

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

Quarterly EM&A Report

August 2016 to October 2016

Submitted to

Environmental Protection Department

Prepared By

Meinhardt Infrastructure and Environment Ltd

Meinhardt Infrastructure and Environment Limited

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

Quarterly EM&A Report

(August 2016 to October 2016)

Certified by: Fredrick Leong 

Position: Environmental Team Leader

Date: 9 December 2016

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Attn: **Mr. James Penny**

Your Reference

Our Reference
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.05/L-0145

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Environmental Monitoring and Audit (EM&A) for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling Stage 2 (between Tai Hang to Wo Hop Shek Interchange) – Entrusted Works Environmental Permit No. EP-324/2008/D Quarterly EM&A Summary Report for August 2016 to October 2016 for the portion of Stage 2 works entrusted to CEDD under Contract No. CV/2012/09

8 December 2016

By Fax (2805 5028) & Hand

We refer to the revised Quarterly EM&A Summary Report for August 2016 to October 2016 for the Project received on 8 December 2016 submitted by ET via email. We confirm we have no comment.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED



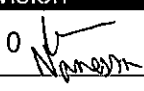
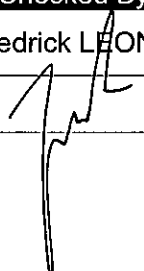

Steven Tang
Independent Environmental Checker

c.c.

HyD
CEDD/BCP
AECOM
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Mr. Chung Lok Chin
Mr. Desmond Lam
Mr. Alan Lee
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Date	Revision	Prepared By	Checked By	Approved By
9 Dec 2016	0 	WK CHIU Vanessa HO	Fredrick LEONG 	Helen COCHRANE 

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EXECUTIVE SUMMARY

This report documents the findings of EM&A works conducted in the quarter between 1 August 2016 and 31 October 2016.

The impact stage EM&A programme for the Project includes air quality and noise monitoring.

The EM&A programme was carried out by the ET in accordance with the EM&A Manual requirements. It is concluded from the environmental monitoring and audit works that adequate environmental mitigation measures have been implemented by the civil works contractors where appropriate in the reporting quarter.

In the reporting quarter, no exceedance events were recorded. No necessary remedial actions have been taken.

No environmental non-compliance was recorded in the reporting quarter. No environmental complaints were received in the reporting quarter. No environmental related prosecution or notification of summons was received in the reporting quarter.

The box culvert works have been partially completed by the end of March 2014 except the last construction activity, installation of a base slab at Box Culvert ID4. Due to the loading requirement of a fresh water main under the box culvert, installation of the base slab at Box Culvert ID4 has been scheduled to be commenced in December 2016.

The construction works at the box culvert ID4 are temporarily suspended until the utilities diversion works complete. The 4-week post construction water quality monitoring will be commenced after the installation of the base slab finishes, hence the completion of the box culvert works.

1 INTRODUCTION AND PROJECT INFORMATION

1.1 Background

1.1.1 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 current VEP (EP-324/2008/D) was granted on 27 August 2015.

1.1.2 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/D in accordance with the Updated EM&A Manual (dated March 2015) for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling Stage 2. The EM&A programme commenced in 5 November 2013.

1.1.3 **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.

1.2 Construction Programme and Activities

1.2.1 The construction programme is presented in **Appendix A**. The major construction activities undertaken in the reporting quarter are summarized below:

- Cable Detection and Trial Trenches;
- Installation of Stone Cladding;
- Erection of Temporary support for demolition of J-bridge;
- Demolition of Existing Vehicular Bridge;
- Footbridge Construction;
- Storm Drains Laying;
- Noise Barrier Construction;
- Pier / Pier Table Construction;
- Pile Cap Works;

- Portal Beam Construction;
- Piling Works for Viaduct;
- Piling Works for Noise Barrier;
- Retaining Wall Construction;
- Pre-drilling Works and Works for Noise Barrier;
- Road Works;
- Sewer Works;
- Slope Works;
- Utilities Duct Laying;
- Viaduct Segment Erection; and
- Water Main Laying.

1.3 Project Organisation

1.3.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project, together with the general enquiry hotline, are summarised in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
AECOM	Engineer's Representative	Senior Resident Engineer	Mr. Alan Lee	2171 3303	2171 3498
		Resident Engineer (Environmental)	Mr. Perry Yam	2171 3350	
Mott MacDonald	Independent Environmental Checker (IEC)	IEC	Mr. Steven Tang	2828 5920	2827 1823
Chun Wo	Contractor	Site Agent	Mr. Daniel Ho	2638 6144	2638 7077
		Environmental Officer	Mr. Victor Huang	2638 6181	
Meinhardt	Environmental Team (ET)	ET Leader	Mr. Fredrick Leong	2859 1739	2540 1580
Enquiry Hotline	General Enquiry	--	Ms Helena Mak	6355 1731	--

1.4 Purpose of the Report

1.4.1 This is the Quarterly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period between 1 August 2016 and 31 October 2016.

2 SUMMARY OF EM&A REQUIREMENTS

2.1 Monitoring Requirements

- 2.1.1 In accordance with the Updated EM&A Manual, environmental parameters including Air Quality and Noise have been monitored. The specific parameters, monitoring frequency and the respective Action and Limit Levels are given in **Table 2.1** and the location of the monitoring station is shown in the **Figure 2**.

Table 2.1 Monitoring Parameter

Parameter	Unit	Action Level	Limit Level	Frequency
Air Quality				
1-hour TSP	µg/m ³	292.7	500	Three times every 6 days
24-hour TSP	µg/m ³	170.3	260	Once every 6 days
Construction Noise				
Leq 30min	dB(A)	When one documented valid complaint is received	75	Once every Week

Temporary Suspension of Box Culvert Works and Water Quality Monitoring

- 2.1.2 The box culvert works have been partially completed by the end of March 2014 except the last construction activity, installation of a base slab at Box Culvert ID4. Due to the loading requirement of a fresh water main under the box culvert, installation of the base slab at Box Culvert ID4 has been scheduled to be commenced in December 2016.
- 2.1.3 The construction works at the box culvert ID4 are temporarily suspended until the utilities diversion works complete. The 4-week post construction water quality monitoring will be commenced after the installation of the base slab finishes, hence the completion of the box culvert works.

2.2 Environmental Mitigation Measures

- 2.2.1 Environmental mitigation measures have been recommended in the EM&A Manual and are given in **Appendix C**. The implementation status for the reporting quarter is also given in the Appendix.

3 SUMMARY OF EM&A MONITORING DATA

3.1 Monitoring Data

- 3.1.1 Monitoring has been conducted in accordance with the specification in the EM&A Manual in the reporting quarter. Meteorological data for the reporting quarter have been extracted from Hong Kong Observatory and are given in **Appendix D**. Monitoring data with graphical presentation for the reporting quarter have been given in **Appendix E**. A summary on the monitoring results has also been given in **Table 3.1**.

Table 3.1 Summary of Monitoring Data in the Reporting Quarter

Monitoring Location	Minimum	Maximum	Average
Air Quality			
1 hour Total Suspended Particulate			
SR77	58.9µg/m ³	161.6µg/m ³	127.4µg/m ³
24 hour Total Suspended Particulate			
SR77	41.8µg/m ³	151.5µg/m ³	91.6µg/m ³
Construction Noise			
SR77	63.5dB(A)	68.5dB(A)	65.8dB(A)

3.2 Summary of Monitoring Exceedances

3.2.1 The number of exceedances event recorded in the reporting quarter is summarized in **Table 3.2**.

Table 3.2 Summary of Exceedance Events in the Reporting Quarter

Parameter	Criteria	Number of Exceedances Events	Number of Project Related Exceedance Events
Air Quality			
1-hour Total Suspended Particulates	Action Level	0	0
	Limit Level	0	0
24-hour Total Suspended Particulates	Action Level	0	0
	Limit Level	0	0
Construction Noise			
Leq 30min	Action Level	0	0
	Limit Level	0	0

3.2.2 No exceedance of air monitoring was recorded at SR77 in the reporting quarter.

3.2.3 No exceedance of noise monitoring was recorded at SR77 in the reporting quarter.

3.2.4 The Contractor has been reminded to strengthen the mitigation measures including:

Air Quality

- All vehicles should be washed to remove any dusty materials before leaving the construction site.
- Ensure all vehicles are properly washed to remove mud and debris before leaving the site.

Chemical and Waste Management

- Good housekeeping should be maintained and stagnant water should be removed from secondary containment regularly.
- Provide proper chemical and chemical waste management.
- A spill response procedure shall be in place and absorption material available for minor spillages.

4 WASTE MANAGEMENT

- 4.1.1 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.
- 4.1.2 During the reporting quarter, a total of 3,494m³ of excavated material has been generated. 1,882m³ of inert C&D materials was disposed of at public fill to Tuen Mun Area 38, while 435m³ of inert C&D materials was reused on site. 315m³ of general refuse was disposed of at North East New Territories (NENT) Landfill. 5m³ of plastics and no paper/cardboard packaging were collected by recycling contractor in the reporting quarter. 1m³ of metals were collected by recycling contractor in the reporting quarter. 0.8m³ of chemical waste were collected by licensed contractor in the reporting quarter. Details of the waste management data are presented in **Appendix F**.

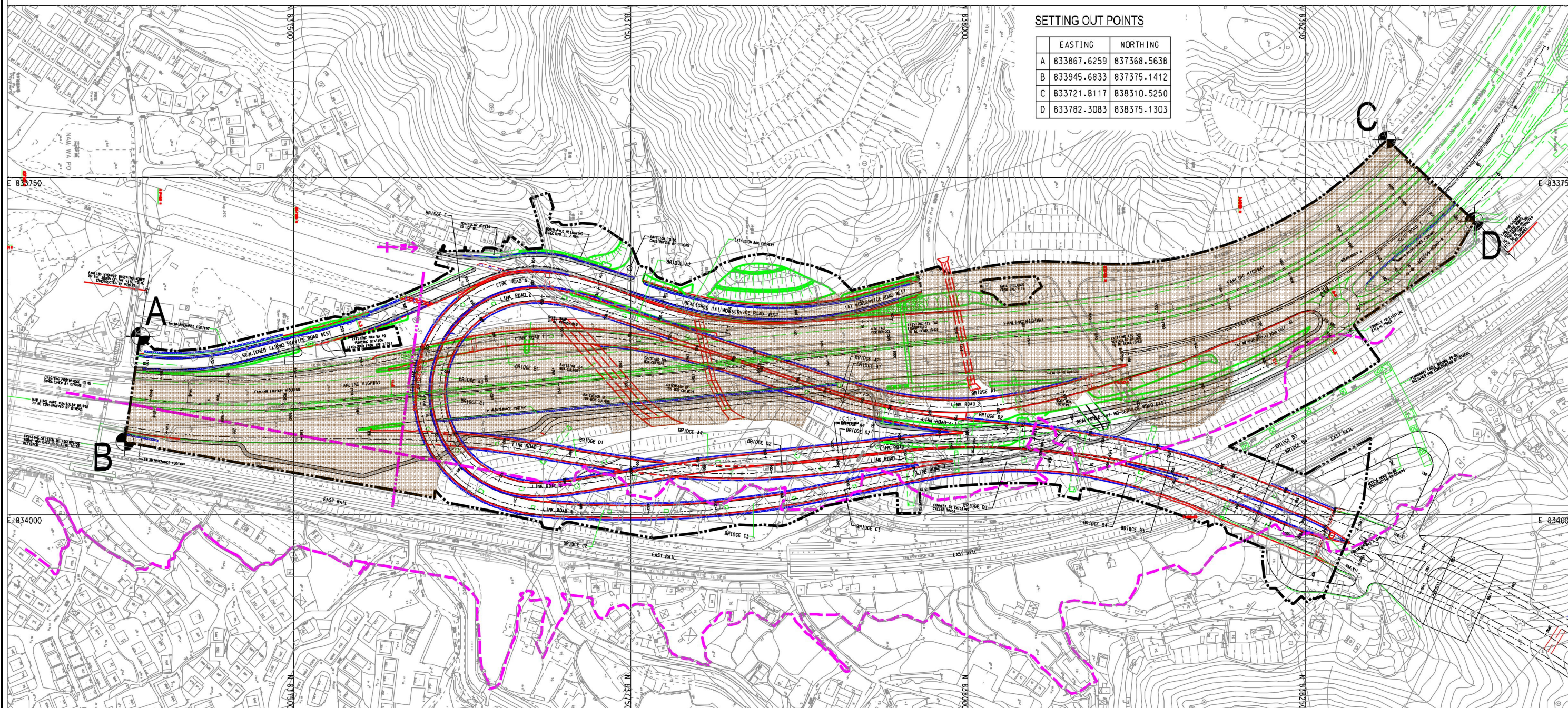
5 ENVIRONMENTAL NON-CONFORMANCE

- 5.1.1 No environmental non-compliance was recorded in the reporting quarter. No environmental complaint was received. No environmental related prosecution or notification of summons was received in the reporting quarter. The summary for the non-compliance, complaints and prosecutions is provided in **Appendix G**.

6 CONCLUSION, COMMENTS AND RECOMMENDATIONS

- 6.1.1 The EM&A programme was carried out by the ET in accordance with the EM&A Manual requirements. It is concluded from the environmental monitoring and audit works that adequate environmental mitigation measures have been implemented by the civil works contractors where appropriate in the reporting quarter.
- 6.1.2 In the reporting quarter, no exceedance events were recorded.
- 6.1.3 No environmental non-compliance was recorded in the reporting quarter. No environmental complaints were received in the reporting quarter. No environmental related prosecution or notification of summons was received in the reporting quarter.
- 6.1.4 The box culvert works have been partially completed by the end of March 2014 except the last construction activity, installation of a base slab at Box Culvert ID4. Due to the loading requirement of a fresh water main under the box culvert, installation of the base slab at Box Culvert ID4 has been scheduled to be commenced in December 2016.
- 6.1.5 The construction works at the box culvert ID4 are temporarily suspended until the utilities diversion works complete. The 4-week post construction water quality monitoring will be commenced after the installation of the base slab finishes, hence the completion of the box culvert works.

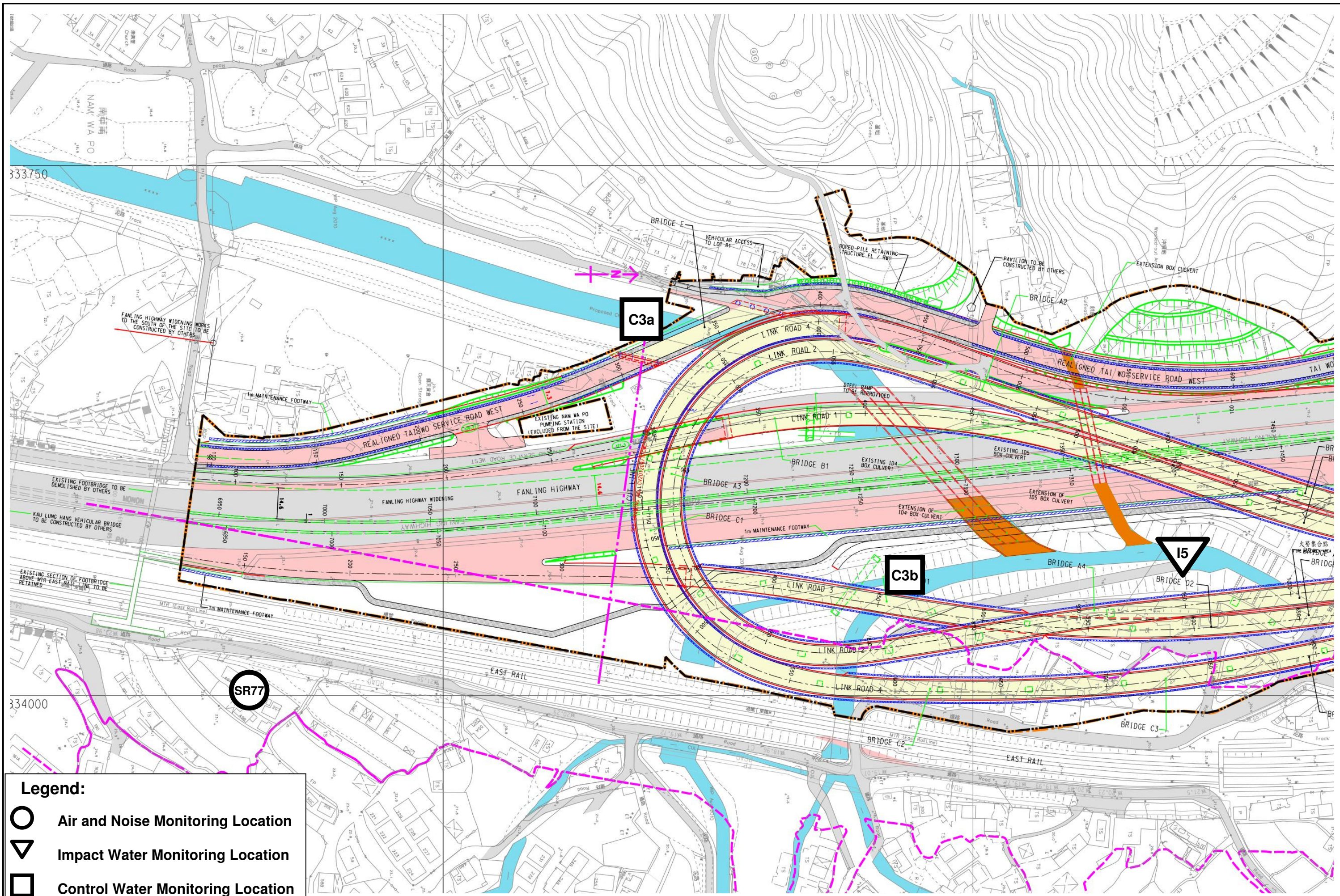
Figure



CV/201209-T-CWC-SK-001g_AD_edit.dgn 22/1/2014 17:10:34

Legend:

 Works Area for Entrusted Portion



- Legend:**
- Air and Noise Monitoring Location
 - ▽ Impact Water Monitoring Location
 - Control Water Monitoring Location



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

Figure 2: Environmental Monitoring Locations

Appendix A Construction Programme

Activity ID	Activity Name	OD	RD	Start	Finish	TF	Gantt Chart (2014-2019)																																																																						
							2014													2015													2016													2017													2018													2019					
PRE-4320A	Superstructure Design Package 11 for Bridge B1 (AB1-AB6)	73	0	21-May-14 A	30-Sep-14 A		Superstructure Design Package 11 for Bridge B1 (AB1-AB6)																																																																						
PRE-4320B	Superstructure Design Package 7 for Bridge B2 (AB7-AB12)	196	0	21-May-14 A	12-Jan-15 A		Superstructure Design Package 7 for Bridge B2 (AB7-AB12)																																																																						
PRE-4330A	Superstructure Design Package 2 for Bridge C1 (AC1-AC5)	196	0	28-Mar-14 A	30-Sep-14 A		Superstructure Design Package 2 for Bridge C1 (AC1-AC5)																																																																						
PRE-4330B	Superstructure Design Package 1 for Bridge C2 (AC6-AC11)	134	0	06-Mar-14 A	27-Aug-14 A		Superstructure Design Package 1 for Bridge C2 (AC6-AC11)																																																																						
PRE-4340A	Superstructure Design Package 4 for Bridge D1 (AD1-AD5)	110	0	07-May-14 A	30-Sep-14 A		Superstructure Design Package 4 for Bridge D1 (AD1-AD5)																																																																						
PRE-4340B	Superstructure Design Package 8 for Bridge D2 (AD6-AD8)	56	0	30-Jul-14 A	12-Jan-15 A		Superstructure Design Package 8 for Bridge D2 (AD6-AD8)																																																																						
PRE-4340C	Superstructure Design Package 5 for Bridge D3 (AD9-AD14)	196	0	07-May-14 A	12-Jan-15 A		Superstructure Design Package 5 for Bridge D3 (AD9-AD14)																																																																						
PRE-4400	Abutments Design Package for AA1, AB1, AC1 & AD1	220	0	01-Apr-14 A	04-Mar-15 A		Abutments Design Package for AA1, AB1, AC1 & AD1																																																																						
Condition Survey		18	0	26-Aug-13 A	22-Oct-13 A																																																																								
PRE-5000	Condition Survey for EBS	18	0	26-Aug-13 A	22-Oct-13 A		Condition Survey for EBS																																																																						
Temporary Traffic Arrangement (TTA) Submission and Approval		358	0	12-Aug-13 A	06-Jun-14 A																																																																								
Forming of TMLG		50	0	12-Aug-13 A	13-Sep-13 A																																																																								
PRE-6000	Traffic consultant nomination & approval	25	0	20-Aug-13 A	29-Aug-13 A		Traffic consultant nomination & approval																																																																						
PRE-6020	TMLG establishment	50	0	12-Aug-13 A	13-Sep-13 A		TMLG establishment																																																																						
TTA for Tai Wo Service Road West		302	0	13-Sep-13 A	06-Jun-14 A																																																																								
PRE-6110	TTA submission & approval - Scheme W2 (for Piling Works & Retaining Structure)	40	0	13-Sep-13 A	15-Oct-13 A		TTA submission & approval - Scheme W2 (for Piling Works & Retaining Structure)																																																																						
PRE-6140	TTA submission & approval - Scheme W3 (for laying UU ductings)	40	0	28-May-14 A	06-Jun-14 A		TTA submission & approval - Scheme W3 (for laying UU ductings)																																																																						
Section IA & IB - Fanling Highway Widening (KD-1 & KD-2)		1419	906	12-Aug-13 A	31-Aug-18	0																																																																							
Fanling Highway South Portion between CH6935 and CH7470		1250	737	12-Aug-13 A	30-Jan-18	0																																																																							
Fanling Highway Zone 1 between CH6935 and CH7130 (within SBZ2)		1250	737	12-Aug-13 A	30-Jan-18	0																																																																							
At-Grade Roadworks (195m)		1250	737	12-Aug-13 A	30-Jan-18	0																																																																							
FHW-1100	Site Formation, Preparation Works & Tree Transplant	65	0	12-Aug-13 A	11-Aug-14 A		Site Formation, Preparation Works & Tree Transplant																																																																						
FHW-1110	Noise Barrier NB6 and NB7 - Footing adjacent to SB lane (184m)	280	0	29-Mar-14 A	16-Aug-14 A		Noise Barrier NB6 and NB7 - Footing adjacent to SB lane (184m)																																																																						
FHW-1120*	Pipe Laying - DN1200 Watermains (CHC) across Fanling Highway (total 80m for 2 shafts)	275	0	09-Jun-14 A	12-Feb-15 A		Pipe Laying - DN1200 Watermains (CHC) across Fanling Highway (total 80m for 2 shafts)																																																																						
FHW-1130*	Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (80m long, 4m depth)	182	76	20-Feb-14 A	31-Oct-15	155	Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (80m long, 4m depth)																																																																						
FHW-1140	Noise Barrier NB70 - Footing adjacent to SB lane (15m)	115	115	04-Feb-16	02-Jul-16	77	Noise Barrier NB70 - Footing adjacent to SB lane (15m)																																																																						
FHW-1150	Road Formation (FLH SB 1st lane)	48	48	04-Jul-16	27-Aug-16	77	Road Formation (FLH SB 1st lane)																																																																						
FHW-1160	Road Formation (FLH SB 2nd lane)	25	25	30-Sep-17	01-Nov-17	0	Road Formation (FLH SB 2nd lane)																																																																						
FHW-1170	Road Formation & Road Drainage (FLH SB 3rd lane)	50	50	02-Nov-17	02-Jan-18	0	Road Formation & Road Drainage (FLH SB 3rd lane)																																																																						
FHW-1180	Road Formation & Pavement (FLH SB 4th lane)	24	24	03-Jan-18	30-Jan-18	0	Road Formation & Pavement (FLH SB 4th lane)																																																																						
FHW-1210	Road Formation & Pavement (FLH NB 1st lane)	80	80	25-Aug-16	29-Nov-16	0	Road Formation & Pavement (FLH NB 1st lane)																																																																						
FHW-1220	Road Formation & Pavement (FLH NB 2nd lane)	33	33	30-Sep-17	10-Nov-17	0	Road Formation & Pavement (FLH NB 2nd lane)																																																																						
FHW-1230	Road Formation & Pavement (FLH NB 3rd lane)	33	33	11-Nov-17	19-Dec-17	0	Road Formation & Pavement (FLH NB 3rd lane)																																																																						
FHW-1240	Road Formation & Pavement (FLH NB 4th lane)	33	33	20-Dec-17	30-Jan-18	0	Road Formation & Pavement (FLH NB 4th lane)																																																																						
FHW-1300	Noise Barrier NB68 - Mini-Piling at central median (CSD: 24 nos)	80	80	08-Mar-16	16-Jun-16	0	Noise Barrier NB68 - Mini-Piling at central median (CSD: 24 nos)																																																																						
FHW-1310	Noise Barrier NB68 - Footing at central median (72m)	73	73	17-Jun-16	10-Sep-16	0	Noise Barrier NB68 - Footing at central median (72m)																																																																						
FHW-1320	Road Formation (Middle Part: FLH NB & SB Fast lanes), except CH6935 - CH7035	27	27	12-Sep-16	15-Oct-16	0	Road Formation (Middle Part: FLH NB & SB Fast lanes), except CH6935 - CH7035																																																																						
Fanling Highway Zone 2 between CH7130 and CH7290		1113	737	17-Apr-14 A	30-Jan-18	0																																																																							
At-Grade Roadworks (160m)		1113	737	17-Apr-14 A	30-Jan-18	0																																																																							



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

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

CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

Updated Master Works Programme (Revision 3B)
Programme ID: UMP03B (Data Date: 01-Aug-15) Print Date: 23-Oct-15

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Date	Revision	Checked	Approved
29-Jan-14	IWP04	Sam	Victor
08-Jan-15	UMP01	Sam	Victor
24-Apr-15	UMP02	Sam	Victor
01-Aug-15	UMP03	Sam	Victor
02-Oct-15	UMP03A	Sam	Victor
23-Oct-15	UMP03B	Sam	Victor

Activity ID	Activity Name	OD	RD	Start	Finish	TF	Gantt Chart (2014-2019)																																																																						
							2014													2015													2016													2017													2018													2019					
TWSRW-4090	Permanent Prestressing & Abutment Wall	28	28	23-Oct-15	24-Nov-15	-1	[Gantt bar: Permanent Prestressing & Abutment Wall]																																																																						
TWSRW-4100	Remove Scaffold System and Temporary Work together with Slope Reinstatement	110	110	02-Nov-15*	18-Mar-16*	8	[Gantt bar: Remove Scaffold System and Temporary Work together with Slope Reinstatement]																																																																						
At-Grade Roadworks							45	45	25-Nov-15	19-Jan-16	-1	[Gantt bar: At-Grade Roadworks Summary]																																																																	
TWSRW-4200	Cast Parapet, Lay Surfacing and Road Furniture for Footpath and Carriageway	45	45	25-Nov-15	19-Jan-16	-1	[Gantt bar: Cast Parapet, Lay Surfacing and Road Furniture for Footpath and Carriageway]																																																																						
TWSRW Zone 5 between CH376 and CH520							779	259	15-Oct-13 A	20-Jun-16	478	[Gantt bar: TWSRW Zone 5 Summary]																																																																	
Construction of Retaining Structures							608	60	15-Oct-13 A	12-Oct-15	45	[Gantt bar: Construction of Retaining Structures Summary]																																																																	
TWSRW-5000	Implementation of TTA - Scheme W2	0	0	15-Oct-13 A			◆ Implementation of TTA - Scheme W2																																																																						
TWSRW-5030	CLP Overhead 11KV Cable Diversion at Area B (Phase 1)	140	0	04-Nov-13 A	21-May-14 A		[Gantt bar: CLP Overhead 11KV Cable Diversion at Area B (Phase 1)]																																																																						
TWSRW-5040	Forming of Earth Platform	40	0	03-Dec-13 A	28-Jan-14 A		[Gantt bar: Forming of Earth Platform]																																																																						
TWSRW-5050A	Construction of Bored Pile Wall (4 no. Piles) (with existing access road)	48	0	24-Dec-13 A	11-Mar-14 A		[Gantt bar: Construction of Bored Pile Wall (4 no. Piles) (with existing access road)]																																																																						
TWSRW-5050B	Construction of Bored Pile Wall (10 no. Piles) (with earth platform provided)	80	0	12-Mar-14 A	13-Jun-14 A		[Gantt bar: Construction of Bored Pile Wall (10 no. Piles) (with earth platform provided)]																																																																						
TWSRW-5050C	Construction of Bored Pile Wall (8 no. Piles) (conflict with overhead cable)	94	0	22-May-14 A	13-Aug-14 A		[Gantt bar: Construction of Bored Pile Wall (8 no. Piles) (conflict with overhead cable)]																																																																						
TWSRW-5050D	Construction of Remaining Portion of Bored Pile Wall at formation level	85	0	02-Sep-14 A	05-Nov-14 A		[Gantt bar: Construction of Remaining Portion of Bored Pile Wall at formation level]																																																																						
TWSRW-5060	Removal of grave at Portion FH8 (incl. Archaeological Survey)	25	0	30-Nov-13 A	16-Jan-14 A		[Gantt bar: Removal of grave at Portion FH8 (incl. Archaeological Survey)]																																																																						
TWSRW-5070	Construction of Mass Concrete Wall (FL/RW4)	70	39	15-Jun-15 A	15-Sep-15	66	[Gantt bar: Construction of Mass Concrete Wall (FL/RW4)]																																																																						
TWSRW-5070a	Temporary Slope Works for Construction of Mass Concrete Wall (FL/RW4)	14	0	01-Jun-15 A	13-Jun-15 A		[Gantt bar: Temporary Slope Works for Construction of Mass Concrete Wall (FL/RW4)]																																																																						
TWSRW-5080	Retaining Structure along Slope no. 3SW-C/C898 (to be covered by VO. 78)	50	60	29-Jun-15 A	12-Oct-15	45	[Gantt bar: Retaining Structure along Slope no. 3SW-C/C898 (to be covered by VO. 78)]																																																																						
TWSRW-5090	Lagging Wall Construction and Capping Beam	160	0	06-Nov-14 A	03-Jun-15 A		[Gantt bar: Lagging Wall Construction and Capping Beam]																																																																						
At-Grade Roadworks							259	259	27-Apr-15 A	20-Jun-16	478	[Gantt bar: At-Grade Roadworks Summary]																																																																	
TWSRW-5100	Retaining Wall RW7 & RW8 - adjacent to Realigned TWSR West (66m)	70	70	17-Oct-15	11-Jan-16	0	[Gantt bar: Retaining Wall RW7 & RW8 - adjacent to Realigned TWSR West (66m)]																																																																						
TWSRW-5110A	Road Formation, DN150 watermain, Kerb, Planter and Pavement	35	35	05-Dec-15	18-Jan-16	0	[Gantt bar: Road Formation, DN150 watermain, Kerb, Planter and Pavement]																																																																						
TWSRW-5110B	Road Drainage SMH800-SMH801 (Covered by VO No.81)	36	36	03-Sep-15	16-Oct-15	14	[Gantt bar: Road Drainage SMH800-SMH801 (Covered by VO No.81)]																																																																						
TWSRW-5110C	Road Drainage SMH801-803 (Covered by VO No.81)	80	105	27-Apr-15 A	04-Dec-15	0	[Gantt bar: Road Drainage SMH801-803 (Covered by VO No.81)]																																																																						
TWSRW-5120	Permanent Vehicular Access to Lot 81	125	125	12-Jan-16	20-Jun-16	478	[Gantt bar: Permanent Vehicular Access to Lot 81]																																																																						
TWSRW Zone 6 between CH520 and CH530							1136	737	07-Jan-14 A	30-Jan-18	0	[Gantt bar: TWSRW Zone 6 Summary]																																																																	
Box Culvert Extension - BC01							1136	31	07-Jan-14 A	30-Jan-18	0	[Gantt bar: Box Culvert Extension - BC01 Summary]																																																																	
TWSRW-6000	Flow Diversion of Existing Stream	4	0	07-Jan-14 A	07-Jan-14 A		I Flow Diversion of Existing Stream																																																																						
TWSRW-6010A	Excavation and Sub-base for construction of Bay 1	5	0	07-Jan-14 A	25-Jan-14 A		[Gantt bar: Excavation and Sub-base for construction of Bay 1]																																																																						
TWSRW-6010B	Excavation and Sub-base for construction of Bay 2	18	0	04-Mar-14 A	12-Mar-14 A		[Gantt bar: Excavation and Sub-base for construction of Bay 2]																																																																						
TWSRW-6020	Bay 1 - Base Slab	14	0	11-Feb-14 A	28-Feb-14 A		[Gantt bar: Bay 1 - Base Slab]																																																																						
TWSRW-6030	Bay 2 - Base Slab	14	0	13-Mar-14 A	18-Mar-14 A		[Gantt bar: Bay 2 - Base Slab]																																																																						
TWSRW-6030B	Bay 2 - Remaining Base Slab (To be carried out in next dry season)	31	31	22-Dec-17*	30-Jan-18*	0	[Gantt bar: Bay 2 - Remaining Base Slab (To be carried out in next dry season)]																																																																						
TWSRW-6040	Bay 1 - Wall and Top Slab	18	0	01-Mar-14 A	10-Mar-14 A		[Gantt bar: Bay 1 - Wall and Top Slab]																																																																						
TWSRW-6050	Bay 2 - Wall and Top Slab	11	0	19-Mar-14 A	25-Mar-14 A		[Gantt bar: Bay 2 - Wall and Top Slab]																																																																						
TWSRW-6060	Backfilling to existing road level	55	0	25-Mar-14 A	09-Jun-14 A		[Gantt bar: Backfilling to existing road level]																																																																						
TWSRW-6070	Inlet structure of the box culvert BC01 (Covered by VO. 41)	70	0	17-Dec-14 A	19-Mar-15 A		[Gantt bar: Inlet structure of the box culvert BC01 (Covered by VO. 41)]																																																																						
TWSRW-6080	Backfilling to existing road level after completion of inlet structure	72	0	20-Mar-15 A	21-May-15 A		[Gantt bar: Backfilling to existing road level after completion of inlet structure]																																																																						
At-Grade Roadworks							137	103	22-May-15 A	02-Dec-15	8	[Gantt bar: At-Grade Roadworks Summary]																																																																	
TWSRW-6100	Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the edge of extended box culvert)	21	21	09-Nov-15	02-Dec-15	0	[Gantt bar: Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the edge of extended box culvert)]																																																																						



- █ Actual Work
- █ Remaining Work
- █ Summary Bar
- █ Critical Remaining Work
- ◆ Milestone

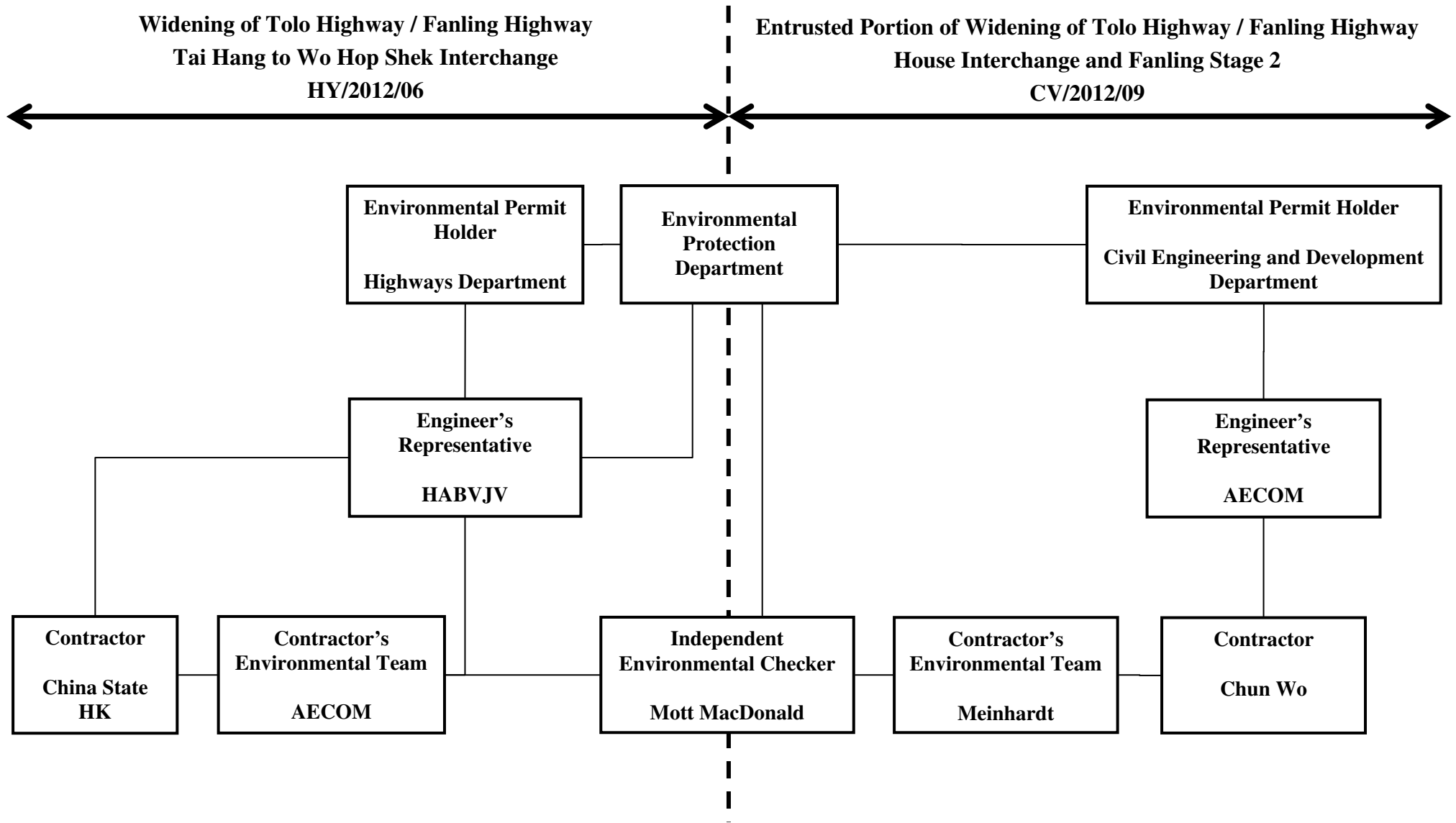
CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

Updated Master Works Programme (Revision 3B)
Programme ID: UMP03B (Data Date: 01-Aug-15) Print Date: 23-Oct-15

Date	Revision	Checked	Approved
29-Jan-14	IWP04	Sam	Victor
08-Jan-15	UMP01	Sam	Victor
24-Apr-15	UMP02	Sam	Victor
01-Aug-15	UMP03	Sam	Victor
02-Oct-15	UMP03A	Sam	Victor
23-Oct-15	UMP03B	Sam	Victor

Appendix B

Project Organization Structure



Appendix C Implementation Schedule of Environmental Mitigation Measures (EMIS)

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
Air Quality				
Air Quality during Construction	<ul style="list-style-type: none"> Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading. All stockpiles of excavated materials or spoil of more than 50m³ shall be enclosed, covered or dampened during dry or windy conditions. Effective water sprays shall be used to control potential dust emission sources such as unpaved haul roads and active construction areas. All spraying of materials and surfaces shall avoid excessive water usage. Vehicles that have the potential to create dust while transporting materials shall be covered, with the cover properly secured and extended over the edges of the side and tail boards. Materials shall be dampened, if necessary, before transportation. Travelling speeds shall be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks. Vehicle washing facilities shall be provided to minimise the quantity of material deposited on public roads. 	During Construction	Contractor	✓ ✓ ✓ ✓ ✓ ✓ ✓ Obs
Air Quality during Operation	Not required	N/A	N/A	N/A
Noise				
Noise during Construction	<ul style="list-style-type: none"> Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant. Reduce the number of equipment and their percentage on-time. 	During Construction	Contractor	✓ ✓
Noise during Operation	Not required	N/A	N/A	N/A
Water Quality				
Water Quality during Construction	<u>Road Widening Works, Earthworks and Culvert Extension Works</u> <ul style="list-style-type: none"> Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settleable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required. Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained. 	During Construction	Contractor	✓ ✓

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

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<ul style="list-style-type: none"> Educate site workers on site cleanliness/waste management procedures. If chemical wastes are to be generated, the contractor must register with EPD as a chemical waste producer. The chemical wastes shall be collected by a licensed chemical waste collector. <p><u>Municipal Wastes</u></p> <ul style="list-style-type: none"> Waste shall be stored within a temporary refuse collection facility, in appropriate containers prior to collection and disposal. Regular, daily collections are required by an approved waste collector. 	During Construction	Contractor	Rem / Obs ✓ ✓ ✓ ✓
Waste Management during Operation	Not required.	N/A	N/A	N/A
Ecology				
Ecology during Construction	<p><u>Accurate Delineation of Works Area</u></p> <ul style="list-style-type: none"> Boundaries of proposed works areas shall be clearly identified and separated from external areas by a physical barrier to prevent encroachment of adjacent habitats. Individual trees which fall within the works areas but which work plans show do not require removal are to be retained and fenced off to maximise protection. <p><u>Dust generation</u></p> <p>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:</p> <ul style="list-style-type: none"> vehicle washing facilities to be provided at every discernible or designated vehicle exit point; all temporary site access roads shall be sprayed with water to suppress dust as necessary; all dusty materials should be sprayed with water immediately prior to any handling; and 	During Construction	Contractor	✓ ✓
		During Construction	Contractor	✓ ✓ ✓

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

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<ul style="list-style-type: none"> all debris should be covered entirely by impervious sheeting or stored in a sheltered debris collection area. <p><u>Surface Run-off</u></p> <p>In general, mitigation measures shall be in accordance with ProPECC PN1/94 on 'Construction Site Drainage'. Key measures include:</p> <ul style="list-style-type: none"> Bund and cover stockpiles to avoid run-off; Channel any run-off through a system of oil, grease and sediment / silt traps and reuse water on site where ever practical; All vehicle maintenance to be undertaken within a bunded area; and Maximise vegetation retention on-site to maximise absorption (minimise transport). 	During Construction	Contractor	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>
Ecology during Operation	<ul style="list-style-type: none"> 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)	N/A
Landscape and Visual				
Landscape and Visual during Construction	<p><u>Preservation of Existing Vegetation</u></p> <ul style="list-style-type: none"> Trees identified for retention within the project limit would be protected during the works The tree transplanting and planting works shall be implemented by approved Landscape Contractors 	During Construction	Contractor	<p>✓</p> <p>✓</p>

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<p><u>Temporary Works Areas</u></p> <ul style="list-style-type: none"> Where feasible the works areas would be screened using hoarding and existing vegetation would be retained where possible to reduce the landscape and visual impacts arising from the construction activity. The landscape of these works areas would be restored following the completion of the construction phase. <p><u>Hoarding</u></p> <ul style="list-style-type: none"> A hoarding would be erected where practicable in the most visually sensitive locations to screen the temporary construction works from the local VSRs. <p><u>Top Soils</u></p> <ul style="list-style-type: none"> The works will result in disturbance to extensive areas of topsoil. Topsoil worthy of retention should be stockpiled for use following completion of the civil engineering works. It should either be temporarily vegetated with hydroseeded grass or turned over on a regular basis. <p><u>Protection of Important Landscape Features</u></p> <ul style="list-style-type: none"> 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	✓
		During Construction	Contractor	✓
		During Construction	Contractor	N/A
		During Construction	Contractor	N/A
Landscape and Visual during Operation	Not required.	N/A	N/A	N/A

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

Appendix D

Meteorological Data Extracted from Hong Kong Observatory

Daily Extract of Meteorological Observations , August 2016 - Sheung Shui

Day	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)					
01	998.8	32.1	29.6	26.3	25.2	78	0.5	***	***
02	994.9	28.1	26.2	24.4	24.8	92	145.0	***	***
03	1005.9	27.9	26.5	25.5	25.3	94	36.5	***	***
04	1008.3	29.1	26.3	25.2	25.8	97	44.0	***	***
05	1007.8	34.0	29.0	25.4	26.0	85	0.0	***	***
06	1004.4	35.1	30.0	25.6	25.7	79	0.0	***	***
07	1002.2	35.6	30.4	26.9	26.3	80	0.0	***	***
08	1002.4	36.1	30.4	27.4	26.2	79	0.0	***	***
09	1001.4	33.2	28.7	25.7	26.4	88	2.5	***	***
10	1002.1	27.8	26.3	24.7	25.4	95	23.5	***	***
11	1002.7	31.9	27.6	25.3	25.2	87	0.5	***	***
12	1000.8	30.6	27.6	26.0	25.7	90	2.0	***	***
13	999.3	33.3	28.6	26.4	25.6	85	1.0	***	***
14	998.0	29.1	27.2	25.3	25.0	88	16.0	***	***
15	997.2	30.5	26.5	24.9	25.6	95	17.5	***	***
16	995.8	27.2	26.0	24.9	25.4	97	15.0	***	***
17	993.6	28.4	26.6	25.0	25.6	95	14.0	***	***
18	995.8	29.2	26.8	25.6	25.7	94	57.5	***	***
19	1002.5	32.5	28.9	26.0	26.0	85	0.0	***	***
20	1004.2	34.5	28.7	26.2	27.0	91	11.5	***	***
21	1002.6	33.0	27.0	23.1	25.2	91	58.5	***	***
22	1004.2	34.8	29.1	25.5	25.0	81	0.0	***	***
23	1004.2	35.7	29.8	25.3	24.9	76	0.0	***	***
24	1003.2	34.3	30.1	26.9	24.8	74	0.0	***	***
25	1003.7	35.3	30.3	26.0	25.5	78	0.0	***	***
26	1004.2	35.6	29.6	26.0	25.1	78	2.0	***	***
27	1006.0	35.1	28.5	25.7	25.5	85	12.5	***	***
28	1006.1	30.4	26.8	24.6	24.1	86	57.5	***	***
29	1007.1	27.9	26.0	24.9	21.2	75	0.0	***	***
30	1007.2	31.8	27.5	23.9	22.7	76	0.0	***	***
31	1005.8	33.3	27.7	23.6	24.0	81	0.0	***	***

*** unavailable

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

Daily Extract of Meteorological Observations , September 2016 - Sheung Shui

Day	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)					
01	1002.6	31.6	28.2	26.2	26.0	88	6.0	***	***
02	1001.5	32.2	28.0	26.4	26.3	91	2.0	***	***
03	1002.2	32.0	27.7	26.0	26.6	94	4.0	***	***
04	1004.8	31.1	28.1	26.3	24.9	83	0.0	***	***
05	1005.9	28.3	26.7	25.3	25.1	91	33.0	***	***
06	1006.2	30.0	26.8	25.5	25.5	93	3.0	***	***
07	1006.9	29.5	26.4	24.7	25.1	93	1.0	***	***
08	1007.5	29.9	27.1	24.8	25.7	93	0.5	***	***
09	1007.9	29.3	26.4	25.0	25.1	93	2.0	***	***
10	1007.3	29.0	25.1	24.3	24.9	99	57.5	***	***
11	1008.0	32.2	26.8	23.7	25.3	92	2.0	***	***
12	1009.8	34.7	28.3	24.1	24.7	82	0.0	***	***
13	1009.8	32.2	27.9	25.6	25.2	86	0.0	***	***
14	1004.3	34.7	29.4	24.7	23.2	72	0.0	***	***
15	1002.7	34.5	29.1	25.5	23.2	72	0.0	***	***
16	1004.7	32.7	28.3	24.3	23.2	75	0.0	***	***
17	1005.6	32.8	28.6	24.7	22.5	71	0.0	***	***
18	1006.8	33.7	28.5	24.8	21.9	68	0.0	***	***
19	1007.8	33.5	27.9	24.3	22.7	74	6.5	***	***
20	1012.1	30.0	24.6#	22.4	23.1#	92#	30.0	***	***
21	1014.1	31.9	26.9	22.9	22.7	79	0.0	***	***
22	1013.3	32.1	27.5	25.3	22.2	74	0.0	***	***
23	1011.7	31.4	27.6	25.6	22.7	75	0.0	***	***
24	1010.1	33.4	28.3	26.0	23.1	75	0.0	***	***
25	1009.4	32.7	28.5	25.7	24.1	78	0.0	***	***
26	1007.3	32.8	28.1	25.7	25.5	87	2.0	***	***
27	1002.6	36.8	30.4	25.3	23.9	72	0.0	***	***
28	999.4	32.2	29.9	28.5	21.4	60	0.0	***	***
29	1004.1	28.5	25.8	23.2	20.2	72	0.0	***	***
30	1007.7	26.8	24.2	22.7	21.1	83	0.0	***	***

*** unavailable

data incomplete

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

Daily Extract of Meteorological Observations , October 2016

Day	Hong Kong Observatory								King's Park	Waglan Island [^]	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1009.9	29.4	26.6	24.0	24.6	89	75	95.5	5.8	***	***
02	1009.0	29.8	27.6	26.2	24.3	82	76	Trace	3.0	***	***
03	1007.8	28.3	27.5	26.6	24.1	82	84	0.2	1.2	***	***
04	1008.1	29.5	27.5	26.5	24.4	83	60	0.0	4.9	***	***
05	1008.9	31.9	28.6	26.9	24.3	78	68	Trace	5.7	***	***
06	1009.1	32.4	28.5	25.9	23.5	75	57	16.7	8.9	***	***
07	1007.1	29.3	27.7	25.5	23.5	79	86	17.3	3.8	***	***
08	1006.8	29.9	28.1	27.0	22.4	71	88	Trace	2.1	***	***
09	1008.9	28.8	26.5	24.9	20.4	69	86	0.0	4.7	***	***
10	1010.2	28.1	25.3	23.5	19.4	70	74	0.0	6.8	***	***
11	1010.7	26.8	24.5	22.0	20.6	79	88	0.1	0.7	***	***
12	1012.5	25.8	24.6	23.0	21.6	84	88	0.9	0.1	***	***
13	1013.5	29.3	26.0	24.2	21.6	77	72	Trace	6.5	***	***
14	1013.2	29.9	26.7	25.0	21.9	76	70	Trace	9.0	***	***
15	1012.6	30.3	27.2	24.6	21.6	72	63	0.0	7.0	***	***
16	1010.9	30.8	28.0	25.9	22.1	71	62	0.0	7.8	***	***
17	1009.1	28.8	26.6	24.1	22.9	81	89	16.7	2.2	***	***
18	1008.1	25.5	24.8	23.9	24.2	96	91	178.7	0.0	***	***
19	1008.7	25.9	25.1	24.4	24.6	96	94	223.4	0.1	***	***
20	1004.6	29.5	27.3	24.7	23.8	82	82	0.0	7.4	***	***
21	997.1	28.0	26.1	24.4	23.6	86	96	72.5	0.0	***	***
22	1007.8	29.4	27.5	26.1	24.4	84	77	1.9	5.0	***	***
23	1010.0	29.1	27.1	25.8	24.9	88	68	0.0	2.8	***	***
24	1011.3	29.1	27.3	26.1	25.2	88	74	Trace	4.1	***	***
25	1013.3	29.8	27.3	26.1	24.8	87	65	Trace	9.2	***	***
26	1015.6	30.0	27.1	25.7	24.2	84	47	0.0	8.5	***	***
27	1016.0	30.9	27.5	25.4	23.5	79	41	0.0	9.8	***	***
28	1014.9	31.5	28.2	26.3	23.3	75	54	0.0	10.3	***	***
29	1017.2	29.0	26.7	24.3	22.7	79	70	0.5	3.7	***	***
30	1019.8	26.6	24.4	22.9	19.4	74	85	0.0	3.6	***	***
31	1019.1	28.7	25.5	23.1	19.7	70	66	0.0	7.9	***	***
Mean/Total	1010.7	29.1	26.8	25.0	22.9	80	74	624.4	152.6	***	***
Normal [§]	1014.1	27.8	25.5	23.7	20.2	73	58	100.9	193.9	080	27.4

*** 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 E

Environmental Monitoring Data for Air, Noise and Water Quality

Appendix E
Air Quality Monitoring Results and their Graphical Presentation

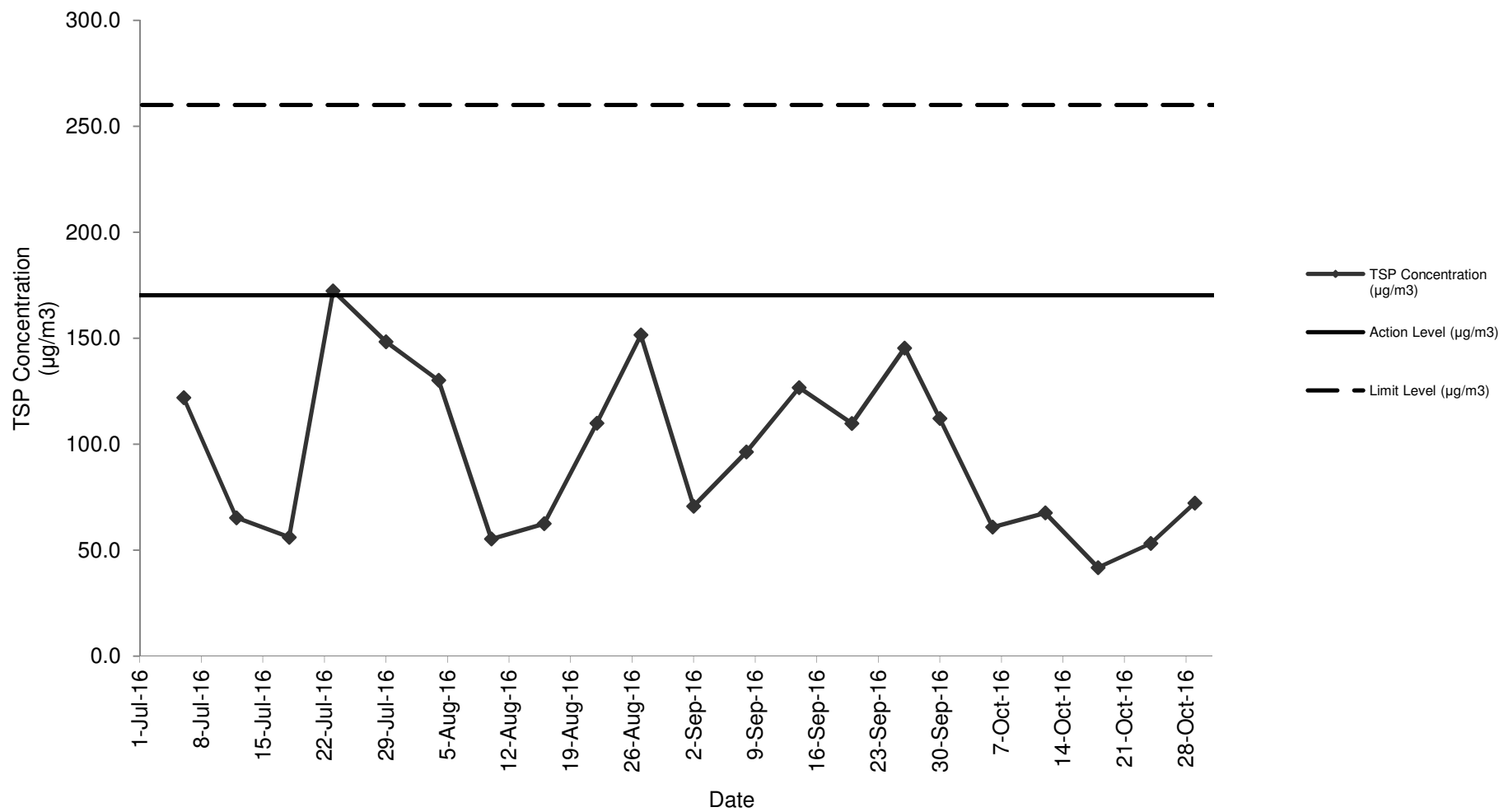
24-Hour TSP Monitoring Result at Station: SR77

Sampling Date	Weather Condition	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Flow Rate (m ³ /min)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Wind speed m/s	Wind direction
			Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate						
6-Jul-16	Cloudy	208	2.7836	3.0371	0.2535	4981.67	5005.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	121.9	170.3	260.0	<5	N
12-Jul-16	Cloudy	210	2.7744	2.9102	0.1358	5008.67	5032.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	65.3	170.3	260.0	<5	N
18-Jul-16	Sunny	212	2.8308	2.9474	0.1166	5035.67	5059.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	56.1	170.3	260.0	<5	N
23-Jul-16	Sunny	214	2.8593	3.2177	0.3584	5062.67	5086.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	172.3	170.3	260.0	<5	N
29-Jul-16	Sunny	216	2.8346	3.1431	0.3085	5089.67	5113.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	148.3	170.3	260.0	<5	N
4-Aug-16	Rainy	218	2.7565	3.0271	0.2706	5116.67	5140.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	130.1	170.3	260.0	<5	N
10-Aug-16	Rainy	220	2.8429	2.9579	0.1150	5143.67	5167.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	55.3	170.3	260.0	<5	N
16-Aug-16	Rainy	222	2.8216	2.9516	0.1300	5170.67	5194.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	62.5	170.3	260.0	<5	N
22-Aug-16	Sunny	224	2.8165	3.0451	0.2286	5197.67	5221.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	109.9	170.3	260.0	<5	N
27-Aug-16	Sunny	226	2.8566	3.1717	0.3151	5224.67	5248.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	151.5	170.3	260.0	<5	N
2-Sep-16	Cloudy	228	2.8419	2.9891	0.1472	5251.67	5275.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	70.8	170.3	260.0	<5	N
8-Sep-16	Rainy	230	2.8694	3.0697	0.2003	5278.67	5302.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	96.3	170.3	260.0	<5	N
14-Sep-16	Sunny	232	2.8445	3.1080	0.2635	5305.67	5329.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	126.7	170.3	260.0	<5	N
20-Sep-16	Rainy	234	2.8320	3.0604	0.2284	5332.67	5356.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	109.8	170.3	260.0	<5	N
26-Sep-16	Fine	236	2.8447	3.1470	0.3023	5359.67	5383.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	145.4	170.3	260.0	<5	N
30-Sep-16	Fine	238	2.8243	3.0574	0.2331	5386.67	5410.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	112.1	170.3	260.0	<5	N
6-Oct-16	Fine	240	2.8401	2.9667	0.1266	5413.67	5437.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	60.9	170.3	260.0	<5	N
12-Oct-16	Sunny	242	2.8534	2.9939	0.1405	5440.67	5464.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	67.6	170.3	260.0	<5	N
18-Oct-16	Rainy	244	2.9016	2.9885	0.0869	5467.67	5491.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	41.8	170.3	260.0	<5	N
24-Oct-16	Sunny	246	2.8571	2.9678	0.1107	5494.67	5518.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	53.2	170.3	260.0	<5	N
29-Oct-16	Fine	248	2.8900	3.0403	0.1503	5521.67	5545.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	72.3	170.3	260.0	<5	N

Summary For the Reporting Quarter (August 2016 - October 2016)	
Average	91.6
Minimum	41.8
Maximum	151.5

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

24-Hour TSP Monitoring Result at Station: SR77 (July 2016 - October 2016)



Appendix E
Air Quality Monitoring Results and their Graphical Presentation

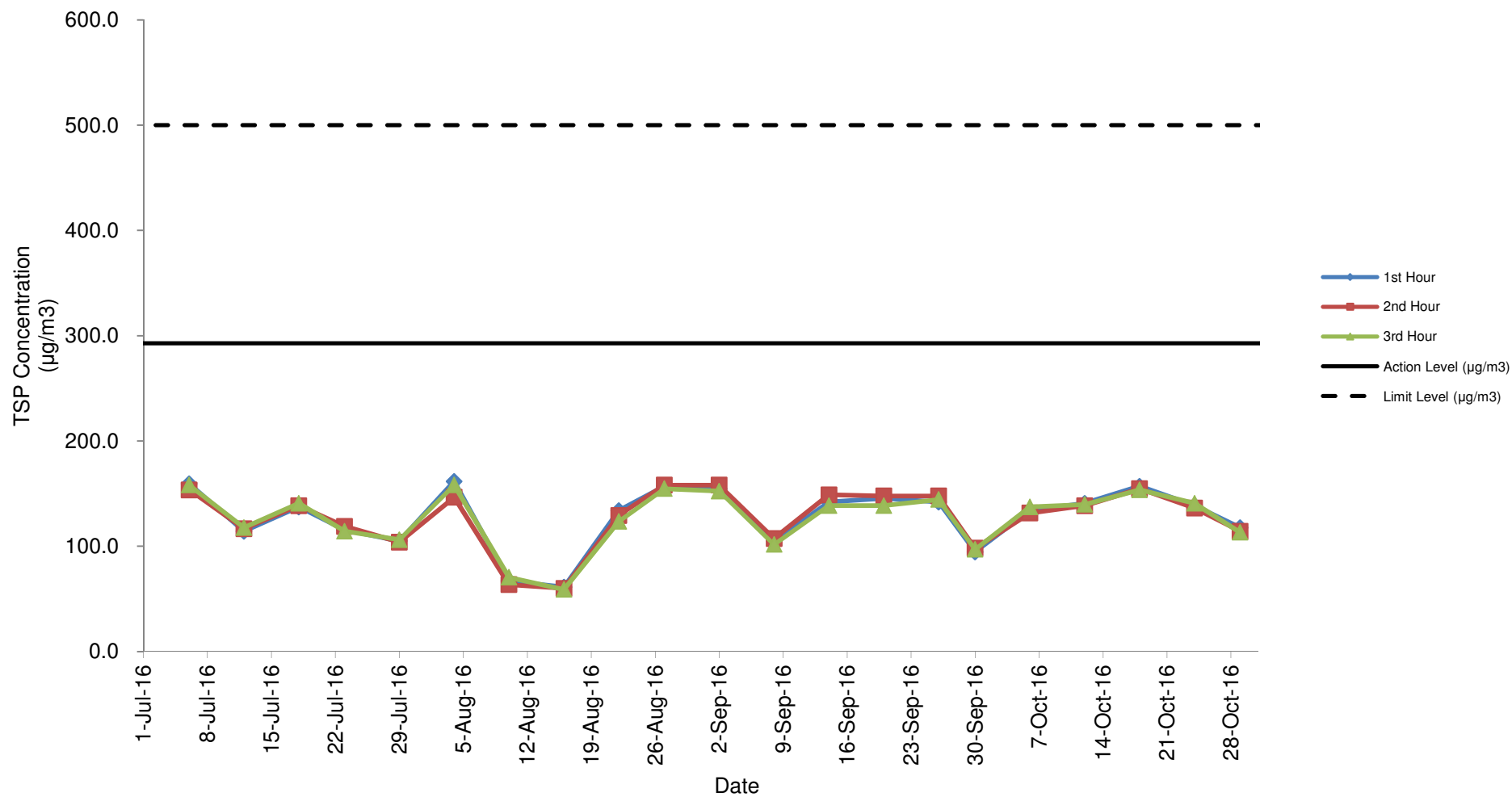
1-Hour TSP Monitoring Result at Station: SR77

Date	Weather Condition	Time	Conc.(µg/m ³)			Action Level (µg/m3)	Limit Level (µg/m3)
			1 st Hour	2 nd Hour	3 rd Hour		
6-Jul-16	Rainy	9:00 - 12:07	159.3	153.5	158.1	292.7	500.0
12-Jul-16	Cloudy	9:00 - 12:07	114.3	116.6	117.7	292.7	500.0
18-Jul-16	Sunny	9:00 - 12:07	137.3	138.5	140.8	292.7	500.0
23-Jul-16	Sunny	9:00 - 12:07	115.4	118.9	114.3	292.7	500.0
29-Jul-16	Sunny	9:00 - 12:06	105.0	103.9	106.2	292.7	500.0
4-Aug-16	Rainy	9:00 - 12:07	161.6	146.6	158.1	292.7	500.0
10-Aug-16	Rainy	9:00 - 12:08	66.9	63.5	70.4	292.7	500.0
16-Aug-16	Rainy	9:00 - 12:07	61.2	60.0	58.9	292.7	500.0
22-Aug-16	Sunny	9:00 - 12:09	133.9	129.3	123.5	292.7	500.0
27-Aug-16	Sunny	9:00 - 12:08	157.0	158.1	154.6	292.7	500.0
2-Sep-16	Rainy	9:00 - 12:07	154.6	158.1	152.3	292.7	500.0
8-Sep-16	Cloudy	9:00 - 12:08	105.0	107.3	101.6	292.7	500.0
14-Sep-16	Sunny	9:00 - 12:08	142.0	148.9	138.5	292.7	500.0
20-Sep-16	Fine	9:00 - 12:09	145.4	147.7	138.5	292.7	500.0
26-Sep-16	Fine	9:00 - 12:08	142.0	147.7	144.3	292.7	500.0
30-Sep-16	Fine	9:00 - 12:08	94.6	98.1	96.9	292.7	500.0
6-Oct-16	Fine	9:00 - 12:07	133.9	131.6	137.3	292.7	500.0
12-Oct-16	Sunny	9:00 - 12:06	140.8	138.5	139.6	292.7	500.0
18-Oct-16	Rainy	9:00 - 12:07	157.0	154.6	153.5	292.7	500.0
24-Oct-16	Sunny	9:00 - 12:06	138.5	136.2	140.8	292.7	500.0
29-Oct-16	Fine	9:00 - 12:06	117.7	114.3	113.1	292.7	500.0

Summary For the Reporting Quarter (August 2016 - October 2016)	
Average	127.4
Minimum	58.9
Maximum	161.6

Note: No major dust source observed during the monitoring period

1-Hour TSP Monitoring Result at station: SR77 (July 2016 - October 2016)



Noise Monitoring Result at SR77

Date	Weather Condition	Start Time	End Time	Measured Noise Level (dB(A))*			Baseline Corrected Level, dB(A)**	Baseline Noise Level (dB(A)), Leq(30min)	Limit Level dB(A)	Exceedance (Y / N)
				L10(30min)	L90(30min)	Leq(30min)				
2016/07/06	Cloudy	11:30	12:00	86.0	53.5	61.5	-	67.8	75.0	N
2016/07/12	Cloudy	11:00	11:30	85.0	55.0	64.0	-	67.8	75.0	N
2016/07/18	Sunny	11:30	12:00	86.5	54.5	63.5	-	67.8	75.0	N
2016/07/29	Sunny	13:00	13:30	88.5	61.5	64.0	-	67.8	75.0	N
2016/08/05	Fine	13:30	14:00	90.5	61.5	66.0	-	67.8	75.0	N
2016/08/10	Cloudy	14:00	14:30	91.0	61.5	63.5	-	67.8	75.0	N
2016/08/16	Rainy	14:00	14:30	90.0	56.5	64.5	-	67.8	75.0	N
2016/08/22	Sunny	13:30	14:00	88.5	57.0	65.5	-	67.8	75.0	N
2016/09/02	Cloudy	14:00	14:30	91.0	62.0	65.5	-	67.8	75.0	N
2016/09/08	Cloudy	13:30	14:00	88.5	62.0	64.5	-	67.8	75.0	N
2016/09/14	Sunny	14:00	14:30	93.0	57.0	66.5	-	67.8	75.0	N
2016/09/20	Fine	13:30	14:00	94.0	61.5	63.5	-	67.8	75.0	N
2016/09/26	Fine	13:30	14:00	88.0	63.0	66.0	-	67.8	75.0	N
2016/10/06	Fine	13:30	14:00	85.0	63.0	67.0	-	67.8	75.0	N
2016/10/12	Sunny	11:30	12:00	91.0	63.0	68.0	-	67.8	75.0	N
2016/10/20	Fine	10:30	11:00	86.5	62.0	68.5	-	67.8	75.0	N
2016/10/24	Sunny	11:30	12:00	88.0	62.5	67.0	-	67.8	75.0	N

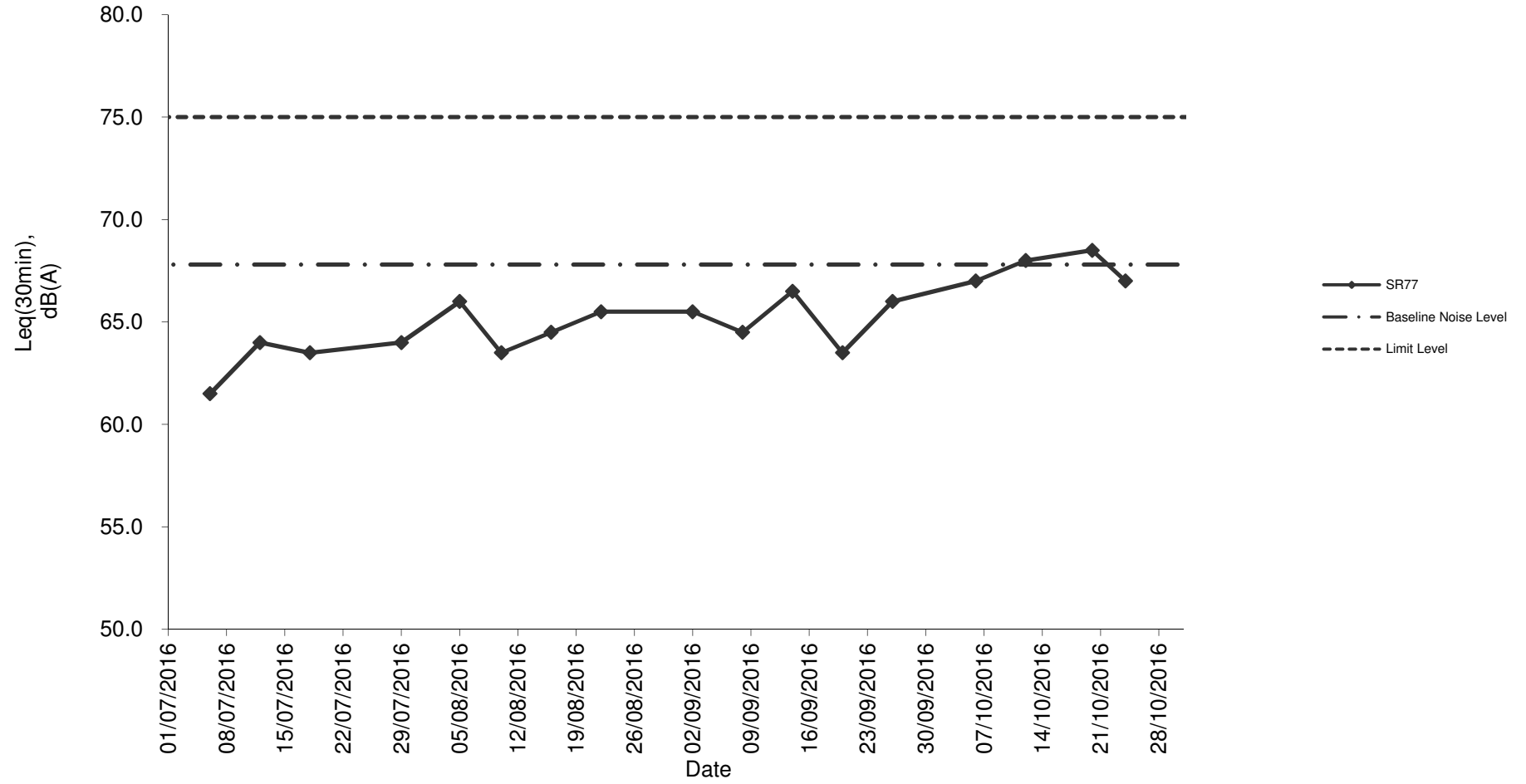
Summary For the Reporting Quarter (August 2016 - October 2016)	
Average	65.8
Minimum	63.5
Maximum	68.5

Remarks

* +3dB(A) Façade effect correction included

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

Noise monitoring result: SR77 (July 2016 - October 2016)



Appendix F Waste Flow Table

Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Soil	Soil Reused in the Contract	Soil Reused in other Projects	Soil Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)
Unit	(in '000m 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)
Aug-16	0.582	0.088	0.494	-	-	0.494	0.715	-	-	0.001	-	0.105
Sep-16	1.797	0.604	1.193	0.258	-	0.935	0.038	0.001	-	0.002	-	0.090
Oct-16	1.115	0.485	0.630	0.177	-	0.453	0.395	-	-	0.002	0.800	0.120
Total	3.494	1.177	2.317	0.435	-	1.882	1.148	0.001	-	0.005	0.800	0.315

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

Appendix G

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

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

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

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



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