20m	102	102	20-Dec-18*	03-May-19	-169		l l l l l l l l l l l l l l l l l l l							
WA-1030	Pipe Laying - CHA 135 - 160 (DN450) near Ext. TW SRW, 25m	19	102	18-Apr-18 A	03-May-19*	-156									
WA-1110a	Pipe Laying - CHA 185 - 228 (DN450) near Ext. TWSRW, 43m	24	24	20-Dec-18*	19-Jan-19	-78				Pipe Laying - C	CHA 185 - 228 (DN450) near Ext. TWS	RW, 43m			
WA-1130b	Pipe Laying - CHA 373 - 380 (DN450) near Ext. TW SRW, 7m	18	18	20-Dec-18*	12-Jan-19	-85		•		Pipe Laying - CHA 373 - 3	380 (DN450) near Ext. TWSRW, 7m				
WA-1130c	Pipe Laying - CHA 380 - 388 (DN450) near Ext. TWSRW, 8m	12	12	20-Dec-18*	05-Jan-19	-79		e e e e e e e e e e e e e e e e e e e		Pipe Laying - CHA 380 - 388 (DN45	50) near Ext. TWSRW, 8m				
WA-2080	Pipe Laying - CHA 624 - 663 (DN450) along Ext. TWSRW SB, 39m	75	75	16-Jan-19*	24-Apr-19	-162						-			
DN1200 Wate	r Mains (CHC)														
WC-1030	Construction of IT inspection tee chamber(s) near the Jacking Pits	47	47	10-May-18 A	22-Feb-19	328					Co	struction of IT in	nspection tee chamber(s) near	the Jacking Pits	
DN2200 Wate	r Mains (CHF)														
			Act	ual Work								3-Month Rolling Programme updated to 2018-12-20			
					CEDD Contract No. CV/2012/09				Date Revision Checked			Approved			
	Summary Bar Critical Remaining Work				Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3										
					IY VVUK		3-Mon	h Rolling Pr		me					
		·		estone			3MPR065	Page 4 o	of 6	20-Dec-18			+		
			Proj	ject Baseline E	∃ar								+		
											l		1		

/ity ID	Activity Name	OD	RD	Start	Finish	TF	2018				2019			
ME 1000				00 D. 101	0151.05		Nov Dec	1	Jan		Feb		Mar	Apr
WF-4000	Modification of Existing DN2200 DAV Chamber at FLH NB near Kiu Tau Footbridge (covered by VO no.50)	35	35	20-Dec-18*	01-Feb-19	340				Modification c	of Existing DN2200 DAV	Chamber at FLH N	NB near Kiu Tau Foott	oridge (covered b
Existing Nam V	/a Po Trunk Sewage Pumping Station (PST3)													
PS-1010	Construction of New Boundary Wall for Pumping Station (PST3)	80	74	25-Nov-16 A	26-Mar-19	301								Construction of
Stage 1A - Rea	ignment of Tai Wo Service Road West (KD-7)													
TWSRW Zone	5 betweeen CH376 and CH520													
Construction	of Retaining Structures													
TWSRW-512	Remaining works incl. railing, u-channel on top of Bored Pile Wall (wait for VO)	22	22	25-Jun-18 A	17-Jan-19	-76						ks incl. railing, u-cha	annel on top of Bored	Pile Wall (wait
TWSRW-515	(Slope Works and Retaining Wall of FL-C2 (covered by VO183)	60	25	01-Dec-17 A	21-Jan-19	-79			Slope Work	s and Retaining V	Vall of FL-C2 (covered by	v VO183), Slope W	orks and Retaining V	all of FL-C2 (c
At-Grade Roa	dworks													
TWSBW-511	Retaining Wall RW9 - Bay 9002 & 9003 (covered by VO No.116)	45	26	05-Feb-16 A	22-Jan-19	-80			Betaining	Mall RW9 - Bay 9	002 & 9003 (covered by	(VONb 116) Reta	ining Wall RWQ - Bay	9002 8 9003
	(Filling Works between Retaining Wall RW7 and RW8	192	39	07-Jun-16 A	13-Feb-19	-93			- Tiotaining	an nivo - Bay o	_ ``			
											Filling Works betwee		-	
TWSRW-512	(Road Pavement and remaining works of Vehicular Access to Lot 81	27	27	12-Jul-18 A	23-Jan-19	-96			Road Pa	Vernent and remai	ining works of Vehicular	Access to Lot 81, F	Road Pavement and r	emaining works
TWSRW-516	Construction of Extended Podium near RW7 incl. filling works & slope protection (covered by VO No.100)	85	48	27-Oct-16 A	23-Feb-19	-102					Cons	truction of Extende	d Podium near RW7	incl. filling work
TWSRW-517	(Construction of Pavilion (covered by VO No.137)	49	49	10-Aug-18 A	25-Feb-19	-103					Co	instruction of Pavili	on (covered by VO No	.137), Constru
WSRW Zone	betweeen CH530 and CH640													
At-Grade Roa	dworks													
TWSRW-719	Remaining Road Drainage, Road Formation, Road Pavement and Footpath (incl. Zone	44	44	20-Dec-18*	19-Feb-19	-98					Remaining	Road Drainage, Ro	oad Formation, Road	Pavement and
TWSRW Zone	6 & Zone 7) 8 betweeen CH640 and CH695													
At-Grade Roa														
	Remaining Road Drainage, Road Formation, Road Pavement and Footpath	60	60	20-Dec-18*	09-Mar-19	315								
		60	60	20-Dec-16	09-10121-19	315		L				Hen	naining Road Drainag	e, Hoad Forma
Remainder of t														
TWSRW-9020	Filling Works to the abandoned section of TWSRW and modify existing sewerage manhole	75	75	20-Dec-18*	27-Mar-19	300								Filling Works t
Utilities Laying	Works													
UU-1010A	Utilities Duct Laying in Area 1, Phase 2, CLP - 132kV(150mVA), approx.30m at interface section	e 16	12	10-Jan-18 A	05-Jan-19	-164			Utilities Duct Laying in Area 1, Phas	e2, CLP - 132kV	(150mVA), approx.30m	at interface section	, Utilities Duct Laying	in Area 1, Pha
UU-1010B	Utilities Duct Laying in Area 1, Phase 2, Towngas - DN600, approx.20m at interface	58	58	01-Mar-19	14-May-19	-164								
UU-1030	section Utilities Duct Laying in Area 3, Phase 1 (along existing TWSRW, Approx. 150m) (by	7	7	20-Dec-18*	26-Dec-18	-70		Utilit	ies Duct Laying in Area 3, Phase 1 (along exis	thg TWSRW, Ap	prox. 150m) (by utilities	undertakers)		
UU-1030A	utilities undertakers) Utilities Duct Laying in Area 3, Phase 2, CLP - 132kV(150mVA), approx. 30m	27	49	10-Jan-18 A	25-Feb-19	-103				-			n Area 3, Phase 2, CL	P - 132kV(150r
UU-1040A	Utilities Duct Laying in Area 4, Phase 2, Towngas - DN600 & DN400, approx. 50m (by	121	50	15-Sep-16 A	26-Feb-19	-137							in Area 4, Phase 2, T	
	their own TTA)											Dunities Duct Laying	ITAIea 4, Pilase 2, 1	Jwilgas - Divou
UU-1040B	Utilities Duct Laying in Area 4, Phase 2, CLP - 132kV(150mVA), approx. 50m (by their own TTA)	33	33	27-Feb-19	06-Apr-19	-137				ļ				
	f Existing Utilitiess													
UU-SO-2520	Switch-over Works (CLP 11 kV)	16	16	20-Dec-18*	04-Jan-19	447			Switch-over Works (CLP 11 kV)					
UU-SO-3500	Switch-over Works (Towngas, DN400)	30	30	27-Feb-19*	28-Mar-19	364								Switch-over
Remaining Wo	ks for Noise Barrier along realigned TWSRW													
TWSRW-NB-1	Noise Barrier Steelworks & Panel for NB2 at Zone 5	15	15	24-Jan-19*	16-Feb-19	-96				1	Noise Barrier St	eelworks & Panel fo	or NB2 at Zone 5	
								L		:		:		
			Act	ual Work			CEDD Contract No.	CV/20-	12/09		3-Month Rolling F	Programme upd	lated to 2018-12-2	0
			Re	maining Work						Date	Revisi	ion	Checked	Approved
				mmary Bar			Liantang / Heung Yuen Wai Bo							
				-			Infrastructure Work	s, Cont	ract 3					
				tical Remainin	iy vvork		3-Month Rolling P	rogram	me					
		ب	🔶 Mil	estone			3MPR065Page 5	-	20-Dec-18					
			Pro	ject Baseline E	Bar		Page 5	0.0	20-Det-10					
				-										

TWSRE Zone 1 L		OD	RD	Start	Finish	TF	Dr -		2019		A
	B - Realignment of Tai Wo Service Road East (KD-13 & KD-14)					No	Dec	Jan	Feb	Mar	Apr
	between CH100 and CH270										
At-Grade Roady	Works										
	Road Formation, Kerb and Pavement (Incl. FL/F8A, FL/F9)	24	42	11-Oct-17 A	16-Feb-19	333			Poord Formati	on, Kerb and Pavement (Incl. FL/F8A,	EL (EQ) Bood Form
									noau ronnau		
	Drainage Works on Permanent Cycle Track (under VO159)	80	56	15-Jan-18 A	05-Mar-19	287	 			Drainage Works on Perman	ient Cycle Track (ui
	Road Pavement on Permanent Cycle Track	32	32	06-Mar-19	12-Apr-19	287					
WSRE Zone 2 I	between CH270 and CH380										
At-Grade Road	Works										
TWSRE-2100	Road Formation, Kerb and Pavement	20	22	23-Oct-17 A	16-Feb-19	333			Road Formation	on, Kerb and Pavement, Road Formati	on, Kerb and Pav
TWSRE-2110	Drainage Works on Permanent Cycle Track (under VO159)	80	55	26-Mar-18 A	04-Mar-19	287				Drainage Works on Permane	nt Cycle Track (unr
TWSRE-2120	Road Pavement on Permanent Cycle Track	33	33	05-Mar-19	12-Apr-19	287	 				
WSRE Zone 3	between CH380 and CH456										
At-Grade Road	Works										
TWSRE-3050	Drainage Works on Permanent Cycle Track (under VO159)	45	45	03-Apr-18 A	20-Feb-19	290			Drainage	e Works on Permanent Cycle Track (un	der VO159), Drain
	Road Pavement on Permanent Cycle Track	40	40	21-Feb-19	09-Apr-19	290					
	ks for Noise Barrier along realigned TWSR East						 				
	Installation of Steelwork & Transparent Panel - Noise Barrier NB3 (254m)	05	70	00 km 47 A	00 Mar 40	297					
		35	78	09-Jun-17 A	30-Mar-19	297					Installatio
-	uct Structure & TCSS Civil Provisions (KD-9)										
liaduct Bridge S	Segement Erection										
Key Segment E	Erection and Stitch Casting (Narrow-box Section)										
KD-D-2000	Construction of longitudinal stitch at Bridge D3	35	19	11-May-18 A	14-Jan-19	356		Construction of long	itudinal stitch at Bridge D3, Construction o	f longitudinal stitch at Bridge D3	
andscaping &	Establishment Works (KD-4, 4A, 5, 5A, 6)										
Secton 3A - Lan	dscaping Softworks in NBZ1										
S3A-1000	Transplant and Landscaping Softworks in NBZ1	50	50	20-Dec-18*	26-Feb-19	-140				Transplant and Landscaping Softwork	us in NBZ1
Secton 3 - Rema	ainder of Landscaping Softworks Not Included in Secton 3A										
S3-1000	Transplant and Landscaping Softworks on At grade Road	131	75	26-Mar-18 A	27-Mar-19	-164	 		-		Transplant ar
S3-1010	Transplant and Landscaping Softworks on Viaduct or other remaining area	48	48	20-Dec-18*	23-Feb-19	-101			Trar	splant and Landscaping Softworks or	Viaductorother
	ablishment Works for Landscape Softworks under Section 3A										
	Establishment Works at NBZ1	005	005	07 Eeb 10	06 Eath 00	170					
S4A-1000	Establishment works at NB21	365	365	27-Feb-19	26-Feb-20	-178					



Appendix B Project Organization Structure





Appendix C Calibration Certificates of Monitoring Equipment



RECALIBRATION DUE DATE: February 13, 2019

Environmental Certificate of Calibration

			Calibration	Certificatio	on Informat	ion			
Cal. Date:	February 1	3, 2018	Roots	meter S/N:	438320	Ta:	293	°К	
Operator:	Jim Tisch					Pa:	763.3	mm Hg	
Calibration	Model #:	TE-5025A	Calil	prator S/N:	1612				
			Mal Plant	A) (- 1	ATI	AD	A11		
	Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	∆H (in H2O)		
	1	1	2	(113)	1.3970	3.2	2.00		
	2	3	4	- 1	1.0000	6.3	4.00		
	3	5	6	1	0.8900	7.9	5.00		
	4	7	8	1	0.8440	8.7	5.50		
	5	9	10	1	0.7010	12.6	8.00		
				Data Tabula	tion				
	Vstd Qstd $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$)(<u>Tstd</u>)		Qa	$\sqrt{\Delta H(Ta/Pa)}$			
	(m3)	(x-axis)	(y-ax	(is)	Va	(x-axis)	(y-axis)		
	1.0172	0.7281	1.42	93	0.9958	0.7128	0.8762		
	1.0130	1.0130	2.02	and the second se	0.9917	0.9917	1.2392		
		1.0109 1.1358 2.259			0.9896	1.1120	1.3854		
	1.0098	1.1964	2.37	A PERSON NEW YORK OF THE PARTY	0.9886	1.1713	1.4530		
	1.0046	1.4331	2.85 2.02 (0.9835	1.4030 m=	1.7524 1.26500	4	
	QSTD	m= b=	-0.03		QA	b= -0.02263		1	
	QSID	r=	0.999	988		r= 0.99988			
				Calculatio	ns	1			
	Vstd=	∆Vol((Pa-∆P)/Pstd)(Tstd/T						
	Qstd=	Vstd/∆Time			Qa=	Va/∆Time]	
			For subsequ	uent flow ra	te calculatio	ns:		-	
	Qstd=	1/m ((Pa <u>Tstd</u>	-))-b)	Qa=	$1/m\left(\sqrt{\Delta H}\right)$	H(Ta/Pa))-b)		
	Standard	Conditions							
Tstd		CONTRACTOR AND A CONTRACTOR OF A DATA OF				RECA	LIBRATION		
Pstd	1	mm Hg			LIS FPA rec	ommends a	nnual recalibrati	on per 1999	
AH: calibrat		Key ter reading (in H2O)				Regulations Part		
		eter reading			1), Reference Metl		
Ta: actual a	bsolute tem	perature (°K)				ended Particulat		
		ressure (mm	Hg)		1		ere, 9.2.17, page		
b: intercept	t								
m: slope									

Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

www.tisch-env.cor TOLL FREE: (877)263-761(FAX: (513)467-900

TSP Sampler Calibration

		SI	ſE		
Location: Lian	2			January 5,	2019
Sampler: TE-5	170 MFC (Serial	₩ : 23	Jy) Tech:	Sam Wong	

	CONDITIONS							
Barometric Pressure	(in Hg):	40.15	Corrected Pressure	(mm Hg):	1020			
Temperature	(deg F):	66	Temperature	(deg K):	292			
Average Press.	(in Hg):	40.15	Corrected Average	(mm Hg):	1020			
Average Temp.	(deg F):	66	Average Temp.	(deg K):	292			

		CALIBRATION ORIFICE	
Make:	Tisch	Qstd Slope:	2.02017
Model:	TE-5025A	Qstd Intercept:	-0.03691
Serial#:	1612	Date Certified:	February 13, 2018

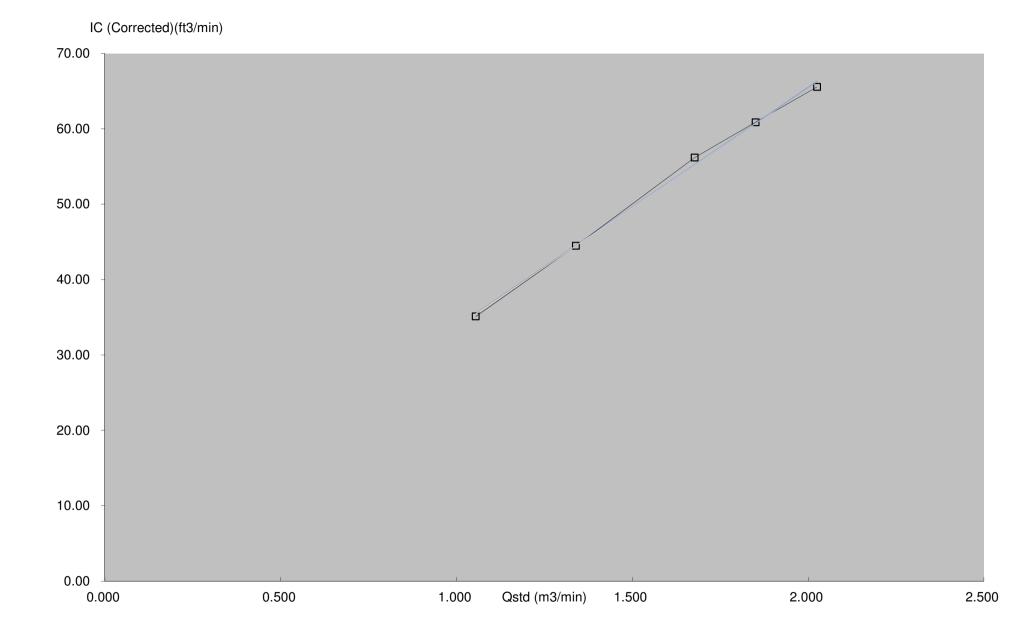
CALIBRATIONS										
Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION					
1	12.00	2.025	56.0	65.55	Slope =	31.7376				
2	10.00	1.850	52.0	60.86	Intercept =	1.9907				
3	8.20	1.677	48.0	56.18	Corr. coeff.=	0.9987				
4	5.20	1.339	38.0	44.48						
5	3.20	1.055	30.0	35.11	<pre># of Observations:</pre>	5				

Calculations

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

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

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





Certificate No	. 803615		Pa	ge 1 of 2 Pages
Customer :	Enovative Environmental Se	ervice Limited		
Address :	Flat 6, 3/F, Block E, Wah Lok I	Industrial Centre, 31-35	5 Shan Mei Street, S	Shatin, N.T., Hong Kong
Order No. :	Q81437		Date of rece	ipt : 13-Apr-18
Item Tested				
Description	: Sound Level Calibrator			
Manufacturer			I.D.	: 217656
Model	: NC-74		Serial No.	: 34678506
Test Condit	ions			
Date of Test :	20-Apr-18		Supply Volta	age :
Ambient Temp				midity: (50 ± 25) %
Test Specifi				
Calibration che	ck			
	/Procedure : F21, Z02.			
rton. D'obuintoni	111000daro : 1 2 1, 202.			
Test Result	S			
All				
	within the IEC 60942 Class 1			
The results are	shown in the attached page(S).		
Main Test equi	nment used:			
Equipment No.		Cert. No.		Traceable to
S014	Spectrum Analyzer	707126		NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	703741		NIM-PRC & SCL-HKSAR
S041	Universal Counter	802061		SCL-HKSAR
S206	Sound Level Meter	707129		SCL-HKSAR
0200		101123		JUL-INJAN
will not include allo overloading, mis-ha	n this Calibration Certificate only related wance for the equipment long term of andling, or the capability of any other hage resulting from the use of the equi	frift, variations with environ r laboratory to repeat the r	nmental changes, vibi	it and any uncertainties quoted ration and shock during transportation, Kong Calibration Ltd. shall not be liable
The test equipmen The test results ap	t used for calibration are traceable to ply to the above Unit-Under-Test only	o International System of U y	Jnits (SI), or by refere	nce to a natural constant.
	MAN			0
Calibrated ku	. X			(day
Calibrated by	Elva Chong	A	pproved by : _	Kin Wong
This Certificate is issued		D	ate: 20-Apr-18	NIT WONG
Hong Kong Calibration Lt	d.		a.o. 20-Api-10	
Jnit 8B, 24/F , Well Fung Fel: 2425 8801 - Fax: 242	Industrial Centre, No. 58-76, Ta Chuen Ping Str 25 8646	eet,Kwai Chung, NT,Hong Kong.		



Certificate No. 803615

Page 2 of 2 Pages

Results :

1. Generated Sound Pressure Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94.0	94.2	± 0.4 dB

Uncertainty : $\pm 0.2 \text{ dB}$

 Short-term Level Fluctuation : 0.0 dB IEC 60942 Class 1 Spec. : ± 0.1 dB Uncertainty : ± 0.01 dB

3. Frequency

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	0.999	± 1 %

Uncertainty : \pm 3.6 x 10 ⁻⁶

4. Total Distortion : < 1.1 % IEC 60942 Class 1 Spec. : < 4 % Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 016 hPa.

----- END -----

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Certificate No.	804605		Page	1 of	3	Pages
Customer :	Enovative Environmental Servic	e Limited				
Address :	Flat 6, 3/F, Block E, Wah Lok Indus	strial Centre, 31-35 Sha	an Mei Street, Shati	n, N.T.,	Hong	Kong.
Order No. :	Q81807		Date of receipt	:		9-May-18
Item Tested						
Description :	Sound Level Meter					
Manufacturer :			I.D.	:		
	NL-52		Serial No.	: 01	14348	34
Test Conditi	ons					
Date of Test :	15-May-18		Supply Voltage	:		
Ambient Temp	erature : (23 ± 3)°C		Relative Humidi	ty : (50	± 25) %
Test Specifi	cations					
Calibration chec Ref. Document/	k. Procedure: Z01, IEC 61672.					
Test Results	•					
	within the IEC 61672 Type1 or n shown in the attached page(s).	nanufacturer's specif	ication.			
Main Test equip	ment used:					
Equipment No.		<u>Cert. No.</u>	-	Traceat	ole to	
S017	Multi-Function Generator	C170120		SCL-HK	SAR	
S240	Sound Level Calibrator	803357	1	NIM-PR	C & S	SCL-HKSAR
will not include allow overloading, mis-ha	this Calibration Certificate only relate to vance for the equipment long term drift, v ndling, or the capability of any other labc age resulting from the use of the equipm	variations with environmen pratory to repeat the meas	ntal changes, vibration	n and sho	ck duri	ing transportation,
	used for calibration are traceable to Inte ly to the above Unit-Under-Test only	rnational System of Units	(SI), or by reference t	to a natur	al cons	stant.

Calibrated by :	Appro	oved by :	Chri
Elva Chong			Kin Wong
This Certificate is issued by:	Date:	15-May-18	
Hong Kong Calibration Ltd.			
Holt OD 24/E Molt Euro Industrial Castra No 50 76 To Church Disc Obert Musi Church MT Hans M			



Certificate No. 804605

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Results :

1. Self-generated noise: 16.0 dBA (Mfr's Spec \leq 17 dBA)

2. Acoustical signal test

	UUT S	Setting			
	Frequency	Time	Octave	Applied	UUT
Range (dB)	Weighting	Weighting	Filter	Value (dB)	Reading (dB)
20-130	A	F	OFF	94.0	94.0
		S	OFF		94.0
	С	F	OFF		94.0
	Z	F	OFF		94.0
	А	F	OFF	114.0	114.1
		S	OFF	:	114.1
	С	F	OFF		114.1
	Z	F	OFF		114.1

IEC 61672 Type 1 Spec. : \pm 1.1 dB Uncertainty : \pm 0.1 dB

Attenuation (dB) IEC 61672 Type 1 Spec. Frequency 31.5 Hz -39.6 - 39.4 dB, ± 2 dB -26.2 - 26.2 dB, ± 1.5 dB 63 Hz -16.2 125 Hz - 16.1 dB, ± 1.5 dB -8.7 - 8.6 dB, ± 1 dB 250 Hz -3.2 500 Hz - $3.2 \text{ dB}, \pm 1.4 \text{ dB}$ 1 kHz 0.0 (Ref) $0 \, dB, \pm 1.1$ dB 2 kHz +1.0+ 1.2 dB, ± 1.6 dB +0.7+ $1.0 \text{ dB}, \pm 1.6 \text{ dB}$ 4 kHz - 1.1 dB, + $2.1 \text{ dB} \sim -3.1 \text{ dB}$ 8 kHz -1.26.6 dB, + 3.5 dB ~ - 17.0 dB 16 kHz -8.6 -

3 Electrical signal tests of frequency weightings (A weighting)

Uncertainty : $\pm 0.1 \text{ dB}$



Certificate No. 804605

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4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT	Applied	UUT	Difference	IEC 61672
Setting	Value (dB)	Reading (dB)	(dB)	Type 1 Spec.
Setting			(uD)	
A	94.0	94.0 (Ref.)		$\pm 0.4 \text{ dB}$
C	94.0	94.0	0.0	
Z	94.0	94.0	0.0	

4.2 Time Weighting (A-weighted)

UUT	Applied	UUT	Difference	IEC 61672
Setting	Value (dB)	Reading (dB)	(dB)	Type 1 Spec.
Fast	94.0	94.0 (Ref.)	·	$\pm 0.3 \text{ dB}$
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : $\pm 0.1 \text{ dB}$

Remarks : 1. UUT : Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Atmospheric Pressure : 1 009 hPa.
- 4. Preamplifier model : NH-25, S/N : 21113
- 5. Firmware Version: 1.8
- 6. Power Supply Check: OK
- 7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

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



Appendix D EM&A Monitoring Schedules

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2 Impact Monitoring & Site Auditing Schedule for January 2019

			January 2019	ne for January 2019		
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 The First Day of January	2 24-hour TSP + 3 x 1-hour TSP, Noise (SR77) ET Site Walk(14:00pm – 18:00pm)	3	4	5
6	7	8 24-hour TSP + 3 x 1- hour TSP, Noise (SR77) ET Site Walk(14:00am – 18:00pm	9	10	11	12
13	14 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	15	16 ET Site Walk(09:30 am – 11:00 am) with Liantang Project-wide ET and IEC + SSEMC	17	18 24-hour TSP + 3 x 1-hour TSP (SR77)	19
20	21	22	23	24 24-hour TSP + 3 x 1-hour TSP, Noise (SR77) ET Site Walk(09:30am – 11:00am)	25	26
27	28 ET Site Walk(14:30am – 18:00 am) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC	29	30 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	31		

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2 Impact Monitoring & Site Auditing Schedule for February 2019

			February 2019	9		
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	5 Lunar New Year's Day	6 The second day of Lunar New Year	The third day of Lunar New Year	8 24-hour TSP + 3 x 1-hour TSP ET Site Walk(09:30am – 11:00am)	9
10	11	12	13	14 24-hour TSP + 3 x 1-hour TSP, Noise (SR77) ET Site Walk(09:30am – 11:00am) (To be confirmed)	15	16
17	18	19	20 24-hour TSP + 3 x 1-hour TSP, Noise (SR77) ET Site Walk(09:30 am – 11:00 am) with Liantang Project- wide ET and IEC + SSEMC (To be confirmed)	21	22	23
24	25	26 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)		28 ET Site Walk(09:30am – 11:00 am) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC (To be confirmed)		



Appendix E Meteorological Data Extracted from Hong Kong Observatory

			Но	ng Kong O	bserva	atory			King's Park	Waglan Is	iland^
Day	Mean Pressure (hPa)	Absolute	empera Mean (deg. C)	Absolute Daily Min (deg. C)	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)
01	1026.5	15.9	13.8	11.4	8.0	68	84	Trace	4.6		
02	1025.4	16.4	14.8	13.5	8.9	68	87	Trace	0.1		
03	1024.3	17.3	16.2	14.9	13.4	84	91	0.1	0.0		
04	1022.8	20.9	18.8	16.8	15.8	83	87	0.1	1.3		
05	1020.5	22.7	19.8	18.9	17.6	87	88	0.0	0.5		
06	1021.5	20.0	18.6	17.6	15.7	83	92	Trace	0.0		
07	1021.4	20.0	18.5	17.4	15.6	83	89	0.0	0.0		
08	1021.3	20.7	19.2	17.2	16.5	84	94	0.2	0.0		
09	1022.3	18.7	17.8	17.2	15.1	84	89	0.0	2.7		
10	1020.2	20.8	19.2	17.4	16.0	82	88	0.0	2.6		
11	1018.6	23.3	20.6	18.2	17.7	84	55	0.0	6.5		
12	1018.3	22.8	20.9	19.3	17.9	83	64	Trace	8.6		
13	1019.3	19.8	18.5	17.7	16.8	89	91	Trace	0.0		
14	1018.8	19.7	18.5	17.6	16.2	86	94	Trace	0.1		
15	1018.8	21.1	19.0	17.0	16.9	88	88	4.0	1.2		
16	1020.5	19.9	17.3	15.9	12.2	72	87	0.0	0.8		
17	1022.2	19.5	16.7	14.6	11.3	70	55	0.0	8.1		
18	1022.1	18.5	17.1	15.8	12.6	75	79	0.0	2.0		
19	1019.6	21.9	18.8	17.1	14.2	75	85	0.2	1.7		
20	1018.9	23.4	20.4	18.1	15.3	73	76	0.1	5.2		
21	1021.8	20.0	17.8	15.8	11.0	64	66	0.0	4.2		
22	1022.3	19.1	16.0	13.1	6.2	53	21	0.0	10.0		
23	1021.0	19.2	16.2	13.7	8.8	62	3	0.0	9.8		
24	1020.6	19.6	16.9	15.0	11.5	71	10	0.0	10.0		
25	1021.2	22.2	18.7	16.1	12.3	67	13	0.0	10.2		
26	1023.1	21.2	18.2	16.7	13.3	73	17	0.0	8.6		
27	1023.6	19.4	16.9	15.6	11.5	71	80	0.0	7.0		
28	1021.6	20.3	17.5	15.7	11.4	68	63	0.0	3.3	***	
29	1021.4	20.5	18.5	16.9	13.7	74	39	0.0	9.8		
30	1020.8	21.6	19.3	17.2	14.4	73	69	0.0	6.7		
31	1018.9	24.5	21.7	18.9	17.2	76	67	0.0	7.7		
Mean/Total	1021.3	20.4	18.1	16.4	13.7	76	68	4.7	133.3		
Normal§	1020.3	18.6	16.3	14.5	11.4	74	61	24.7	143.0	060	25.3

Daily Extract of Meteorological Observations , January 2019

*** unavailable

^ 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

§ 1981-2010 Climatological Normal, unless otherwise specified

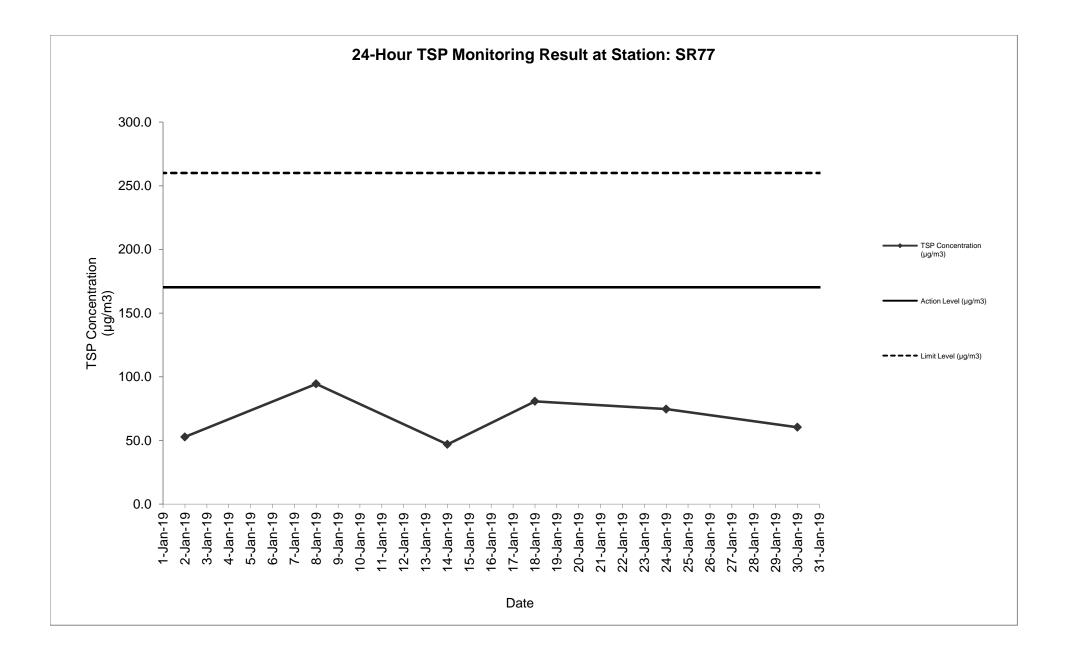


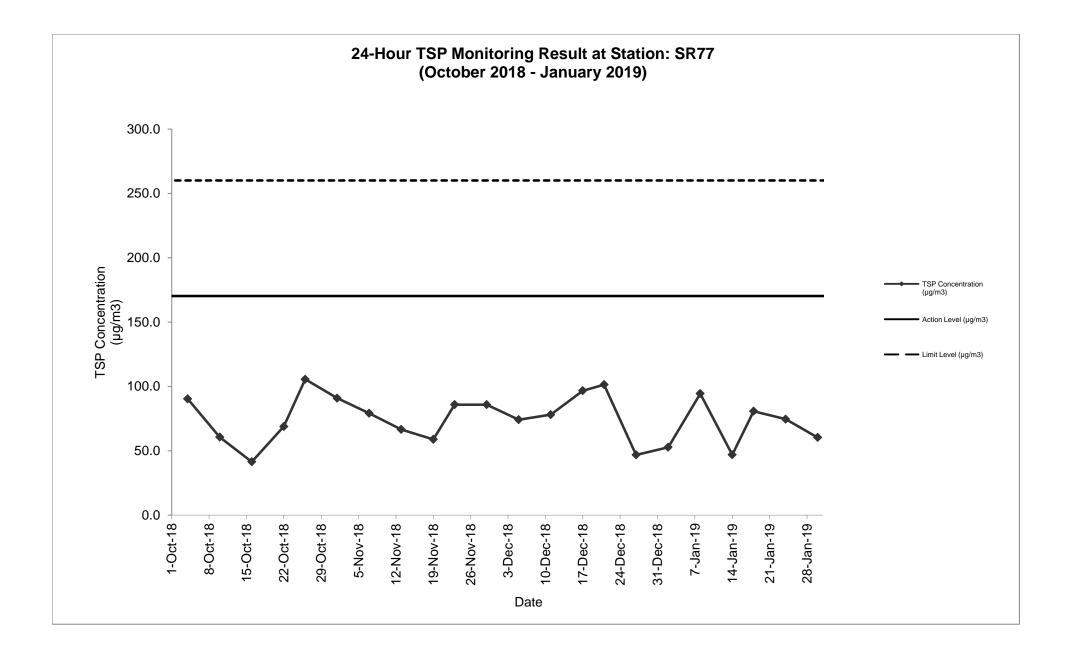
Appendix F Air Quality Monitoring Results and their Graphical Presentation

Sampling Date	Weather Condition	Starting Time	Paper No.	w	/t. of paper	(g)	E	Elapse Tim	ne	Flo	ow Rate (C	CFM)	Flow	v Rate (m ³	/min)	Total Volume	TSP Concentration	Action Level	Limit Level	Wind speed	Wind direction	NOE	IR
Date	Condition	Time		Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate	(m³)	(µg/m³)	(µg/m3)	(µg/m3)	m/s	unection		
2-Jan-19	Cloudy	12:11	C214	2.6835	2.7933	0.1098	9414.67	9438.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	52.8	170.3	260.0	<5	N		
8-Jan-19	Cloudy	12:14	C216	2.6663	2.8627	0.1964	9441.67	9465.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	94.4	170.3	260.0	<5	N		
14-Jan-19	Cloudy	12:12	C218	2.6676	2.7652	0.0976	9468.67	9492.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	46.9	170.3	260.0	<5	N		
18-Jan-19	Cloudy	12:14	C220	2.6710	2.8389	0.1679	9495.67	9519.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	80.7	170.3	260.0	<5	N		
24-Jan-19	Sunny	12:11	C222	2.6666	2.8218	0.1552	9522.67	9546.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	74.6	170.3	260.0	<5	N		
30-Jan-19	Fine	12:14	C224	2.6755	2.8012	0.1257	9549.67	9573.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	60.4	170.3	260.0	<5	N		
																Average	68.3						
															ſ	Min	46.9						
																Max	94.4						

24-Hour TSP Monitoring Result at Station: SR77

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



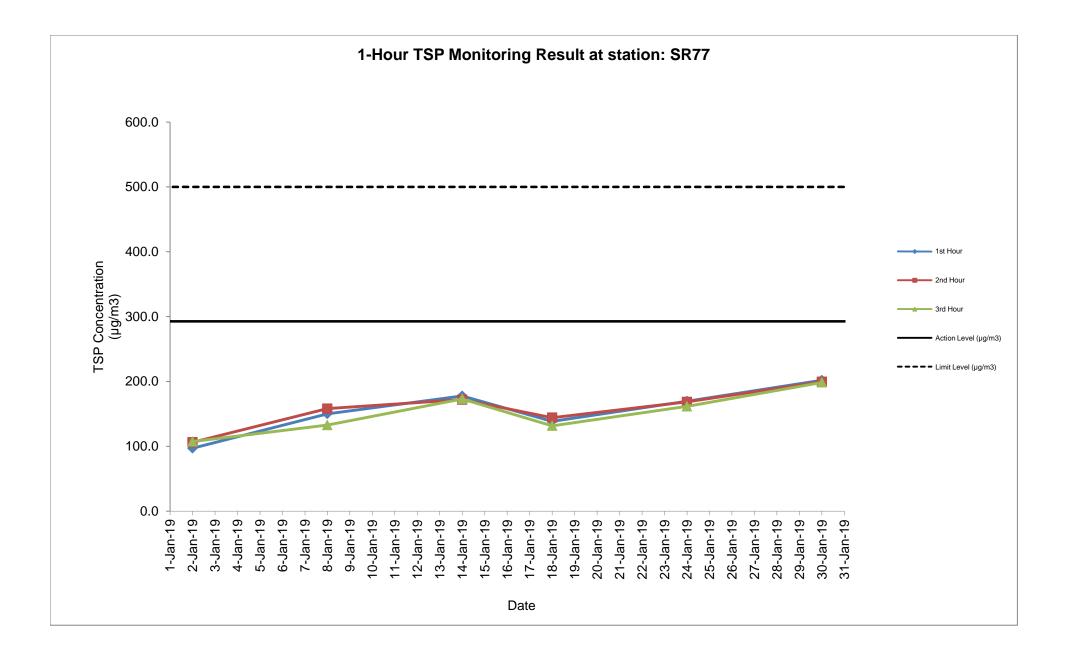


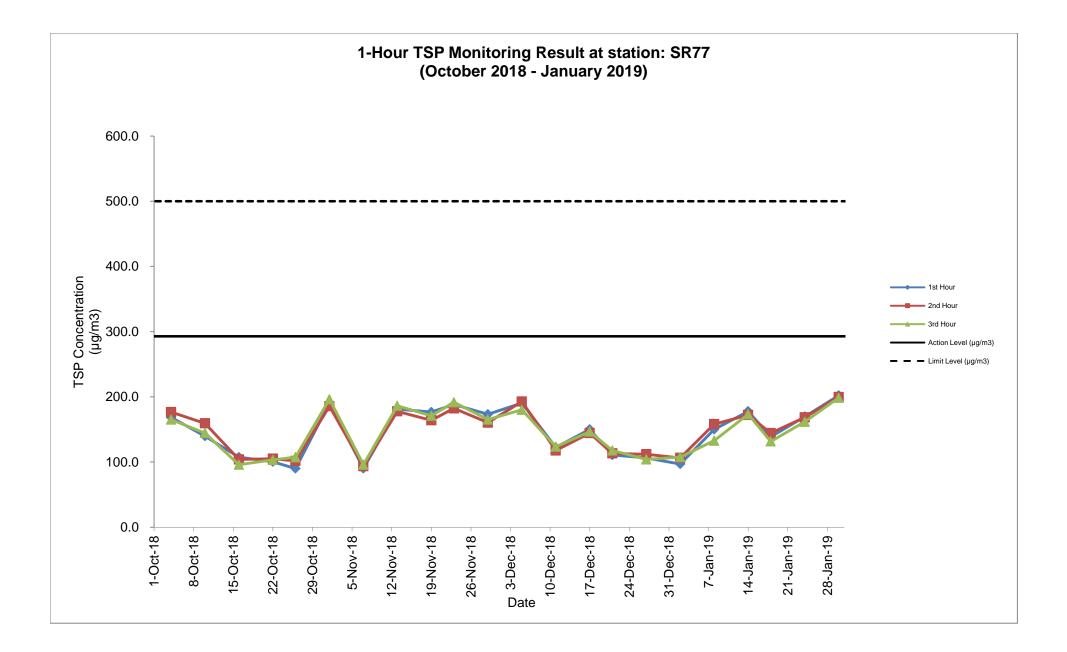
Sampling Date	Weather Condition	Starting Time	Paper No.		Vt. of pape	r (g)	EI	apse Time		Flo	w Rate (C	FM)	Flov	v Rate (m³/	/min)	Total Volume	TSP Concentration	Action Level	Limit Level	Wind speed	Wind direction	NOE	IR
Date	Condition	Time		Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate	(m³)	(µg/m³)	(µg/m3)	(µg/m3)	m/s	direction		
2-Jan-19	Cloudy	09:00	C215A	2.6657	2.6741	0.0084	9411.67	9412.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	96.9	292.7	500.0	<5	N		
	Cloudy	10:04	C215B	2.6491	2.6583	0.0092	9412.67	9413.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	106.2	292.7	500.0	<5	N		
	Cloudy	11:08	C215C	2.6708	2.6801	0.0093	9413.67	9414.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	107.3	292.7	500.0	<5	N		
8-Jan-19	Cloudy	09:00	C217A	2.6714	2.6844	0.0130	9438.67	9439.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	150.0	292.7	500.0	<5	N	لـــــــــــــــــــــــــــــــــــــ	
	Cloudy	10:04	C217B	2.6551	2.6688	0.0137	9439.67	9440.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	158.1	292.7	500.0	<5	N	<u>الـــــــا</u>	
	Cloudy	11:09	C217C	2.6646	2.6761	0.0115	9440.67	9441.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	132.7	292.7	500.0	<5	N	لـــــــــــــــــــــــــــــــــــــ	
14-Jan-19	Cloudy	09:00	C219A	2.6647	2.6801	0.0154	9465.67	9466.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	177.7	292.7	500.0	<5	N	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	
	Cloudy	10:04	C219B	2.6613	2.6762	0.0149	9466.67	9467.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	172.0	292.7	500.0	<5	N	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	
	Cloudy	11:08	C219C	2.6391	2.6541	0.0150	9467.67	9468.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	173.1	292.7	500.0	<5	N	لـــــــــــــــــــــــــــــــــــــ	
18-Jan-19	Cloudy	09:00	C221A	2.6604	2.6724	0.0120	9492.67	9493.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	138.5	292.7	500.0	<5	N	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	
	Cloudy	10:04	C221B	2.6542	2.6667	0.0125	9493.67	9494.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	144.3	292.7	500.0	<5	N	<u>الــــــا</u>	
	Cloudy	11:09	C221C	2.6677	2.6791	0.0114	9494.67	9495.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	131.6	292.7	500.0	<5	N	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	
24-Jan-19	Sunny	09:00	C223A	2.6647	2.6794	0.0147	9519.67	9520.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	169.6	292.7	500.0	<5	N	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	
	Sunny	10:04	C223B	2.6588	2.6734	0.0146	9520.67	9521.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	168.5	292.7	500.0	<5	N	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	
	Sunny	11:09	C223C	2.6711	2.6851	0.0140	9521.67	9522.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	161.6	292.7	500.0	<5	N	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	
30-Jan-19	Fine	09:00	C225A	2.6706	2.6881	0.0175	9546.67	9547.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	202.0	292.7	500.0	<5	N	<u>ا</u> ــــــــــــــــــــــــــــــــــــ	
	Fine	10:04	C225B	2.6588	2.6761	0.0173	9547.67	9548.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	199.7	292.7	500.0	<5	N	<u>ا</u> ـــــــــــا	
	Fine	11:08	C225C	2.6613	2.6785	0.0172	9548.67	9549.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	198.5	292.7	500.0	<5	N	<u>ا</u> ا	
																Average	154.9						
																Min	96.9						
																Max	202.0						

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

Note:

No major dust source observed during the monitoring period Data in **Bold** denotes exceedanece of respective Action Level Data in <u>Bold Underline</u> denotes exceedance of respective Limit Level







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

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

Event and Action Plan for Noise

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



Event and Action Plan for Water Quality

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

Event	Action							
	ET Leader	IEC	ER	Contractor				
Limit level being exceeded by one sampling day	 Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, ER & EPD; Check monitoring data, all plant, equipment & contractor's working methods; Discuss mitigation measures with IEC, Contractor & ER. 	 Checking monitoring data submitted by ET & Contractor's working method; Discuss with ET & Contractor on the possible mitigation measures; Review the proposed mitigation measures submitted by Contractor & advise the ER accordingly. 	 Confirm receipt of notification of failure in writing; Discuss with IEC, ET & Contractor on the proposed mitigation measures; Request Contractor to review the working methods. 	 Inform the ER & confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant & equipment & consider changes of working methods; Submit proposal of mitigation measures to ER within 3 working days of notification & discuss with ET, IEC & ER. 				
Limit level being exceeded by two or more consecutive sampling days	 Repeat measurement on the next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, Contractor, ER & EPD; Check monitoring data, all plant, equipment & Contractor's working methods; Discuss mitigation measures within IEC, Contractor & ER; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. 	 Checking monitoring data submitted by ET & Contractor's working method; Discuss with ET & Contractor on potential remedial actions; Review Contractor's mitigation measures whenever necessary to assure their effectiveness & advise the ER accordingly; Supervise the implementation of mitigation measures. 	review the working methods;	 measures; 4. Resubmit proposals of mitigation measures if problem still not under control; 				



Appendix H Noise Monitoring Results and their Graphical Presentation

Appendix H Noise Monitoring Results and their Graphical Presentation

Noise Monitoring Result at SR77

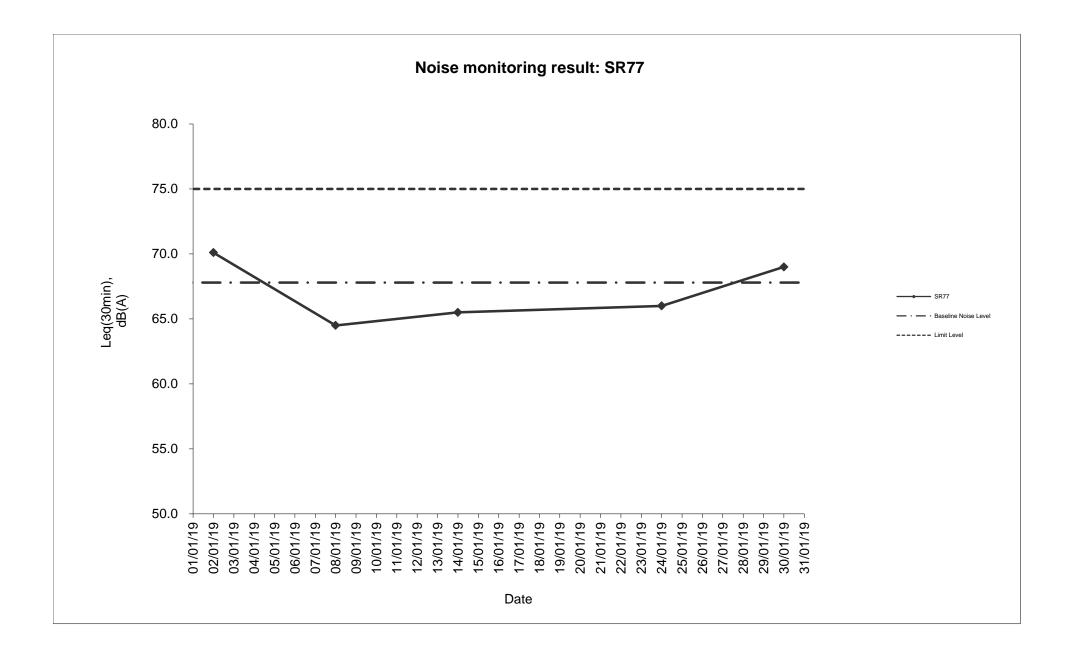
Date	Weather	Start	End	Measured Noise Level (dB(A))*		Baseline Corrected	Baseline Noise Level	Limit Level	
	Condition	Time	Time	L10(30min)	L90(30min)	Leq(30min)	Level, dB(A)**	(dB(A)), Leq(30min)	dB(A)
2019-01-02	Cloudy	11:15	11:45	88.5	65.5	70.1	-	67.8	75.0
2019-01-08	Cloudy	11:15	11:45	92.0	63.5	64.5	-	67.8	75.0
2019-01-14	Cloudy	11:15	11:45	93.0	62.5	65.5	-	67.8	75.0
2019-01-24	Sunny	11:30	12:00	88.5	64.5	66.0	-	67.8	75.0
2019-01-30	Fine	11:05	11:35	96.0	63.0	69.0	-	67.8	75.0
					Average	67.0			
					Minimum	64.5			
					Maximum	70.1			

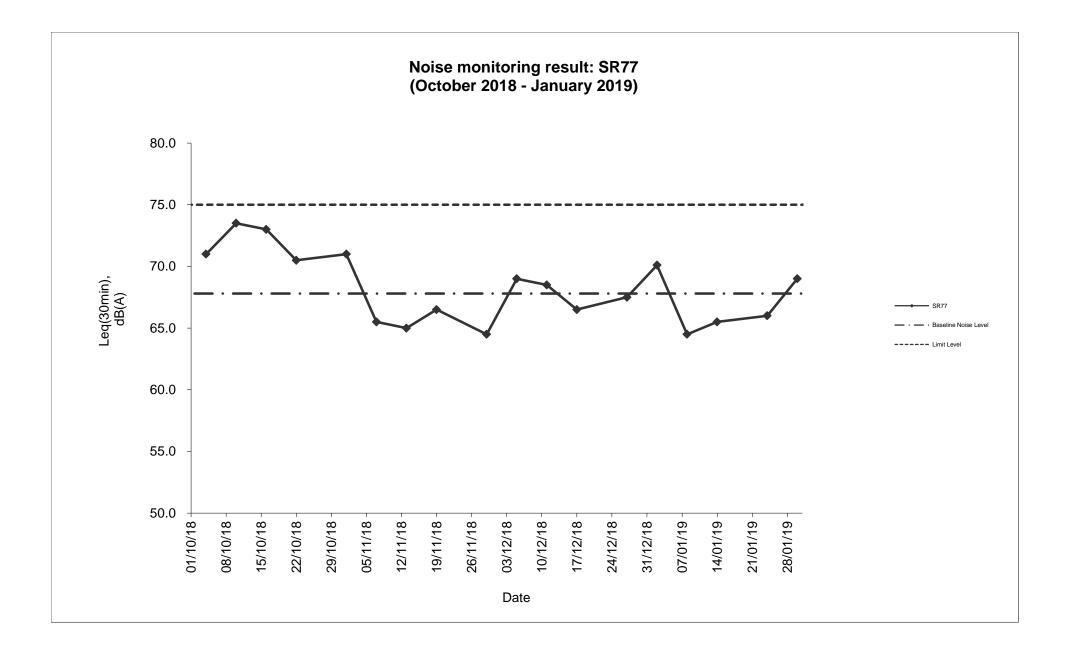
Remarks

* +3dB(A) Façade effect correction included

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

*** Data in **Bold Underline** denotes exceedance of respective Limit Level







Appendix K Waste Flow Table

Monthly Summary Waste Flow Table

		Actual Quantities of Inert C&D Materials Generated Monthly								C&D Wastes	Generated M	lonthly
		Hard Rock							Paper/			
	Total	and Large		Soil Reused	Soil Reused				cardboard			General
	Quantity	Broken		in the	in other	Soil Disposed			packaging		Chemical	Refuse
Month	Generated	Concrete	Soil	Contract	Projects	as Public Fill	Imported Fill	Metals	(Note 3)	Plastics	Waste	(Note 2)
Unit	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in m ³)	(in '000m ³)
Jan-19	2.937	0.927	2.010	-	-	2.010	0.997	-	-	-	-	0.145
Feb-19												
Mar-19												
Apr-19												
May-19												
Jun-19												
Sub-Total												
Jul-19												
Aug-19												
Sep-19												
Oct-19												
Nov-19												
Dec-19												
Total												

Note: 1. Assume the density of soil fill is 2 ton/m^3 .

2. Assume the density of rock and broken concrete is 2.5 ton/m^3 .

3. Assume each truck of C&D wastes is $5m^3$.

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 $7,850 \text{ kg/m}^3$.

8. Assume the density of plastic is 941 kg/m³.

9. Assume the density of paper is 800 kg/m^3 .



Appendix L Implementation Schedule of Environmental Mitigation Measures (EMIS)



Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
Air Quality				
Air Quality during Construction	• Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading.	During Construction	Contractor	V
	• All stockpiles of excavated materials or spoil of more than 50m ³ shall be enclosed, covered or dampened during dry or windy conditions.			~
	• Effective water sprays shall be used to control potential dust emission sources such as unpaved haul roads and active construction areas.			~
	 All spraying of materials and surfaces shall avoid excessive water usage. 			\checkmark
	• Vehicles that have the potential to create dust while transporting materials shall be covered, with the cover properly secured and extended over the edges of the side and tail boards.			*
	 Materials shall be dampened, if necessary, before transportation. 			\checkmark
	• Travelling speeds shall be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks.			~
	• Vehicle washing facilities shall be provided to minimise the quantity of material deposited on public roads.			~
Air Quality during Operation	Not required	N/A	N/A	N/A
Noise				
Noise during Construction	• Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant.	During Construction	Contractor	✓
	 Reduce the number of equipment and their percentage on-time. 			\checkmark
Noise during Operation	Not required	N/A	N/A	N/A
Water Quality				
Water Quality during	Road Widening Works, Earthworks and Culvert Extension Works			
Construction	• Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required.	During Construction	Contractor	✓



Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
	• Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained.			✓
	• Runoff from exposed working areas, unfinished slopes and from unlined temporary channels should be directed to stilling basins and/or silt traps before discharging to the drainage outfalls.			~
	• Regular inspections of stilling basins and/or silt traps is required to ensure that sediment is not conveyed into the existing drainage system.			~
	 Open stockpiles should be covered with a tarpaulin cover. 			\checkmark
	• During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded.			✓
	• Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains.			~
	• Fuels should be stored in bunded areas such that spillage can be easily collected.			~
Water Quality during Operation	Not required	N/A	N/A	N/A
Waste Management		1		
Waste Management during Construction	General Waste			
	 Transport of wastes off site as soon as possible. 	During Construction	Contractor	✓
	Maintenance of accurate waste records.			~
	• Minimisation of waste generation for disposal (via reduction/recycling/re-use).			✓
	 No on-site burning will be permitted. 			~
	Use of re-useable metal hoardings/signboards.			✓
	Vegetation from site clearance			
	 Segregation of materials to facilitate disposal. 	During Construction	Contractor	\checkmark
	• Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.			\checkmark



Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
	Demolition Wastes			
	 Segregation of materials to facilitate disposal. 	During Construction	Contractor	\checkmark
	Appropriate stockpile management.			\checkmark
	Excavated Materials			
	Segregation of materials to facilitate disposal / reuse.	During Construction	Contractor	\checkmark
	Appropriate stockpile management.			~
	• Re-use of excavated material on or off site (where possible).			~
	• Special handling and disposal procedures in the event that contaminated materials are excavated.			N/A
	Construction Wastes			
	• Segregation of materials to facilitate recycling/reuse (within designated area in appropriate containers/stockpiles).	During Construction	Contractor	~
	Appropriate stockpile management.			\checkmark
	Planning to reduce over ordering and waste generation.			~
	 Recycling and re-use of materials where possible (e.g. metal, wood from formwork) 			V
	• For material which cannot be re-used/recycled, collection should be carried out by an approved waste contractor for landfill disposal.			~
	Bentonite Slurries			
	• Bentonite slurries should be reused as far as possible.	During Construction	Contractor	N/A
	• Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94.			N/A
	Chemical Wastes			
	 Storage within locked, covered and bunded area. 	During Construction	Contractor	Obs.
	• The storage area shall not be located adjacent to sensitive receivers e.g. drains.			~
	 Minimise waste production and recycle oils/solvents where possible. 			\checkmark

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



Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
	• A spill response procedure shall be in place and absorption material available for minor spillages.			\checkmark
	 Use appropriate and labelled containers. 			\checkmark
	Educate site workers on site cleanliness/waste management procedures.			\checkmark
	• If chemical wastes are to be generated, the contractor must register with EPD as a chemical waste producer.			✓
	• The chemical wastes shall be collected by a licensed chemical waste collector.			✓
	Municipal Wastes			
	• Waste shall be stored within a temporary refuse collection facility, in appropriate containers prior to collection and disposal.	During Construction	Contractor	✓
	Regular, daily collections are required by an approved waste collector.			\checkmark
Waste Management during Operation	Not required.	N/A	N/A	N/A
Ecology				
Ecology during Construction	Accurate Delineation of Works Area			
	• Boundaries of proposed works areas shall be clearly identified and separated from external areas by a physical barrier to prevent encroachment of adjacent habitats.	During Construction	Contractor	*
	• Individual trees which fall within the works areas but which work plans show do not require removal are to be retained and fenced off to maximise protection.			*
	Dust generation			
	There are a number of measures which shall be taken as specified in the Air Pollution Control (Construction Dust) Regulation on 'Dust Control Requirements, including the following key measures to be applied during construction:			
	 vehicle washing facilities to be provided at every discernible or designated vehicle exit point; 	During Construction	Contractor	✓



Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
	• all temporary site access roads shall be sprayed with water to suppress dust as necessary;			✓
	• all dusty materials should be sprayed with water immediately prior to any handling; and			\checkmark
	• all debris should be covered entirely by impervious sheeting or stored in a sheltered debris collection area.			\checkmark
	Surface Run-off			
	In general, mitigation measures shall be in accordance with ProPECC PN1/94 on 'Construction Site Drainage'. Key measures include:			
	 Bund and cover stockpiles to avoid run-off; 	During Construction	Contractor	~
	• Channel any run-off through a system of oil, grease and sediment / silt traps and reuse water on site where ever practical;			*
	• All vehicle maintenance to be undertaken within a bunded area; and			✓
	• Maximise vegetation retention on-site to maximise absorption (minimise transport).			*
Ecology during Operation	• To conduct compensatory ecological planting as specified in the latest landscape plans approved by EPD (Clause 2.6 of the Environmental Permit refers).	During Construction and operation	Contractor (during construction) / LCSD* (during operation) (Note: * The division of vegetation planting and maintenance responsibilities shall follow the guidelines stipulated in ETWB TCW No. 2/2004.)	N/A
Landscape and Visual		1		
Landscape and Visual during Construction	 Preservation of Existing Vegetation Trees identified for retention within the project limit would be protected during the works 	During Construction	Contractor	~
	 The tree transplanting and planting works shall be implemented by approved Landscape Contractors 			×



Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
	Temporary Works Areas			
	Where feasible the works areas would be screened using hoarding and existing vegetation would be retained where possible to reduce the landscape and visual impacts arising from the construction activity. The landscape of these works areas would be restored following the completion of the construction phase.	During Construction	Contractor	×
	Hoarding			
	A hoarding would be erected where practicable in the most visually sensitive locations to screen the temporary construction works from the local VSRs.	During Construction	Contractor	\checkmark
	Top Soils			
	The works will result in disturbance to extensive areas of topsoil. Topsoil worthy of retention should be stockpiled for use following completion of the civil engineering works. It should either be temporarily vegetated with hydroseeded grass or turned over on a regular basis.	During Construction	Contractor	N/A
	Protection of Important Landscape Features			
	Important features such as temples, Island House and kilns within the study area, although remote from the proposed works retained and adequately protected.	During Construction	Contractor	N/A
Landscape and Visual during Operation	Not required.	N/A	N/A	N/A



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	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. An EM&A Programme is being undertaken to monitoring the environmental performance of the construction works, and the Contractor has also implemented appropriate mitigation measures to avoid silt-laden runoff discharging from the works sites into the river. The complaint is considered an invalid complaint under this Project.	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)	 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. 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. 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. 	Completed



Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					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 The complaint is considered unlikely due to the construction works of this	
C171228	28 December, 2017	1823	Kau Lung Hang and Hong Lok Yuen	Air quality issue nearby Kau Lung Hang and Hong Lok Yuen area. Stockpiling within the Project area was observed to be uncovered, causing dust dispersion within the area. (大埔 九龍坑附近的空氣污 染問題嚴重。吐露港 公路蓮塘口岸隧道工 程經常見到沙泥沒有 覆蓋,導致沙土飛揚 散佈九龍坑,康樂園 一帶,造成極大困擾 與明顯健康風險。要 求立即改善,懲罰相	 project. The Environmental Team (ET) was informed of the complaint through Chun Wo and CEDD via 1823 online-enquiry/ complaint form received on 28 December 2017 at 9:04am. Investigation was triggered in accordance with the procedures as specified in Section 7.3 of the EM&A Manual. A joint investigation by the ET and the IEC was conducted on 28 December 2017. As advised by the Contractor, no construction works were carried out during the public holiday. No exceedance of TSP level at the air monitoring station under this Contract was recorded in the past six months except 8 December 2017. 	



•	ate of complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
				關建築商。附圖是該 區狀況。昨日洗車, 一日已經沙塵滿佈。)	Exceedance on 8 December 2017 was considered not project related as no major excavation works located close to the monitoring location at SR77. Based on the routine environmental site inspection and information provided by the Contractor, it is considered that dust suppression measures have been implemented to minimize dust nuisance arising from the works areas. Nonetheless, the ET and IEC will continue the auditing and reviewing of the Contractor's implementation of mitigation measures during the construction period.	



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