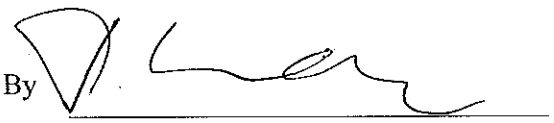
Civil Engineering and Development Department

Agreement No. CE 59/2015 (EP)
Environmental Team for
Tseung Kwan O – Lam Tin Tunnel
Design and Construction

Monthly Environmental Monitoring and Audit Report for December 2018

(version 1.0)

Approved By 

(Dr. HF Chan,
Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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CINOTECH CONSULTANTS LTD
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong
Tel: (852) 2151 2083 Fax: (852) 3107 1388
Email: info@cinotech.com.hk

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EXECUTIVE SUMMARY

Introduction

1. This is the 26th Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the "Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel – Design and Construction" (hereinafter called "the Project"). This report documents the findings of EM&A Works conducted in December 2018.

2. During the reporting month, the following works contracts were undertaken:
   - Contract No. NE/2015/01 – Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works;
   - Contract No. NE/2015/02 – Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works;
   - Contract No. NE/2015/03 – Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge;
   - Contract No. NE/2017/01 – Tseung Kwan O – Lam Tin Tunnel –Tseung Kwan O Interchange and Associated Works
   - Contract No. NE/2017/02 – Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works.
   - Contract No. NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works
   - Contract No. NE/2017/07 – Cross Bay Link, Tseun Kwan O – Main Bridge and Associated Works.

Environmental Monitoring Works

3. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

4. Summary of the non-compliance (exceedance) in the reporting month for the Project is tabulated in **Table I**.

Table I Non-compliance (exceedance) Record for the Project in the Reporting Month

Environmental Monitoring	No. of Non-compliance (Exceedance)		No. of Non-compliance (Exceedance) due to Construction Activities of this Project		Action Taken
	Action Level	Limit Level	Action Level	Limit Level	
Air Quality	0	0	0	0	N/A
Noise	9	13	9	1	Refer to Appendix K & O
Groundwater Quality	3	4	0	0	Refer to Appendix K
Marine Water Quality	23	170	0	0	Refer to Appendix K
Groundwater Level Monitoring (Piezometer Monitoring)	0	N/A[1]	0	N/A[1]	N/A
Ecological	N/A	N/A	N/A	N/A	N/A
Cultural Heritage	0	0	0	0	N/A
Landfill Gas	0	0	0	0	N/A

Note:(1) No Limit Level for Groundwater Level Monitoring (Piezometer Monitoring).

Air Quality Monitoring

5. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

6. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

7. All noise monitoring was conducted as scheduled in the reporting month. Nine (9) Action Level exceedances were recorded due to the documented complaints received in this reporting month. Thirteen (13) Limit Level exceedances were recorded in the reporting month.

Water Quality Monitoring

8. Groundwater quality monitoring was conducted as scheduled in the reporting month. Three (3) action level and Four (4) Limit Level exceedances were recorded in the reporting month.

9. All marine water monitoring was conducted as scheduled in the reporting month. Twenty-three (23) Action Level and one hundred and seventy (170) Limit Level exceedance in marine water quality monitoring.

10. Construction phase daily piezometer monitoring by the Contractor commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. The daily piezometer monitoring has resumed on 19 November 2018, as the construction activity was within 50m. No Action Level exceedance was recorded in the reporting month.

Ecological Monitoring

11. Post-translation coral monitoring survey shall be conducted once every 3 months for a period of 12 months after completion of coral translocation. The post-translocation coral monitoring surveys were completed in November 2017.

Monitoring on Cultural Heritage

12. Monitoring of impacts on Cultural Heritage at Cha Kwo Ling Tin Hau Temple commenced in April 2017. No Alert Alarm and Action (AAA) Level exceedance was recorded in the reporting month.

Landscape and Visual Monitoring and Audit

13. The implementation of landscape and visual mitigation measures was checked during the environmental site inspections. Recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 10.

Landfill Gas Monitoring

14. Monitoring of landfill gases commenced in December 2016 and were carried out by the Contractor at excavation location, Portion III. No Limit Level exceedance was recorded.

Environmental Site Inspection

15. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Environmental Team. The representative of the IEC joined the site inspection for NE/2015/01, NE/2015/02, NE/2015/03, NE/2017/01 and NE/2017/02 on 5, 12, 19, 4 and 19 December 2018 respectively. Details of the audit findings and implementation status are presented in **Section 10**.

Waste Management

16. Wastes generated from this Project include inert construction and demolition (C&D) materials, non-inert C&D materials and marine sediments. Details of waste management data is presented in **Section 11** and **Appendix P**.

Key Information in the Reporting Month

17. Summary of key information in the reporting month is tabulated in **Table II**

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status
	Number	Nature		
Complaint received by Project Team /	9	Noise nuisance/ Construction dust	Under investigation	On-going

Event	Event Details		Action Taken	Status
	Number	Nature		
Complaint referred by EPD (December 2018)				
Complaint received by Project Team / Complaint referred by EPD (November 2018)	12	Noise nuisance/ Construction dust	Details refer to App O	On-going
Complaint received by Project Team / Complaint referred by EPD (October 2018)	13	Noise nuisance	Details refer to App O	Closed
Notifications of any summons & prosecutions received	0	---	N/A	N/A

Key Construction Work in the reporting month & the next reporting month

18. Summary of key construction work in the reporting month is tabulated in **Table III**.

Table III Summary Table for Key Construction Work in the Reporting Month

Contract No.	Project Title	Site Activities (December 2018)	
NE/2015/01	Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2 , Area 3, Area 4 and Area 5
		Main Tunnel	3) Main tunnel Excavation
		TKO Interchange	4) Haul Road Construction, Site Formation and Slope Works 5) Steel Platform for Bridge Construction 6) Cavern Excavation
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Backfilling works 2) Construction of U-trough structure 3) Pre-bore and sheetpile works for 2100 pipe at Portion IV and Portion VII 4) Pre-bore works for decked U-trough 5) Sheet pile works for decked U-trough 6) Drainage works at U-trough CH411-CH500 7) ELS works and construction of P2A RW 8) ELS works for 2100 pipe 9) Construction of desilting opening near retaining wall at P2A Bay 8 at Portion VIII 10) Installation of 2100 storm water pipe at Portion IV / VII 11) King post and de-watering system for	

		proposed U-trough CH318.00 – CH363.50 at Portion V/VI 12) Construction of permanent fence at Ocean Shores 13) CCTV works at covered channel at Portion IV 14) Fabrication of ELS members for proposed ELS system at CH318.00 – CH363.50 15) Removal of damage temporary steel cofferdam 16) Surcharging at surcharge Area 1a 17) Reclamation works at Portion IX 18) Reinstatement of existing seawall at Portion VII 19) Pre-drilling at P2 CH283 – CH305
NE/2015/03	Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	1) Construction of Main deck 2) Erection of scaffolding for Staircase 1 3) Installation of Lift Car 4) Plate Load Test for the temporary filled area
NE/2017/01	Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works	1) Repairing Works for Temporary Working Platform 2) Pre-drilling 3) Bored piling 4) Dismantling Works for Temporary Working Platform 5) Construction of Temporary Working Platform
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement setup 4) Piling Works 5) Construction of Temporary carriageway 6) Pre-bored Socket H-Pile 7) Modification of traffic island 8) Predrilling 9) Construction of Temporary cycle track 10) Construction of drainage and watermain

Future Key Issues

19. The future key environmental issues in the coming month include:

Table IV Summary Table for Site Activities in the next Reporting Period

Contract No. and Project Title	Site Activities (January 2019)		Key environmental issues *
NE/2015/01 - Tseung Kwan O – Lam Tin Tunnel – Main	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2, Area 3, Area 4 & Area 5	(A) / (B) / (C) / (D) / (E) (G)

Tunnel and Associated Works	Main Tunnel	3) Main Tunnel Excavation 4) Main Tunnel Lining Works	(B)
	TKO Interchange	5) Haul Road Construction and Site Formation & Slope Works 6) Cavern Excavation 7) Steel Platform for Bridge Construction	(A) / (C) / (D) / (E) / (F) / (I)
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Backfilling works 2) Construction of U-trough structure 3) Pre-bore and sheetpile works for 2100 pipe at Portion IV and Portion VII 4) Pre-bore works for decked U-trough 5) Sheet pile works for decked U-trough 6) Drainage works at U-trough CH411-CH500 7) ELS works and construction of P2A RW 8) ELS works for 2100 pipe 9) Construction of desilting opening near retaining wall at P2A Bay 8 at Portion VIII 10) Installation of 2100 storm water pipe at Portion IV / VII 11) King post and de-watering system for proposed U-trough CH318.00 – CH363.50 at Portion V/VI 12) Construction of permanent fence at Ocean Shores 13) CCTV works at covered channel at Portion IV 14) Fabrication of ELS members for proposed ELS system at CH318.00 – CH363.50 15) Removal of damage temporary steel cofferdam 16) Surcharging at surcharge Area 1a 17) Reclamation works at Portion IX 18) Reinstatement of existing seawall at Portion VII 19) Pre-drilling at P2 CH283 – CH305		(A) / (B) / (C) / (D) / (E) / (G) / (I)
NE/2015/03 - Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	1) Construction of Main deck 2) Remove steel mould & scaffolding of bridge deck		(A) / (B) / (C) / (D) / (E)
NE/2017/01 – Tseung Kwan O Interchange and Associated Works	1) Dismantling Works for Temporary Working Platform 2) Pre-drilling 3) Bored piling 4) Construction of Temporary Working Platform 5) Installation of Precast Pile Cap Shell Construction of Pile Cap Shell		(A) / (B) / (E) / (F) / (G)
NE/2017/02 – Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement setup 4) Piling Works 5) Construction of Temporary carriageway		(A) / (B) / (E) / (F) / (G)

Associated Works	6) Pre-bored Socket H-Pile 7) Modification of traffic island 8) Predrilling 9) Construction of Temporary cycle track 10) Construction of drainage and watermain	

Note:

(A) Watering for dust generation from haul road, stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
(B) Noisy construction activity such as rock-breaking activities and piling works;
(C) Runoff from exposed slope or site area;
(D) Wastewater and runoff discharge from site;
(E) Accumulation of silt, mud and sand along U-channels and sedimentation tanks;
(F) Set up and implementation of temporary drainage system for the surface runoff;
(G) Storage of chemicals/fuel and chemical waste/waste oil on site;
(H) Accumulation and storage of general and construction waste on site; and
(I) Marine water quality impact and indirect impact to coral communities due to marine construction for TKO-LTT reclamation.

1. INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was commissioned by Civil Engineering and Development Department (CEDD) as the Environmental Team (ET) to undertake environmental monitoring and auditing services for the Works Contracts involved in the implementation of Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) project to ensure that the environmental performance of the Works Contracts comply with the requirements specified in the Environmental Permit (EP), Environmental Monitoring & Audit (EM&A) Manual, Environmental Impact Assessment (EIA) Report of the TKO-LTT project and other relevant statutory requirements. This is the 26th Monthly EM&A report summarizing the EM&A works for the Project in December 2018.

Purpose of the Report

1.2 This is the 26th Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period in December 2018.

Structure of the Report

1.3 The structure of the report is as follows:

Section 1: **Introduction** – purpose and structure of the report.

Section 2: **Contract Information** – summarises background and scope of the Contract, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting month.

Section 3: **Air Quality Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 4: **Noise Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 5: **Water Quality Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 6: **Ecological Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations and Action and Limit Levels, monitoring results and Event / Action Plans.

Section 7: **Cultural Heritage** –summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations and monitoring results.

Section 8: **Landscape and Visual Monitoring Requirements** – summarises the

requirements of landscape and visual monitoring

Section 9: **Landfill Gas Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, monitoring results and Limit Levels and Action Plan

Section 10: **Environmental Site Inspection** – summarises the audit findings of the weekly site inspections undertaken within the reporting month.

Section 11: **Waste Management** – summarises the waste management data in the reporting month.

Section 12: **Environmental Non-conformance** – summarises any monitoring exceedance, environmental complaints, environmental summons and successful prosecutions within the reporting month.

Section 13: **Future Key Issues** – summarises the impact forecast and monitoring schedule for the next three months.

Section 14: **Conclusions and Recommendation**

2. PROJECT INFORMATION

Background

2.1 In 2002, Civil Engineering and Development Department (CEDD) commissioned an integrated planning and engineering study under Agreement No. CE 87/2001 (CE) "Further Development of Tseung Kwan O – Feasibility Study" (the "TKO Study") to formulate a comprehensive plan for further development of TKO New Town. It recommended to further develop TKO to house a total population of 450,000 besides the district's continuous commercial and industrial developments.

2.2 At present, the Tseung Kwan O Tunnel is the main connection between Tseung Kwan O (TKO) and other areas in the territory. To cope with the anticipated transport need, the TKO Study recommended the provision of Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) (hereinafter referred to as "the Project") and Cross Bay Link (CBL) to meet the long-term traffic demand between TKO and the external areas. The site layout plan for the Project is shown in **Figure 1**.

2.3 The Environmental Impact Assessment (EIA) Report for the TKO-LTT project was approved under the Environmental Impact Assessment Ordinance (EIAO) in July 2013. The corresponding Environmental Permit (EP) was issued in August 2013 (EP no.: EP-458/2013). Variations to the EP was applied and the latest EP (EP no.: EP-458/2013/C) was issued by the Director of Environmental Protection (DEP) in January 2017.

2.4 The commencement dates of construction of this Project is:

- Contract No. NE/2015/01 and Contract No. NE/2015/02: 7 November 2016.
- Contract No. NE/2015/03: 29 May 2017.
- Contract No. NE/2017/02: 15 March 2018.
- Contract No. NE/2017/01: 23 April 2018.

Project Organizations

2.5 Different parties with different levels of involvement in the project organization include:

- Project Proponent – Civil Engineering and Development Department (CEDD)
- The Engineer and the Engineer's Representative (ER) – AECOM
- Environmental Team (ET) – Cinotech Consultants Limited (Cinotech)
- Independent Environmental Checker (IEC) – AnewR Consulting Limited (AnewR)

2.6 The key contacts of the Project are shown in **Table 2.1**.

Table 2.1 Key Project Contacts

Party	Role	Contact Person	Phone No.	Fax No.
CEDD	Project Proponent	Mr. LO Sai Pak, Sunny	2301 1384	2739 0076
AECOM	Engineer's Representative	Mr. KY Chan	3922 9000	2759 1698
Cinotech	Environmental Team	Dr. HF Chan	2151 2088	3107 1388
		Mr. KS Lee	2151 2091	
AnewR	Independent Environmental Checker	Mr. Adi Lee	2618 2836	3007 8648

Construction Activities undertaken during the Reporting Month

2.7 The major site activities undertaken in the reporting month included:

Table 2.2 Summary Table for Major Site Activities in the Reporting Month

Contract No.	Project Title	Site Activities (December 2018)	
NE/2015/01	Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2 , Area 3, Area 4 and Area 5
		Main Tunnel	3) Main tunnel Excavation
		TKO Interchange	4) Haul Road Construction, Site Formation and Slope Works 5) Steel Platform for Bridge Construction 6) Cavern Excavation
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Backfilling works 2) Construction of U-trough structure 3) Pre-bore and sheetpile works for 2100 pipe at Portion IV and Portion VII 4) Pre-bore works for decked U-trough 5) Sheet pile works for decked U-trough 6) Drainage works at U-trough CH411-CH500 7) ELS works and construction of P2A RW 8) ELS works for 2100 pipe 9) Construction of desilting opening near retaining wall at P2A Bay 8 at Portion VIII 10) Installation of 2100 storm water pipe at Portion IV / VII 11) King post and de-watering system for proposed U-trough CH318.00 – CH363.50 at Portion V/VI 12) Construction of permanent fence at Ocean Shores 13) CCTV works at covered channel at Portion IV 14) Fabrication of ELS members for proposed ELS system at CH318.00 – CH363.50 15) Removal of damage temporary steel cofferdam 16) Surcharging at surcharge Area 1a 17) Reclamation works at Portion IX 18) Reinstatement of existing seawall at Portion VII 19) Pre-drilling at P2 CH283 – CH305	
NE/2015/03	Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	1) Construction of Main deck 2) Erection of scaffolding for Staircase 1 3) Installation of Lift Car 4) Plate Load Test for the temporary filled area	

NE/2017/01	Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works	1) Repairing Works for Temporary Working Platform 2) Pre-drilling 3) Bored piling 4) Dismantling Works for Temporary Working Platform 5) Construction of Temporary Working Platform
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement setup 4) Piling Works 5) Construction of Temporary carriageway 6) Pre-bored Socket H-Pile 7) Modification of traffic island 8) Predrilling 9) Construction of Temporary cycle track 10) Construction of drainage and watermain

2.8 The construction programme showing the inter-relationship with environmental protection/mitigation measures are presented in **Table 2.3**.

Table 2.3 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Major Environmental Impact	Control Measures
As mentioned in **Table 2.2**	Noise, dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities • Properly cover the stockpiles • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge • Use of quiet plant and well-maintained construction plant • Provide movable noise barrier

Status of Environmental Licences, Notification and Permits

2.9 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.4**.

Table 2.4 Summary of the Status of Environmental Licences, Notification and Permits

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Environmental Permit (EP)				
N/A	EP-458/2013/C	20/1/2017	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
NE/2015/01	EPD Ref no.: 405305	21/07/2016	N/A	Valid

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
	EPD Ref no.: 405582	28/07/2016	N/A	Valid
NE/2015/02	EPD Ref no.: 406100	12/08/2016	N/A	Valid
NE/2015/03	EPD Ref no.: 416072	26/04/2017	N/A	Valid
NE/2017/02	EPD Ref no.: 429867	19/01/2018	N/A	Valid
NE/2017/01	EPD Ref no.: 430070	25/01/2018	N/A	Valid
Billing Account for Construction Waste Disposal				
NE/2015/01	Account No. 7025431	11/07/2016	N/A	Valid
NE/2015/02	Account No. 7025654	16/08/2016	N/A	Valid
NE/2015/03	Account No. 7026805	30/12/2016	N/A	Valid
NE/2017/02	Account No. 7029651	22/12/2017	N/A	Valid
NE/2017/01	Account No. 7029994	01/02/2018	N/A	Valid
Vessel Billing Account under construction waste disposal charging scheme				
NE2015/01	Account No. 7027764	30/10/2018	10/02/2019	Valid
Registration of Chemical Waste Producer				
NE/2015/01	Waste Producer No. 5218-290-L2881-02	22/08/2016	N/A	Valid
	Waste Producer No. 5213-833-L2532-03	22/08/2016	N/A	Valid
NE/2015/02	Waste Producer No. 5213-838-C4094-01	23/08/2016	N/A	Valid
NE/2015/03	Waste Producer No. 5213-265-W3435-04	19/07/2017	N/A	Valid
NE/2017/02	Waste Producer No. 5213-833-Z4004-04	01/02/2018	N/A	Valid
NE/2017/01	Waste Producer No. 5213-833-C4262-01	12/02/2018	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance				
NE/2015/01	WT00025806-2016	18/07/2018	30/11/2021	Valid
	WT00026212-2016	16/05/2017	30/11/2021	Valid
	WT00027354-2017	22/03/2017	31/03/2022	Valid
	WT00027405-2017	22/03/2017	31/03/2022	Valid
	WT-00028495-2017	11/08/2017	31/08/2022	Valid
NE/2015/02	WT00026386-2016	15/12/2016	31/12/2021	Valid
	WT00027226-2017	23/02/2017	28/02/2022	Valid
NE/2015/03	WT00027295-2017	20/03/2017	18/04/2019	Valid
	WT00027266-2017	08/03/2017	18/04/2019	Valid
NE/2017/01	WT00030711-2018	11/04/2018	30/04/2023	Valid
	WT00030716-2018	23/05/2018	31/05/2023	Valid
NE/2017/02	WT00030654-2018	16/04/2018	30/04/2023	Valid
Construction Noise Permit (CNP)				

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
NE/2015/01	GW-RE0418-18	23/06/2018	22/12/2018	Expired on 22 Dec 2018
	GW-RE0630-18	01/10/2018	30/12/2018	Expired on 30 Dec 2018
	GW-RE0598-18	05/9/2018	04/12/2018	Expired on 04 Dec 2018
	GW-RE0696-18	22/10/2018	21/12/2018	Expired on 21 Dec 2018
	GW-RE0807-18	05/12/2018	04/03/2019	Valid
	GW-RE0819-18	30/11/2018	29/01/2019	Valid
	GW-RE0808-18	30/11/2018	28/01/2019	Valid
	GW-RE0881-18	24/12/2018	22/06/2019	Valid
NE/2015/02	GW-RE0384-18	02/06/2018	01/12/2018	Expired on 01 Dec 2018
	GW-RE0434-18	16/06/2018	15/01/2019	Valid
	GW-RE0680-18	11/10/2018	10/04/2019	Valid
	GW-RE0732-18	31/10/2018	29/01/2019	Valid
	GW-RE0833-18	02/12/2018	01/06/2019	Valid
NE/2017/01	GW-RE0744-18	03/11/2018	02/02/2019	Valid
	GW-RE0755-18	07/11/2018	06/05/2019	Valid
Marine Dumping Permit				
NE/2017/01	EP/MD/19-064	01/12/2018	31/05/2019	Valid
	EP/MD/19-065	01/12/2018	31/12/2018	Expired on 31 Dec 2018
Specified Process (SP) License				
NE/2015/01	L-11-053	09/03/2018	08/03/2021	Valid

Summary of EM&A Requirements

2.10 The EM&A programme requires construction noise monitoring, air quality monitoring, water quality monitoring, environmental site audit, etc. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA Report.

2.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 10** of this report.

2.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the monitoring parameters of the required environmental monitoring works and audit works for the Project in December 2018.

3. AIR QUALITY

Monitoring Requirements

3.1 According to EM&A Manual of the Project, 1-hour and 24-hour TSP monitoring are required to monitor the air quality. For regular impact monitoring, a sampling frequency of at least once in every six days shall be undertaken at all of the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days shall be undertaken when the highest dust impact occurs. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Six designated monitoring stations were selected for air quality monitoring programme. **Table 3.1** describes the air quality monitoring locations, which are also depicted in **Figure 2**.

Table 3.1 Locations for Air Quality Monitoring

Monitoring Stations	Location	Location of Measurement
AM1	Tin Hau Temple	Ground Level
AM2	Sai Tso Wan Recreation Ground	Ground Level
AM3	Yau Lai Estate Bik Lai House	Rooftop (41/F)
AM4(1)	Sitting-out Area at Cha Kwo Ling Village	Ground Level
AM4(A)(2)(*)	Cha Kwo Ling Public Cargo Working Area Administrative Office	Rooftop (3/F)
AM5(A)(*)	Tseung Kwan O DSD Desilting Compound	Ground Level
AM6(A)(*)	Park Central, L1/F Open Space Area	1/F

Remarks: (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

(*) Air quality monitoring at designated station AM4(24-hr TSP), AM5 and AM6 was rejected by the premise owners. Therefore, baseline and impact air quality monitoring works were carried out at alternative air quality monitoring stations AM4(A) (24-hr TSP only), AM5(A) and AM6(A) respectively.

Monitoring Equipment

3.3 High Volume Samplers (HVS) were used to carry out 24-hour TSP monitoring. Direct reading dust meter were also used to measure 1-hour average TSP levels. The 1-hour sampling was determined periodically by HVS to check the validity and accuracy of the results measured by direct reading method.

3.4 Wind data monitoring equipment was set at rooftop (about 41/F) of Yau Lai Estate Bik Lai House for logging wind speed and wind direction such that the wind sensors are clear of obstructions or turbulence caused by building. The wind data monitoring equipment is re-calibrated at least once every six months and the wind directions are divided into 16 sectors of 22.5 degrees each. The location is shown in **Figure 2**.

3.5 **Table 3.2** summarizes the equipment to be used in the air quality monitoring. Copies of calibration certificates are attached in **Appendix B**.

Table 3.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	TISCH Model: TE-5025A	1
1-hour TSP Dust Meter	Sibata Model No.: LD-3 / LD-3B	1
	Met One Instruments Model No.: AEROCET-831	4
	Handheld Particle Counter Hal-HPC300 / Hal-HPC301	4
HVS Sampler	TISCH Model: TE-5170	1
	GMW Model: GS2310	5
Wind Anemometer	Davis Weather Monitor II, Model no. 7440	1
	Davis Weather Stations, Vantage Pro 2, Model No. 6152CUK	0

Monitoring Parameters and Frequency

3.6 **Table 3.3** summarizes the monitoring parameters, monitoring period and frequencies of air quality monitoring.

Table 3.3 Frequency and Parameters of Air Quality Monitoring

Monitoring Stations	Parameter	Frequency
AM1, AM2, AM3, AM4, AM5(A) and AM6(A)	1-hour TSP	3 times per 6 day
AM1, AM2, AM3, AM4(A), AM5(A) and AM6(A)	24-hour TSP	Once per 6 days

Monitoring Methodology

1-hour TSP Monitoring

Measuring Procedures

3.7 The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

(Model LD3 / LD3B)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

(AEROCET-531)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Remove the red rubber cap from the AEROCET-531 inlet nozzle.

- Turn on the power switch that is located on the right side of the AEROCET-531.
- On power up the product intro screen is displayed for 3 seconds. The intro screen displays the product name and firmware version.
- Then the main counter screen will be displayed.
- Press the START button. Internal vacuum pump start running. After 1 minute the pump will stop and the 0.5µm and 5µm channels will show the cumulative counts of particles larger than 0.5µm and 5µm per cubic foot.
- The AEROCET-531 is now checked out and ready for use.
- To switch off the AEROCET-531 power to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, and display value and site condition were recorded during the monitoring period.

(Equipment: Hal Technology; Model no. Hal-HPC300 / Hal-HPC301)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

Maintenance/Calibration

3.8 The following maintenance/calibration is required for the direct dust meters:

- Check and calibrate the meter by HVS to check the validity and accuracy of the results measured by direct reading method at 2-month intervals throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

3.9 High volume samplers (HVS) (TISCH Model: TE-5170 and GMW Model: GS2310) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

3.10 The positioning of the HVS samplers are as follows:

- a horizontal platform with appropriate support to secure the samplers against gusty wind shall be provided;
- no two samplers shall be placed less than 2 meter apart
- the distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
- a minimum of 2 metres of separation from walls, parapets and penthouses is required for rooftop samplers;

- a minimum of 2 metres of separation from any supporting structure, measured horizontally is required;
- no furnace or incinerator flue is nearby;
- airflow around the sampler is unrestricted;
- the sampler is more than 20 metres from the dripline;
- any wire fence and gate, to protect the sampler, shall not cause any obstruction during monitoring;
- permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- a secured supply of electricity is needed to operate the samplers.

Operating/analytical procedures for the operation of HVS

3.11 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

3.12 For TSP sampling, fiberglass filters with a collection efficiency of > 99% for particles of 0.3μm diameter were used.

3.13 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.

3.14 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.

3.15 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.

3.16 The shelter lid was closed and secured with the aluminum strip.

3.17 The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).

3.18 After sampling, the filter was removed and sent to the HOKLAS laboratory (Wellab Ltd.) for weighing. The elapsed time will be also recorded.

3.19 Before weighing, all filters was equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

3.20 The following maintenance/calibration is required for the HVS:

- The high volume motors and their accessories will be properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking will be made to ensure that the equipment and necessary power supply are in good working condition.

- High volume samplers will be calibrated at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

3.21 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

3.22 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

3.23 The air temperature, precipitation and the relative humidity data was obtained from Hong Kong Observatory where the wind speed and wind direction were recorded by the installed Wind Anemometer at rooftop of Yau Lai Estate Bik Lai House (41/F). The location is shown in **Figure 2**. This weather information for the reporting month is summarized in **Appendix C**.

3.24 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix E** and **Appendix F** respectively.

3.25 The summary of exceedance record in reporting month is shown in **Appendix K**. No exceedance was recorded for the air quality monitoring.

3.26 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Table 3.4 Major Dust Source during Air Quality Monitoring

Station	Major Dust Source
AM1 – Tin Hau Temple	Road Traffic at Cha Kwo Ling Road
AM2 – Sai Tso Wan Recreation Ground	N/A
AM3 – Yau Lai Estate Bik Lai House	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
AM4 - Sitting-out Area at Cha Kwo Ling Village	Road Traffic at Cha Kwo Ling Road
AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office	Road Traffic at Cha Kwo Ling Road
AM5(A) - Tseung Kwan O DSD Desilting Compound	Vehicle Movement within the Desilting Compound
AM6(A) - Park Central, L1/F Open Space Area	Road Traffic at Po Yap Road

4. NOISE

Monitoring Requirements

4.1 According to EM&A Manual of the Project, construction noise monitoring was conducted to monitor the construction noise arising from the construction activities. The regular monitoring frequency for each monitoring station shall be on a weekly basis and conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

4.2 Noise monitoring was conducted at 8 designated monitoring stations (CM1, CM2, CM3, CM4, CM5, CM6(A), CM7(A), CM8(A)) in the reporting period. **Table 4.1** and **Figure 3** show the locations of these stations.

Table 4.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	Rooftop (41/F)/Refuge floor (26/F)#
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	Rooftop (41/F)
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	Rooftop (40/F)
CM4	Tin Hau Temple, Cha Kwo Ling	Ground Level
CM5	CCC Kei Faat Primary School, Yau Tong	Rooftop (6/F)
CM6(A)*	Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores	Ground Level
CM7(A)*	Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores	Ground Level
CM8(A)*	Park Central, L1/F Open Space Area	1/F

Remarks: * Noise monitoring at designated station CM6, CM7 & CM8 was rejected by the premise owners. Therefore, baseline and impact noise monitoring works were carried out at alternative noise monitoring stations CM6(A), CM7(A) and CM8(A) respectively.
Monitoring location has changed from 41/f to 26/f on 23rd Nov 2018.

Monitoring Equipment

4.3 Integrating Sound Level Meter was used for impact noise monitoring. The meters are Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x) that also complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. **Table 4.2** summarizes the noise monitoring equipment being used. Copies of calibration certificates are attached in **Appendix B**.

Table 4.2 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVAN 955/ 957 / 977	5
	BSWA 801	5
Calibrator	SV30A	2
	Brüel & Kjær 4231	2

4.4 **Table 4.3** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**. Additional weekly impact monitoring are carried out for evening time (1900 – 2300 hours) , night-time (2300 – 0700 hours) and daytime (0700- 1900 hours) during general holidays including Sundays for monitoring stations CM1, CM2, CM3 and CM4.

Table 4.3 Frequency and Parameters of Noise Monitoring

Monitoring Stations	Parameter	Period	Frequency	Measurement
CM1	L_{10}(30 min) dB(A) L_{90}(30 min) dB(A) L_{eq}(30 min) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade
CM2				Façade
CM3				Façade
CM4				Façade
CM5				Façade
CM6(A)				Free Field
CM7(A)				Free Field
CM8(A)				Façade
CM1	L_{10}(5 min) dB(A) L_{90}(5 min) dB(A) L_{eq}(5 min) dB(A)	1900 – 2300 hrs on normal weekdays/ 0700 to 1900 hours on any day being a Sunday or general holiday / 2300-0700 on all day		Façade
CM2				Façade
CM3				Façade
CM4				Façade

Monitoring Methodology and QA/QC Procedure

4.5 The monitoring procedures are as follows:

- The monitoring station was normally be at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels was adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time was set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - measurement time : 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement will be more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- At the end of the monitoring period, the L_{eq}, L_{90} and L_{10} was recorded. In addition, noise sources was recorded on a standard record sheet.
- Noise monitoring will be cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. Supplementary monitoring was provided to ensure sufficient data would be

obtained.

Maintenance and Calibration

4.6 The microphone head of the sound level meter and calibrator was cleaned with a soft cloth at quarterly intervals.

4.7 The sound level meter and calibrator was checked and calibrated at yearly intervals.

4.8 Immediately prior to and following each noise measurement the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

4.9 Nine (9) Action Level exceedance was recorded due to the documented complaints received in this reporting month. Twelve (12) Limit Level exceedance for night-time construction noise monitoring and they were considered due to the road Traffic near Eastern Cross Harbour Tunnel Toll Plaza, therefore non-Project related. One (1) Limit Level exceedance for day time was recorded in the reporting month and it was considered Project related.

4.10 Noise monitoring results and graphical presentations are shown in **Appendix G**.

4.11 The major noise source identified at the noise monitoring stations are shown in **Table 4.4**.

Table 4.4 Major Noise Source during Noise Monitoring

Monitoring Stations	Locations	Major Noise Source
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM4	Tin Hau Temple, Cha Kwo Ling	Road Traffic at Cha Kwo Ling Road
CM5	CCC Kei Faat Primary School, Yau Tong	Road Traffic at Yau Tong Road
CM6(A)	Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores	Road Traffic at O King Road near Ocean Shores
CM7(A)	Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores	Road Traffic at Tong Yin Street
CM8(A)	Park Central, L1/F Open Space Area	Road Traffic at Po Yap Road

4.12 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured L_{eq} – Baseline L_{eq} = CNL), in order to facilitate the interpretation of the noise exceedance. The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table**

4.5, 4.6 and 4.7.

Table 4.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Station	Baseline Noise Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)	Noise Limit Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)
CM1	65.5	75
CM2	63.6	
CM3	65.6	
CM4	62.0	
CM5	68.2	70*
CM6(A)	61.9	75
CM7(A)	58.3	
CM8(A)	69.1	

(*) Noise Limit Level is 65 dB(A) during school examination periods.

Table 4.6 Baseline Noise Level and Noise Limit Level for Monitoring Stations (Evening-time & Daytime (Holiday))

Station	Baseline Noise Level, dB (A) (Evening time on all days (1900-2300 hrs) and Holidays (including Sundays) during daytime (0700-1900 hrs))	Noise Limit Level, dB (A) (Evening time on all days (1900-2300 hrs) and Holidays (including Sundays) during daytime (0700-1900 hrs))
CM1	64.4	70
CM2	62.2	
CM3	64.7	
CM4	57.0	

Table 4.7 Baseline Noise Level and Noise Limit Level for Monitoring Stations (Night-time)

Station	Baseline Noise Level, dB (A) (Night-time (2300 – 0700 hrs)	Noise Limit Level, dB (A) (Night-time (2300 – 0700 hrs)
CM1	60.5	55
CM2	58.0	
CM3	60.2	
CM4	55.8	

Current Tunnel Blasting Arrangement

4.13 The drill and blast method was evaluated as the most appropriate method and the general practice of this method was introduced during the EIA report assessment. The paragraphs 2.9.9 and 2.9.33 of the EIA Report mention that there might be one blast or multiple blasts and the maximum number of blast location per day would be determined by the Contractor to suite his method of working.

4.14 Notwithstanding the information provided by the Engineer at paragraphs 4.6.4 and 6.6.12 of the EIA Report, to minimize blast nuisance to the public and to respond to the community concerns, the tunnel blast should be arranged, where possible, avoiding the blast to be carried out during night time and shortening the blast duration by

arranging various work fronts to be blasted at different time slots. Hence, it has become more desirable to split one tunnel blasting operation, which may consist of several blasting work fronts along the tunnels, into a total of two to three tunnel blasts per day. The tunnel blasts, which locate outside the MTR Protection Zone (RPZ) possessing insignificant risk to the MTR's structures would be carried out during day time and before 22:00. For the tunnel blasts within and in close vicinity to RPZ, Contractor's blasting assessment report revealed that those blasts have to be carried out after train service and, generally, at around 01:40.

5. WATER QUALITY

Monitoring Requirements

Groundwater Quality

5.1 Groundwater quality monitoring shall be conducted as identified in the EIA report (locations refer to **Figure 4**, Stream 1 to 3). According to the EM&A Manual, dissolved oxygen (DO), pH, temperature, turbidity, suspended solids (SS), 5-day biochemical oxygen demand (BOD_5), Total organic carbon (TOC), Total Nitrogen, Ammonia-N and Total Phosphate are the parameters for the monitoring. **Appendix A** shows the established Action and Limit Levels.

5.2 As stated in the Baseline Environmental Monitoring Plan submitted to EPD in September 2016, Groundwater quality monitoring could not be conducted at the other identified monitoring station in the EIA Report, Stream 4, as it was found to be not accessible due to safety reason. EPD has no further comment on the Plan in October 2016.

Marine Water Quality

5.3 Marine water quality monitoring was conducted three times per week at the designated monitoring stations. Monitoring took place two times per monitoring day during mid ebb and mid flood tides at three depths (1 meter from surface, mid depth and 1 meter from the bottom). For Tseung Kwan O Salt Water Intake (i.e. Station M6), water sampling and in-situ measurements was taken at the vertical level where the water abstraction point of the intake is located (i.e. approximately mid-depth level). If the water depth is less than 6m, the mid-depth measurement may be omitted. If the depth is less than 3m, only the mid-depth measurements need to be taken.

5.4 Duplicate in-situ measurements (Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity) and water samples (suspended solids (SS)) at each depth were monitored in accordance with the requirements in the EM&A Manual. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides were not less than 0.5m.

5.5 According to the Environmental Review Report (ERR) for Variations of Environmental Permit (Ref: C45-03), water quality monitoring and audit programme was implemented for monitoring of oxygen depletion (e.g. Dissolved Oxygen (DO) level) in this embayed waters during the period when the fully enclosed barrier is installed. A "Proposal for Water Quality Monitoring in Temporary Marine Embayment" has been submitted to EPD in July 2017 to propose the monitoring frequency, parameter, location, etc. EPD has no further comment on the Proposal.

Groundwater Level Monitoring (Piezometer Monitoring)

5.6 Daily piezometer monitoring at any time of the day shall be carried throughout the whole period when any tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan. The monitoring commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. The daily piezometer monitoring has resumed on 19 November 2018, as the construction activity was within 50m. No Action Level

exceedance was recorded in the reporting month.

Monitoring Locations

Groundwater Quality

5.7 Stream 1 – Stream 3 is designated for the groundwater quality monitoring according to EM&A Manual. The locations are summarized in **Table 5.1** and shown on **Figure 4**.

Table 5.1 Groundwater Quality Monitoring Stations

Monitoring Streams	Descriptions	Sampling Location
Stream 1	Stream running between the Kwong Tin Estate and Lei Yue Mun Road	1 sampling location for each stream
Stream 2	Stream on western coast of Chiu Keng Wan	
Stream 3	Stream on western coast of Chiu Keng Wan	

Marine Water Quality

5.8 A total of twelve monitoring stations are designated for the water quality monitoring program according to EM&A Manual. One additional monitoring station (W1) is designated for monitoring of oxygen depletion in the embayed waters during the period when the fully enclosed barrier is installed. The locations are also summarized in **Table 5.2** and shown on **Figure 5** and **Figure 9**.

Table 5.2 Marine Quality Monitoring Stations

Monitoring Stations	Descriptions	Coordinates	
		Easting	Northing
M1	Junk Bay Coral Site – Junk Bay near Chiu Keng Wan	844255	817565
M2	Junk Bay Coral Site – Junk Bay	844076	817087
M3	Junk Bay Coral Site – Junk Island	844491	817890
M4	Junk Bay Coral Site –Chiu Keng Wan	843209	816416
M5	Junk Bay Coral Site – Fat Tong Chau	845463	815769
M6	Tseung Kwan O Salt Water Intake	845512	817442
C1	Control Station – Southeast	844696	814773
C2	Control Station – Northwest	842873	816014
G1	Gradient Station	844418	817560
G2	Gradient Station	844290	817384
G3	Gradient Station	844488	817735
G4	Gradient Station	844967	817551
W1	Ocean Shores (for WQM in temporary marine embayment)	844324	817791

Monitoring Equipment

5.9 For in-situ monitoring, a multi-parameter meter (Aquaread AP-2000-D) was used to measure Dissolved oxygen (DO) concentration, DO saturation (DO %), pH, temperature and turbidity. A sampler was used to collect water samples for laboratory analysis of SS, BOD_5, TOC, Total Nitrogen, Ammonia-N and Total Phosphate.

Dissolved Oxygen (DO) and Temperature Measuring Equipment

5.10 The instrument for measuring dissolved oxygen and temperature was portable and weatherproof complete with cable, sensor, comprehensive operation manuals and use

DC power source. It was capable of measuring:

- a dissolved oxygen level in the range of 0-20 mg/L and 0-200% saturation; and
- a temperature of 0-45 degree Celsius.

5.11 It has a membrane electrode with automatic temperature compensation complete with a cable.

5.12 Sufficient stocks of spare electrodes and cables were available for replacement where necessary.

5.13 Salinity compensation was built-in in the DO equipment.

Turbidity

5.14 Turbidity was measured in-situ by the nephelometric method. The instrument was portable and weatherproof using a DC power source complete with cable, sensor and comprehensive operation manuals. The equipment was capable of measuring turbidity between 0-1000 NTU. The probe cable was not be less than 25m in length.

pH

5.15 The instrument was consisting of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It was readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 were used for calibration of the instrument before and after use.

Water Depth Detector

5.16 A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.

Water Sampler

5.17 Water samples collected for laboratory analysis were stored in high density polythene bottles sample containers, with appropriate preservatives added. All sampling bottles were labelled (waterproof) with the sampling date and time, sample lot number and sampling location reference number to avoid mishandling.

Sample Container and Storage

5.18 Following collection, water samples for laboratory analysis were stored in high density polythene bottles, with preservative appropriately added where necessary. They will be packed in ice (cooled to 4°C without being frozen), delivered to the laboratory and analysed as soon as possible.

Calibration of In-Situ Instruments

5.19 All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring.

5.20 For the on-site calibration of field equipment, the BS 1427:1993, "Guide to Field and on-site test methods for the analysis of waters" was observed.

5.21 Before each round of monitoring, a zero check in distilled water was performed with the turbidity probe of Aquaread AP-2000-D. The probe was then be calibrated with a solution of known NTU.

5.22 Sufficient stocks of spare parts were maintained for replacements when necessary. Backup monitoring equipment was also made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, etc.

5.23 **Table 5.3** summarizes the equipment used in the water quality monitoring program. Copies of the calibration certificates of the equipment are shown in **Appendix B**.

Table 5.3 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Multi-parameter Water Quality System	YSI 6820-C-M	0
	Aquaread AP-2000-D	0
	YSI EXO1 Multiparameter Sondes	3
Monitoring Position	"Magellan" Handheld GPS Model GPS-320	1
Water Depth Detector	Fishfinder 140	1

Monitoring Parameters and Frequency

5.24 **Table 5.4** summarizes the monitoring parameters, monitoring period and frequencies of the water quality monitoring in the reporting period.

Table 5.4 Water Quality Monitoring Parameters and Frequency

Monitoring Stations	Parameters, unit	Depth	Frequency
Groundwater Quality			
Stream 1-Stream 3	• DO, mg/L • DO Saturation, % • pH • Water Temperature (°C) • Turbidity, NTU • SS, mg/L • BOD_5, mg O_2/L • TOC, mg-TOC/L • Total Nitrogen, mg/L • Ammonia-N, mg NH_3-N/L • Total Phosphate, mg-P/L	Mid-depth	Biweekly (When the tunnel construction works are found within 50m of the location, weekly.)
Marine Water Quality			
M1 M2 M3 M4 M5 M6 C1 C2 G1 G2 G3 G4	*In-situ*: Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity Laboratory Testing: Suspended Solids (SS)	M1-M5, C1-C2, G1-G4 • 3 water depths: 1m below water surface, mid-depth and 1m above sea bed. • If the water depth is less than 3m, mid-depth sampling only. • If the water depth is less than 6m, omit mid-depth sampling. M6 • at the vertical level	3 days per week / 2 per monitoring day (1 for mid-ebb and 1 for mid-flood)

Monitoring Stations	Parameters, unit	Depth	Frequency
		where the water abstraction point of the intake is located(i.e. approximately mid-depth level)	
Water Quality Monitoring in Temporary Marine Embayment			
W1	• DO, mg/L • DO Saturation, % • pH • Water Temperature (°C) • Salinity, ppt	• 3 water depths: 1m below water surface, mid-depth and 1m above sea bed. • If the water depth is less than 3m, mid-depth monitoring only. • If the water depth is less than 6m, omit mid-depth monitoring	Weekly during the period when the fully enclosed barrier is installed

Monitoring Methodology

Groundwater Quality

5.25 At each monitoring location, two consecutive in-situ measurements for DO concentration, DO saturation, pH, temperature and turbidity were taken for water samples on site. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.

5.26 For SS, BOD_5, TOC, Total Nitrogen, Ammonia-N and Total Phosphate, measurement and grab samples of surface water was collected. Water samples of about adequate volume was collected and stored in high density polythene bottles. Following collection, water samples was stored in high density polythene bottles. Preservation H_2SO_4 was appropriately added for water samples for TOC, Total Nitrogen, Ammonia-N and Total Phosphate testing. Water samples was packed in ice and cooled to 4°C (without being frozen), delivered to the HOKLAS accredited laboratory, Wellab Limited and analyzed.

Marine Water Quality

5.27 The monitoring stations were accessed using survey boat by the guide of a hand-held Global Positioning System (GPS). The depth of the monitoring location was measured using depth meter in order to determine the sampling depths. Afterwards, the probes of the in-situ measurement equipment was lowered to the predetermined depths (1 m below water surface, mid-depth and 1 m above seabed) and the measurements was carried out accordingly. The in-situ measurements at predetermined depths was carried out in duplicate. In case the difference in the duplicate in-situ measurement results was larger than 25%, the third set of in-situ measurement would be carried out for result confirmation purpose.

5.28 Water sampler was lowered into the water to the required depths of sampling. Upon reaching the pre-determined depth, a messenger to activate the sampler was then released to travel down the wire. The water sample was sealed within the sampler before retrieving. At each station, water samples for SS at three depths (1 m below water surface, mid-depth and 1 m above seabed) were collected accordingly. Water samples were stored in a cool box and kept at less than 4°C but without frozen and sent to the laboratory as soon as possible.

Laboratory Analytical Methods

5.29 The testing of all parameters were conducted by Wellab Ltd. (HOKLAS Registration No.083) and comprehensive quality assurance and control procedures in place in order to ensure quality and consistency in results. The testing method and limit of reporting are provided in **Table 5.5**.

Table 5.5 Methods for Laboratory Analysis for Water Samples

Parameters (Unit)	Proposed Method	Reporting Limit	Detection Limit
SS (mg/L)	APHA 2540 D	0.5 mg/L (1)	0.5 mg/L
BOD_5 (mg O_2/L)	APHA 19ed 5210B	2 mg O_2/L	--
TOC (mg-TOC/L)	In-house method SOP020 (Wet Oxidation)	1 mg-TOC/L	--
Total Nitrogen (mg/L)	In-house method SOP063 (FIA)	0.6 mg/L	--
Ammonia-N (mg NH_3-N/L)	In-house method SOP057 (FIA)	0.05 mg NH_3-N/L	--
Total Phosphorus (mg-P/L)(2)	In-house method SOP055 (FIA)	0.05 mg-P/L	--

Note:
1) Limit of Reporting is reported as Detection Limit for non-HOKLAS report.
2) Parameter Total Phosphorus represents the laboratory testing for total phosphate content in water which is the sum of all three forms of phosphates in water.

QA/QC Requirements

Decontamination Procedures

5.30 Water sampling equipment used during the course of the monitoring programme was decontaminated by manual washing and rinsed clean seawater/distilled water after each sampling event. All disposal equipment was discarded after sampling.

Sampling Management and Supervision

5.31 Water samples were dispatched to the testing laboratory for analysis as soon as possible after the sampling. All samples were stored in a cool box and kept at less than 4°C but without frozen. All water samples were handled under chain of custody protocols and relinquished to the laboratory representatives at locations specified by the laboratory.

5.32 QA/QC procedures as attached in **Appendix J** are available for the parameters analyzed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Results and Observations

Groundwater Quality Monitoring

5.33 All groundwater quality monitoring was conducted as scheduled in the reporting month. Summary of groundwater quality monitoring results is shown in **Table 5.6**. Groundwater quality monitoring results, graphical presentations and laboratory testing reports are shown in **Appendix H**.

5.34 Other relevant data was also recorded, such as monitoring location / position, time, sampling depth, weather conditions and any special phenomena or work underway nearby.

5.35 Action and Limit Level for groundwater quality monitoring has been reviewed with consideration of monitoring results obtained from November 2016 to June 2017, as there was no tunnel boring or tunnel construction works from November 2016 to June 2017. A "Review Report for Action and Limit Levels of Groundwater Quality Monitoring" was submitted to EPD in August 2017. EPD has no further comment on the report and the updated Action and Limit Level is shown in **Appendix A**.

Table 5.6 Summary of Groundwater Quality Monitoring Results

Date	Location	Parameters (unit)								
		pH	**Dissolved Oxygen (mg/L)**	**Turbidity (NTU)**	**SS (mg/L)**	**BOD_5 (mg O_2/L)**	**TOC (mg-TOC/L)**	**Total Nitrogen (mg/L)**	**NH_3-N (mg NH_3-N/L)**	**Total Phosphorus (mg-P/L)**
2018/12/6	Stream 1	7.9	8	2	3	<2	4	1.9	<0.05	***0.14***
	Stream 2	7.5	7.7	0.8	3	<2	4	1.5	<0.05	***0.14***
	Stream 3	7.3	7.7	0.9	3	<2	4	1	<0.05	<0.05
2018/12/18	Stream 1	7.6	8.1	1.5	1	<2	3	<0.6	<0.05	<0.05
	Stream 2	7.3	8	1.7	2	<2	4	2.3	<0.05	***0.11***
	Stream 3	7.2	8	1.3	***8***	<2	4	2.3	<0.05	***0.11***
No. of Exceedance	Action Level	0	0	0	1	0	0	2	0	0
	Limit Level	0	0	0	0	0	0	0	0	4

Note: ***Bold Italic*** means Action Level exceedance ***Bold Italic with underline*** means Limit Level exceedance

5.36 All groundwater quality monitoring was conducted as scheduled in the reporting month. Three (3) action level and Four (4) Limit Level exceedances were recorded in the reporting month. The exceedances are considered due to human activities, therefore non-Project related. Details of the investigation are presented in **Appendix K**.

Marine Water Quality Monitoring

5.37 All marine water quality monitoring was conducted as scheduled in the reporting month. Marine water monitoring results and graphical presentations are shown in **Appendix I**. Other relevant data was also recorded, such as monitoring location / position, time, sampling depth, weather conditions and any special phenomena or work underway nearby.

5.38 Calculated Action and Limit Levels for Marine Water Quality is presented in **Appendix I**. Twenty-three (23) Action Level and one hundred and seventy (170) Limit Level exceedance were recorded in marine water quality monitoring.

5.39 The exceedance in the reporting lasted from 18 to 31 December 2018 and the key parameter was suspended solids (SS). Upon review of the Contractor's activities in

marine water, it was found that an emergency sand discharge incident within the Junk Bay occurred on 15 December 2018. A tug boat crashed with a sand hopper barge outside the double watergate of Contract No. NE/2015/02 and water entered the barge through the holes. As the barge was sinking incessantly, the captain decided to discharge 1605 tons of sandfill on the barge to prevent potential overturn. Subsequently, the dumped sandfill was retrieved on 21 December 2018. According to the Contractor, closed grab dredger and steel-type silt curtain were adopted during the retrieval. As the elevation of SS concentration coincided with the hopper barge incident, the SS exceedance was considered due to sandfill dumping and retrieval activities. In general, the SS concentration started to drop after 22 December. The water quality will continue to be monitored until the exceedances subside.

Groundwater Level Monitoring (Piezometer Monitoring)

5.40 Daily piezometer monitoring at any time of the day shall be carried throughout the whole period when any tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan.

5.41 Tunnel construction activities are within +/- 50m of the piezometer gate in plan. Construction phase daily piezometer monitoring by the Contractor commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. The daily piezometer monitoring has resumed on 19 November 2018, as the construction activity was within 50m. No Action Level exceedance was recorded in the reporting month. Details of the result are presented in **Appendix U**.

6. ECOLOGY

Post-Translocation Coral Monitoring

6.1 Post-translocation monitoring survey is recommended in the EM&A Manual to audit the success of coral translocation. Information gathered during each post-translocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey.

6.2 Under Contract No. NE/2015/01 and NE/2015/02, a total of 14 and 29 coral colonies were tagged and translocated respectively from the Donor Site to the Recipient Site in November 2016. Ten (10) corals at the Recipient Site were also tagged by each Contract as reference for post-translocation monitoring.

6.3 The post-translocation coral monitoring shall be conducted once every 3 months after completion for a period of 12 months. Location of post-translocation coral monitoring is shown in **Figure 7**. The fourth post-translocation coral monitoring was carried out on 07 November 2017. No further monitoring is required.

7. CULTURAL HERITAGE

Monitoring Requirement

7.1 According to the EP Conditions and EM&A Manual, monitoring of vibration impacts was conducted when the construction works are less than 100m from the Built Heritage in close proximity of the worksite, namely the Cha Kwo Ling Tin Hau temple. Tilting and settlement monitoring should be applied on the Cha Kwo Ling Tin Hau Temple. Construction works less than 100m from the Cha Kwo Ling Tin Hau temple commenced on 8 April 2017.

7.2 As stated in the "*Built Heritage Mitigation Plan*" for this Project, during the period of the construction works conducted within 100m from the Cha Kwo Ling Tin Hau Temple, monitoring on settlement and tilting will be conducted once a day for the Cha Kwo Ling. Monitoring of vibration will be conducted during blasting at Cha Kwo Ling area once a day. When there is no blasting to be conducted at the area, vibration monitoring at the Cha Kwo Ling Tin Hau Temple will be conducted once per day when there are piling works or rock breaking works within the 100m from the Cha Kwo Ling Tin Hau Temple.

Monitoring Locations

7.3 One vibration monitoring point and three building settlement monitoring points were proposed for monitoring of the cultural heritage. The building settlement markers were placed on the wall on three sides of the Temple, except the front, of the Cha Kwo Ling Tin Hau Temple and the vibration monitoring point is located within the Cha Kwo Ling Tin Hau Temple. Monitoring Location is shown in **Figure 8**.

Monitoring Equipment

7.4 Building settlement is measured via a settlement marker attached to the wall of Cha Kwo Ling Tin Hau Temple by adhesive tape.

7.5 Vibration monitoring was conducted by using vibrographs: Minimate Plus manufactured by Instantel. These vibrographs will be calibrated annually and its performance follows the requirements given in the "*Guidance Note on Vibration Monitoring*" (GN-VM) issued by the Civil Engineering and Development Department, which is based on the Performance Specification for Blasting Seismographs by International Society of Explosive Engineers (ISEE (2000)).

7.6 **Table 7.1** summarizes the equipment employed by the Contractor for cultural heritage monitoring. Copies of calibration certificates are attached in **Appendix B**.

Table 7.1 Cultural Heritage Monitoring Equipment

Equipment	Manufacturer and Model	Quantity
Digital Level for tilting	Leica Serial No.: 701133	1
iCivil-1011 Inclinometer for building settlement	iCivil-1011 Inclinometer Serial No.: HK110118 / HK110120	2
Vibrographs for vibration monitoring	MiniMate Plus manufactured by Instantel Model No.: 716A0403 / 721A2501	7

Monitoring Methodology

7.7 Vibrograph (velocity seismograph) was deployed at each monitoring station to measure and record the PPV and amplitude of ground motion in three mutually perpendicular directions. Vibration monitoring equipment fulfils the requirements stated in the Government guidelines and is calibrated to HOKLAS standards. Each monitoring would not be more than 10 minutes. Settlement monitoring should be conducted by surveyors manually.

Alert, Alarm and Action Levels

7.8 The Alert, Alarm and Action (AAA) Levels are given in **Table 7.2**.

Table 7.2 AAA Levels for Monitoring for Cultural Heritage

Parameter	Alert Level	Alarm Level	Action Level
Vibration	ppv: 4.5 mm/s	ppv: 4.8 mm/s	ppv: 5mm/s Maximum Allowable Vibration Amplitude: 0.1mm
Building Settlement Markers	6mm	8mm	10mm
Building Tilting(1)	1:2000	1:1500	1:1000

Remarks: (1) Building tilting measurement was replaced by building settlement point measurement. The tilting can be calculated by the ratio of the maximum settlement difference between 2 points and the distance between the 2 points.

Results

7.9 In the reporting month, cultural heritage monitoring was carried out by the Contractor at the aforesaid location on 24 occasions. No AAA Level exceedance was recorded in the reporting month. The monitoring results are presented in **Appendix T**.

Mitigation Measures for Cultural Heritage

7.10 According to Condition 3.6 of the EP (EP No.: EP-458/2013/C), to prevent damage to Cha Kwo Ling Tin Hau Temple and its Fung Shui rocks (Child-given rocks) during the construction phase, a temporarily fenced-off buffer zone (Rocks buffer zone is 5 m from the edge of Rocks and 15m from the edge of Rocks alter) with allowance for public access (minimum 1 m) around the temple and the Fung Shui rocks shall be provided. The open yard in front of the temple should be kept as usual for annual Tin Hau festival.

7.11 As there is a large buffer distance from the current works to Cha Kwo Ling Tin Hau Temple and the Fung Shui rocks (Child-given rocks), the temporarily fenced-off rocks buffer zone and from the edge of Rocks alter is not required. The fenced-off rocks buffer zone would be implemented when there is construction activities in vicinity of the cultural heritage.

8. LANDSCAPE AND VISUAL IMPACT REQUIREMENTS

8.1 Landscape and visual mitigation measures during the construction phase shall be checked to ensure that they are fully realized and implemented on site.

8.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures listed in "Implementation Schedule and Recommended Mitigation Measures" (shown in **Appendix N)**. The summaries of observations and recommendations related to landscape and visual impacts, if any, are shown in **Appendix L**.

8.3 No non-compliance of the landscape and visual impact was recorded in the reporting month.

9. LANDFILL GAS MONITORING

Monitoring Requirement

9.1 In accordance with the EM&A Manual, monitoring of landfill gas is required for construction works within the Sai Tso Wan Landfill Consultation Zone during the construction phase. This section presents the results of landfill gas measurements performed by the Contractor. **Appendix A** shows the Limit Levels for the monitoring works.

9.2 The "Landfill Gas Monitoring Proposal", including the monitoring programme and detailed actions, is submitted to the EPD for approval. Details of monitoring in this Proposal is in line with the monitoring requirements stipulated in the EM&A Manual.

Monitoring Parameters and Frequency

9.3 Monitoring parameters for Landfill gas monitoring include Methane, Carbon dioxide and Oxygen.

9.4 According to the implementation schedule and recommended mitigation measures of the EM&A Manual, measurements of the following frequencies should be carried out:

Excavations deeper than 1m

- at the ground surface before excavation commences;
- immediately before any worker enters the excavation;
- at the beginning of each working day for the entire period the excavation remains open; and
- periodically throughout the working day whilst workers are in the excavation.

Excavations between 300mm and 1m deep

- directly after the excavation has been completed; and
- periodically whilst the excavation remains open.

For excavations less than 300mm deep

- monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person

Monitoring Locations

9.5 Monitoring of oxygen, methane and carbon dioxide was performed for excavations at 1m depth or more within the Consultation Zone. In this reporting month, the area required to be monitored for landfill gas are shown below and **Figure 6** shows the landfill gas monitoring locations.

- Excavation Locations: Portion III
- Manholes and Chambers: N/A
- Relocation of monitoring wells: N/A
- Any other Confined Spaces: N/A

Monitoring Equipment

9.6 **Table 9.1** summarizes the equipment employed by the Contractor for the landfill gas monitoring.

Table 9.1 Landfill Gas Monitoring Equipment

Equipment	Model and Make	Quantity
Portable gas detector	ALTAIR 5X Multigas Detector (Serial No. 137333)	1

Results and Observations

9.7 In the reporting month, landfill gas monitoring was carried out by the Contractor at the aforesaid locations on 48 occasions. No Limit Level exceedance for landfill gas monitoring was recorded in the reporting month. The monitoring results are provided in **Appendix R**. Copies of calibration certificates are attached in **Appendix B.**

10. ENVIRONMENTAL AUDIT

Site Audits

10.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix L**.

10.2 Joint weekly site audits by the representatives of the Engineer, Contractor and the ET were conducted in the reporting month as shown in below:

- Contract No. NE/2015/01: 5, 12, 19 and 27 December 2018
- Contract No. NE/2015/02: 5, 12, 19 and 27 December 2018
- Contract No. NE/2015/03: 5, 12, 19 and 27 December 2018
- Contract No. NE/2017/01: 4, 11, 18 and 27 November 2018
- Contract No. NE/2017/02: 5, 12, 19 and 27 December 2018

Monthly joint site inspection with the representative of IEC was conducted for NE/2015/01, NE/2015/02, NE/2015/03, NE/2017/01 and NE/2017/02 on 5, 12, 19, 4 and 19 December 2018 respectively.

Implementation Status of Environmental Mitigation Measures

10.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Implementation Schedule and Recommended Mitigation Measures is provided in **Appendix N**.

10.4 During site inspections in the reporting month, no non-compliance was recorded on reporting month. The observations and recommendations made during the audit sessions are summarized in **Appendix L**.

11. WASTE MANAGEMENT

11.1 Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine sediments. Inert C&D waste includes soil, broken rock, broken concrete and building debris, while non-inert C&D materials are made up of C&D waste which cannot be reused or recycled and has to be disposed of at the designated landfill sites. Marine sediment shall be expected from excavation and dredging works of this Project.

11.2 With reference to relevant handling records of this Project, the quantities of different types of waste generated in the reporting month are summarised and presented in **Appendix P**.

11.3 The Contractors are advised to minimize the wastes generated through the recycling or reusing. All mitigation measures stipulated in the approved EM&A Manual and waste management plans shall be fully implemented. The status of implementation of waste management and reduction measures are summited in **Appendix N**.

12. ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

12.1 Nine (9) Action Level exceedances were recorded due to the documented complaints received in the reporting month and Twelve (12) Limit Level exceedances for night-time construction noise monitoring were recorded in the reporting month. The Limit Level exceedances were considered due to road traffic near the Eastern Cross Harbour Tunnel Toll Plaza, therefore non-Project related.
One (1) Limit Level exceedance for daytime construction noise monitoring was recorded in the reporting month. The Limit Level exceedance was considered Project related.

12.2 Three (3) action level and Four (4) Limit Level exceedances for groundwater quality monitoring were recorded in the reporting month. The Limit Level exceedances were considered due to rainfall and human activities, therefore non-Project related.

12.3 Twenty-three (23) Action Level and one hundred and seventy (170) Limit Level exceedance were recorded in marine water quality monitoring.

12.4 Actions carried out in accordance with the Event and Action Plans in **Appendix M** are presented in **Appendix K** – Summary of Exceedance.

Summary of Environmental Non-Compliance

12.5 No Non-compliance was recorded on this reporting month.

Summary of Environmental Complaint

12.6 Nine (9) environmental complaints were received in the reporting month. The Cumulative Complaint Log is presented in **Appendix O**. The investigation status and result is also reported in **Appendix O**.

Summary of Environmental Summon and Successful Prosecution

12.7 No notification of summon or successful environmental prosecution was received in this reporting period. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix O**.

13. FUTURE KEY ISSUES

13.1 Tentative construction programmes for the next three months are provided in **Appendix Q**.

13.2 Major site activities to be undertaken for the next reporting period are summarized in **Table 13.1**.

Table 13.1 Summary Table for Site Activities in the next Reporting Period

Contract No. and Project Title	Site Activities (January 2019)		Key environmental issues *
NE/2015/01 - Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2, Area 3, Area 4 & Area 5	(A) / (B) / (C) / (D) / (E) (G)
	Main Tunnel	3) Main Tunnel Excavation 4) Main Tunnel Lining Works	(B)
	TKO Interchange	5) Haul Road Construction and Site Formation & Slope Works 6) Steel Platform for Bridge Construction 7) Cavern Excavation	(A) / (C) / (D) / (E) / (F) / (I)
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Backfilling works 2) Construction of U-trough structure 3) Pre-bore and sheetpile works for 2100 pipe at Portion IV and Portion VII 4) Pre-bore works for decked U-trough 5) Sheet pile works for decked U-trough 6) Drainage works at U-trough CH411-CH500 7) ELS works and construction of P2A RW 8) ELS works for 2100 pipe 9) Construction of desilting opening near retaining wall at P2A Bay 8 at Portion VIII 10) Installation of 2100 storm water pipe at Portion IV / VII 11) King post and de-watering system for proposed U-trough CH318.00 – CH363.50 at Portion V/VI 12) Construction of permanent fence at Ocean Shores 13) CCTV works at covered channel at Portion IV 14) Fabrication of ELS members for proposed ELS system at CH318.00 – CH363.50 15) Removal of damage temporary steel cofferdam 16) Surcharging at surcharge Area 1a 17) Reclamation works at Portion IX 18) Reinstatement of existing seawall at Portion VII 19) Pre-drilling at P2 CH283 – CH305		(A) / (B) / (C) / (D) / (E) / (G) / (I)

Contract No. and Project Title	Site Activities (January 2019)	Key environmental issues *
NE/2015/03 - Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	1) Bearing installation at Tiu Keng Leung Sport Centre 2) Construction of Main deck 3) Construction of lift shaft	(A) / (B) / (C) / (D) / (E)
NE/2017/01 – Tseung Kwan O Interchange and Associated Works	1) Dismantling Works for Temporary Working Platform 2) Pre-drilling 3) Bored piling 4) Construction of Temporary Working Platform 5) Installation of Precast Pile Cap Shell 6) Construction of Pile Cap Shell	(A) / (B) / (E) / (F) / (G)
NE/2017/02 – Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and Associated Works	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement setup 4) Piling Works 5) Construction of Temporary carriageway 6) Pre-bored Socket H-Pile 7) Modification of traffic island 8) Predrilling 9) Construction of Temporary cycle track 10) Construction of drainage and watermain	(A) / (B) / (E) / (F) / (G)

Key Issues for the Coming Month

13.3 Key environmental issues in the coming month include:

- Watering for dust generation from haul road, stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Noisy construction activity such as rock-breaking activities and piling works;
- Runoff from exposed slope or site area;
- Wastewater and runoff discharge from site;
- Accumulation of silt, mud and sand along U-channels and sedimentation tanks;
- Set up and implementation of temporary drainage system for the surface runoff;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation and storage of general and construction waste on site; and
- Marine water quality impact and indirect impact to coral communities due to marine construction for TKO-LTT reclamation.

14. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

14.1 This is the 26th Environmental Monitoring and Audit (EM&A) Report which presents the EM&A works undertaken during the period in December 2018 in accordance with EM&A Manual and the requirement under EP.

Air Quality Monitoring

14.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

14.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

14.4 All noise monitoring was conducted as scheduled in the reporting month. Nine (9) Action Level exceedances were recorded due to the documented complaints received in this reporting month and Twelve (12) Limit Level exceedances were recorded for nighttime construction noise in the reporting month. The exceedances recorded during night-time were considered due to road traffic near the Eastern Cross Harbour Tunnel Toll Plaza, therefore non-Project related.

14.5 One (1) Limit Level exceedance was recorded for daytime construction noise in the reporting month. The exceedances were considered as Project related.

Water Quality Monitoring

14.6 Groundwater quality monitoring was conducted as scheduled in the reporting month. Three (3) action level and Four (4) Limit Level exceedances were recorded in the reporting month. The exceedances were considered due to rainfall and human activities, therefore non-Project related.

14.7 Twenty-three (23) Action Level and one hundred and seventy (170) Limit Level exceedance were recorded in marine water quality monitoring.

14.8 Tunnel construction activities are within +/- 50m of the piezometer gate in plan. Construction phase daily piezometer monitoring by the Contractor commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. The daily piezometer monitoring has resumed on 19 November 2018, as the construction activity was within 50m. No Action Level exceedance was recorded in the reporting month. Details of the result are presented in **Appendix U**.

14.9 All marine water monitoring was conducted as scheduled in the reporting month.

Ecological Monitoring

14.10 The post-translocation coral monitoring surveys were completed in November 2017.

Monitoring on Cultural Heritage

14.11 No Alert Alarm and Action (AAA) Level exceedance of cultural heritage monitoring on cultural heritage was recorded in the reporting month.

Landscape and Visual Monitoring and Audit

14.12 No non-compliance of the landscape and visual impact was recorded in the reporting month.

Landfill Gas Monitoring

14.13 Monitoring of landfill gases in the reporting month was carried out by the Contractor at excavation location, Portion III. No Limit Level exceedance was recorded.

Environmental Site Inspection

14.14 Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Environmental Team. During site inspections in the reporting month, no non-compliance was identified. The environmental deficiency observed during the reporting month are shown in **Appendix L**.

Complaint, Prosecution and Notification of Summons

14.15 Nine (9) environmental complaints, no successful prosecution and notification of summon were received during the reporting period.

Recommendations

14.16 The following recommendations were made to the Contractor for the reporting month:

Air Quality Impact

- To implement dust suppression measures such as water spray on all haul roads, stockpiles, dry surfaces and open slopes.
- To cover stockpile of dusty material by impervious material.
- To avoid dark smoke emitted from the generator.

Construction Noise

- To provide noise mitigation measures (e.g. Temporary noise barrier or Full enclosure) to PME as proposed in the approved Noise Mitigation Plan.
- To repair the gaps between the noise barriers.

Water Quality Impact

- To provide and repair the silt curtain to fully enclose the site and prevent any gap between the silt curtains.
- To review and implement temporary drainage system.
- To clear the litter, debris, silt and sediment in drainage or catchpits.
- To remove the sand or dusty material deposited near the seafront.
- To provide bund or covers to gullies and stockpile storage area on site to avoid leakage of surface runoff.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.
- To maintain the sedimentation tank more frequently to ensure proper wastewater treatment before discharge.

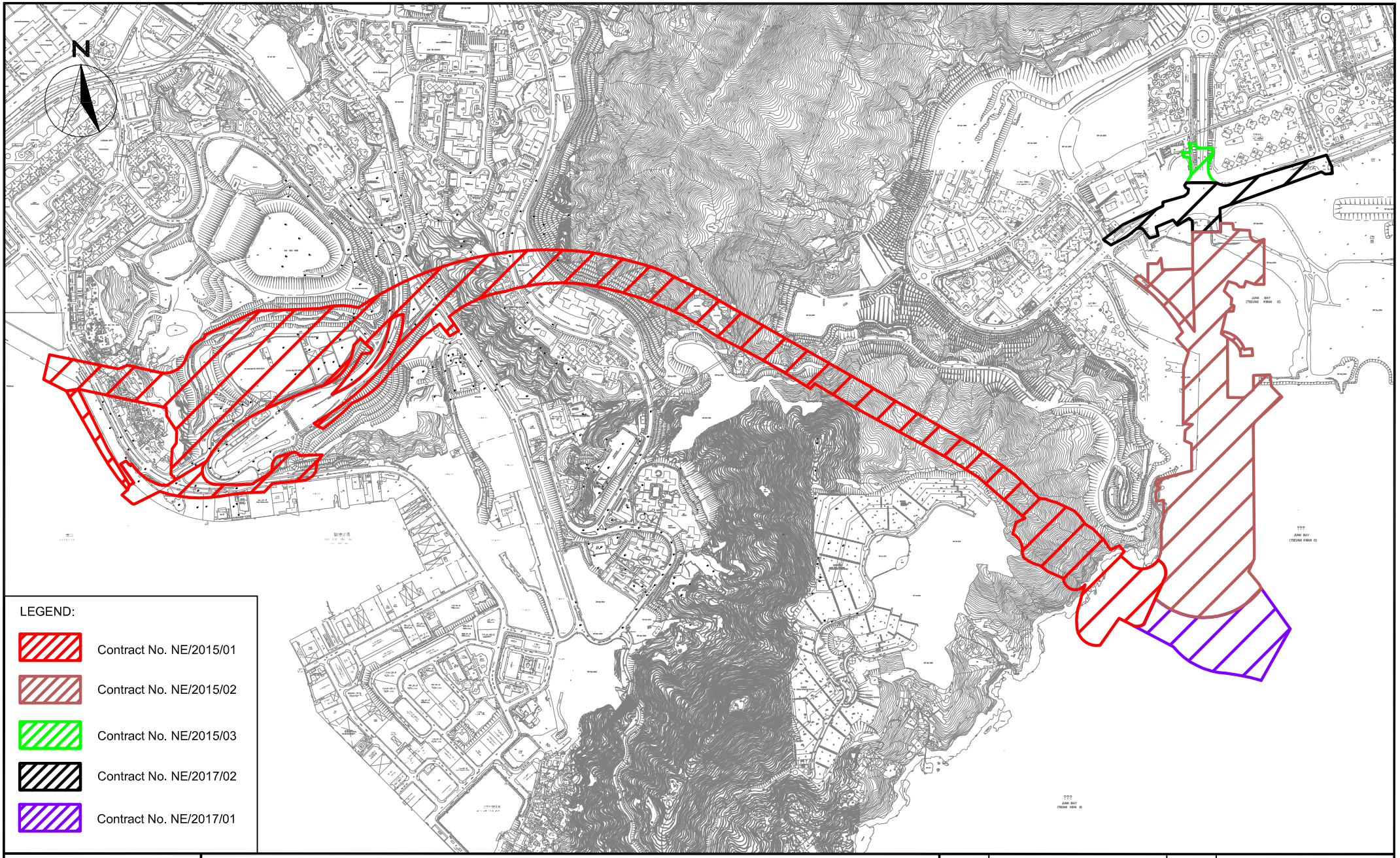
Waste/Chemical Management

- To remove construction waste regularly.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment.
- To provide drip tray to chemical containers to avoid any chemical leakage.
- To remove the oil stain and disposed of as chemical waste.
- To remove the stagnant water regularly found inside the drip tray.

Landscape and Visual

- To set up proper tree protection area.
- To avoid placing any construction materials in the tree protection zone.

FIGURES



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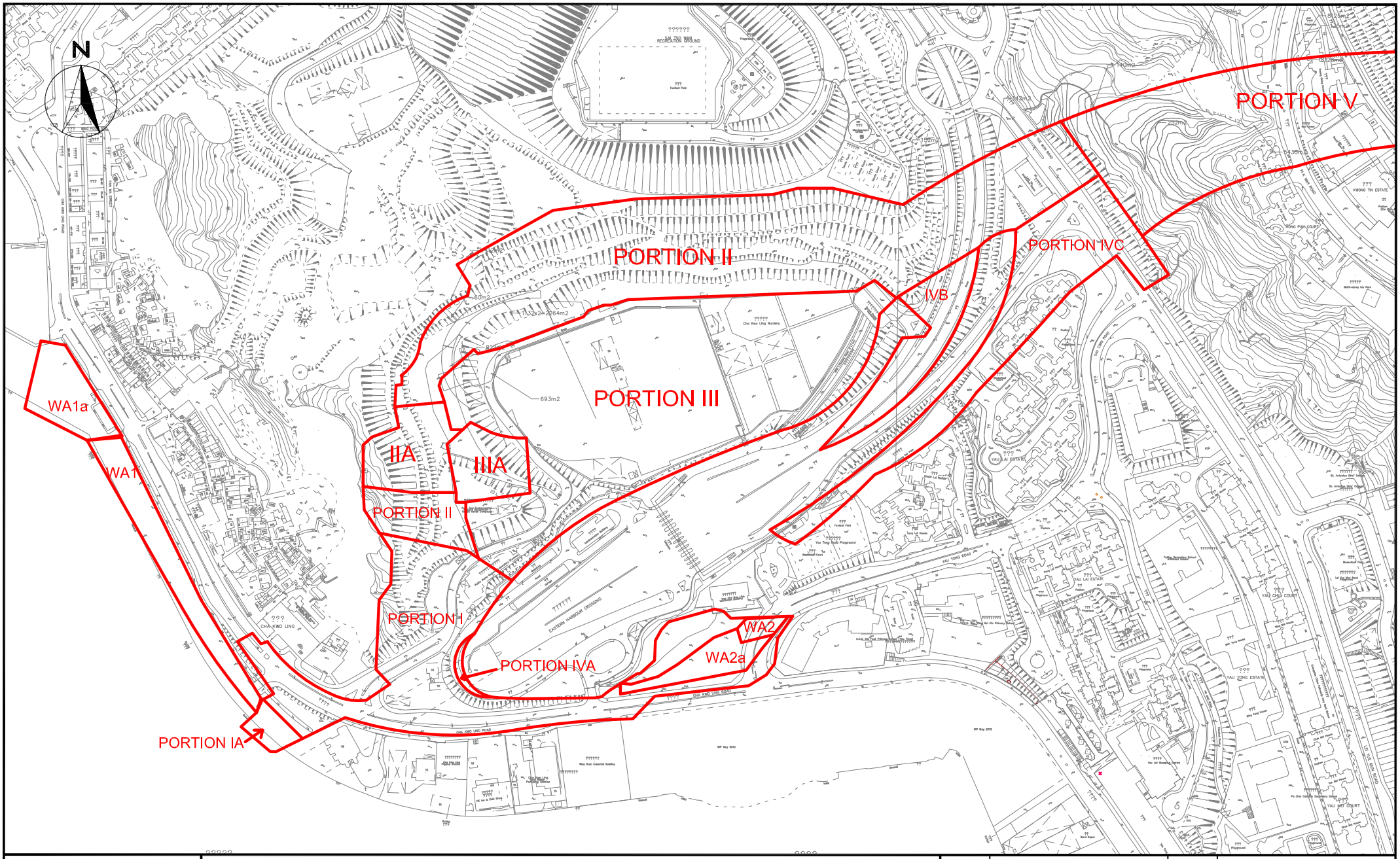
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Layout Plan

SCALE	1:15000 @ A4	DATE	APR 2018
CHECK	JF	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 1	REV -



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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Works Contract No. NE/2015/01 (Lam, Tin Side)

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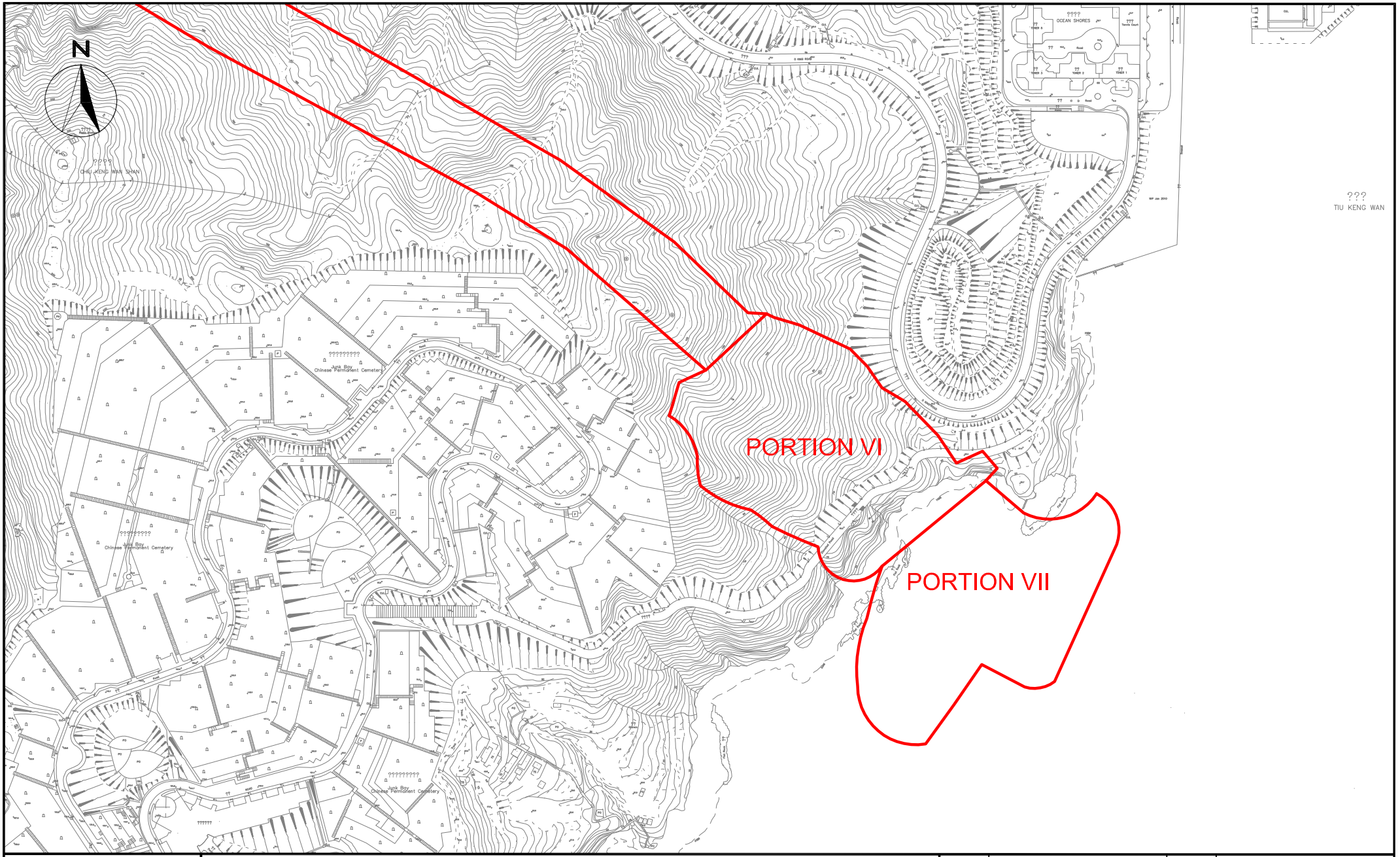
JOB No.	MA16034	FIGURE NO. 1a	REV -



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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Works Contract No. NE/2015/01 (Tsuneg Kwan O Side)

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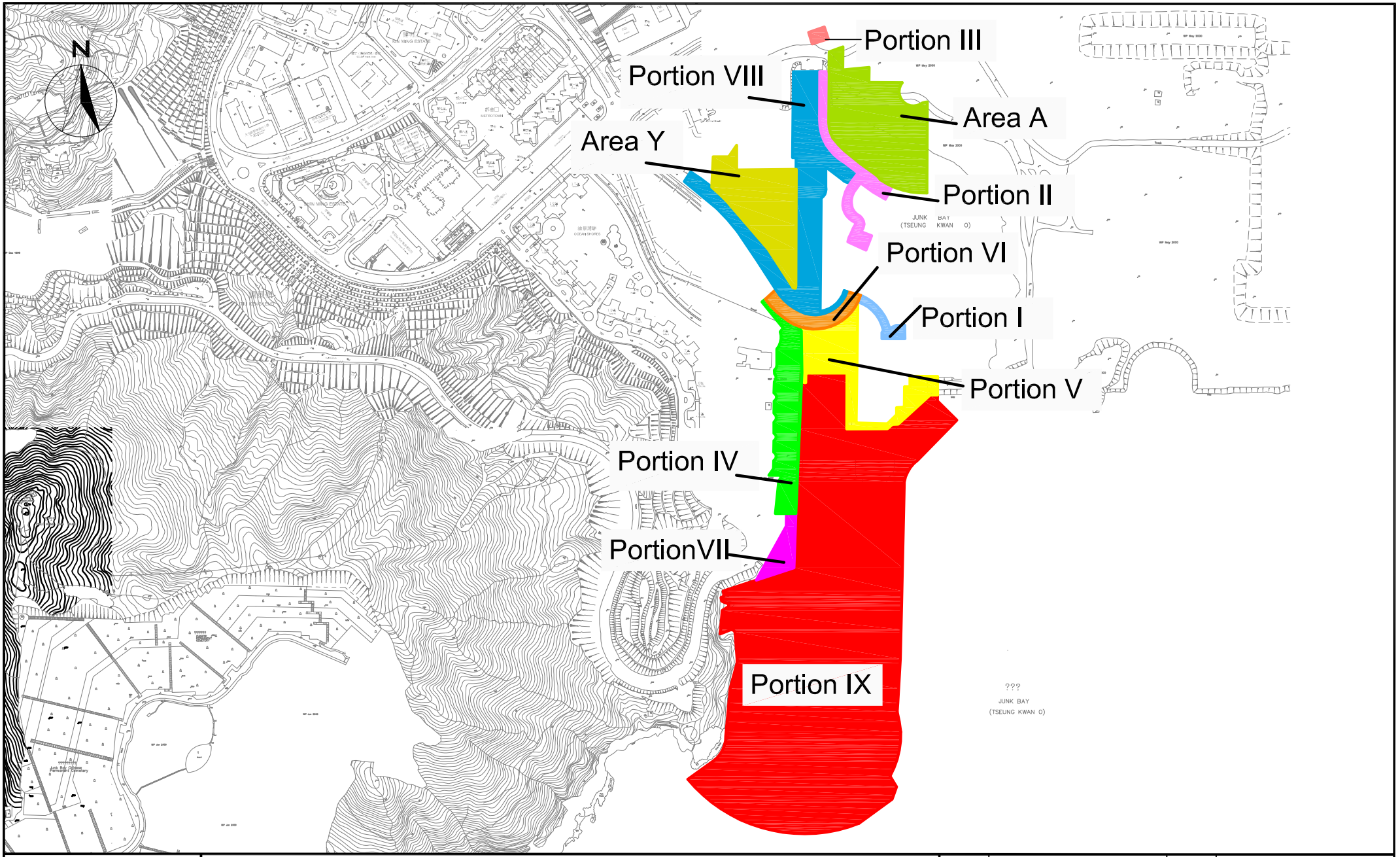

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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Site Portions under Works Contract No. NE/2015/02

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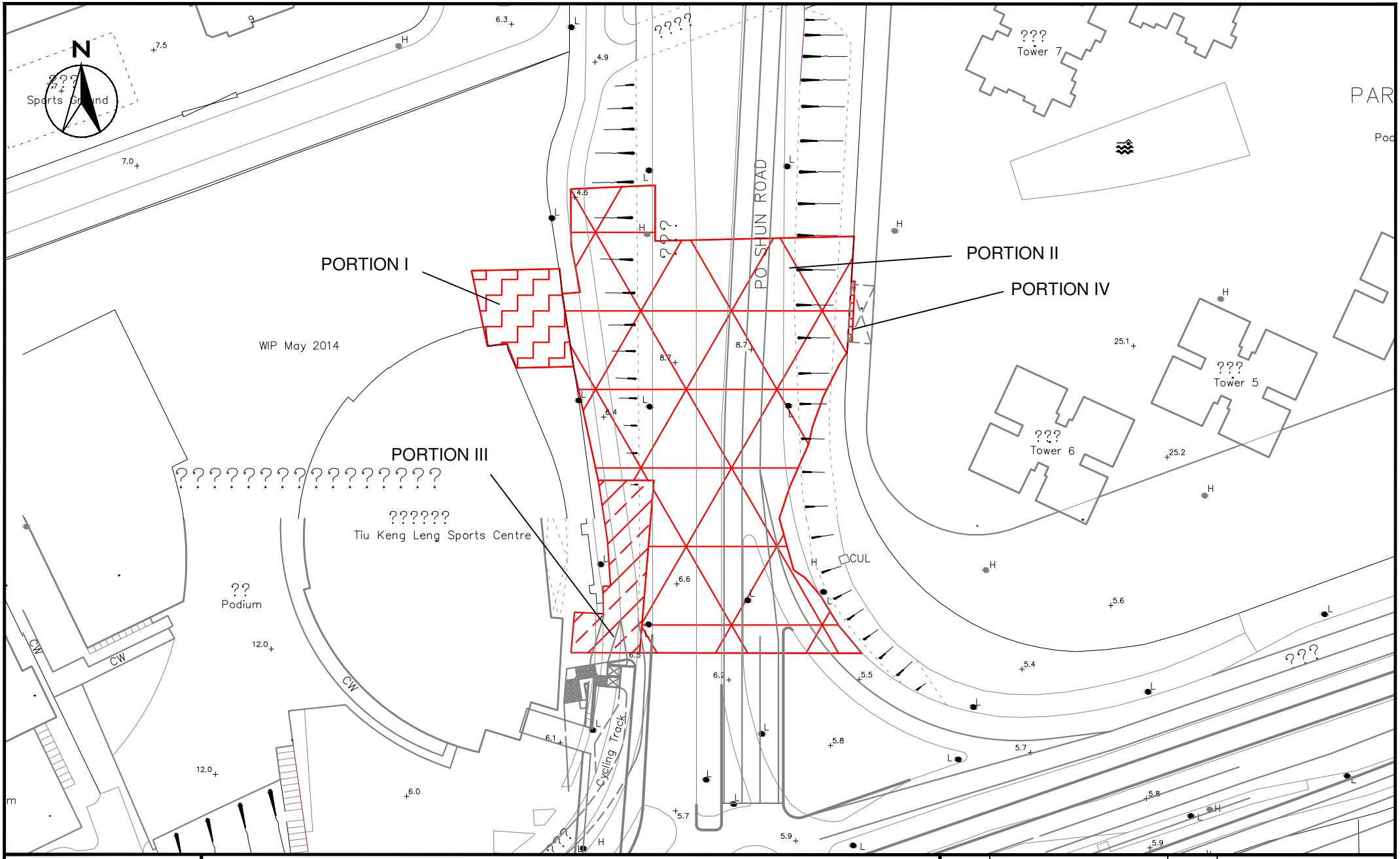
JOB No.	MA16034	FIGURE NO.	1c
		REV	-



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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2015/03

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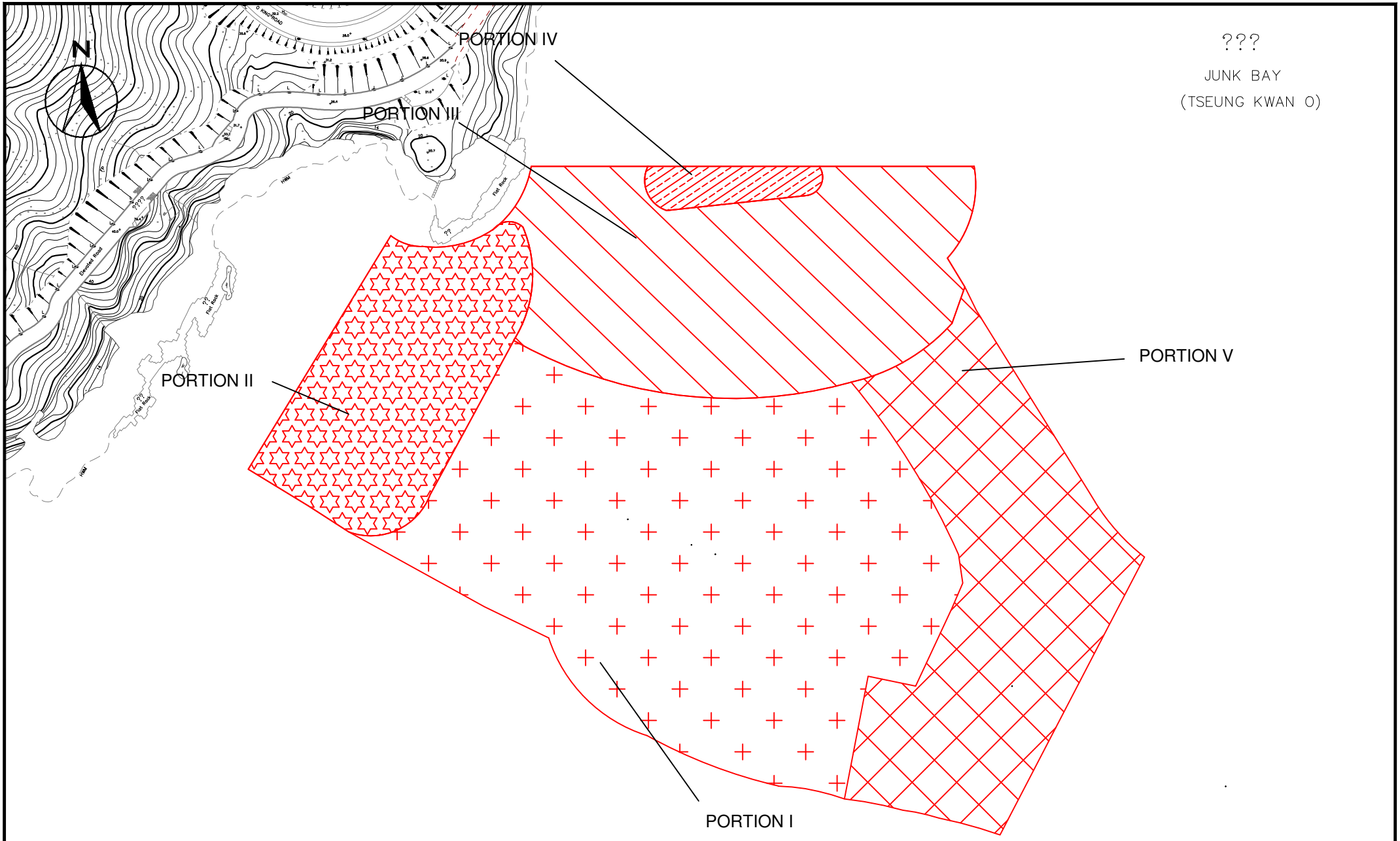

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Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2017/01

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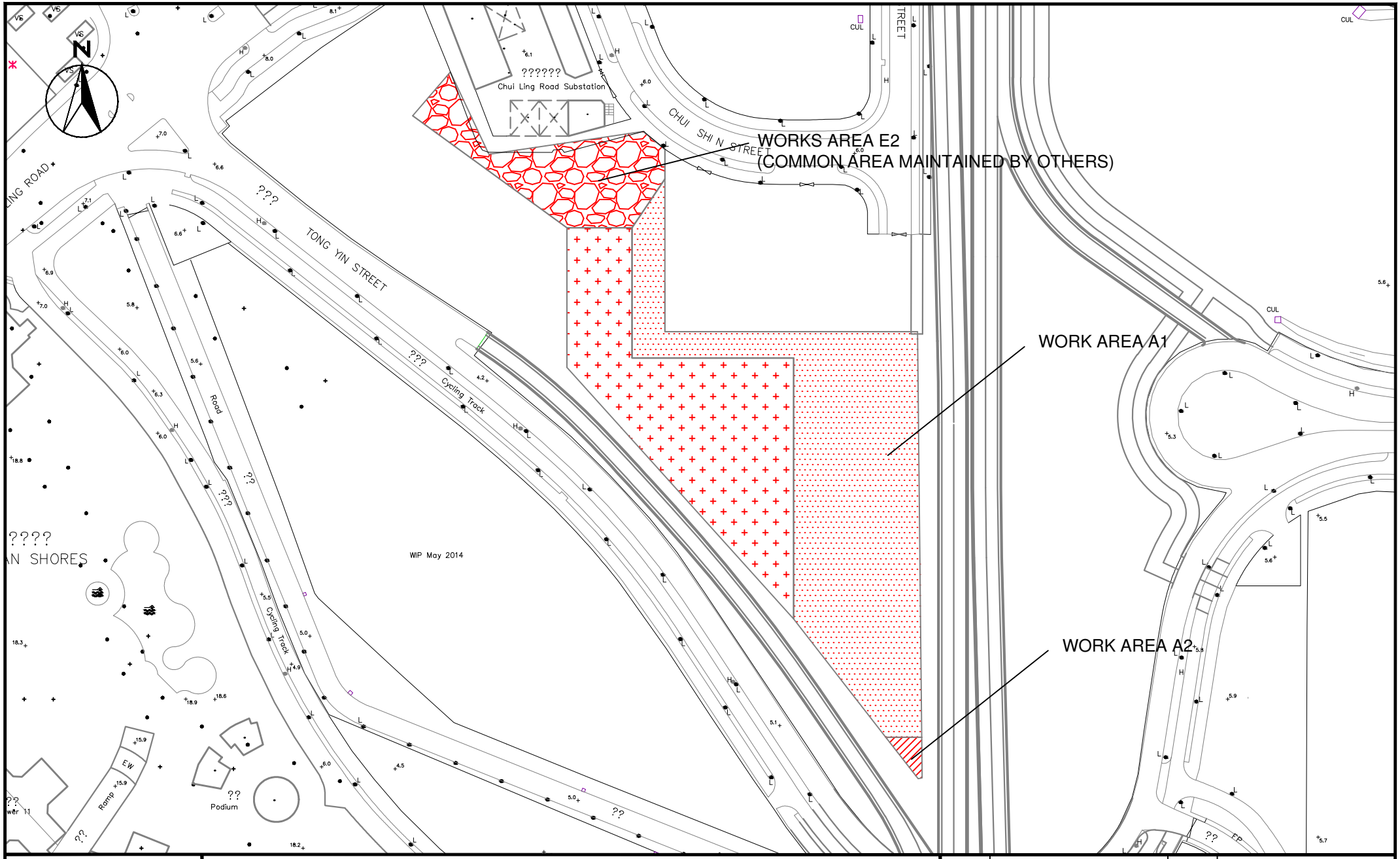

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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2017/01

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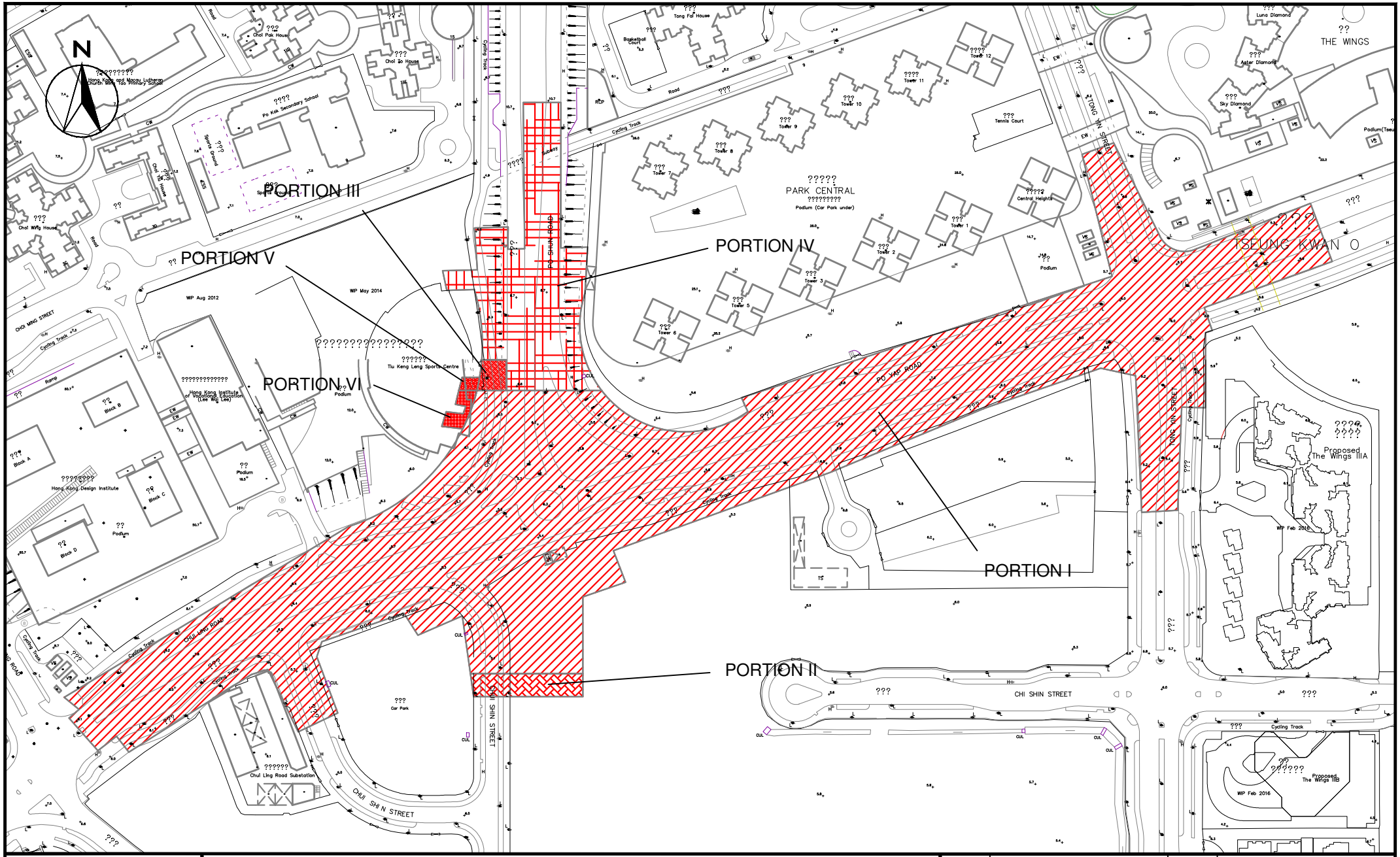

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Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2017/02

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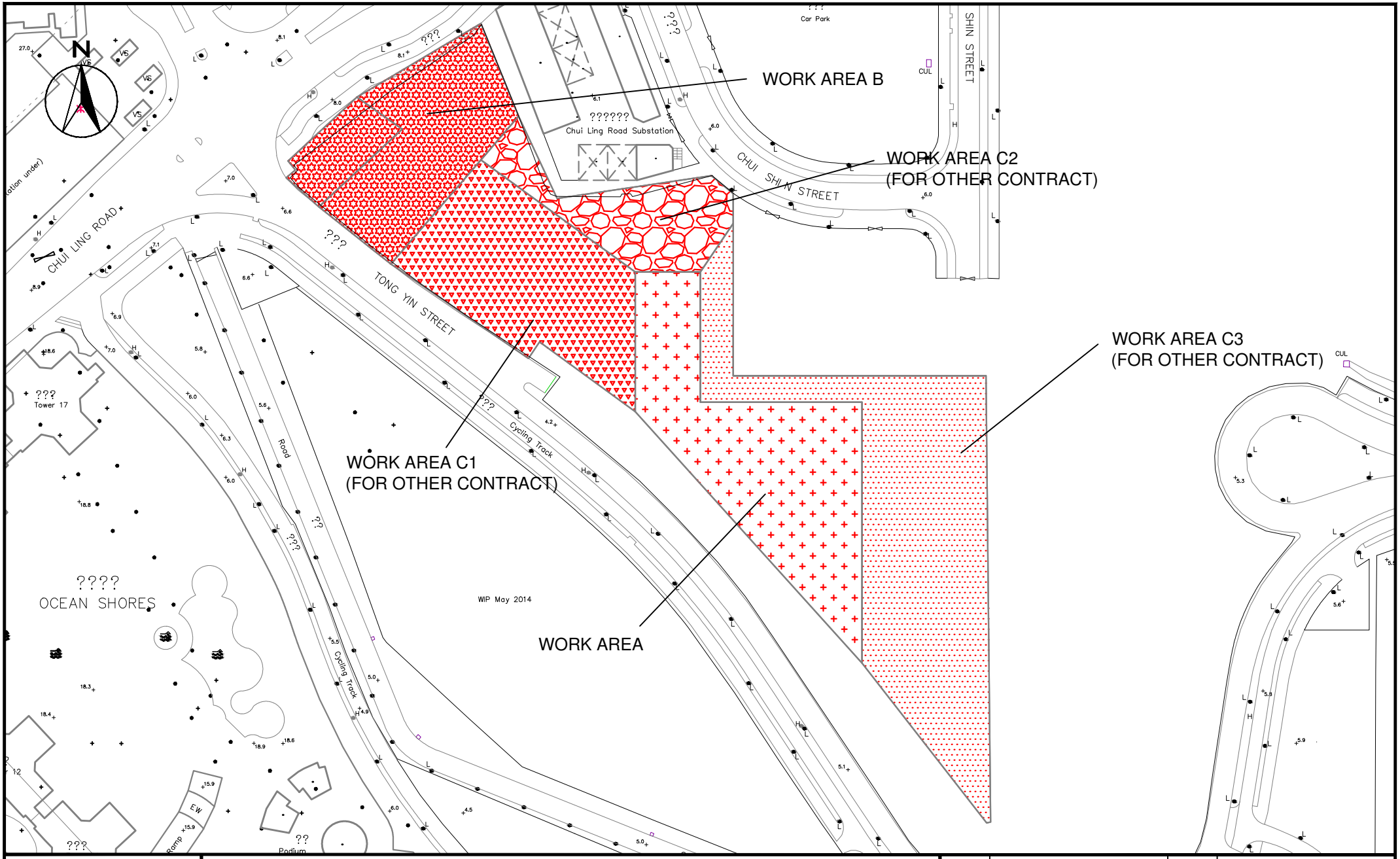
JOB No.	MA16034	FIGURE NO. 1g	REV -



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Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2017/02

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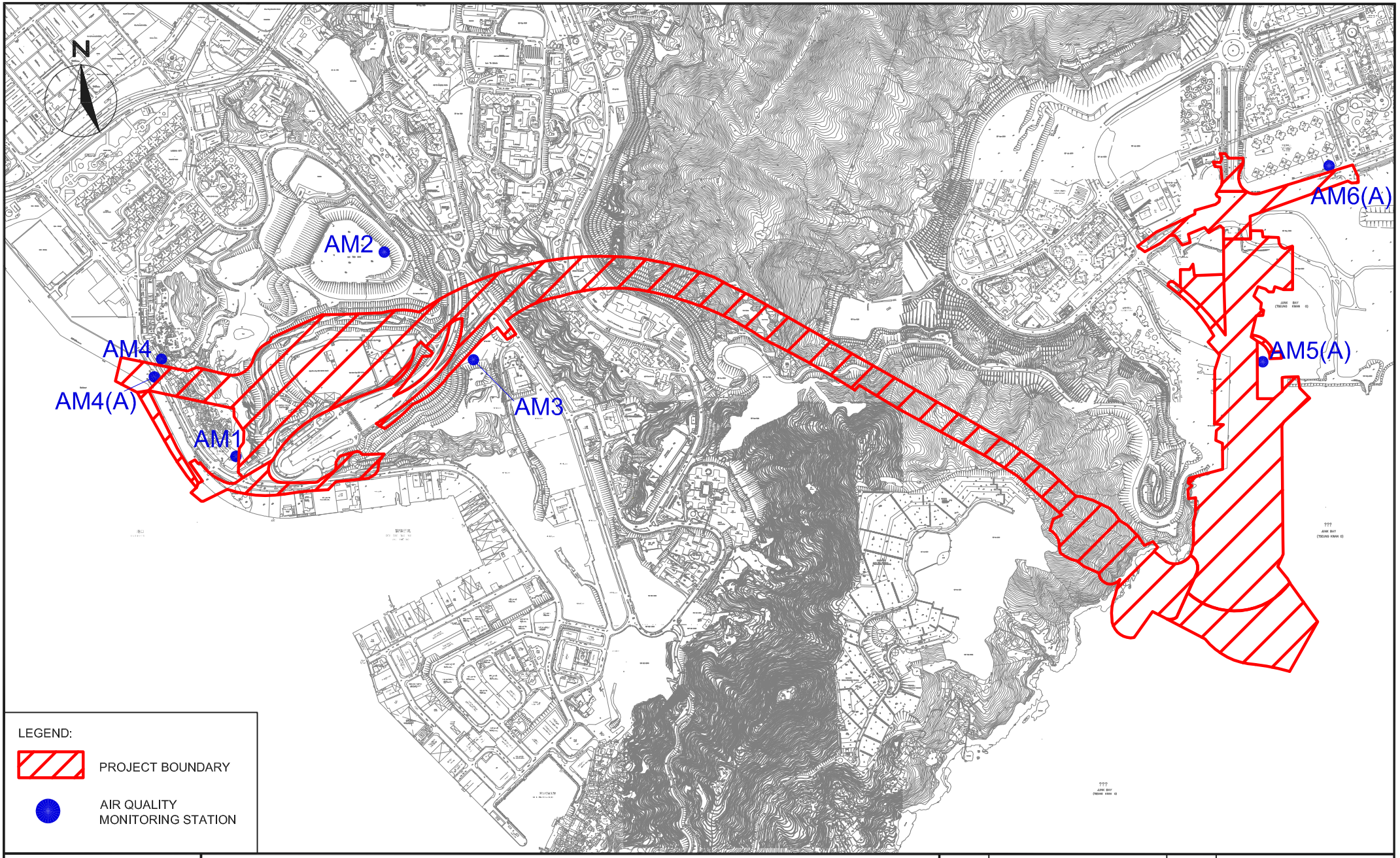
JOB No.	MA16034	FIGURE NO. 1h	REV -



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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Air Quality Monitoring Stations

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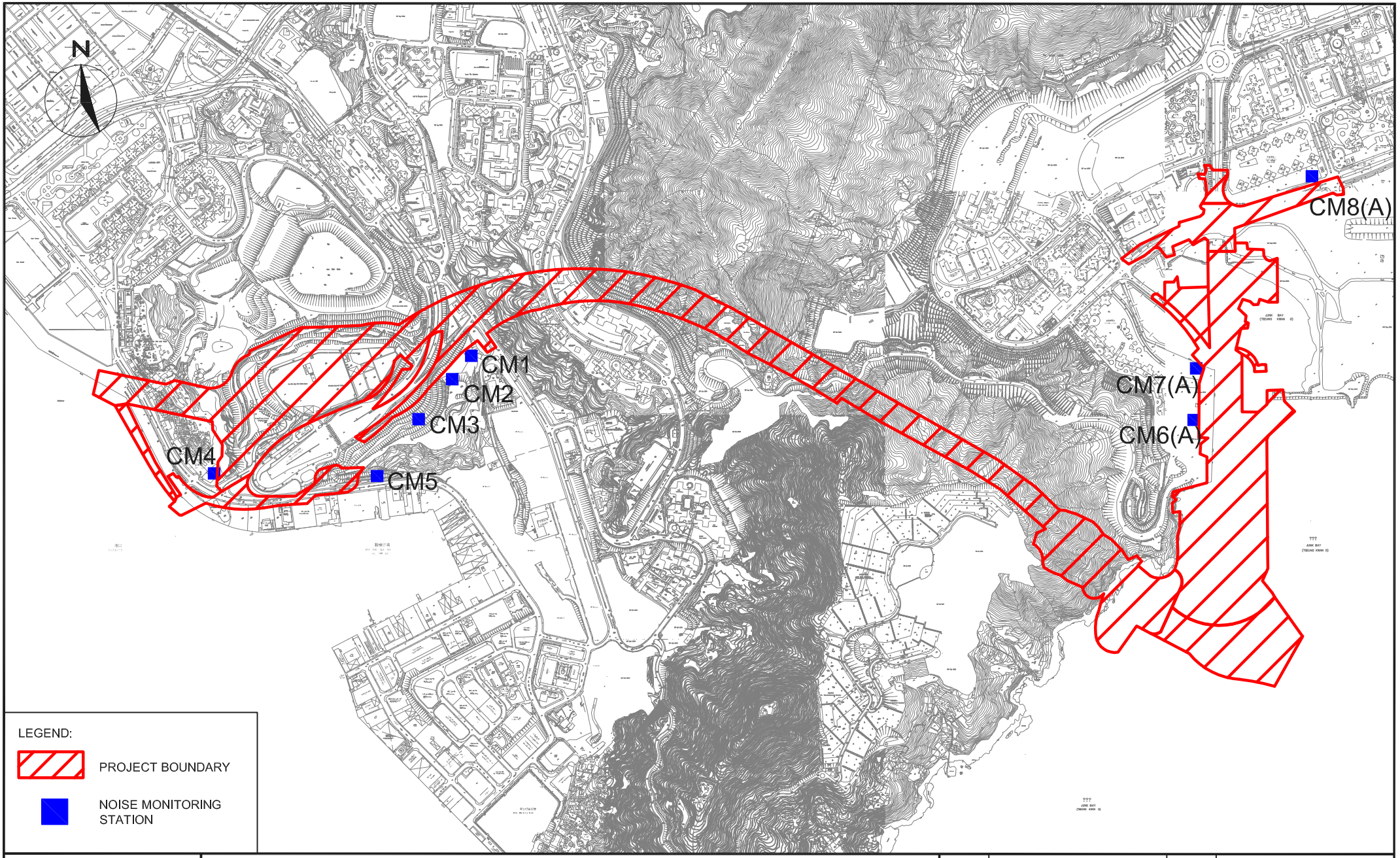
CHECK	JF	DRAWN	JW
JOB No.	MA16034	FIGURE NO. 2	REV -



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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Noise Monitoring Stations

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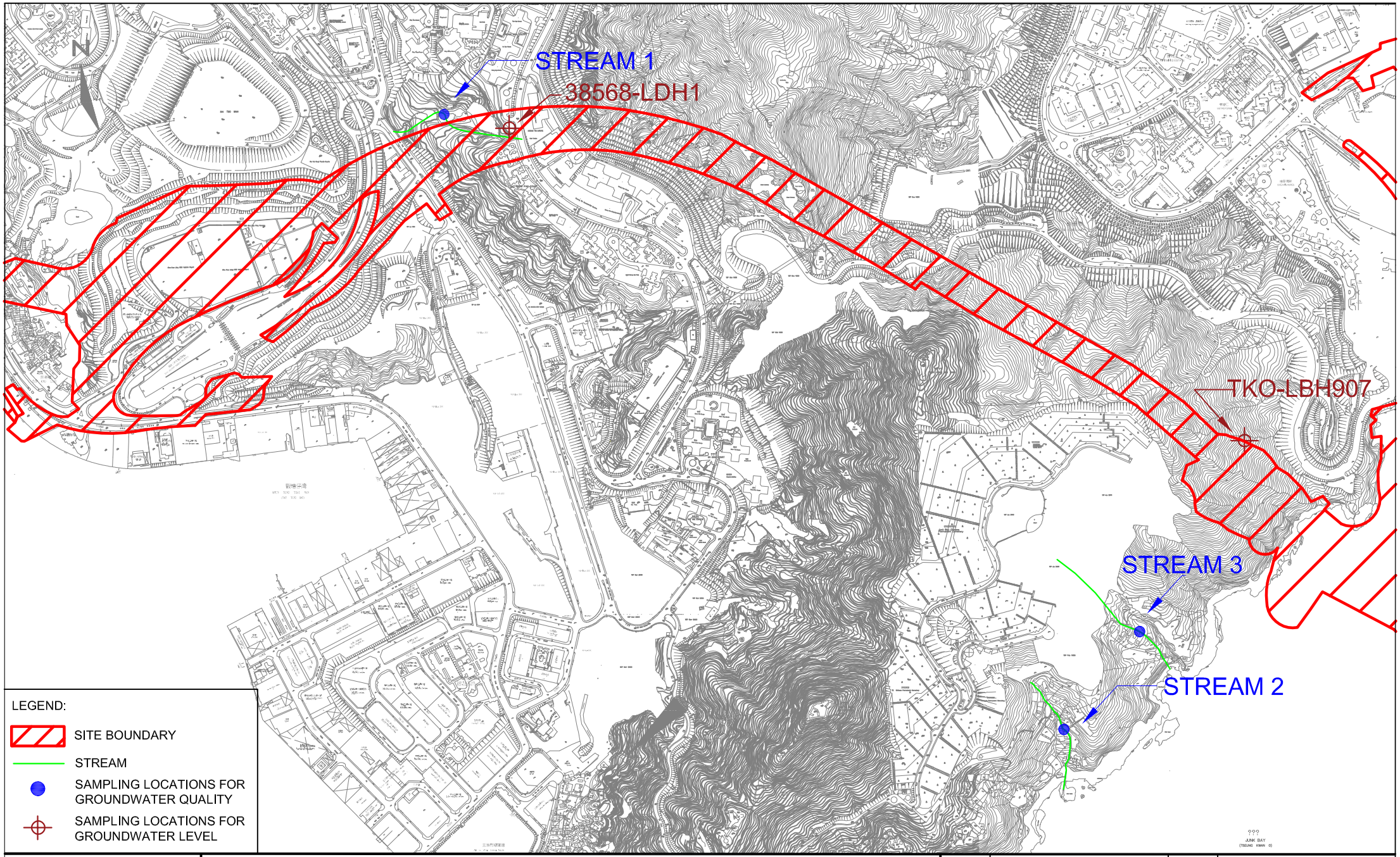

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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Location of Streams for Groundwater Quality and Groundwater Level Monitoring

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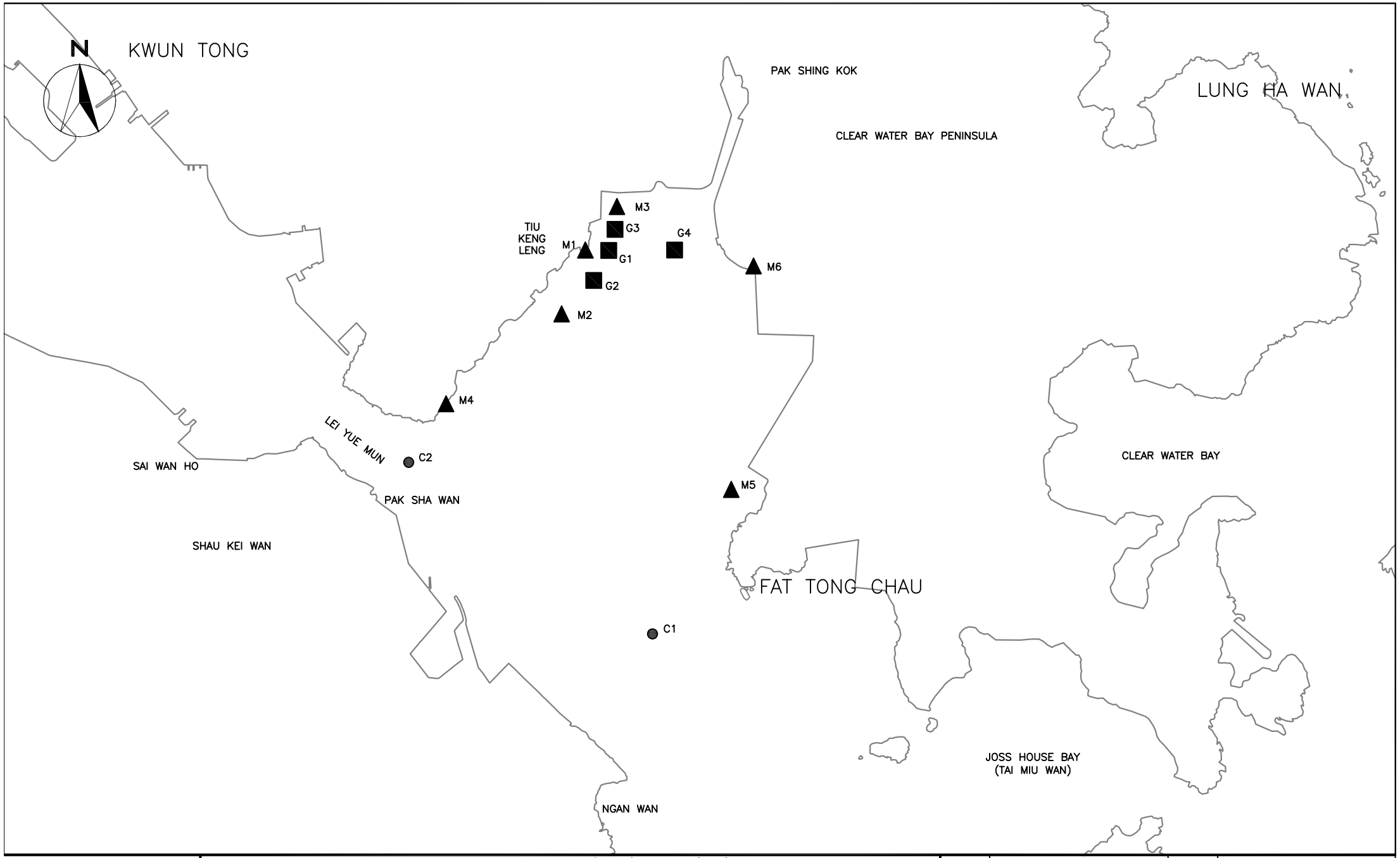
CHECK	JF	DRAWN	JW
JOB No.	MA16034	FIGURE NO. 4	REV -



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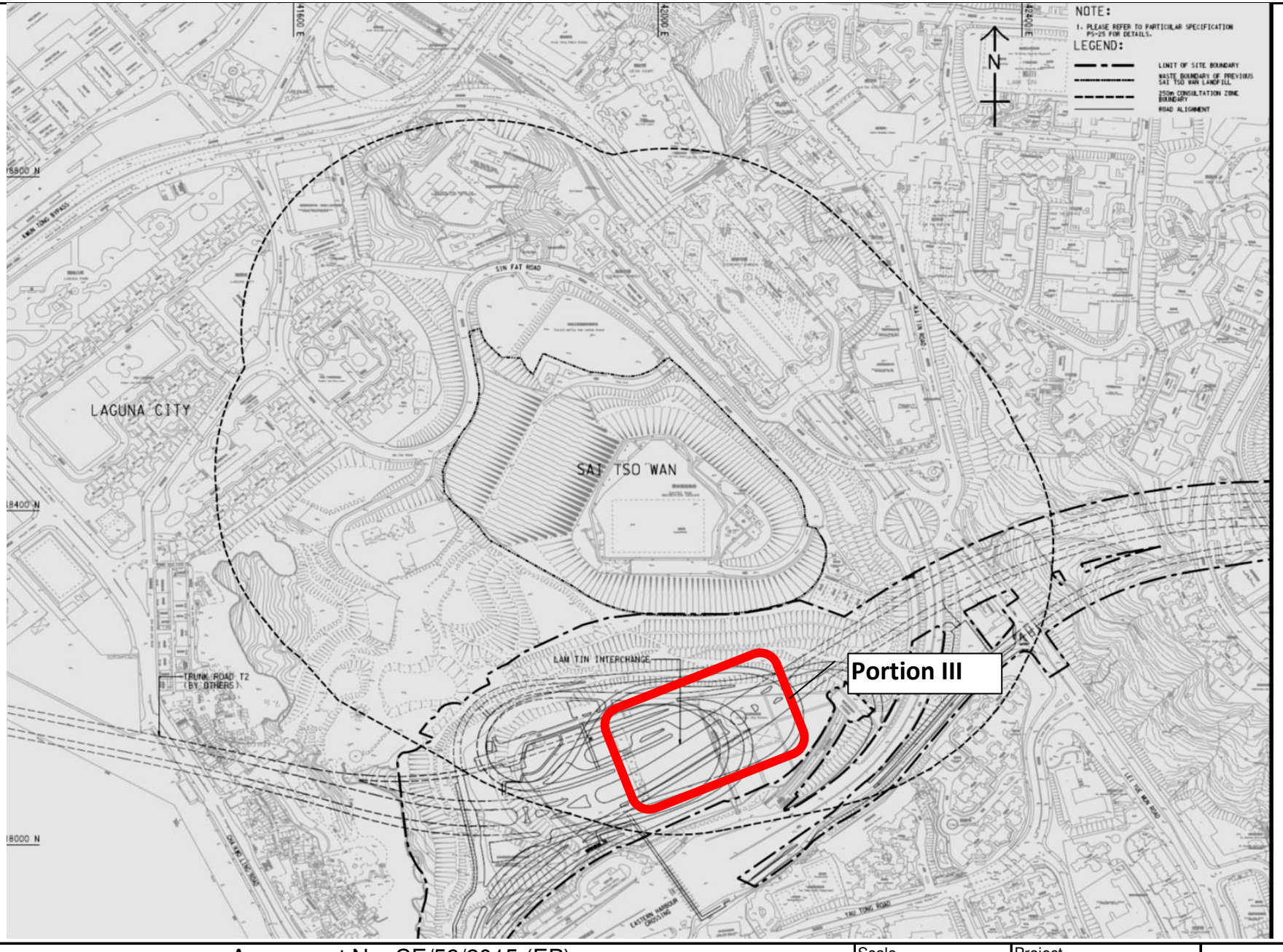
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel – Design and Construction

Locations of Water Quality Monitoring Stations

SCALE	N.T.S	DATE	AUG 2016
CHECK	JF	DRAWN	JW
PROJECT NO.	MA16034	FIGURE NO.	5
		REV	–



Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Locations of Landfill Gas Monitoring	Scale: N.T.S Date: Dec-16	Project No.: MA16034 Figure: 6

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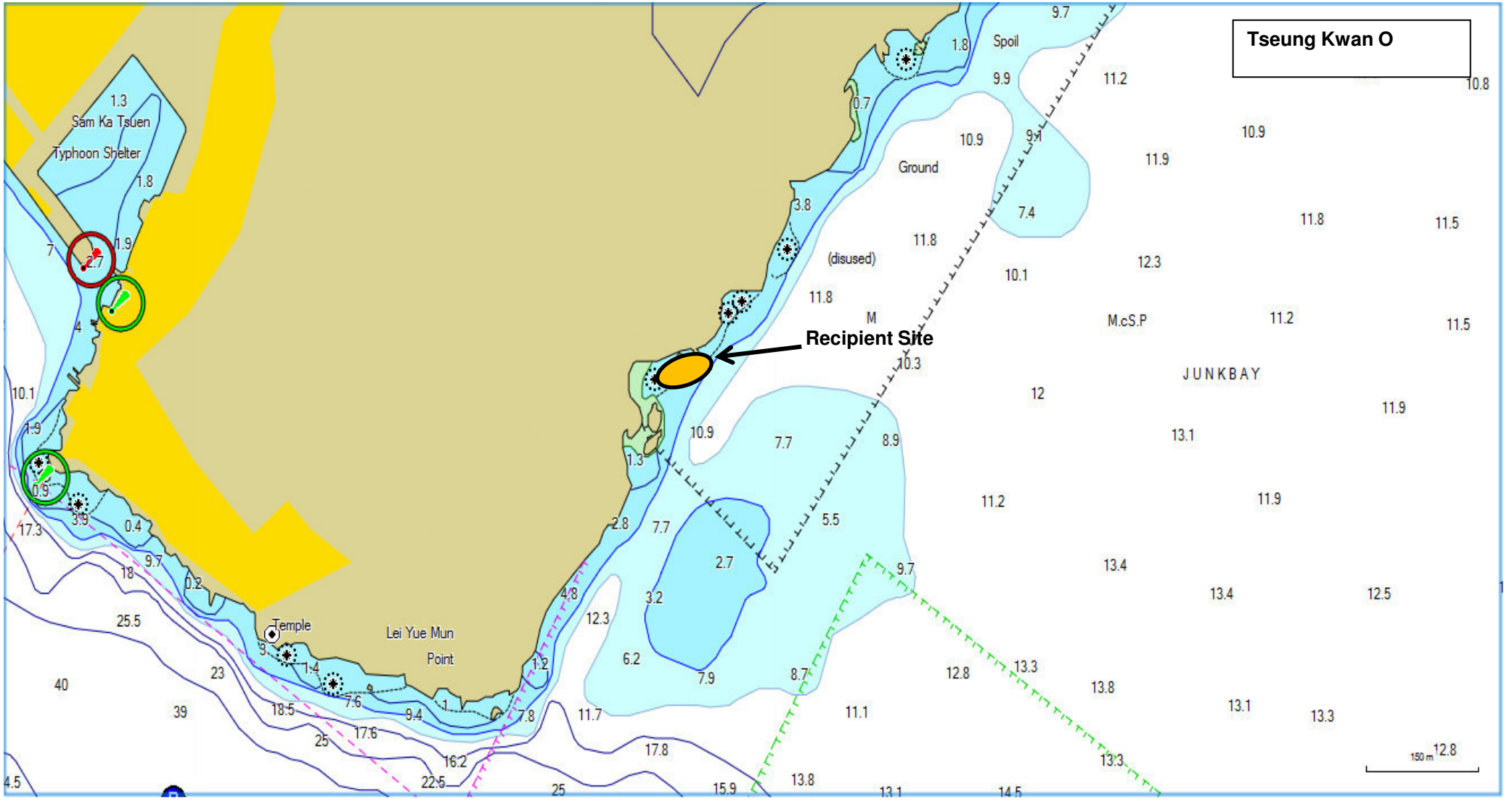
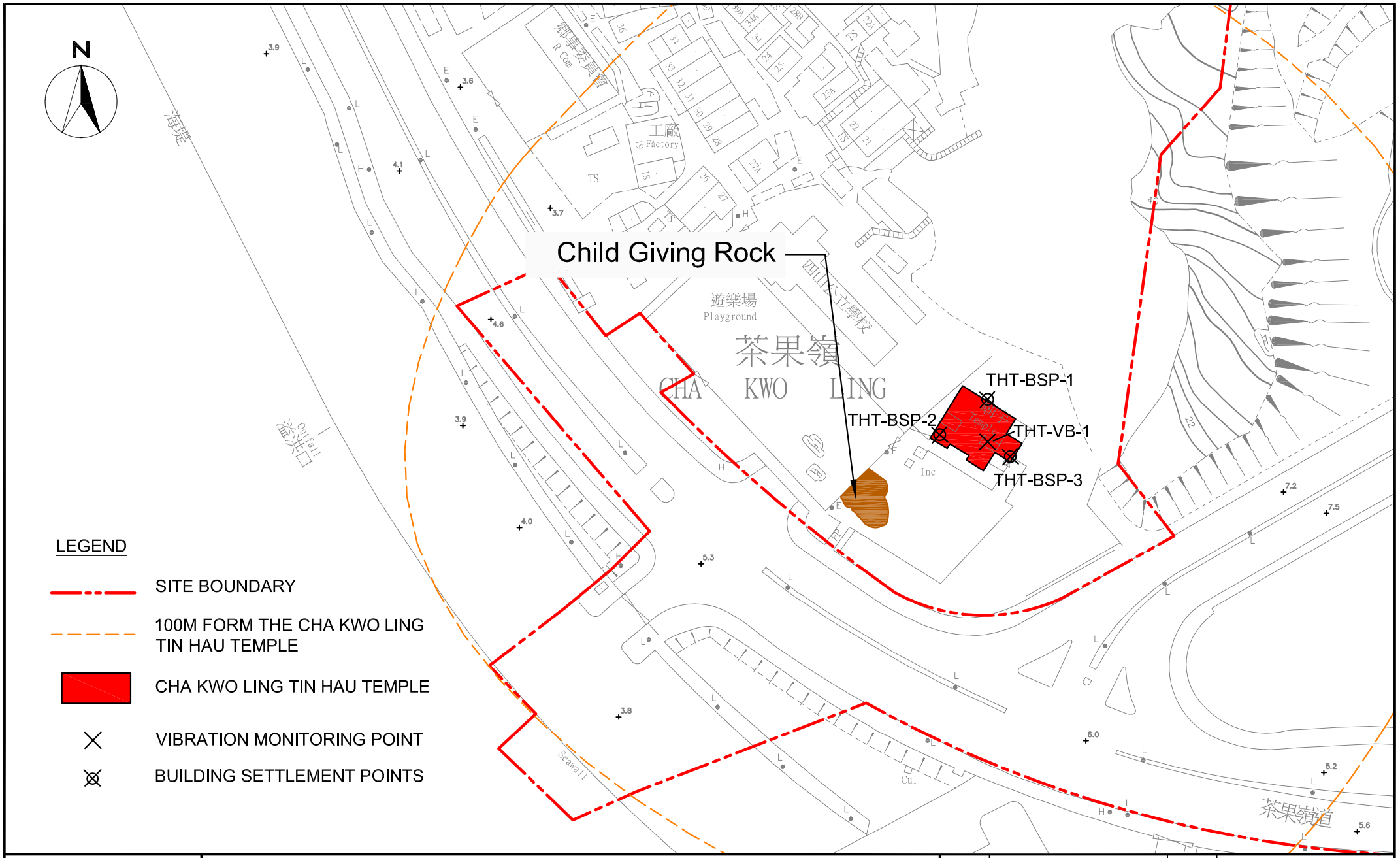


Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Location of Post-translocation Coral Monitoring	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Mar-17	Figure: 7	



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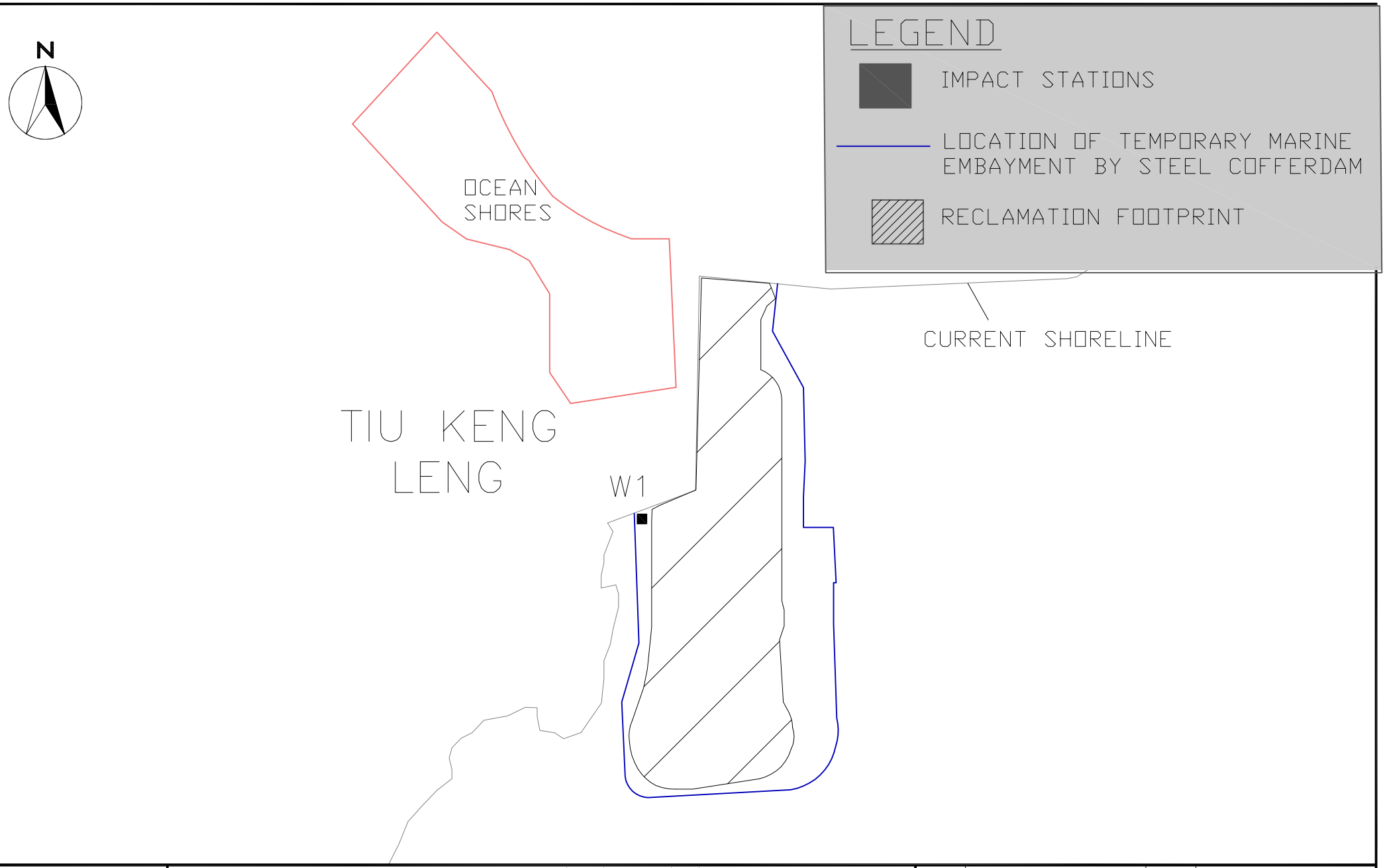
Agreement No. CE/59/2015 (EP)
Environmental Team for Tsueng Kwan O - Lam Tin Tunnel - Design and Construction

Locations of Monitirong for Cultural Heritage

SCALE	N.T.S.	DATE	FEB 2018
CHECK	JF	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 8	REV -



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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel – Design and Construction
Location of Water Quality Monitoring Stations within Temporary Marine Embayment

SCALE	N.T.S	DATE	MAY 2017
CHECK	JF	DRAWN	JW
PROJECT NO.	MA16034	FIGURE NO.	9
		REV	–

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

Air Quality

1-hr TSP

Monitoring Stations	Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1	Tin Hau Temple	275	500
AM2	Sai Tso Wan Recreation Ground	273	
AM3	Yau Lai Estate Bik Lai House	271	
AM4	Sitting-out Area at Cha Kwo Ling Village	278	
AM5(A)	Tseung Kwan O DSD Desilting Compound	273	
AM6(A)	Park Central, L1/F Open Space Area	285	

24-hr TSP

Monitoring Stations	Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1	Tin Hau Temple	173	260
AM2	Sai Tso Wan Recreation Ground	192	
AM3	Yau Lai Estate Bik Lai House	167	
AM4(A)	Cha Kwo Ling Public Cargo Working Area Administrative Office	210	
AM5(A)	Tseung Kwan O DSD Desilting Compound	175	
AM6(A)	Park Central, L1/F Open Space Area	165	

Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) [(1)]
1900-2300 on all days and 0700-2300 on general holidays (including Sundays)		60/65/70 dB(A)[(2)(3)]
2300-0700 on all days		45/50/55 dB(A)[(2)(3)]

[1] 70 dB(A) for schools and 65 dB(A) for schools during examination period.
[2] Acceptable Noise Levels for Area Sensitivity Rating of A/B/C
3 If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

Water Quality

Groundwater

Parameters	Action	Limit
DO in mg L^{-1}	7.6	7.6
pH	6.0 – 8.9	6.0 – 9.0
BOD_5 in mg L^{-1}	2.0	2.0
TOC in mg L^{-1}	Stream 1 and Stream 2: 9	Stream 1 and Stream 2: 9
	Stream 3: 6	Stream 3: 6
Total Nitrogen in mg L^{-1}	2.0	2.1
Ammonia-N in mg L^{-1}	0.15	0.20
Total Phosphate in mg L^{-1}	0.05	0.05
SS in mg L^{-1}	7.6	12.1
Turbidity in NTU	2.1	2.3

Notes:

1. For pH, non-compliance of the water quality limits occurs when monitoring result is out of the range of the limits.
2. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
3. For turbidity, SS, 5-day biochemical oxygen demand (BOD_5), Total organic carbon (TOC), Total Nitrogen, Ammonia-N and Total Phosphate, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
4. All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.

Groundwater Level Monitoring

Drill Hole No.	38568-LDH1	TKO-LBH907
Action Level (mPD)	+74.65	+17.59

Marine Water Quality

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2, 4 and 5)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU*** or 120% of upstream control station's Turbidity at the same tide of the same day	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2, 4 ad 5)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day	***6.9mg/L*** or 130% of upstream control station's SS at the same tide of the same day
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L*** or 120% of upstream control station's SS at the same tide of the same day	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.
5. Refer to Appendix I – Marine Water Quality Monitoring Results and Graphical Presentations for results of upstream control stations at each tide on each day.

Water Quality Monitoring in Temporary Marine Embayment

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 2)	Depth Average	***4.8 mg/L*** (4)	***4 mg/L*** (3)
	Bottom	***2.4 mg/L*** (4)	***2 mg/L***(3)

Notes:
1. "depth-averaged" is calculated by taking the arithmetic means of reading of all sampling depths.
2. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
3. Current Water Quality Objectives (WQOs) for marine waters of Hong Kong
4. As an alert for adverse water quality impact, the Action Level is set as 120% of the Current WQOs for marine waters of Hong Kong.

Ecology

Post-translocation Coral Monitoring

Parameter	Action Level Definition	Limit Level Definition
Mortality	If during Impact Monitoring a 15% increase in the percentage of partial mortality on hard corals occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Action Level is exceeded.	If during the Impact Monitoring a 25% increase in the percentage of partial mortality occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Limit Level is exceeded.

Landfill Gas Monitoring

Parameter	Limit Level
Oxygen	<19%
	<18%
Methane	>10% LEL (i.e. > 0.5% by volume)
	>20% LEL (i.e. > 1% by volume)
Carbon Dioxide	>0.5%
	>1.5%

Alert, Alarm, Action Levels for Built Heritage Monitoring

Parameter	Alert Level	Alarm Level	Action Level
Vibration	ppv:4.5mm/s	ppv: 4.8mm/s	ppv: 5mm/s Maximum Allowable Vibration Amplitude: 0.1mm
Building Settlement Point	6mm	8mm	10mm
Building Tilting	1:2000	1:1500	1:1000

APPENDIX B
COPIES OF CALIBRATION CERTIFICATES

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/05/0014

Project No. AM1 - Tin Hau Temple

Date: 22-Oct-18 Next Due Date: 21-Dec-18 Operator: MH

Equipment No.: A-01-05 Model No.: GS2310 Serial No.: 10599

Ambient Condition			
Temperature, Ta (K)	298.8	Pressure, Pa (mmHg)	765.8

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	13.6	3.70	63.17	8.0	2.84
2	9.7	3.12	53.35	5.6	2.37
3	8.2	2.87	49.05	4.8	2.20
4	5.4	2.33	39.81	3.3	1.82
5	3.2	1.79	30.65	2.1	1.45

By Linear Regression of Y on X

Slope , mw = 0.0422 **Intercept, bw =** 0.1435

Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.82**

Remarks:

Conducted by: LEE MAN HEI Signature: Lee Date: 22/10/2018

Checked by: MK Tang Signature: K Wan Date: 22/10/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/05/0015

Project No. AM1 - Tin Hau Temple

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

Equipment No.: A-01-05 Model No.: GS2310 Serial No.: 10599

Ambient Condition			
Temperature, Ta (K)	295	Pressure, Pa (mmHg)	766.0

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	13.5	3.71	63.35	8.1	2.87
2	9.8	3.16	53.98	5.7	2.41
3	8.1	2.87	49.07	4.9	2.23
4	5.5	2.37	40.44	3.2	1.81
5	3.3	1.83	31.33	2.0	1.43

By Linear Regression of Y on X

Slope , mw = **0.0451** **Intercept, bw =** **0.0009**

Correlation coefficient* = **0.9993**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.70**

Remarks:

Conducted by: LEE MAN HAU Signature: Date: 21/12/2018

Checked by: WK Tang Signature: Date: 21/12/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0014

Project No. AM2 - Sai Tso Wan Recreation Ground

Date: 22-Oct-18 Next Due Date: 21-Dec-18 Operator: MH

Equipment No.: A-01-08 Model No.: GS2310 Serial No.: 1287

Ambient Condition			
Temperature, Ta (K)	299.1	Pressure, Pa (mmHg)	765.7

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	13.5	3.68	62.90	8.0	2.83
2	10.6	3.26	55.74	6.5	2.55
3	8.7	2.96	50.50	5.3	2.31
4	5.2	2.28	39.04	3.2	1.79
5	3.4	1.85	31.57	2.0	1.42

By Linear Regression of Y on X

Slope , mw = 0.0454 **Intercept, bw =** 0.0049

Correlation coefficient* = 0.9993

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.81**

Remarks:

Conducted by: [illegible] Signature: [signature] Date: 22/10/2018

Checked by: W.K. Tang Signature: [signature] Date: 22/10/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0015

Project No. AM2 - Sai Tso Wan Recreation Ground

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

Equipment No.: A-01-08 Model No.: GS2310 Serial No.: 1287

Ambient Condition			
Temperature, Ta (K)	295.5	Pressure, Pa (mmHg)	766.2

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	13.5	3.70	63.31	8.1	2.87
2	10.7	3.30	56.36	6.7	2.61
3	8.6	2.96	50.53	5.3	2.32
4	5.4	2.34	40.04	3.2	1.80
5	3.3	1.83	31.30	2.1	1.46

By Linear Regression of Y on X

Slope , mw = 0.0452 **Intercept, bw =** 0.0316

Correlation coefficient* = 0.9988

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.83**

Remarks:

Conducted by: Lee Man Hei Signature: Date: 21/12/2018

Checked by: W K Tang Signature: Date: 21/12/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/03/0012

Project No. AM3 - Yau Lai Estate, Bik Lai House

Date: 22-Oct-18 Next Due Date: 21-Dec-18 Operator: MH

Equipment No.: A-01-03 Model No.: GS2310 Serial No.: 10379

Ambient Condition			
Temperature, Ta (K)	299.2	Pressure, Pa (mmHg)	765.4

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.4	3.53	60.26	7.8	2.80
2	10.6	3.26	55.72	6.4	2.53
3	7.8	2.80	47.80	4.8	2.19
4	5.4	2.33	39.77	3.3	1.82
5	3.1	1.76	30.14	2.0	1.42

By Linear Regression of Y on X

Slope , mw = 0.0454 **Intercept, bw =** 0.0308

Correlation coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.92**

Remarks:

Conducted by: Lee Man Hin Signature: Lee Date: 22/10/2018

Checked by: W.K. Tang Signature: Kwan Date: 22/10/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/03/0013

Project No. AM3 - Yau Lai Estate, Bik Lai House

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

Equipment No.: A-01-03 Model No.: GS2310 Serial No.: 10379

Ambient Condition			
Temperature, Ta (K)	296.1	Pressure, Pa (mmHg)	765.9

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.5	3.56	60.84	7.9	2.83
2	10.7	3.29	56.29	6.8	2.63
3	7.9	2.83	48.37	4.9	2.23
4	5.4	2.34	39.99	3.3	1.83
5	3.2	1.80	30.79	2.1	1.46

By Linear Regression of Y on X

Slope , mw = **0.0462** **Intercept, bw =** **0.0106**

Correlation coefficient* = **0.9992**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.94**

Remarks:

Conducted by: LEE MAN HEE Signature: [signature] Date: 21/12/2018

Checked by: WK. Tang Signature: [signature] Date: 21/12/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/54/0014

Project No. AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office

Date: 22-Oct-18 Next Due Date: 21-Dec-18 Operator: MH

Equipment No.: A-01-54 Model No.: TE-5170 Serial No.: 1536

Ambient Condition			
Temperature, Ta (K)	299.6	Pressure, Pa (mmHg)	765.1

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	16.4	4.05	69.24	9.7	3.12
2	12.5	3.54	60.45	7.2	2.69
3	10.8	3.29	56.19	6.6	2.57
4	6.4	2.53	43.26	4.1	2.03
5	4.3	2.08	35.46	2.8	1.67

By Linear Regression of Y on X

Slope , mw = 0.0419 **Intercept, bw =** 0.1966

Correlation coefficient* = 0.9988

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.99**

Remarks:

Conducted by: Lee Man Hei Signature: Lee Date: 22/10/2018

Checked by: WK Tang Signature: Kwa Date: 22/10/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/54/0015

Project No. AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

Equipment No.: A-01-54 Model No.: TE-5170 Serial No.: 1536

Ambient Condition			
Temperature, Ta (K)	297.2	Pressure, Pa (mmHg)	765

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	16.5	4.08	69.73	9.4	3.08
2	12.7	3.58	61.18	7.3	2.71
3	10.6	3.27	55.89	6.6	2.58
4	6.5	2.56	43.77	4.0	2.01
5	4.4	2.11	36.01	2.7	1.65

By Linear Regression of Y on X

Slope , mw = **0.0423** **Intercept, bw =** **0.1530**

Correlation coefficient* = **0.9977**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.85**

Remarks:

Conducted by: LEE MAN HEI Signature: Lei Date: 21/12/2018

Checked by: WK Tang Signature: Kwai Date: 21/12/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/37/0014

Project No. AM5(A) - Tseung Kwan O DSD Desilting Compound

Date: 22-Oct-18 Next Due Date: 21-Dec-18 Operator: MH

Equipment No.: A-01-37 Model No.: GS2310 Serial No.: 1704

Ambient Condition			
Temperature, Ta (K)	299.5	Pressure, Pa (mmHg)	765.3

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	16.2	4.03	68.84	9.1	3.02
2	13.5	3.68	62.84	7.5	2.74
3	9.6	3.10	53.00	5.7	2.39
4	6.5	2.55	43.61	4.0	2.00
5	4.4	2.10	35.88	2.8	1.67

By Linear Regression of Y on X

Slope , mw = **0.0402** **Intercept, bw =** **0.2422**

Correlation coefficient* = **0.9995**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.87**

Remarks:

Conducted by: LEE MAN HEI Signature: Date: 22/10/2018

Checked by: WK Tang Signature: Date: 22/10/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/37/0015

Project No. AM5(A) - Tseung Kwan O DSD Desilting Compound

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

Equipment No.: A-01-37 Model No.: GS2310 Serial No.: 1704

Ambient Condition			
Temperature, Ta (K)	297.8	Pressure, Pa (mmHg)	764

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	16.3	4.05	69.19	9.2	3.04
2	13.7	3.71	63.43	7.6	2.76
3	9.4	3.08	52.55	5.8	2.42
4	6.7	2.60	44.36	4.1	2.03
5	4.5	2.13	36.36	2.9	1.71

By Linear Regression of Y on X

Slope , mw = **0.0400** **Intercept, bw =** **0.2647**

Correlation coefficient* = **0.9983**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.92**

Remarks:

Conducted by: Lee Man Hei Signature: Lee Date: 21/12/2018

Checked by: Wk Tang Signature: Kwan Date: 21/12/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/07/0014

Station: AM6 - Park Central
Date: 23-Nov-18 Next Due Date: 22-Jan-19 Operator: MH
Equipment No.: A-01-07 Model No.: GS2310 Serial No.: 10592

Ambient Condition			
Temperature, Ta (K)	294	Pressure, Pa (mmHg)	769.1

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.7	3.46	59.20	7.6	2.79
2	9.7	3.15	53.90	6.2	2.52
3	7.5	2.77	47.40	4.7	2.20
4	5.2	2.31	39.47	3.4	1.87
5	3.3	1.84	31.44	2.2	1.50

By Linear Regression of Y on X

Slope , mw = 0.0461 **Intercept, bw =** 0.0424

Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.00**

Remarks:

Conducted by: CK Man Hei Signature: Date: 23/11/2018
Checked by: W.K. Tang Signature: Date: 23/11/2018

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	February 13, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K	
Operator:	Jim Tisch		**Pa:** 763.3	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2896**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4670	3.2	2.00
2	3	4	1	1.0380	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0172	0.6934	1.4293	0.9958	0.6788	0.8762
1.0129	0.9758	2.0213	0.9916	0.9553	1.2392
1.0107	1.0962	2.2599	0.9895	1.0732	1.3854
1.0097	1.1422	2.3702	0.9885	1.1182	1.4530
1.0043	1.3853	2.8586	0.9832	1.3562	1.7524
QSTD	**m=**	**2.06726**	**QA**	**m=**	**1.29448**
	b=	**-0.00045**		**b=**	**-0.00028**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

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

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

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

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	29681
Date of Issue:	2018-08-25
Date Received:	2018-08-24
Date Tested:	2018-08-24
Date Completed:	2018-08-25
Next Due Date:	2019-02-24
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Weather Monitor II
Manufacturer	: Davis Instruments
Model No.	: 7440
Serial No.	: MC01010A44

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Test Specifications:

1. Performance check of anemometer
2. Performance check of wind direction sensor

Methodology:

In-house method with reference anemometer (RS232 Integral Vane Digital Anemometer)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	29681
Date of Issue:	2018-08-25
Date Received:	2018-08-24
Date Tested:	2018-08-24
Date Completed:	2018-08-25
Next Due Date:	2019-02-24

Results:

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 – V2
2.00	2.00	0.00

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45	45	0
90.3	90	0.3
135	135	0
180.1	180	0.1
225.2	225	0.2
270.2	270	0.2
315	315	0
360	360	0

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W. K. Tang**

Test Report No.:	29957A
Date of Issue:	2018-10-29
Date Received:	2018-10-27
Date Tested:	2018-10-27
Date Completed:	2018-10-29
Next Due Date:	2018-12-28
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: SIBATA
Model No.	: LD-3B
Serial No.	: 2Y6194
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 578 CPM
Equipment No.	: SA-01-02

Test Conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0031

****

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Laboratory Manager

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TEST REPORT

Test Report No.:	30290
Date of Issue:	2018-11-14
Date Received:	2018-11-13
Date Tested:	2018-11-13
Date Completed:	2018-11-14
Next Due Date:	2019-01-13
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23807
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-01

Test Conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.335

****

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Laboratory Manager

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TEST REPORT

Test Report No.:	30290
Date of Issue:	2018-11-14
Date Received:	2018-11-13
Date Tested:	2018-11-13
Date Completed:	2018-11-14
Next Due Date:	2019-01-13
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23808
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-02

Test Conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.242

****

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TEST REPORT

Test Report No.:	30290
Date of Issue:	2018-11-14
Date Received:	2018-11-13
Date Tested:	2018-11-13
Date Completed:	2018-11-14
Next Due Date:	2019-01-13
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23809
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-03

Test Conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.281

****

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TEST REPORT

Test Report No.:	30290
Date of Issue:	2018-11-14
Date Received:	2018-11-13
Date Tested:	2018-11-13
Date Completed:	2018-11-14
Next Due Date:	2019-01-13
Page:	1 of 1

ATTN: **Mr. W. K. Tang**

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23810
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-04

Test Conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.266

****

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	29956
Date of Issue:	2018-10-18
Date Received:	2018-10-16
Date Tested:	2018-10-16
Date Completed:	2018-10-18
Next Due Date:	2018-12-17

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020409
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-02

Test Conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.140

****

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TEST REPORT

APPLICANT:	**Cinotech Consultants Limited** **Room 1710, Technology Park,** **18 On Lai Street,** **Shatin, NT, Hong Kong**	Test Report No.:	30523A
		Date of Issue:	2018-12-16
		Date Received:	2018-12-14
		Date Tested:	2018-12-14
		Date Completed:	2018-12-16
		Next Due Date:	2019-02-15
ATTN:	**Mr. W. K. Tang**	Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020409
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-02

Test Conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.126

****

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W. K. Tang**

Test Report No.:	30523B
Date of Issue:	2018-12-16
Date Received:	2018-12-14
Date Tested:	2018-12-14
Date Completed:	2018-12-16
Next Due Date:	2019-02-15
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020410
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-03

Test Conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.150

****

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
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Test Report No.:	30523
Date of Issue:	2018-12-16
Date Received:	2018-12-14
Date Tested:	2018-12-14
Date Completed:	2018-12-16
Next Due Date:	2019-02-15

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701012
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-07

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.066

****

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TEST REPORT

APPLICANT:	**Cinotech Consultants Limited** **Room 1710, Technology Park,** **18 On Lai Street,** **Shatin, NT, Hong Kong**
ATTN:	**Mr. W. K. Tang**

Test Report No.:	30523D
Date of Issue:	2018-12-16
Date Received:	2018-12-14
Date Tested:	2018-12-14
Date Completed:	2018-12-16
Next Due Date:	2019-02-15
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701010
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-10

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.079

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	29813
Date of Issue:	2018-09-15
Date Received:	2018-09-14
Date Tested:	2018-09-14
Date Completed:	2018-09-15
Next Due Date:	2019-09-14
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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Patrick Tse

PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Test Report No.:	29501
Date of Issue:	2018-08-27
Date Received:	2018-08-24
Date Tested:	2018-08-24
Date Completed:	2018-08-27
Next Due Date:	2019-08-26

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21455
Microphone No.	: 43730
Equipment No.	: N-08-07

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	29499
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2019-08-12
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21459
Microphone No.	: 43676
Equipment No.	: N-08-08

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
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Patrick Tse
PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	29500
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2019-08-12

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
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PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	30294
Date of Issue:	2018-11-24
Date Received:	2018-11-23
Date Tested:	2018-11-23
Date Completed:	2018-11-24
Next Due Date:	2019-11-23
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 23851
Equipment No.	: N-08-12

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
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PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/171215
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35924
Equipment No.	: N-13-01

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	30524
Date of Issue:	2018-12-17
Date Received:	2018-12-15
Date Tested:	2018-12-15
Date Completed:	2018-12-17
Next Due Date:	2019-12-16
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35924
Equipment No.	: N-13-01

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick Tse
PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/171215A
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35921
Equipment No.	: N-13-02

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	30524A
Date of Issue:	2018-12-17
Date Received:	2018-12-15
Date Tested:	2018-12-15
Date Completed:	2018-12-17
Next Due Date:	2019-12-16
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35921
Equipment No.	: N-13-02

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
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PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	30524C
Date of Issue:	2018-12-17
Date Received:	2018-12-15
Date Tested:	2018-12-15
Date Completed:	2018-12-17
Next Due Date:	2019-12-16

ATTN: **Mr. W.K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35927
Equipment No.	: N-13-03

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
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Test Report No.:	29816
Date of Issue:	2018-09-29
Date Received:	2018-09-28
Date Tested:	2018-09-28
Date Completed:	2018-09-29
Next Due Date:	2019-09-28
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Test Report No.:	29817
Date of Issue:	2018-09-29
Date Received:	2018-09-28
Date Tested:	2018-09-28
Date Completed:	2018-09-29
Next Due Date:	2019-09-28

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24780
Equipment No.	: N-09-05

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	30289
Date of Issue:	2018-11-04
Date Received:	2018-11-03
Date Tested:	2018-11-03
Date Completed:	2018-11-04
Next Due Date:	2019-11-03

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Equipment No.	: N-02-01

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	29683
Date of Issue:	2018-08-20
Date Received:	2018-08-17
Date Tested:	2018-08-17
Date Completed:	2018-08-20
Next Due Date:	2019-08-19

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

ATTN: **Miss Mei Ling Tang**

Test Report No.:	30298
Date of Issue:	2018-11-24
Date Received:	2018-11-24
Date Tested:	2018-11-24
Date Completed:	2018-11-24
Next Due Date:	2019-02-23
Page:	1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-15	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO Optical DO Sensor, Ti	599100-01	17B101545
- EXO conductivity/Temperature Sensor, Ti	599870	17B100792
- EXO Turbuduty Sensor, Ti	599101-01	17B102247
- EXO pH Sensor Assembly, Guarded, Ti	599701	17B103623

Test conditions:

Room Temperature : 17-22 degree Celsius
Relative Humidity : 40-70%

Test Specifications:

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

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Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	30298
Date of Issue:	2018-11-24
Date Received:	2018-11-24
Date Tested:	2018-11-24
Date Completed:	2018-11-24
Next Due Date:	2019-02-23

Certificate of Calibration

Results:

Conductivity performance checking

	Instrument Readings (μS/cm)	Accetance Criteria	Comment
KCl stock solution (12890 μS/cm)	13000	12246-13534	Pass

Temperature performance checking

Reference thermometer-E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
20.0	20.001	-0.001	N/A

pH performance checking

	Instrument Readings (pH unit)	Accetance Criteria	Comment
pH QC buffer 4.00	4.01	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.86	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.14	9.18 ± 0.10	Pass

D.O. performance checking

	Instrument Readings (mg/L)	Accetance Criteria	Comment
Zero DO soultion	0.08	<0.1mg/L	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Accetance Criteria	Comment
8.00	8.10	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity performance checking

Turbidity stock solution	Instrument Readings (NTU)	Accetance Criteria	Comment
10 NTU	10.00	9.0-11.0	Pass
50 NTU	50.02	45.0-55.0	Pass
100 NTU	100.2	90.0-110.0	Pass

Depth performance checking

Water Depth	Instrument Readings (NTU)	Accetance Criteria	Comment
0.5 meter	0.50	0.45-0.55	Pass

**********END OF REPORT**********

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Test Report No.:	30303
Date of Issue:	2018-11-24
Date Received:	2018-11-24
Date Tested:	2018-11-24
Date Completed:	2018-11-24
Next Due Date:	2019-02-23

ATTN: **Miss Mei Ling Tang**

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-159	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO Optical DO Sensor, Ti	599100-01	17K100317
- EXO conductivity/Temperature Sensor, Ti	599870	17H103441
- EXO Turbuduty Sensor, Ti	599101-01	17K100325
- EXO pH Sensor Assembly, Guarded, Ti	599795-01	17K103094

Test conditions:

Room Temperature : 17-22 degree Celsius
Relative Humidity : 40-70%

Test Specifications:

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

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PATRICK TSE
Laboratory Manager

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TEST REPORT

Test Report No.:	30303
Date of Issue:	2018-11-24
Date Received:	2018-11-24
Date Tested:	2018-11-24
Date Completed:	2018-11-24
Next Due Date:	2019-02-23

Certificate of Calibration

Results:

Conductivity performance checking

	Instrument Readings (μS/cm)	Accetance Criteria	Comment
KCl stock solution (12890 μS/cm)	13000	12246-13534	Pass

Temperature performance checking

Reference thermometer-E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
20.0	20.001	-0.001	N/A

pH performance checking

	Instrument Readings (pH unit)	Accetance Criteria	Comment
pH QC buffer 4.00	4.02	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.87	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.16	9.18 ± 0.10	Pass

D.O. performance checking

	Instrument Readings (mg/L)	Accetance Criteria	Comment
Zero DO soultion	0.06	<0.1mg/L	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Accetance Criteria	Comment
8.00	8.02	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity performance checking

Turbidity stock solution	Instrument Readings (NTU)	Accetance Criteria	Comment
10 NTU	10.02	9.0-11.0	Pass
50 NTU	50.04	45.0-55.0	Pass
100 NTU	100.2	90.0-110.0	Pass

Depth performance checking

Water Depth	Instrument Readings (NTU)	Accetance Criteria	Comment
0.5 meter	0.50	0.45-0.55	Pass

**********END OF REPORT**********

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Test Report No.:	30302
Date of Issue:	2018-11-24
Date Received:	2018-11-24
Date Tested:	2018-11-24
Date Completed:	2018-11-24
Next Due Date:	2019-02-23

ATTN: **Miss Mei Ling Tang**

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-164	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO Optical DO Sensor, Ti	599100-01	17K101623
- EXO conductivity/Temperature Sensor, Ti	599870	17H103446
- EXO Turbuduty Sensor, Ti	599101-01	17K100331
- EXO pH Sensor Assembly, Guarded, Ti	599795-01	17K103099

Test conditions:

Room Temperature : 17-22 degree Celsius
Relative Humidity : 40-70%

Test Specifications:

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

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PREPARED AND CHECKED BY:
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PATRICK TSE
Laboratory Manager

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TEST REPORT

Test Report No.:	30302
Date of Issue:	2018-11-24
Date Received:	2018-11-24
Date Tested:	2018-11-24
Date Completed:	2018-11-24
Next Due Date:	2019-02-23
Page:	2 of 2

Certificate of Calibration

Results:

Conductivity performance checking

	Instrument Readings (μS/cm)	Accetance Criteria	Comment
KCl stock solution (12890 μS/cm)	13000	12246-13534	Pass

Temperature performance checking

Reference thermometer-E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
20.0	20.002	-0.001	N/A

pH performance checking

	Instrument Readings (pH unit)	Accetance Criteria	Comment
pH QC buffer 4.00	4.01	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.86	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.17	9.18 ± 0.10	Pass

D.O. performance checking

	Instrument Readings (mg/L)	Accetance Criteria	Comment
Zero DO soultion	0.05	<0.1mg/L	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Accetance Criteria	Comment
8.00	8.08	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity performance checking

Turbidity stock solution	Instrument Readings (NTU)	Accetance Criteria	Comment
10 NTU	10.01	9.0-11.0	Pass
50 NTU	50.06	45.0-55.0	Pass
100 NTU	100.4	90.0-110.0	Pass

Depth performance checking

Water Depth	Instrument Readings (NTU)	Accetance Criteria	Comment
0.5 meter	0.50	0.45-0.55	Pass

**********END OF REPORT**********

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CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE13853)
Part Number:	714A9701
Serial No.:	BG16512
Calibration Date:	11 April 2018
Next Calibration Date:	11 April 2019
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Wong, Keefe Solomon)

Date: 11 April 2018

MSA
The Safety Company
MSA Corporate Center • 1000 Cranberry Woods Drive • Cranberry Township, PA 16066
www.msasafety.com
Telephone: (800) MSA-2222

ALTAIR5X
CERTIFICATE OF CALIBRATION

Serial Number: 137333
Part Number: A-ALT5X-A-N-K-D-1-0-0-T-0-0-0

Factory Calibration Date: 06/18/18

Set Points

	METHANE 0-100.00 %LEL	O2 0-30.00 %VOL	CO 0-2000.00 PPM	H2S 0-200.00 PPM	NH3 0-100.00 PPM	
↓ (Low)	10.00 %LEL	19.50 %VOL	25.00 PPM	10.00 PPM	25.00 PPM	
↑ (High)	20.00 %LEL	23.00 %VOL	100.00 PPM	15.00 PPM	50.00 PPM	
STEL			100.00 PPM	15.00 PPM	35.00 PPM	
TWA			25.00 PPM	10.00 PPM	25.00 PPM	
Calibrated Value	Methane 1.452 %VOL	O2 15.07 %VOL	CO 60.41 PPM	H2S 19.29 PPM	NH3 25 PPM	
Cylinder Lot #	122-401120204-1	122-401120204-1	122-401120204-1	122-401120204-1	216662	

Calibration Certification
All applicable inspections, testing, and calibrations were performed using NIST traceable equipment, where available, in accordance with MSA's ISO 9001 Certified Quality System. Each material, component, and/or instrument must be installed, operated and maintained in strict accordance with its labels, cautions, warnings, instructions, and within the limitations stated in the supplied instruction manual. Routine calibration checks, equipment inspections, and applicable preventative maintenance measures must be performed to verify that the materials, components, and/or instruments are operating properly. Failure to perform these tasks on a routine basis, or suggested intervals, with specified equipment or methods, may result in inaccurate readings.

Conformance Statement
MSA certifies that the materials, components, and/or instruments delivered in this shipment conform to all applicable specifications. The items delivered have been processed through the appropriate approved document controlled procedures for Receiving, Manufacturing and Inspection. The materials, components, and/or instruments were inspected, tested, and calibrated, as applicable, per the associated drawings, standards requirements, and/or specifications, and were deemed acceptable by appropriate authorized personnel.

Process Certified By:

Jim Hoffman

JIM HOFFMAN
QUALITY ENGINEER

Calibrated By: S.Key

APPENDIX C
WEATHER INFORMATION

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
1 December 2018	22.1	78	-
2 December 2018	22.4	83	-
3 December 2018	23.7	79	-
4 December 2018	24.8	78	-
5 December 2018	23.6	82	Trace
6 December 2018	23.3	84	0.10
7 December 2018	21.1	88	1.00
8 December 2018	18	76	-
9 December 2018	17	75	Trace
10 December 2018	17	75	0.20
11 December 2018	18	68	Trace
12 December 2018	14.9	67	-
13 December 2018	15.6	68	-
14 December 2018	16.8	72	-
15 December 2018	18.9	75	-
16 December 2018	19.3	74	Trace
17 December 2018	18	56	-
18 December 2018	18.1	60	-
19 December 2018	19.9	78	-

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 December 2018	21.6	84	-
21 December 2018	22.4	86	-
22 December 2018	22.2	77	-
23 December 2018	20.1	89	10.50
24 December 2018	18	86	0.10
25 December 2018	19.7	81	-
26 December 2018	20.9	84	-
27 December 2018	20.6	79	Trace
28 December 2018	18.1	70	Trace
29 December 2018	14	68	Trace
30 December 2018	12.6	67	Trace
31 December 2018	13.2	68	-

* The above information was extracted from the daily weather summary by Hong Kong Observatory.

** Trace means rainfall less than 0.05 mm

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1 Dec 2018	00:00	3.5	W
1 Dec 2018	01:00	2.9	SSW
1 Dec 2018	02:00	2.6	SSW
1 Dec 2018	03:00	2.9	SSW
1 Dec 2018	04:00	1.7	SW
1 Dec 2018	05:00	1.7	SW
1 Dec 2018	06:00	1.4	W
1 Dec 2018	07:00	1.7	W
1 Dec 2018	08:00	1.3	NNE
1 Dec 2018	09:00	1	NNE
1 Dec 2018	10:00	2.2	WNW
1 Dec 2018	11:00	2.9	S
1 Dec 2018	12:00	3.9	NNE
1 Dec 2018	13:00	4.3	N
1 Dec 2018	14:00	4.3	WSW
1 Dec 2018	15:00	3.7	SW
1 Dec 2018	16:00	3.4	WSW
1 Dec 2018	17:00	3.1	SW
1 Dec 2018	18:00	3.1	W
1 Dec 2018	19:00	2.8	W
1 Dec 2018	20:00	2	W
1 Dec 2018	21:00	2.6	WSW
1 Dec 2018	22:00	1.9	W
1 Dec 2018	23:00	1.9	W
2 Dec 2018	00:00	2.5	N
2 Dec 2018	01:00	2.3	WNW
2 Dec 2018	02:00	2.6	WNW
2 Dec 2018	03:00	2.9	SW
2 Dec 2018	04:00	3.5	W
2 Dec 2018	05:00	2.9	NNE
2 Dec 2018	06:00	2.8	NNE
2 Dec 2018	07:00	2.9	SSE
2 Dec 2018	08:00	2.9	SSE
2 Dec 2018	09:00	2.2	SSW
2 Dec 2018	10:00	1.9	WNW
2 Dec 2018	11:00	2	WNW
2 Dec 2018	12:00	1.1	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
2 Dec 2018	13:00	1.1	SSE
2 Dec 2018	14:00	1	SSE
2 Dec 2018	15:00	0.7	WNW
2 Dec 2018	16:00	0.4	WNW
2 Dec 2018	17:00	0.4	NE
2 Dec 2018	18:00	0.4	ENE
2 Dec 2018	19:00	0.5	W
2 Dec 2018	20:00	0.5	WSW
2 Dec 2018	21:00	0.4	WSW
2 Dec 2018	22:00	0.5	SSW
2 Dec 2018	23:00	0.5	WSW
3 Dec 2018	00:00	0.4	WSW
3 Dec 2018	01:00	0.4	W
3 Dec 2018	02:00	1.4	W
3 Dec 2018	03:00	1.6	WSW
3 Dec 2018	04:00	2.8	SW
3 Dec 2018	05:00	2.9	WSW
3 Dec 2018	06:00	1.7	SSW
3 Dec 2018	07:00	2	SSW
3 Dec 2018	08:00	2.3	N
3 Dec 2018	09:00	2.2	WNW
3 Dec 2018	10:00	2.3	WNW
3 Dec 2018	11:00	2.8	SW
3 Dec 2018	12:00	2.9	WNW
3 Dec 2018	13:00	2.3	WNW
3 Dec 2018	14:00	2.6	NNE
3 Dec 2018	15:00	2.6	NNE
3 Dec 2018	16:00	2.8	NNE
3 Dec 2018	17:00	2.6	SE
3 Dec 2018	18:00	2.3	W
3 Dec 2018	19:00	2.5	N
3 Dec 2018	20:00	2.6	N
3 Dec 2018	21:00	1.6	E
3 Dec 2018	22:00	1.6	ENE
3 Dec 2018	23:00	1.6	N
4 Dec 2018	00:00	1.4	ENE
4 Dec 2018	01:00	1.6	ESE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
4 Dec 2018	02:00	1.7	W
4 Dec 2018	03:00	1.6	WNW
4 Dec 2018	04:00	1.6	W
4 Dec 2018	05:00	1.6	SW
4 Dec 2018	06:00	1.6	WNW
4 Dec 2018	07:00	1.3	WNW
4 Dec 2018	08:00	1.1	WSW
4 Dec 2018	09:00	1.4	WNW
4 Dec 2018	10:00	1.4	WSW
4 Dec 2018	11:00	1.1	ENE
4 Dec 2018	12:00	2.3	NE
4 Dec 2018	13:00	2.8	ENE
4 Dec 2018	14:00	3.1	E
4 Dec 2018	15:00	2.8	ENE
4 Dec 2018	16:00	2.8	W
4 Dec 2018	17:00	2.8	W
4 Dec 2018	18:00	2.6	W
4 Dec 2018	19:00	2.5	SSW
4 Dec 2018	20:00	2.5	W
4 Dec 2018	21:00	1.6	WNW
4 Dec 2018	22:00	1.1	WSW
4 Dec 2018	23:00	1.9	N
5 Dec 2018	00:00	2.9	N
5 Dec 2018	01:00	2.8	N
5 Dec 2018	02:00	3.2	ESE
5 Dec 2018	03:00	3.5	ENE
5 Dec 2018	04:00	2.8	ENE
5 Dec 2018	05:00	2.6	N
5 Dec 2018	06:00	2.9	ENE
5 Dec 2018	07:00	2.8	ENE
5 Dec 2018	08:00	2	ESE
5 Dec 2018	09:00	1.6	ESE
5 Dec 2018	10:00	1.9	ENE
5 Dec 2018	11:00	1.7	NE
5 Dec 2018	12:00	1.6	NE
5 Dec 2018	13:00	1.6	NE
5 Dec 2018	14:00	1.7	SW

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
5 Dec 2018	15:00	1.6	SW
5 Dec 2018	16:00	1	WSW
5 Dec 2018	17:00	1	WSW
5 Dec 2018	18:00	1	W
5 Dec 2018	19:00	0.5	W
5 Dec 2018	20:00	0.2	SW
5 Dec 2018	21:00	0.7	ENE
5 Dec 2018	22:00	0.8	W
5 Dec 2018	23:00	1	W
6 Dec 2018	00:00	0.2	W
6 Dec 2018	01:00	0.4	NE
6 Dec 2018	02:00	0.5	NE
6 Dec 2018	03:00	0.8	NE
6 Dec 2018	04:00	1	NE
6 Dec 2018	05:00	1.3	ENE
6 Dec 2018	06:00	2.8	W
6 Dec 2018	07:00	2.2	ENE
6 Dec 2018	08:00	2.2	ENE
6 Dec 2018	09:00	2.5	ESE
6 Dec 2018	10:00	2.2	ESE
6 Dec 2018	11:00	1.7	ENE
6 Dec 2018	12:00	1.6	NE
6 Dec 2018	13:00	0.7	NE
6 Dec 2018	14:00	0.7	NE
6 Dec 2018	15:00	0.7	NNE
6 Dec 2018	16:00	0.5	NNE
6 Dec 2018	17:00	0.5	NE
6 Dec 2018	18:00	0.4	NE
6 Dec 2018	19:00	0.5	NE
6 Dec 2018	20:00	0.5	NE
6 Dec 2018	21:00	1	SW
6 Dec 2018	22:00	1	N
6 Dec 2018	23:00	1.3	N
7 Dec 2018	00:00	1.4	N
7 Dec 2018	01:00	2	N
7 Dec 2018	02:00	2.5	W
7 Dec 2018	03:00	2.2	N

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
7 Dec 2018	04:00	2.9	W
7 Dec 2018	05:00	3.1	W
7 Dec 2018	06:00	2.3	SW
7 Dec 2018	07:00	1.9	SW
7 Dec 2018	08:00	2.2	N
7 Dec 2018	09:00	1.9	N
7 Dec 2018	10:00	1.9	N
7 Dec 2018	11:00	2	N
7 Dec 2018	12:00	2	NE
7 Dec 2018	13:00	1.4	NNE
7 Dec 2018	14:00	1.4	W
7 Dec 2018	15:00	1.4	W
7 Dec 2018	16:00	1	W
7 Dec 2018	17:00	1.3	W
7 Dec 2018	18:00	1.7	W
7 Dec 2018	19:00	2.6	W
7 Dec 2018	20:00	3.2	WNW
7 Dec 2018	21:00	2.8	WNW
7 Dec 2018	22:00	2.5	WNW
7 Dec 2018	23:00	2.5	WSW
8 Dec 2018	00:00	2.6	WNW
8 Dec 2018	01:00	2	WNW
8 Dec 2018	02:00	1.6	W
8 Dec 2018	03:00	1.1	WNW
8 Dec 2018	04:00	1.6	WNW
8 Dec 2018	05:00	0.8	WNW
8 Dec 2018	06:00	0.7	W
8 Dec 2018	07:00	1.1	W
8 Dec 2018	08:00	1.1	W
8 Dec 2018	09:00	2.2	WSW
8 Dec 2018	10:00	2.2	W
8 Dec 2018	11:00	2.5	WSW
8 Dec 2018	12:00	3.1	W
8 Dec 2018	13:00	3.1	W
8 Dec 2018	14:00	3.2	WSW
8 Dec 2018	15:00	2.5	SW
8 Dec 2018	16:00	2.6	WSW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
8 Dec 2018	17:00	0.7	W
8 Dec 2018	18:00	0.7	W
8 Dec 2018	19:00	0.5	WNW
8 Dec 2018	20:00	0.5	WSW
8 Dec 2018	21:00	0.8	SW
8 Dec 2018	22:00	0.5	SSW
8 Dec 2018	23:00	0.7	W
9 Dec 2018	00:00	0.2	W
9 Dec 2018	01:00	0.5	WNW
9 Dec 2018	02:00	1	W
9 Dec 2018	03:00	1	SW
9 Dec 2018	04:00	1.1	SSW
9 Dec 2018	05:00	0.7	SW
9 Dec 2018	06:00	1.4	SW
9 Dec 2018	07:00	1.3	SW
9 Dec 2018	08:00	1.3	WSW
9 Dec 2018	09:00	1.1	SSW
9 Dec 2018	10:00	1	WSW
9 Dec 2018	11:00	0.8	SW
9 Dec 2018	12:00	1.3	SSW
9 Dec 2018	13:00	1.6	SW
9 Dec 2018	14:00	1.9	SW
9 Dec 2018	15:00	1.6	WSW
9 Dec 2018	16:00	1.9	W
9 Dec 2018	17:00	2	WNW
9 Dec 2018	18:00	2.3	W
9 Dec 2018	19:00	2.3	WNW
9 Dec 2018	20:00	2.6	W
9 Dec 2018	21:00	0.2	W
9 Dec 2018	22:00	1	W
9 Dec 2018	23:00	1.3	W
10 Dec 2018	00:00	1.4	W
10 Dec 2018	01:00	2	W
10 Dec 2018	02:00	2.5	W
10 Dec 2018	03:00	2.2	W
10 Dec 2018	04:00	2.9	WSW
10 Dec 2018	05:00	3.1	SSW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
10 Dec 2018	06:00	2.3	WSW
10 Dec 2018	07:00	1.9	W
10 Dec 2018	08:00	2.2	WNW
10 Dec 2018	09:00	1.9	W
10 Dec 2018	10:00	2	SW
10 Dec 2018	11:00	2.2	SW
10 Dec 2018	12:00	1.7	SW
10 Dec 2018	13:00	1.6	WSW
10 Dec 2018	14:00	0.7	W
10 Dec 2018	15:00	0.7	W
10 Dec 2018	16:00	0.7	SW
10 Dec 2018	17:00	0.5	W
10 Dec 2018	18:00	0.5	SW
10 Dec 2018	19:00	0.4	W
10 Dec 2018	20:00	0.5	WSW
10 Dec 2018	21:00	0.5	SW
10 Dec 2018	22:00	1	SW
10 Dec 2018	23:00	0.5	WSW
11 Dec 2018	00:00	2.9	SW
11 Dec 2018	01:00	2.8	WSW
11 Dec 2018	02:00	3.1	SW
11 Dec 2018	03:00	3.4	SW
11 Dec 2018	04:00	3.1	WSW
11 Dec 2018	05:00	3.1	SSW
11 Dec 2018	06:00	2.8	SSW
11 Dec 2018	07:00	1.6	SSW
11 Dec 2018	08:00	1.3	SW
11 Dec 2018	09:00	0.8	SW
11 Dec 2018	10:00	0.8	N
11 Dec 2018	11:00	1	N
11 Dec 2018	12:00	1.7	N
11 Dec 2018	13:00	1.7	N
11 Dec 2018	14:00	0.8	W
11 Dec 2018	15:00	0.7	N
11 Dec 2018	16:00	0.7	W
11 Dec 2018	17:00	0.7	W
11 Dec 2018	18:00	0.7	W

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
11 Dec 2018	19:00	0.7	W
11 Dec 2018	20:00	0.7	W
11 Dec 2018	21:00	0.5	SW
11 Dec 2018	22:00	0.5	W
11 Dec 2018	23:00	0.5	W
12 Dec 2018	00:00	1.6	WNW
12 Dec 2018	01:00	2.3	W
12 Dec 2018	02:00	2.2	W
12 Dec 2018	03:00	2	WSW
12 Dec 2018	04:00	2.2	WSW
12 Dec 2018	05:00	2.6	W
12 Dec 2018	06:00	2.9	WSW
12 Dec 2018	07:00	1.3	WSW
12 Dec 2018	08:00	1.3	ENE
12 Dec 2018	09:00	1.4	ENE
12 Dec 2018	10:00	1.9	E
12 Dec 2018	11:00	1.6	ENE
12 Dec 2018	12:00	2.6	ENE
12 Dec 2018	13:00	2.6	ENE
12 Dec 2018	14:00	2.5	NNE
12 Dec 2018	15:00	2.3	NNE
12 Dec 2018	16:00	2.3	NNE
12 Dec 2018	17:00	2	NE
12 Dec 2018	18:00	2	NE
12 Dec 2018	19:00	1.6	ENE
12 Dec 2018	20:00	1.3	NE
12 Dec 2018	21:00	1.3	NE
12 Dec 2018	22:00	0.8	W
12 Dec 2018	23:00	2.5	W
13 Dec 2018	00:00	1.6	ENE
13 Dec 2018	01:00	1.7	ENE
13 Dec 2018	02:00	1.9	ENE
13 Dec 2018	03:00	1.7	ENE
13 Dec 2018	04:00	1.4	ENE
13 Dec 2018	05:00	1.6	ENE
13 Dec 2018	06:00	1.1	ENE
13 Dec 2018	07:00	1.4	N

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
13 Dec 2018	08:00	1.1	N
13 Dec 2018	09:00	1.4	NE
13 Dec 2018	10:00	1.4	NE
13 Dec 2018	11:00	1.3	ENE
13 Dec 2018	12:00	0.8	ENE
13 Dec 2018	13:00	0.7	ENE
13 Dec 2018	14:00	1.1	ENE
13 Dec 2018	15:00	1	SSW
13 Dec 2018	16:00	0.4	W
13 Dec 2018	17:00	0.4	WSW
13 Dec 2018	18:00	0.8	WSW
13 Dec 2018	19:00	0.8	SSW
13 Dec 2018	20:00	1.6	SW
13 Dec 2018	21:00	2	SSW
13 Dec 2018	22:00	2.6	S
13 Dec 2018	23:00	2.6	SSW
14 Dec 2018	00:00	2.8	S
14 Dec 2018	01:00	2.6	NNE
14 Dec 2018	02:00	2.3	NNE
14 Dec 2018	03:00	2.5	N
14 Dec 2018	04:00	2.6	ENE
14 Dec 2018	05:00	1.6	ESE
14 Dec 2018	06:00	1.6	WSW
14 Dec 2018	07:00	1.6	WSW
14 Dec 2018	08:00	1.4	WSW
14 Dec 2018	09:00	1.6	SSW
14 Dec 2018	10:00	1.7	WSW
14 Dec 2018	11:00	1.6	WSW
14 Dec 2018	12:00	1.6	W
14 Dec 2018	13:00	1.6	W
14 Dec 2018	14:00	1.6	WSW
14 Dec 2018	15:00	2.8	SW
14 Dec 2018	16:00	2.9	WSW
14 Dec 2018	17:00	2.9	SSE
14 Dec 2018	18:00	2.2	WNW
14 Dec 2018	19:00	1.9	WNW
14 Dec 2018	20:00	2	NE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
14 Dec 2018	21:00	1.1	ENE
14 Dec 2018	22:00	1.1	W
14 Dec 2018	23:00	1	WNW
15 Dec 2018	00:00	0.7	WNW
15 Dec 2018	01:00	0.4	W
15 Dec 2018	02:00	0.4	W
15 Dec 2018	03:00	0.4	WSW
15 Dec 2018	04:00	0.5	WSW
15 Dec 2018	05:00	0.5	WSW
15 Dec 2018	06:00	0.4	W
15 Dec 2018	07:00	0.5	W
15 Dec 2018	08:00	0.5	WNW
15 Dec 2018	09:00	2	W
15 Dec 2018	10:00	2.3	S
15 Dec 2018	11:00	2.2	SSE
15 Dec 2018	12:00	2.3	SSE
15 Dec 2018	13:00	2.8	WNW
15 Dec 2018	14:00	2.9	WNW
15 Dec 2018	15:00	2.3	NE
15 Dec 2018	16:00	2.6	ENE
15 Dec 2018	17:00	2.2	W
15 Dec 2018	18:00	2	WNW
15 Dec 2018	19:00	2	WNW
15 Dec 2018	20:00	1.9	W
15 Dec 2018	21:00	2	W
15 Dec 2018	22:00	1.7	WSW
15 Dec 2018	23:00	1.4	WSW
16 Dec 2018	00:00	1.7	WNW
16 Dec 2018	01:00	1.7	W
16 Dec 2018	02:00	2.3	W
16 Dec 2018	03:00	3.1	WSW
16 Dec 2018	04:00	3.1	WSW
16 Dec 2018	05:00	2.8	WSW
16 Dec 2018	06:00	3.2	W
16 Dec 2018	07:00	3.7	W
16 Dec 2018	08:00	2.9	WNW
16 Dec 2018	09:00	1.7	W

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
16 Dec 2018	10:00	2	W
16 Dec 2018	11:00	2.3	W
16 Dec 2018	12:00	2.2	W
16 Dec 2018	13:00	2.3	WNW
16 Dec 2018	14:00	2.8	WNW
16 Dec 2018	15:00	2.9	W
16 Dec 2018	16:00	2.3	WSW
16 Dec 2018	17:00	2.6	SSW
16 Dec 2018	18:00	2.2	WSW
16 Dec 2018	19:00	2	SW
16 Dec 2018	20:00	2	SSW
16 Dec 2018	21:00	1.9	SW
16 Dec 2018	22:00	2	W
16 Dec 2018	23:00	1.7	W
17 Dec 2018	00:00	1.4	WNW
17 Dec 2018	01:00	1.7	WNW
17 Dec 2018	02:00	1.7	W
17 Dec 2018	03:00	2.3	W
17 Dec 2018	04:00	3.1	W
17 Dec 2018	05:00	3.1	SW
17 Dec 2018	06:00	2.8	WSW
17 Dec 2018	07:00	2.6	W
17 Dec 2018	08:00	2.5	WSW
17 Dec 2018	09:00	2.3	WNW
17 Dec 2018	10:00	1.9	WNW
17 Dec 2018	11:00	1.7	W
17 Dec 2018	12:00	2	WSW
17 Dec 2018	13:00	2.3	W
17 Dec 2018	14:00	1.9	WSW
17 Dec 2018	15:00	1.7	E
17 Dec 2018	16:00	1.6	E
17 Dec 2018	17:00	1.9	E
17 Dec 2018	18:00	2	W
17 Dec 2018	19:00	1.6	WNW
17 Dec 2018	20:00	2.5	S
17 Dec 2018	21:00	2.2	NNE
17 Dec 2018	22:00	1.1	N

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
17 Dec 2018	23:00	1.1	WSW
18 Dec 2018	00:00	1.7	SW
18 Dec 2018	01:00	2.6	WSW
18 Dec 2018	02:00	1.7	SW
18 Dec 2018	03:00	2.3	W
18 Dec 2018	04:00	3.2	W
18 Dec 2018	05:00	3.2	ENE
18 Dec 2018	06:00	3.1	NE
18 Dec 2018	07:00	4.6	SW
18 Dec 2018	08:00	4.3	SW
18 Dec 2018	09:00	4.3	SW
18 Dec 2018	10:00	3.7	WSW
18 Dec 2018	11:00	4.1	WSW
18 Dec 2018	12:00	4.3	WSW
18 Dec 2018	13:00	0.8	SW
18 Dec 2018	14:00	1.1	WSW
18 Dec 2018	15:00	1.3	WSW
18 Dec 2018	16:00	1.3	WSW
18 Dec 2018	17:00	1.1	SW
18 Dec 2018	18:00	1.3	SW
18 Dec 2018	19:00	1.9	SW
18 Dec 2018	20:00	2.8	SW
18 Dec 2018	21:00	2.6	SW
18 Dec 2018	22:00	2.5	SW
18 Dec 2018	23:00	2.3	SW
19 Dec 2018	00:00	1.9	W
19 Dec 2018	01:00	1.7	S
19 Dec 2018	02:00	2	S
19 Dec 2018	03:00	2.6	NNE
19 Dec 2018	04:00	2.9	NNE
19 Dec 2018	05:00	1.7	W
19 Dec 2018	06:00	1.7	W
19 Dec 2018	07:00	1.4	W
19 Dec 2018	08:00	1.7	ENE
19 Dec 2018	09:00	1.3	ENE
19 Dec 2018	10:00	1	W
19 Dec 2018	11:00	0.8	N

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
19 Dec 2018	12:00	1	ENE
19 Dec 2018	13:00	1	E
19 Dec 2018	14:00	0.8	E
19 Dec 2018	15:00	0.4	E
19 Dec 2018	16:00	0.4	W
19 Dec 2018	17:00	0.5	WNW
19 Dec 2018	18:00	0.5	S
19 Dec 2018	19:00	0.4	NNE
19 Dec 2018	20:00	0.8	N
19 Dec 2018	21:00	1.4	W
19 Dec 2018	22:00	1.7	W
19 Dec 2018	23:00	1.9	W
20 Dec 2018	00:00	1.9	ENE
20 Dec 2018	01:00	2.2	ENE
20 Dec 2018	02:00	2.3	WNW
20 Dec 2018	03:00	2.9	W
20 Dec 2018	04:00	3.9	N
20 Dec 2018	05:00	4.3	ENE
20 Dec 2018	06:00	4.3	E
20 Dec 2018	07:00	3.7	E
20 Dec 2018	08:00	3.4	E
20 Dec 2018	09:00	3.1	W
20 Dec 2018	10:00	3.1	WNW
20 Dec 2018	11:00	2.8	S
20 Dec 2018	12:00	2	NNE
20 Dec 2018	13:00	2.6	N
20 Dec 2018	14:00	1.9	WSW
20 Dec 2018	15:00	1.9	SSW
20 Dec 2018	16:00	1.7	S
20 Dec 2018	17:00	1.7	SSW
20 Dec 2018	18:00	2	S
20 Dec 2018	19:00	1.7	NNE
20 Dec 2018	20:00	1.7	NNE
20 Dec 2018	21:00	0.2	N
20 Dec 2018	22:00	1.4	ENE
20 Dec 2018	23:00	2	ESE
21 Dec 2018	00:00	2.3	W

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
21 Dec 2018	01:00	2.5	WNW
21 Dec 2018	02:00	1.6	W
21 Dec 2018	03:00	1.7	WNW
21 Dec 2018	04:00	1.9	W
21 Dec 2018	05:00	1.7	WNW
21 Dec 2018	06:00	1.4	WNW
21 Dec 2018	07:00	1.6	NNE
21 Dec 2018	08:00	1.7	NNE
21 Dec 2018	09:00	1.9	NNE
21 Dec 2018	10:00	1.7	SE
21 Dec 2018	11:00	1.4	W
21 Dec 2018	12:00	1.6	N
21 Dec 2018	13:00	1.1	N
21 Dec 2018	14:00	1.4	E
21 Dec 2018	15:00	1.1	ENE
21 Dec 2018	16:00	1.4	SSW
21 Dec 2018	17:00	1.4	SSW
21 Dec 2018	18:00	1.3	S
21 Dec 2018	19:00	2.8	SSW
21 Dec 2018	20:00	2.6	S
21 Dec 2018	21:00	2.5	NNE
21 Dec 2018	22:00	2.5	NNE
21 Dec 2018	23:00	2.5	N
22 Dec 2018	00:00	2	ENE
22 Dec 2018	01:00	1.7	ESE
22 Dec 2018	02:00	1.1	W
22 Dec 2018	03:00	1.6	WNW
22 Dec 2018	04:00	2.2	W
22 Dec 2018	05:00	2.2	SW
22 Dec 2018	06:00	2	W
22 Dec 2018	07:00	1.9	WSW
22 Dec 2018	08:00	0.5	W
22 Dec 2018	09:00	0.2	W
22 Dec 2018	10:00	0.2	W
22 Dec 2018	11:00	0.4	SSW
22 Dec 2018	12:00	0.4	W
22 Dec 2018	13:00	0.5	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
22 Dec 2018	14:00	1.4	WSW
22 Dec 2018	15:00	1.1	WNW
22 Dec 2018	16:00	1.3	W
22 Dec 2018	17:00	1.3	W
22 Dec 2018	18:00	1.3	W
22 Dec 2018	19:00	1.6	W
22 Dec 2018	20:00	2.9	N
22 Dec 2018	21:00	2.8	NNE
22 Dec 2018	22:00	3.2	SSW
22 Dec 2018	23:00	3.5	NNE
23 Dec 2018	00:00	2.8	NE
23 Dec 2018	01:00	2.6	NW
23 Dec 2018	02:00	2.9	N
23 Dec 2018	03:00	2.8	ENE
23 Dec 2018	04:00	2	ENE
23 Dec 2018	05:00	1.6	ENE
23 Dec 2018	06:00	1.9	W
23 Dec 2018	07:00	1.7	W
23 Dec 2018	08:00	1.6	W
23 Dec 2018	09:00	2.6	SW
23 Dec 2018	10:00	2.9	W
23 Dec 2018	11:00	2.8	W
23 Dec 2018	12:00	2	WNW
23 Dec 2018	13:00	1.6	W
23 Dec 2018	14:00	1.9	W
23 Dec 2018	15:00	1.7	WSW
23 Dec 2018	16:00	1.6	WSW
23 Dec 2018	17:00	1.6	W
23 Dec 2018	18:00	1.7	WSW
23 Dec 2018	19:00	1.6	ENE
23 Dec 2018	20:00	1	ENE
23 Dec 2018	21:00	1	E
23 Dec 2018	22:00	0.2	E
23 Dec 2018	23:00	0.4	E
24 Dec 2018	00:00	0.5	E
24 Dec 2018	01:00	0.8	ENE
24 Dec 2018	02:00	1	ENE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
24 Dec 2018	03:00	1.3	N
24 Dec 2018	04:00	2.8	ENE
24 Dec 2018	05:00	2.2	N
24 Dec 2018	06:00	2.2	W
24 Dec 2018	07:00	2.5	WSW
24 Dec 2018	08:00	2	W
24 Dec 2018	09:00	1.1	WSW
24 Dec 2018	10:00	1	SW
24 Dec 2018	11:00	1.1	SW
24 Dec 2018	12:00	0.8	WSW
24 Dec 2018	13:00	0.8	WSW
24 Dec 2018	14:00	0.7	W
24 Dec 2018	15:00	0.7	W
24 Dec 2018	16:00	0.7	NNE
24 Dec 2018	17:00	0.7	ENE
24 Dec 2018	18:00	0.7	N
24 Dec 2018	19:00	0.7	N
24 Dec 2018	20:00	1	N
24 Dec 2018	21:00	1.7	ESE
24 Dec 2018	22:00	1.7	ENE
24 Dec 2018	23:00	1.4	ENE
25 Dec 2018	00:00	1.7	N
25 Dec 2018	01:00	2.2	ENE
25 Dec 2018	02:00	2.2	ENE
25 Dec 2018	03:00	1.7	ESE
25 Dec 2018	04:00	1.3	NE
25 Dec 2018	05:00	1.4	NE
25 Dec 2018	06:00	1.9	NNE
25 Dec 2018	07:00	2.2	NNE
25 Dec 2018	08:00	2.2	NE
25 Dec 2018	09:00	1	NE
25 Dec 2018	10:00	1.7	NE
25 Dec 2018	11:00	1.7	NE
25 Dec 2018	12:00	1.4	ENE
25 Dec 2018	13:00	0.5	NE
25 Dec 2018	14:00	0.5	ENE
25 Dec 2018	15:00	0.5	NE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
25 Dec 2018	16:00	1.6	ESE
25 Dec 2018	17:00	2.3	ESE
25 Dec 2018	18:00	2.2	ENE
25 Dec 2018	19:00	2	NE
25 Dec 2018	20:00	2.2	NE
25 Dec 2018	21:00	2.2	W
25 Dec 2018	22:00	2.6	W
25 Dec 2018	23:00	3.5	WNW
26 Dec 2018	00:00	2.6	W
26 Dec 2018	01:00	2.6	W
26 Dec 2018	02:00	2.6	WSW
26 Dec 2018	03:00	2.5	NE
26 Dec 2018	04:00	2.3	ENE
26 Dec 2018	05:00	2.3	NE
26 Dec 2018	06:00	2	N
26 Dec 2018	07:00	2	ENE
26 Dec 2018	08:00	1.6	N
26 Dec 2018	09:00	1.3	ENE
26 Dec 2018	10:00	1.3	ENE
26 Dec 2018	11:00	0.8	W
26 Dec 2018	12:00	1.3	WNW
26 Dec 2018	13:00	1.3	WSW
26 Dec 2018	14:00	1.3	WNW
26 Dec 2018	15:00	3.2	W
26 Dec 2018	16:00	3.1	W
26 Dec 2018	17:00	4.6	N
26 Dec 2018	18:00	4.3	NNE
26 Dec 2018	19:00	4.3	SSW
26 Dec 2018	20:00	3.7	NNE
26 Dec 2018	21:00	4.1	NE
26 Dec 2018	22:00	4.3	NW
26 Dec 2018	23:00	3.2	WSW
27 Dec 2018	00:00	3.4	W
27 Dec 2018	01:00	3.4	W
27 Dec 2018	02:00	3.5	WNW
27 Dec 2018	03:00	3.2	W
27 Dec 2018	04:00	2.8	W

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
27 Dec 2018	05:00	2.5	W
27 Dec 2018	06:00	3.5	W
27 Dec 2018	07:00	2.8	W
27 Dec 2018	08:00	3.2	W
27 Dec 2018	09:00	3.2	WSW
27 Dec 2018	10:00	3.5	SW
27 Dec 2018	11:00	4.1	WSW
27 Dec 2018	12:00	3.7	S
27 Dec 2018	13:00	3.2	SSE
27 Dec 2018	14:00	2.8	SSE
27 Dec 2018	15:00	2.9	WNW
27 Dec 2018	16:00	2.8	WNW
27 Dec 2018	17:00	3.1	NE
27 Dec 2018	18:00	2	ENE
27 Dec 2018	19:00	2	WSW
27 Dec 2018	20:00	2.2	WSW
27 Dec 2018	21:00	2	W
27 Dec 2018	22:00	2.2	W
27 Dec 2018	23:00	2.6	WNW
28 Dec 2018	00:00	2.3	W
28 Dec 2018	01:00	2.5	W
28 Dec 2018	02:00	2.8	W
28 Dec 2018	03:00	2.5	W
28 Dec 2018	04:00	3.5	W
28 Dec 2018	05:00	2.8	SSW
28 Dec 2018	06:00	3.2	WSW
28 Dec 2018	07:00	3.2	WSW
28 Dec 2018	08:00	3.5	W
28 Dec 2018	09:00	4.1	W
28 Dec 2018	10:00	4.3	WSW
28 Dec 2018	11:00	3.2	SW
28 Dec 2018	12:00	2.5	WSW
28 Dec 2018	13:00	2.2	SSW
28 Dec 2018	14:00	2.5	WNW
28 Dec 2018	15:00	2.5	W
28 Dec 2018	16:00	2	WNW
28 Dec 2018	17:00	2.2	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
28 Dec 2018	18:00	2.8	NNE
28 Dec 2018	19:00	2.9	NNE
28 Dec 2018	20:00	1.7	NNE
28 Dec 2018	21:00	2	SE
28 Dec 2018	22:00	2.3	W
28 Dec 2018	23:00	2.2	WSW
29 Dec 2018	00:00	2.3	WSW
29 Dec 2018	01:00	2.8	SSW
29 Dec 2018	02:00	2.9	SW
29 Dec 2018	03:00	2.3	SSW
29 Dec 2018	04:00	2.6	S
29 Dec 2018	05:00	2.2	SSW
29 Dec 2018	06:00	2	S
29 Dec 2018	07:00	2	SSW
29 Dec 2018	08:00	1.9	S
29 Dec 2018	09:00	2	NNE
29 Dec 2018	10:00	1.7	NNE
29 Dec 2018	11:00	1.4	N
29 Dec 2018	12:00	1.7	ENE
29 Dec 2018	13:00	1.7	ESE
29 Dec 2018	14:00	2.3	W
29 Dec 2018	15:00	2.2	W
29 Dec 2018	16:00	2	WSW
29 Dec 2018	17:00	2	WSW
29 Dec 2018	18:00	1.9	SSW
29 Dec 2018	19:00	2	SW
29 Dec 2018	20:00	1.7	WNW
29 Dec 2018	21:00	1.4	W
29 Dec 2018	22:00	1.7	WNW
29 Dec 2018	23:00	1.7	WNW
30 Dec 2018	00:00	2.3	NNE
30 Dec 2018	01:00	3.1	NNE
30 Dec 2018	02:00	3.1	N
30 Dec 2018	03:00	2.8	N
30 Dec 2018	04:00	3.2	NE
30 Dec 2018	05:00	3.7	NE
30 Dec 2018	06:00	1.9	ENE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
30 Dec 2018	07:00	1.6	ENE
30 Dec 2018	08:00	2.6	SE
30 Dec 2018	09:00	2.6	W
30 Dec 2018	10:00	2.5	N
30 Dec 2018	11:00	2.3	N
30 Dec 2018	12:00	2.3	E
30 Dec 2018	13:00	2	ENE
30 Dec 2018	14:00	2	ENE
30 Dec 2018	15:00	1.6	ENE
30 Dec 2018	16:00	1.3	ENE
30 Dec 2018	17:00	1.3	ENE
30 Dec 2018	18:00	0.8	W
30 Dec 2018	19:00	1.3	W
30 Dec 2018	20:00	1.3	W
30 Dec 2018	21:00	1.3	SSW
30 Dec 2018	22:00	1.3	W
30 Dec 2018	23:00	1.3	WNW
31 Dec 2018	00:00	1.4	WSW
31 Dec 2018	01:00	1.9	WNW
31 Dec 2018	02:00	1.6	W
31 Dec 2018	03:00	2.6	W
31 Dec 2018	04:00	2.6	N
31 Dec 2018	05:00	2.5	E
31 Dec 2018	06:00	2.3	ENE
31 Dec 2018	07:00	2.3	E
31 Dec 2018	08:00	2	ENE
31 Dec 2018	09:00	2	ENE
31 Dec 2018	10:00	0.5	E
31 Dec 2018	11:00	0.2	ENE
31 Dec 2018	12:00	0.2	ENE
31 Dec 2018	13:00	0.4	ENE
31 Dec 2018	14:00	0.4	E
31 Dec 2018	15:00	0.5	ENE
31 Dec 2018	16:00	1.4	ENE
31 Dec 2018	17:00	1.1	ENE
31 Dec 2018	18:00	1.6	NNE
31 Dec 2018	19:00	1.1	NNE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
31 Dec 2018	20:00	1.9	NNE
31 Dec 2018	21:00	2.9	NE
31 Dec 2018	22:00	2.8	NE
31 Dec 2018	23:00	3.2	ENE

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Air Quality and Noise Monitoring Schedule (December 2018)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Dec
2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec
Noise [Daytime (07:00-19:00)] [CM1, CM2, CM3, CM4]	**1 hr TSP X3** [AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM6(A), CM7(A), CM8(A)]	24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3, AM4] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM4]	**Noise [Daytime (07:00-19:00)]** [CM3, CM5]	**1 hr TSP X3** [AM5(A), AM6(A)] **Noise [Evening time (19:00-23:00)]** [CM1, CM2, CM3, CM4] **Noise [Night-time (23:00-07:00)]** [CM1, CM2, CM3, CM4]	
9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec
Noise [Daytime (07:00-19:00)] [CM1, CM2, CM3, CM4]	**Noise [Daytime (07:00-19:00)]** [CM6(A), CM7(A), CM8(A)] 24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3, AM4] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM4] [CM3, CM5]		**1 hr TSP X3** [AM5(A), AM6(A)]	**Noise [Evening time (19:00-23:00)]** [CM1, CM2, CM3, CM4] **Noise [Night-time (23:00-07:00)]** [CM1, CM2, CM3, CM4] 24 hr TSP	
16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec
Noise [Daytime (07:00-19:00)] [CM1, CM2, CM3, CM4]	**1 hr TSP X3** [AM1, AM2, AM3, AM4]	**Noise [Daytime (07:00-19:00)]** [CM3, CM5]	**1 hr TSP X3** [AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM6(A), CM7(A), CM8(A)]	24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3, AM4] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM4] **Noise [Evening time (19:00-23:00)]** [CM1, CM2, CM3, CM4] **Noise [Night-time (23:00-07:00)]** [CM1, CM2, CM3, CM4]	
23-Dec	24-Dec	**25-Dec**	**26-Dec**	27-Dec	28-Dec	29-Dec
Noise [Daytime (07:00-19:00)] [CM1, CM2, CM3, CM4]	**1 hr TSP X3** [AM5(A), AM6(A)]		24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3, AM4] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM4]	**1 hr TSP X3** [AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM6(A), CM7(A), CM8(A)] [CM3, CM5] **Noise [Evening time (19:00-23:00)]** [CM1, CM2, CM3, CM4] **Noise [Night-time (23:00-07:00)]** [CM1, CM2, CM3, CM4]	
30-Dec	31-Dec					
Noise [Daytime (07:00-19:00)] [CM1, CM2, CM3, CM4]						

Air Quality Monitoring Station

AM1 - Tin Hau Temple
AM2 - Sai Tso Wan Recreation Ground
AM3 - Yau Lai Estate Bik Lai House
AM4[(1)] - Sitting-out Area at Cha Kwo Ling Village
AM4(A)[(2)] - Cha Kwo Ling Public Cargo Working Area Administrative Office
AM5(A) - Tseung Kwan O DSD Desilting Compound
AM6(A) - Park Central, L1/F Open Space Area

Noise Monitoring Station

CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong
CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong
CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong
CM4 - Tin Hau Temple, Cha Kwo Ling
CM5 - CCC Kei Faat Primary School, Yau Tong
CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores
CM7(A) - Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores
CM8(A) - Park Central, L1/F Open Space Area

Note (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Water Quality Monitoring Schedule (December 2018)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Dec
2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec
	Mid-Ebb 9:17 Mid-Flood 15:40		Mid-Ebb 11:01 Mid-Flood 16:49		Mid-Ebb 12:30 Mid-Flood 17:50	
9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec
	Mid-Flood 9:04 Mid-Ebb 14:17		Mid-Flood 10:35 Mid-Ebb 15:26			Mid-Flood 13:25 Mid-Ebb 19:06
16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec
		Mid-Ebb 8:13 Mid-Flood 15:04		Mid-Ebb 10:14 Mid-Flood 16:07		Mid-Ebb 11:49 Mid-Flood 17:21
23-Dec	24-Dec	**25-Dec**	**26-Dec**	27-Dec	28-Dec	29-Dec
	Mid-Flood 8:03 Mid-Ebb 13:23			Mid-Flood 10:41 Mid-Ebb 16:05		Mid-Flood 12:30 Mid-Ebb 18:12
30-Dec	31-Dec					
	Mid-Ebb 7:44 Mid-Flood 14:13					

Monitoring Station:
C1, C2, G1, G2, G3, G4, M1, M2, M3, M4, M5, M6

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Water Quality Monitoring Schedule in Temporary Marine Embayment (December 2018)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Dec
2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec
				Mid-Ebb 11:47 Mid-Flood 17:19		
9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec
		Mid-Flood 9:47 Mid-Ebb 14:46				
16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec
		Mid-Ebb 8:13 Mid-Flood 15:03				
23-Dec	24-Dec	**25-Dec**	**26-Dec**	27-Dec	28-Dec	29-Dec
					Mid-Flood 11:35 Mid-Ebb 17:05	
30-Dec	31-Dec					

Monitoring Station:
W1

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Groundwater Quality Monitoring Schedule (December 2018)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Dec
2-Dec	3-Dec	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec
				Groundwater Quality Monitoring		
9-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec
16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec
		Groundwater Quality Monitoring				
23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	29-Dec
30-Dec	31-Dec					

Monitoring Location:
Stream 1, Stream 2, Stream 3

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix E - 1-hour TSP Monitoring Results

Location AM1 - Tin Hau Temple			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
5-Dec-18	13:00	Cloudy	199.8
5-Dec-18	14:00	Cloudy	194.6
5-Dec-18	15:00	Cloudy	198.6
11-Dec-18	9:00	Sunny	182.5
11-Dec-18	10:00	Sunny	195.3
11-Dec-18	11:00	Sunny	164.3
17-Dec-18	9:00	Sunny	199.8
17-Dec-18	10:00	Sunny	222.7
17-Dec-18	11:00	Sunny	229.4
21-Dec-18	13:45	Fine	156.0
21-Dec-18	14:45	Fine	126.4
21-Dec-18	15:45	Fine	142.6
27-Dec-18	13:00	Sunny	43.7
27-Dec-18	14:00	Sunny	42.6
27-Dec-18	15:00	Sunny	38.0
		Average	155.8
		Maximum	229.4
		Minimum	38.0

Location AM2 - Sai Tso Wan Recreation Ground			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
5-Dec-18	13:00	Cloudy	221.0
5-Dec-18	14:00	Cloudy	227.0
5-Dec-18	15:00	Cloudy	215.1
11-Dec-18	13:00	Sunny	127.2
11-Dec-18	14:00	Sunny	112.7
11-Dec-18	15:00	Sunny	142.6
17-Dec-18	13:00	Sunny	111.5
17-Dec-18	14:00	Sunny	95.5
17-Dec-18	15:00	Sunny	96.5
21-Dec-18	8:45	Fine	151.2
21-Dec-18	9:45	Fine	208.8
21-Dec-18	10:45	Fine	175.6
27-Dec-18	9:00	Sunny	29.3
27-Dec-18	10:00	Sunny	31.5
27-Dec-18	11:00	Sunny	27.0
		Average	131.5
		Maximum	227.0
		Minimum	27.0

Appendix E - 1-hour TSP Monitoring Results

Location AM3 - Yau Lai Estate Bik Lai House			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
5-Dec-18	9:00	Cloudy	223.9
5-Dec-18	10:00	Cloudy	228.3
5-Dec-18	11:00	Cloudy	235.8
11-Dec-18	9:00	Sunny	108.1
11-Dec-18	10:00	Sunny	111.0
11-Dec-18	11:00	Sunny	103.2
17-Dec-18	9:00	Sunny	117.0
17-Dec-18	10:00	Sunny	94.9
17-Dec-18	11:00	Sunny	110.2
21-Dec-18	8:30	Fine	163.2
21-Dec-18	9:30	Fine	175.6
21-Dec-18	10:30	Fine	185.7
27-Dec-18	13:00	Sunny	48.4
27-Dec-18	14:00	Sunny	50.7
27-Dec-18	15:00	Sunny	49.5
		Average	133.7
		Maximum	235.8
		Minimum	48.4

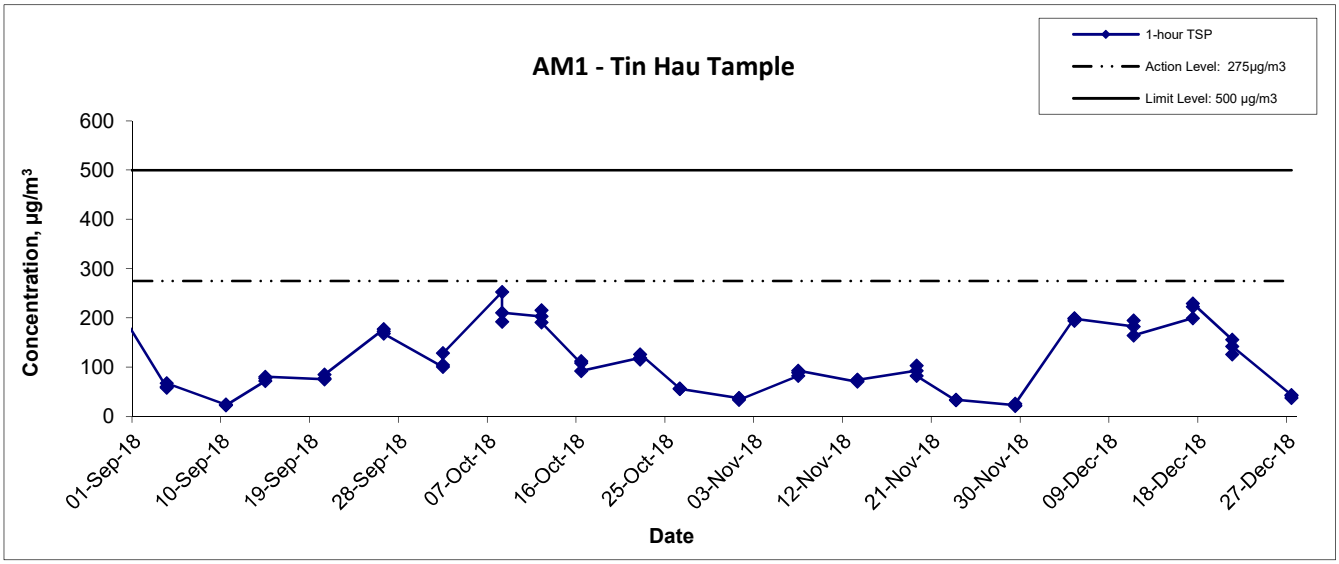
Location AM4 - Sitting-out Area at Cha Kwo Ling Village			
Date	Time	Weather	Particulate Concentration ($\mu g/m^3$)
5-Dec-18	9:00	Cloudy	224.8
5-Dec-18	10:00	Cloudy	213.7
5-Dec-18	11:00	Cloudy	205.7
11-Dec-18	13:00	Sunny	191.4
11-Dec-18	14:00	Sunny	191.1
11-Dec-18	15:00	Sunny	197.1
17-Dec-18	13:00	Sunny	192.9
17-Dec-18	14:00	Sunny	218.5
17-Dec-18	15:00	Sunny	212.8
21-Dec-18	13:15	Fine	236.9
21-Dec-18	14:15	Fine	225.9
21-Dec-18	15:15	Fine	206.5
27-Dec-18	9:00	Sunny	34.5
27-Dec-18	10:00	Sunny	35.7
27-Dec-18	11:00	Sunny	32.2
		Average	174.6
		Maximum	236.9
		Minimum	32.2

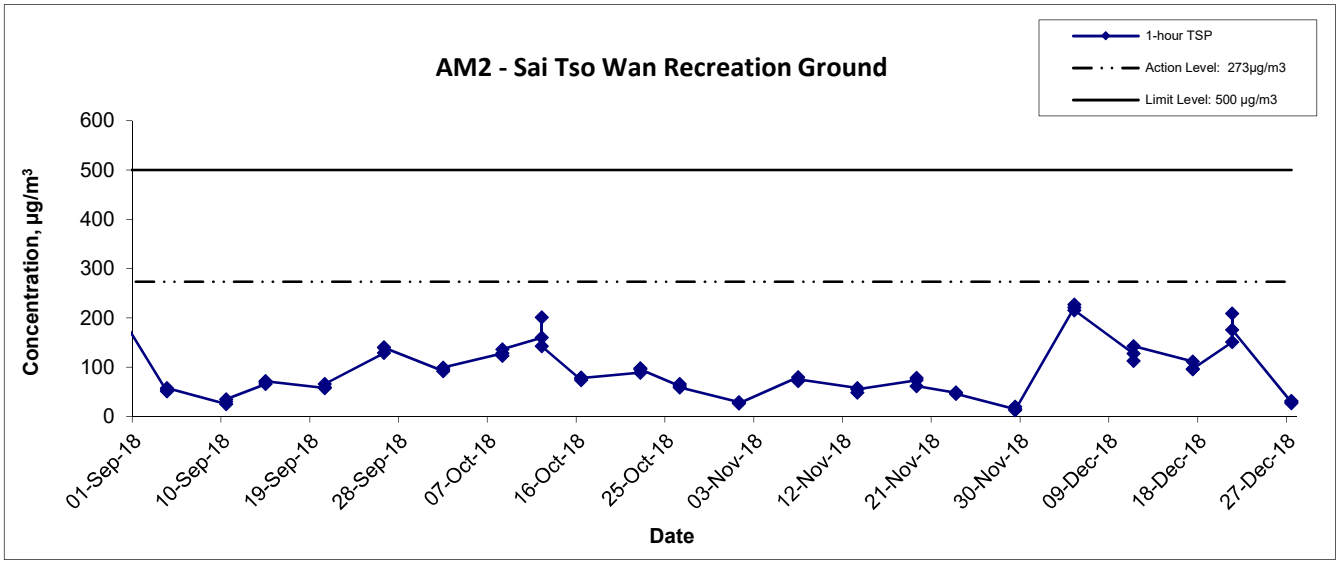
Appendix E - 1-hour TSP Monitoring Results

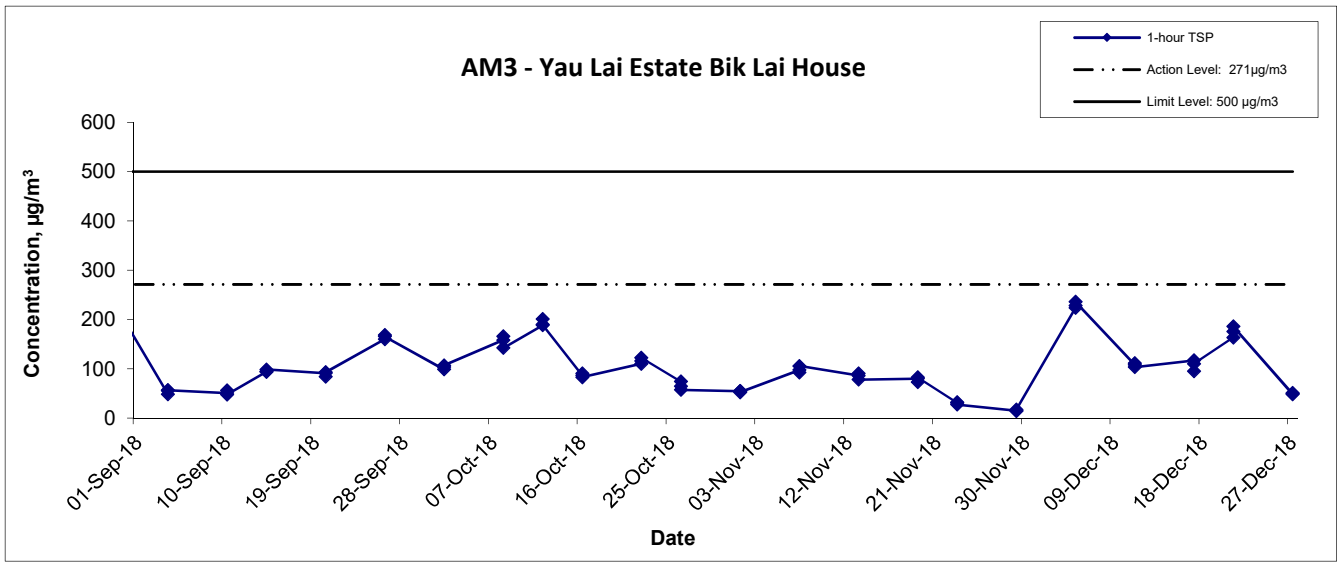
Location AM5(A) - Tseung Kwan O DSD Desilting Compound			
Date	Time	Weather	Particulate Concentration (μg/m^3)
3-Dec-18	9:00	Sunny	33.1
3-Dec-18	10:00	Sunny	36.4
3-Dec-18	11:00	Sunny	28.5
7-Dec-18	13:00	Fine	153.3
7-Dec-18	14:00	Fine	150.7
7-Dec-18	15:00	Fine	151.6
13-Dec-18	9:00	Sunny	133.6
13-Dec-18	10:00	Sunny	135.3
13-Dec-18	11:00	Sunny	128.6
19-Dec-18	13:00	Sunny	63.1
19-Dec-18	14:00	Sunny	56.3
19-Dec-18	15:00	Sunny	57.4
24-Dec-18	9:00	Cloudy	117.0
24-Dec-18	10:00	Cloudy	109.7
24-Dec-18	11:00	Cloudy	119.8
28-Dec-18	9:00	Sunny	25.9
28-Dec-18	10:00	Sunny	28.2
28-Dec-18	11:00	Sunny	27.0
		Average	86.4
		Maximum	153.3
		Minimum	25.9

Location AM6(A) - Park Central, L1/F Open Space Area			
Date	Time	Weather	Particulate Concentration (μg/m^3)
3-Dec-18	13:00	Sunny	28.5
3-Dec-18	14:00	Sunny	29.6
3-Dec-18	15:00	Sunny	31.9
7-Dec-18	9:00	Fine	149.2
7-Dec-18	10:00	Fine	147.4
7-Dec-18	11:00	Fine	148.0
13-Dec-18	13:00	Sunny	114.9
13-Dec-18	14:00	Sunny	102.1
13-Dec-18	15:00	Sunny	87.2
19-Dec-18	9:00	Sunny	51.8
19-Dec-18	10:00	Sunny	48.4
19-Dec-18	11:00	Sunny	47.3
24-Dec-18	9:00	Cloudy	103.9
24-Dec-18	10:00	Cloudy	101.4
24-Dec-18	11:00	Cloudy	99.8
28-Dec-18	9:00	Sunny	17.3
28-Dec-18	10:00	Sunny	16.1
28-Dec-18	11:00	Sunny	18.4
		Average	74.6
		Maximum	149.2
		Minimum	16.1

1-hr TSP Concentration Levels



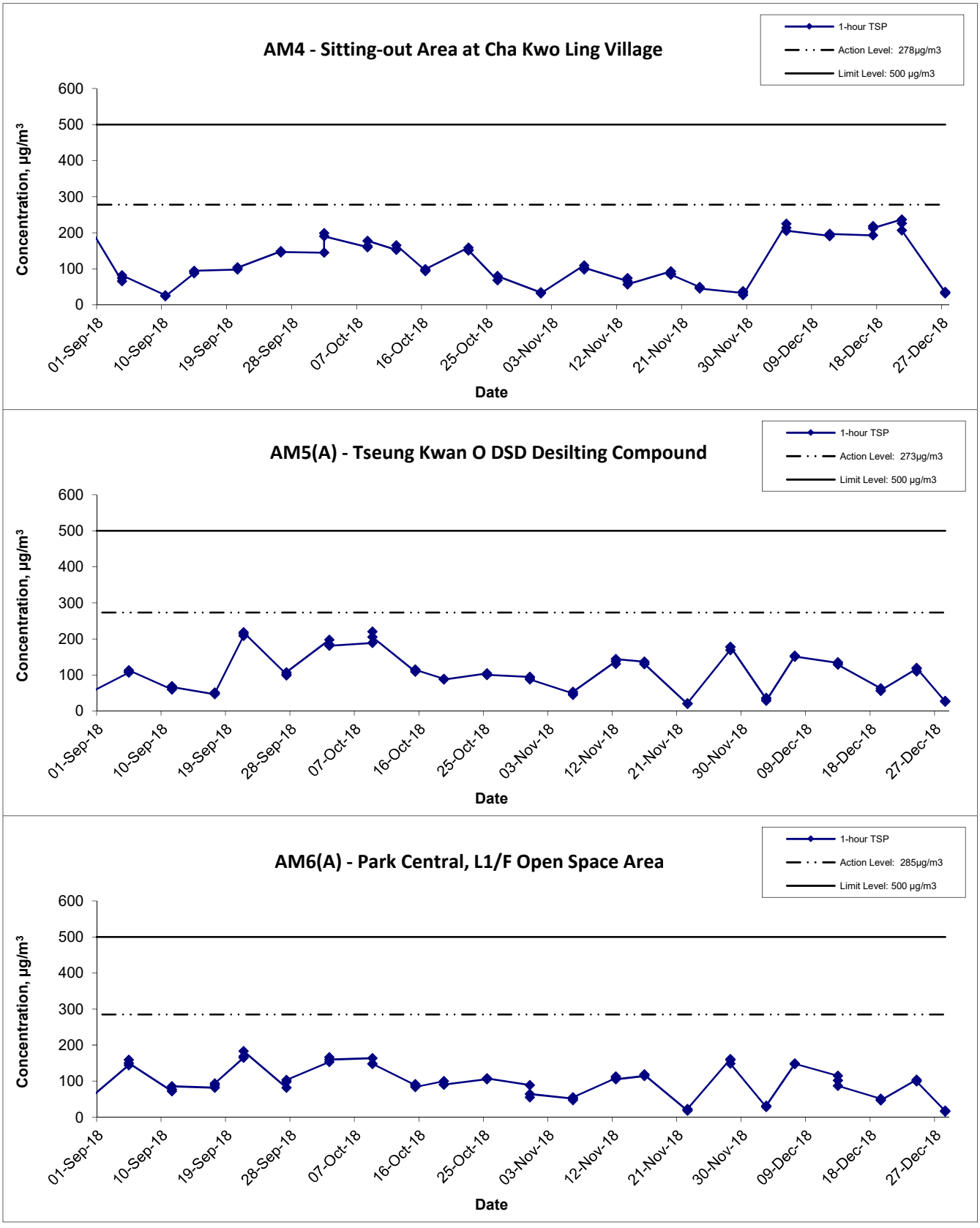




Title		Scale	Project No.
Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 1-hour TSP Monitoring Results		N.T.S	MA16034
		Date: Dec 18	Appendix: E

CINOTECH

1-hr TSP Concentration Levels



Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA16034	CINOTECH
		Date Dec 18	Appendix E	

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix F - 24-hour TSP Monitoring Results in December

Location AM1 - Tin Hau Temple

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-18	Cloudy	295.3	765.8	2.9664	3.0576	0.0912	4607.3	4631.3	24.0	1.22	1.22	1.22	1759.7	51.8
10-Dec-18	Sunny	289.0	768.2	3.6217	3.7274	0.1057	4631.4	4655.4	24.0	1.24	1.24	1.24	1783.3	59.3
14-Dec-18	Sunny	289.2	772.5	2.9349	3.0679	0.1330	4655.4	4679.4	24.0	1.24	1.24	1.24	1788.0	74.4
20-Dec-18	Cloudy	294.3	766.0	2.9468	3.0614	0.1146	4679.4	4703.4	24.0	1.22	1.22	1.22	1763.2	65.0
26-Dec-18	Sunny	294.9	764.0	2.9675	3.0325	0.0650	4703.4	4727.4	24.0	1.22	1.22	1.22	1751.0	37.1
													Min	37.1
													Max	74.4
													Average	57.5

Location AM2 - Sai Tso Wan Recreation Ground

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-18	Cloudy	295.7	765.4	3.0164	3.0843	0.0679	25511.1	25535.1	24.0	1.22	1.22	1.22	1758.4	38.6
10-Dec-18	Sunny	288.5	768.6	3.6252	3.6783	0.0531	25535.1	25559.1	24.0	1.24	1.24	1.24	1784.0	29.8
14-Dec-18	Sunny	298.3	771.9	3.6159	3.6693	0.0534	25559.1	25583.1	24.0	1.22	1.22	1.22	1758.1	30.4
20-Dec-18	Cloudy	294.4	766.3	2.9488	3.0783	0.1295	25583.1	25607.1	24.0	1.22	1.22	1.22	1763.3	73.4
26-Dec-18	Sunny	295.2	763.9	2.9535	3.1076	0.1541	25607.1	25631.1	24.0	1.21	1.21	1.21	1741.9	88.5
													Min	29.8
													Max	88.5
													Average	52.1

Location AM3 - Yau Lai Estate, Bik Lai House

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-18	Cloudy	295.1	765.3	2.9626	3.0505	0.0879	13934.7	13958.7	24.0	1.22	1.22	1.22	1759.9	49.9
10-Dec-18	Sunny	288.8	768.1	3.6197	3.7646	0.1449	13958.7	13982.7	24.0	1.24	1.24	1.24	1782.6	81.3
14-Dec-18	Sunny	289.5	772.4	2.9637	3.0658	0.1021	13982.7	14006.7	24.0	1.24	1.24	1.24	1785.5	57.2
20-Dec-18	Cloudy	294.8	766.6	2.9163	3.0632	0.1469	14006.7	14030.7	24.0	1.22	1.22	1.22	1762.3	83.4
26-Dec-18	Sunny	294.4	764.2	2.9715	3.0579	0.0864	14030.7	14054.7	24.0	1.21	1.21	1.21	1748.1	49.4
													Min	49.4
													Max	83.4
													Average	64.2

Appendix F - 24-hour TSP Monitoring Results in December

Location AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-18	Cloudy	295.5	765.7	2.9606	3.2509	0.2903	10921.2	10945.2	24.0	1.23	1.23	1.23	1769.5	164.1
10-Dec-18	Sunny	288.4	768.8	3.6092	3.8701	0.2609	10945.2	10969.2	24.0	1.25	1.25	1.25	1797.5	145.1
14-Dec-18	Sunny	289.8	772.2	3.6331	3.9355	0.3024	10969.2	10993.2	24.0	1.25	1.25	1.25	1797.1	168.3
20-Dec-18	Cloudy	296.1	766.1	2.9799	3.3059	0.3260	10993.2	11017.2	24.0	1.23	1.22	1.23	1768.1	184.4
26-Dec-18	Sunny	294.1	764.6	2.9723	3.2213	0.2490	11017.2	11041.2	24.0	1.23	1.23	1.23	1773.5	140.4
													Min	140.4
													Max	184.4
													Average	160.5

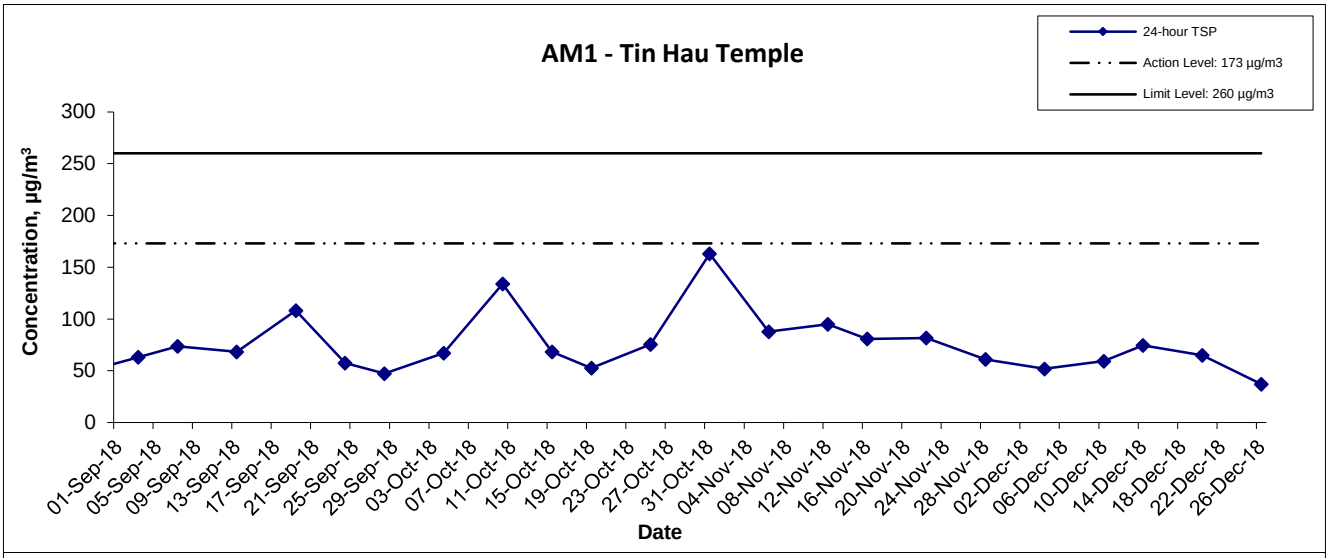
Location AM5(A) - Tseung Kwan O DSD Desilting Compound

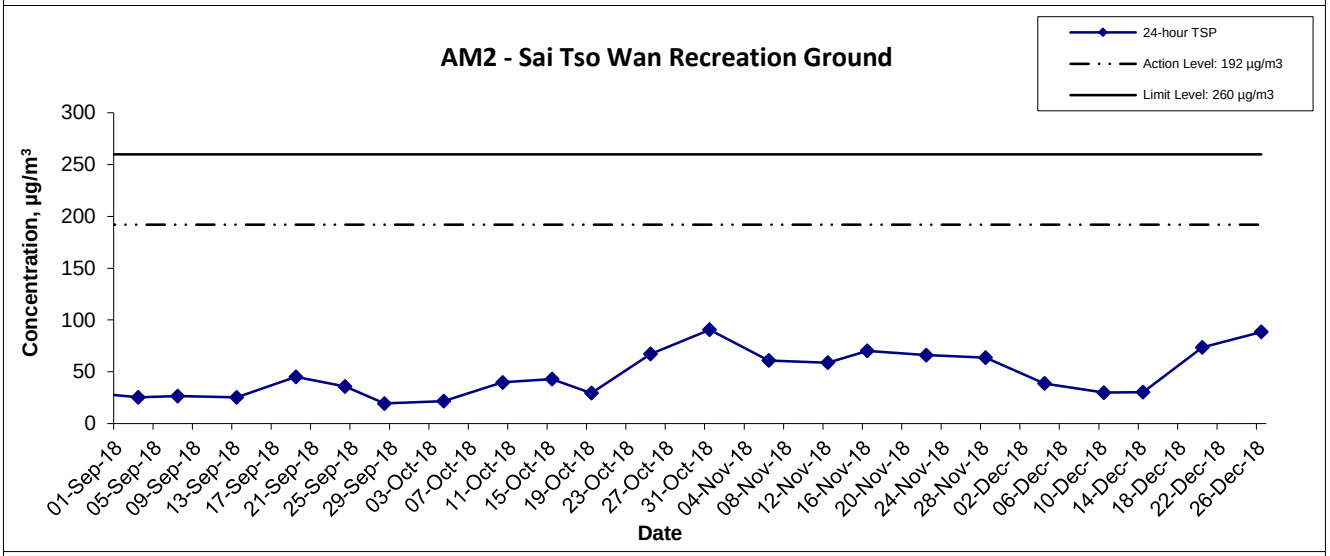
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-18	Cloudy	295.6	765.9	2.9755	3.0378	0.0623	27256.3	27280.3	24.0	1.23	1.23	1.23	1772.3	35.2
10-Dec-18	Sunny	289.4	768.3	2.9762	3.0442	0.0680	27280.3	27304.3	24.0	1.25	1.25	1.25	1797.0	37.8
14-Dec-18	Sunny	289.6	772.7	3.6375	3.7069	0.0694	27304.3	27328.3	24.0	1.25	1.25	1.25	1802.2	38.5
20-Dec-18	Cloudy	294.1	766.2	2.9679	3.0973	0.1294	27328.3	27352.3	24.0	1.23	1.23	1.23	1777.9	72.8
26-Dec-18	Sunny	294.4	764.4	2.9401	3.0539	0.1138	27352.3	27376.3	24.0	1.22	1.22	1.22	1760.4	64.6
													Min	35.2
													Max	72.8
													Average	49.8

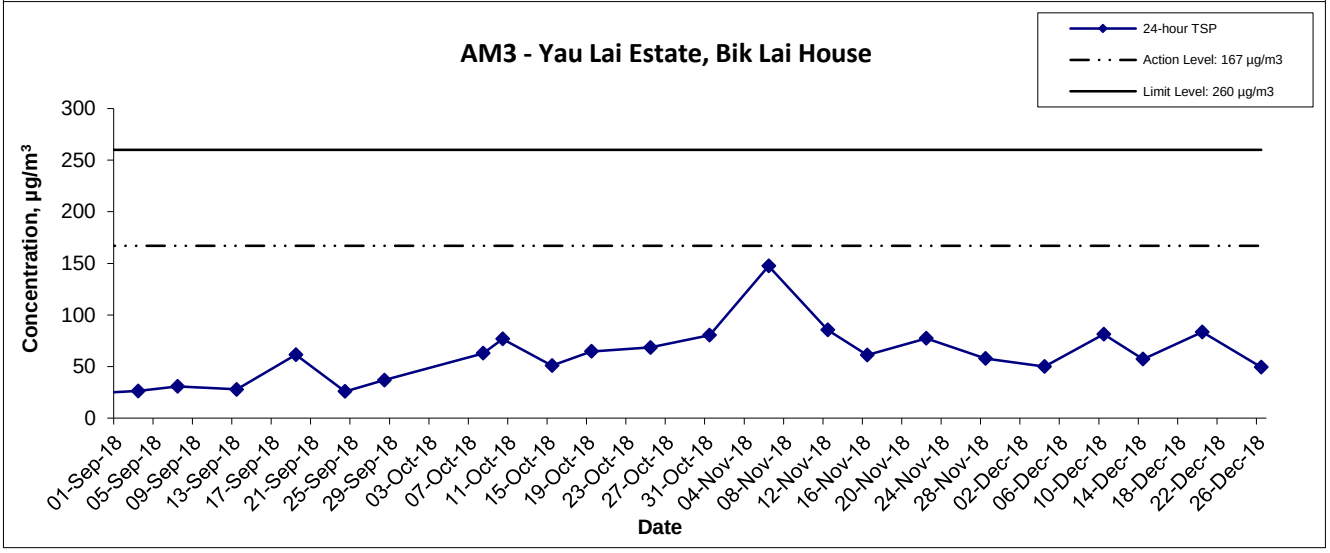
Location AM6(A) - Park Central, L1/F Open Space Area

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Dec-18	Cloudy	295.8	766.1	3.0028	3.1485	0.1457	17699.8	17723.8	24.0	1.21	1.21	1.21	1744.2	83.5
10-Dec-18	Sunny	289.5	768.6	2.9727	3.1522	0.1795	17723.8	17747.8	24.0	1.23	1.23	1.23	1766.4	101.6
14-Dec-18	Sunny	289.4	772.3	2.9467	3.1724	0.2257	17747.8	17771.8	24.0	1.23	1.23	1.23	1771.0	127.4
20-Dec-18	Cloudy	294.5	766.8	2.9811	3.2579	0.2768	17771.8	17795.8	24.0	1.21	1.21	1.21	1748.9	158.3
26-Dec-18	Sunny	294.9	764.5	2.9457	3.1652	0.2195	17795.8	17819.8	24.0	1.21	1.21	1.21	1745.0	125.8
													Min	83.5
													Max	158.3
													Average	119.3

24-hr TSP Concentration Levels

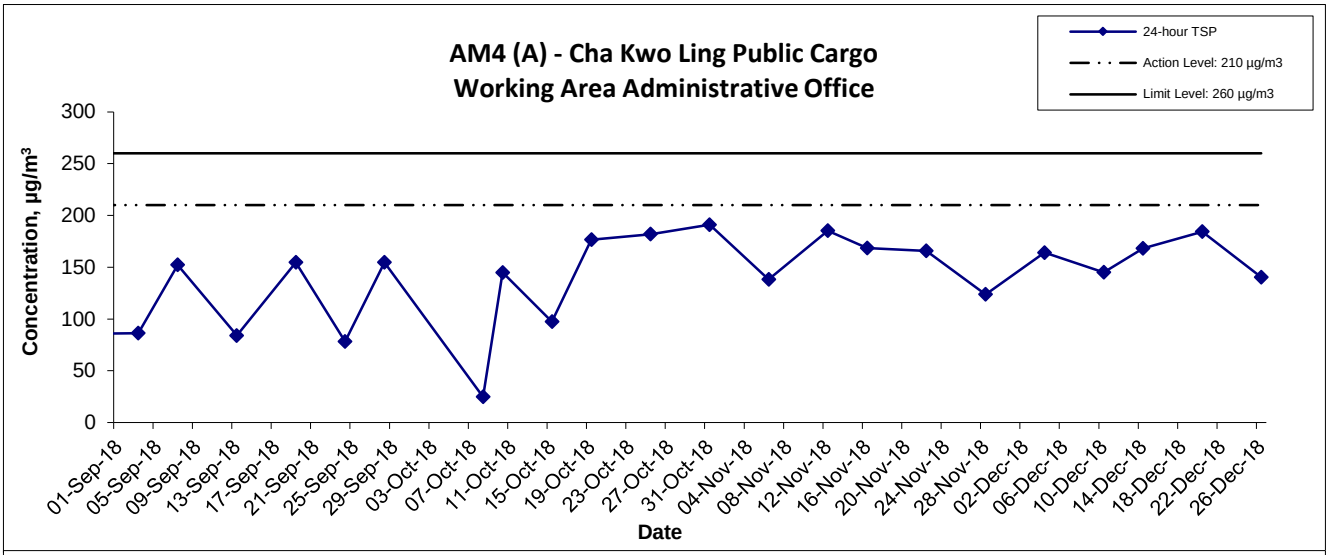


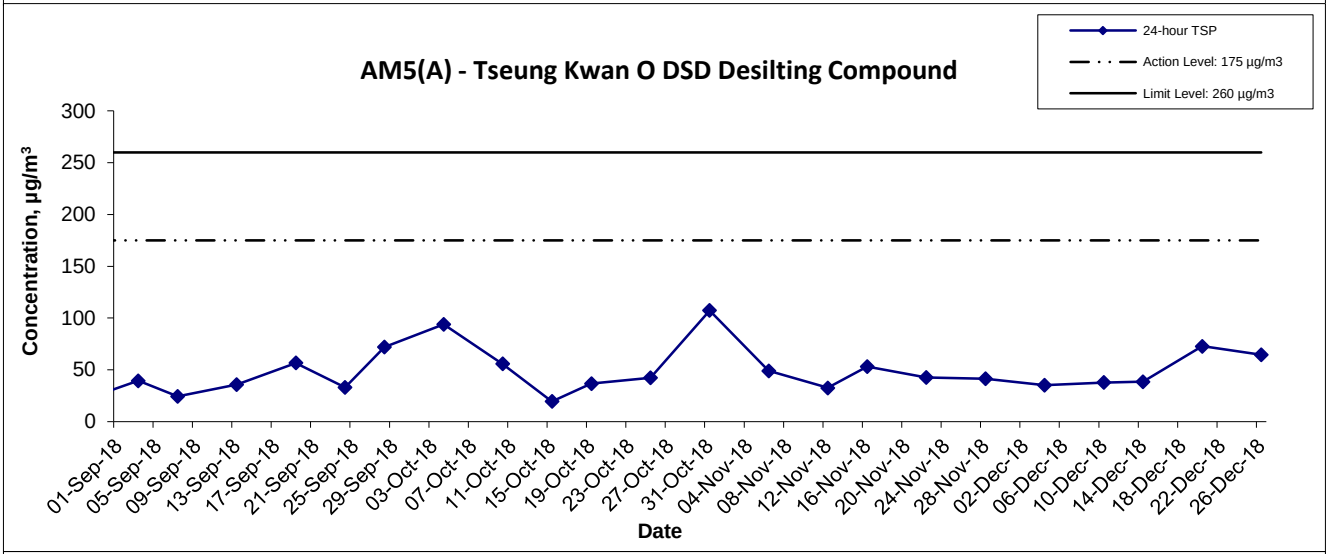


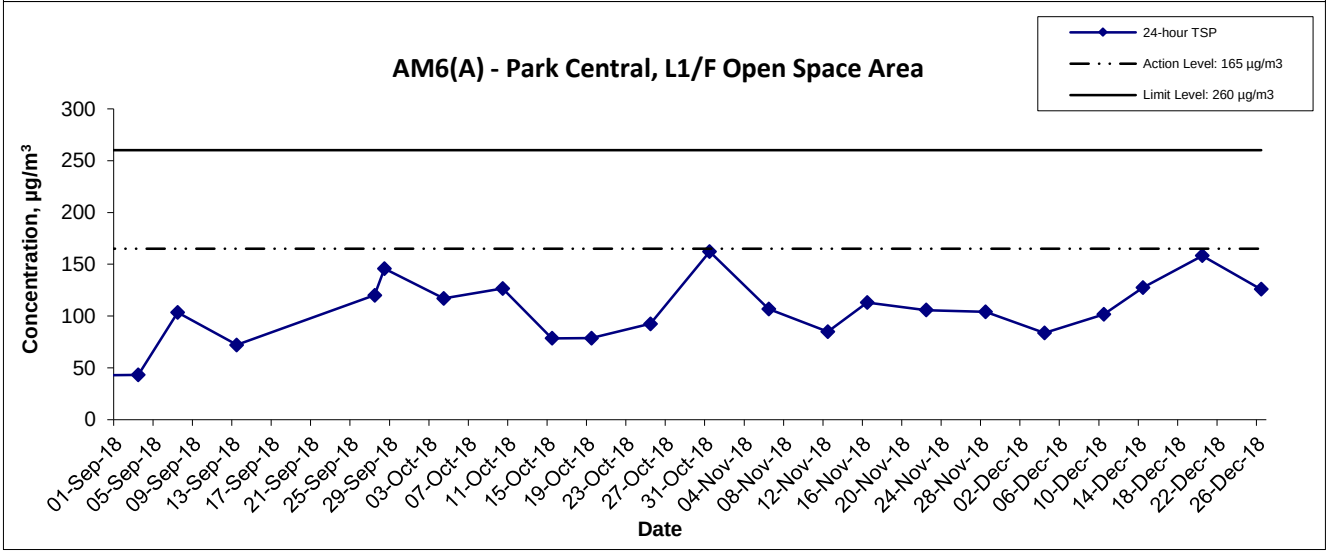


Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec 18	Appendix: F	

24-hr TSP Concentration Levels







Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S Date Dec 18	Project No. MA16034 Appendix F	CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix G - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
5-Dec-18	11:00	Cloudy	74.0	75.5	69.5	65.5	73.3
11-Dec-18	9:30	Sunny	74.1	76.0	71.5		73.5
21-Dec-18	11:00	Cloudy	73.9	75.4	71.6		73.2
27-Dec-18	15:00	Sunny	74.4	76.4	70.2		73.8

Location CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
5-Dec-18	9:50	Cloudy	73.5	75.8	70.5	63.6	73.0
11-Dec-18	10:15	Sunny	74.1	75.6	72.2		73.7
21-Dec-18	8:35	Cloudy	74.2	75.9	71.1		73.8
27-Dec-18	13:05	Sunny	74.1	76.2	70.3		73.7

Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
6-Dec-18	13:40	Cloudy	71.4	73.5	68.2	65.6	70.1
11-Dec-18	13:45	Sunny	71.9	73.8	68.2		70.7
18-Dec-18	11:00	Sunny	69.6	70.5	60.8		67.4
28-Dec-18	16:10	Cloudy	77.1	79.3	74.4		76.8
28-Dec-18	16:45	Cloudy	77.3	79.5	74.6		77.0

Location CM4 - Tin Hau Temple, Cha Kwo Ling							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
5-Dec-18	14:00	Cloudy	69.9	71.7	65.2	62.0	69.1
11-Dec-18	13:00	Sunny	59.2	61.8	53.8		59.2 measured $\leq$ Baseline
21-Dec-18	13:50	Cloudy	61.6	62.3	52.7		61.6 measured $\leq$ Baseline
27-Dec-18	9:45	Sunny	69.2	70.4	64.3		68.3

Location CM5 - CCC Kei Faat Primary School, Yau Tong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
6-Dec-18	15:38	Cloudy	70.0	72.2	67.0	68.2	65.3
11-Dec-18	14:30	Sunny	69.0	70.7	65.9		61.3
18-Dec-18	13:00	Sunny	69.6	72.7	65.2		64.0
28-Dec-18	15:10	Sunny	69.3	71.4	63.8		62.8

Appendix G - Noise Monitoring Results

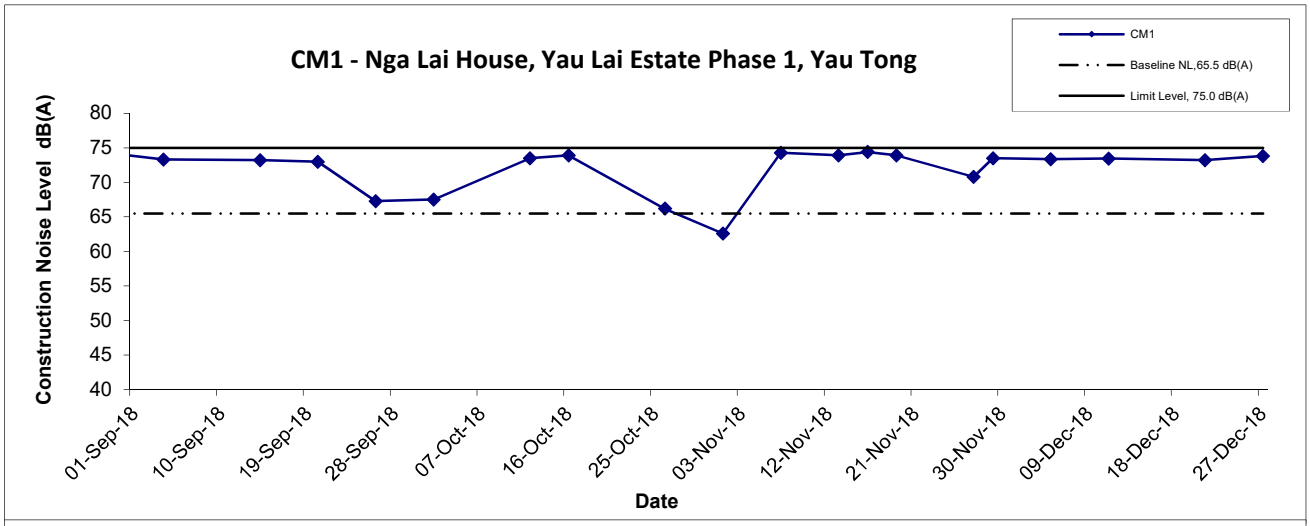
(0700-1900 hrs on Normal Weekdays)

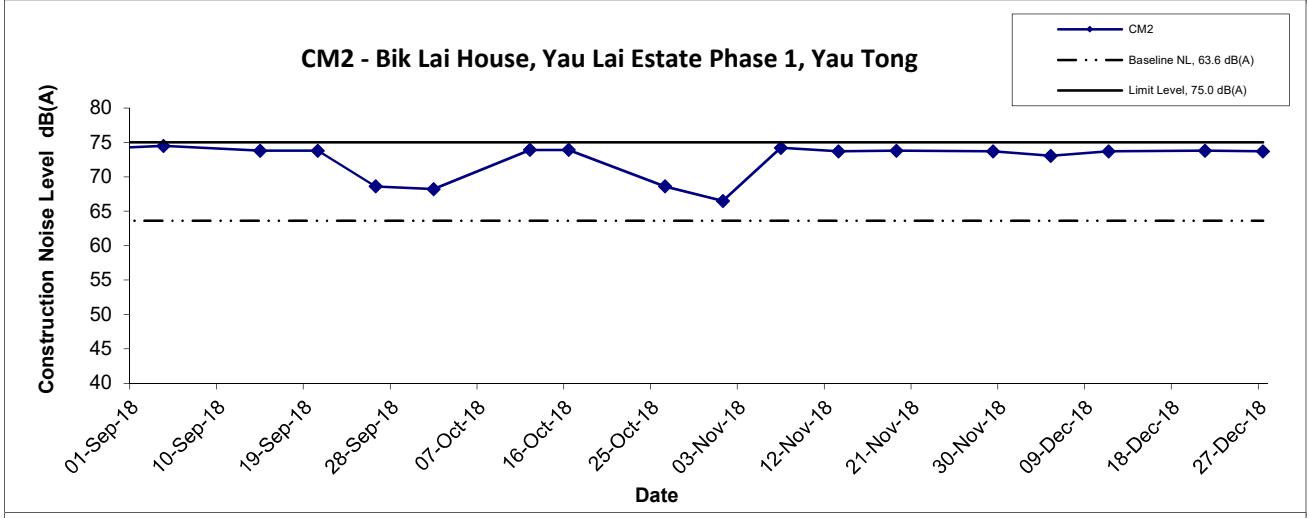
Location CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Dec-18	10:30	Sunny	67.2	70.3	65.4	61.9	65.7
10-Dec-18	9:24	Cloudy	65.4	68.3	61.1		62.8
19-Dec-18	15:30	Sunny	71.2	73.6	66.2		70.7
28-Dec-18	9:30	Sunny	69.8	71.2	67.1		69.0

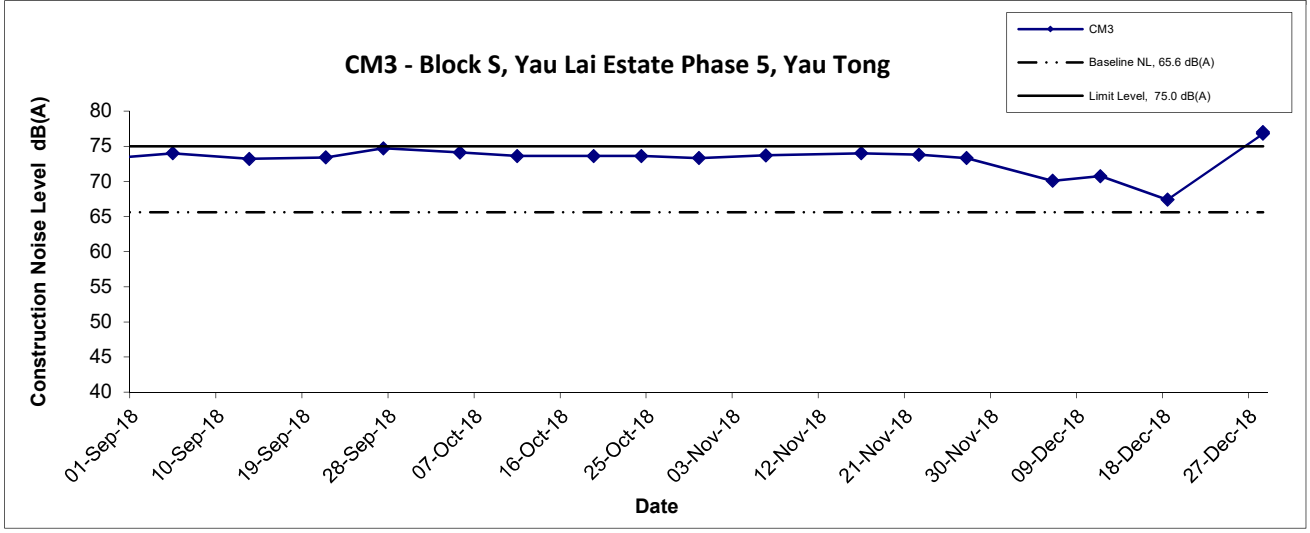
Location CM7(A) - Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Dec-18	9:00	Sunny	65.0	67.5	62.2	58.3	64.0
10-Dec-18	16:30	Cloudy	60.7	62.8	57.2		57.0
19-Dec-18	14:30	Sunny	72.6	75.2	68.3		72.4
28-Dec-18	10:30	Sunny	67.9	70.9	62.8		67.4

Location CM8(A) - Park Central, L1/F Open Space Area							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Dec-18	14:45	Sunny	68.7	71.6	63.2	69.1	68.7 measured $\leq$ Baseline
10-Dec-18	16:30	Cloudy	64.4	66.8	59.1		64.4 measured $\leq$ Baseline
19-Dec-18	9:10	Sunny	68.8	71.2	62.1		68.8 measured $\leq$ Baseline
28-Dec-18	10:00	Sunny	65.7	68.4	60.8		65.7 measured $\leq$ Baseline

Noise Levels

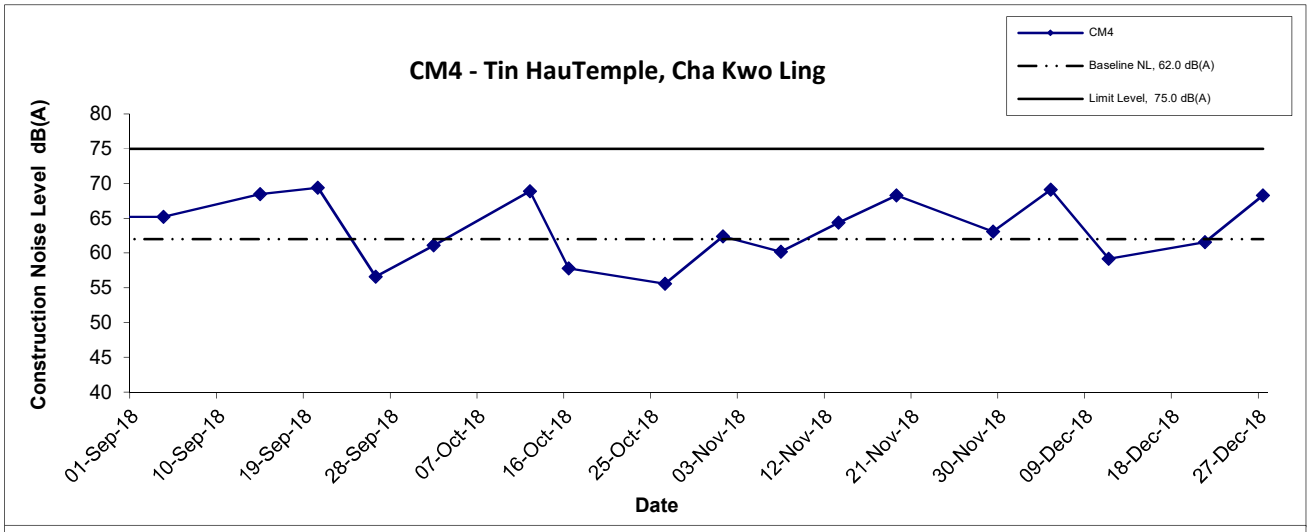


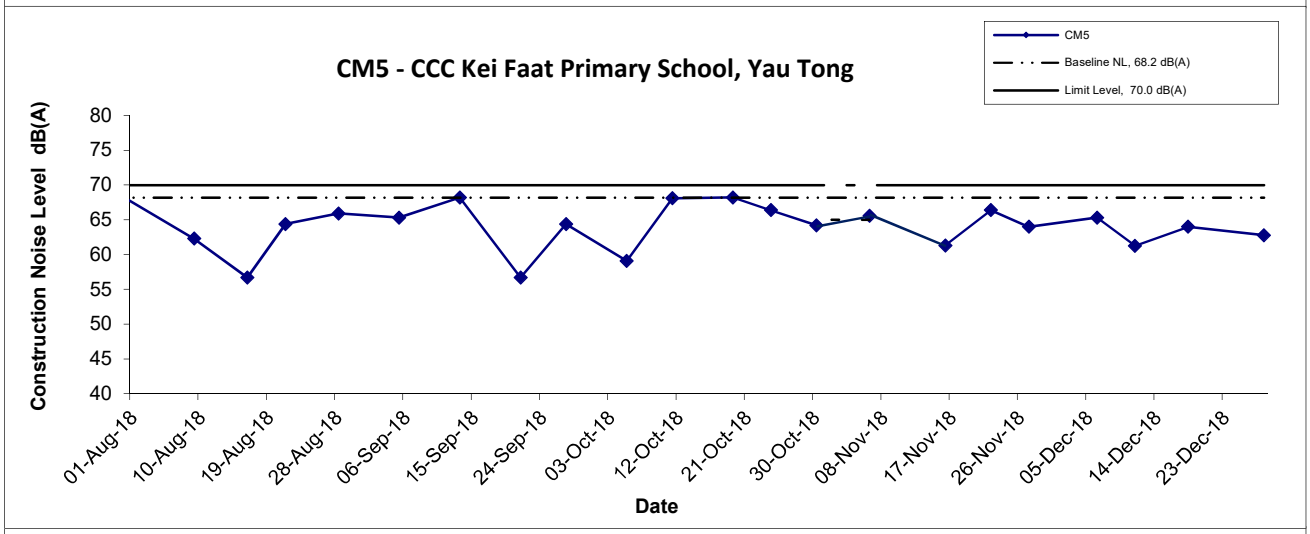


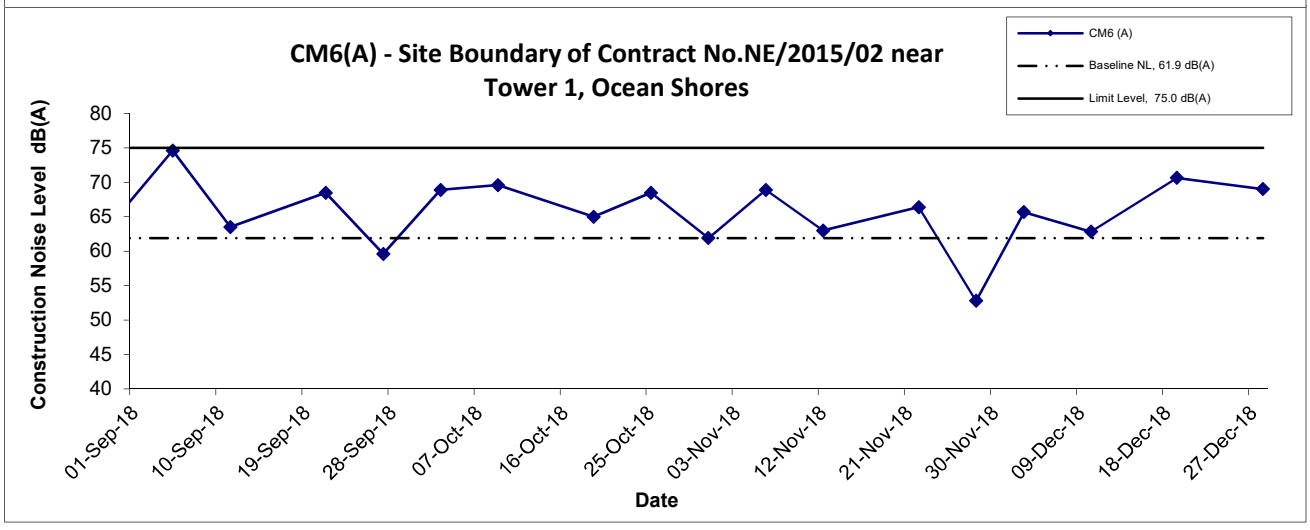


Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Dec 18	Project No. MA16034 Appendix G	CINOTECH

Noise Levels

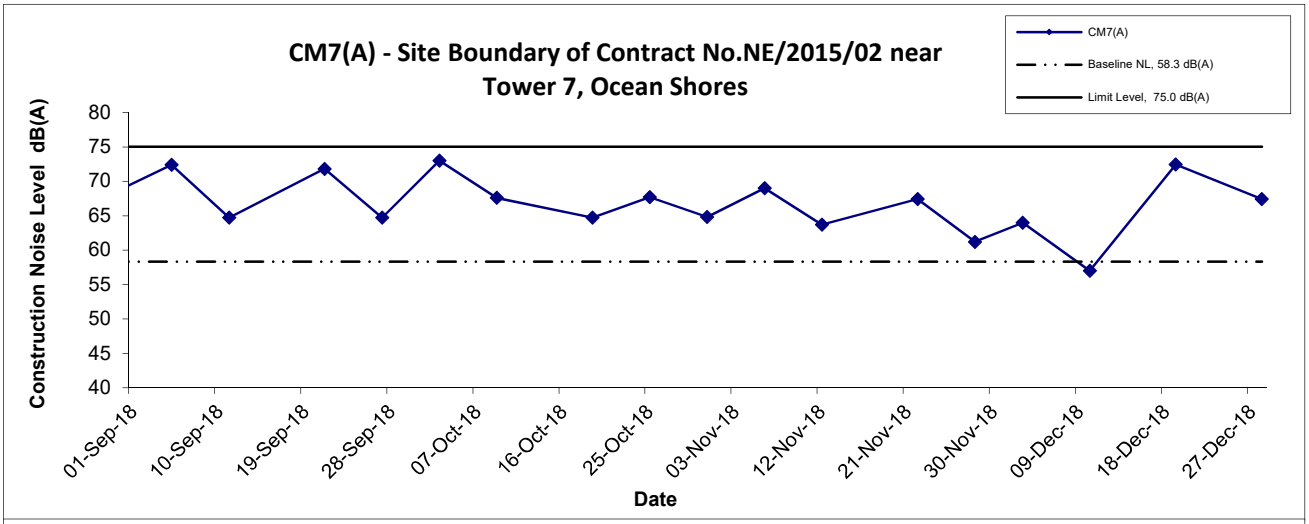


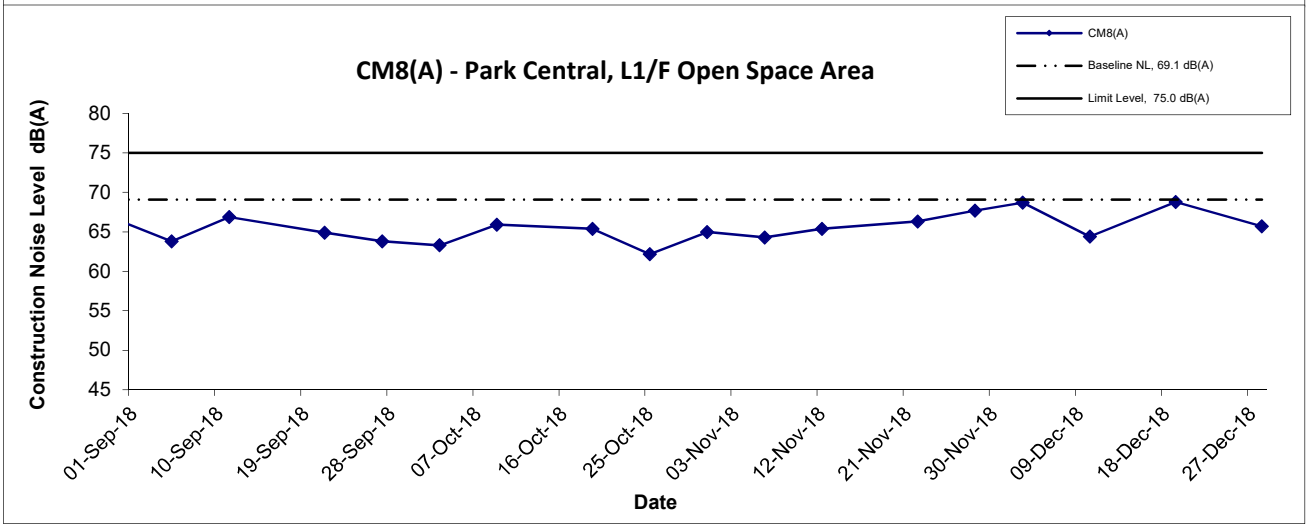




Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Dec 18	Project No. MA16034 Appendix G	CINOTECH

Noise Levels





Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Dec 18	Project No. MA16034 Appendix G	CINOTECH

Appendix G - Noise Monitoring Results

(Restricted Hours - 19:00 to 23:00 on all other days & 07:00 to 23:00 holidays)

Location CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong

Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
2-Dec-18	10:50	Sunny	68.4	70.1	66.8	68.4	64.4	66.2
	10:55		67.9	69.8	66.6			
	11:00		68.9	70.4	67.0			
7-Dec-18	22:45	Cloudy	67.8	67.6	64.6	68.1		65.7
	22:50		68.1	67.9	64.7			
	22:55		68.4	67.9	65.3			
9-Dec-18	11:20	Cloudy	62.3	63.8	61.6	62.7		62.7 measured <= Baseline
	11:25		63.4	64.3	61.8			
	11:30		62.4	63.9	61.5			
14-Dec-18	22:45	Fine	68.2	69.3	67.1	68.2		65.9
	22:50		68.3	69.7	66.6			
	22:55		68.2	69.4	66.6			
16-Dec-18	14:10	Cloudy	69.0	70.3	67.5	68.9		67.0
	14:15		68.8	70.4	67.0			
	14:20		69.0	70.2	67.7			
21-Dec-18	22:45	Fine	69.1	70.4	66.4	68.3		66.0
	22:50		68.0	69.3	66.5			
	22:55		67.7	69.1	66.2			
23-Dec-18	11:35	Rainy	68.7	70.2	66.9	68.9		67.0
	11:40		68.9	70.3	67.0			
	11:45		69.1	70.3	67.4			
28-Dec-18	22:45	Fine	68.1	69.6	66.2	68.5		66.4
	22:50		69.4	70.7	67.0			
	22:55		67.8	69.0	66.2			
30-Dec-18	14:35	Sunny	69.1	70.8	66.9	68.8		66.8
	14:40		68.7	70.1	66.1			
	14:45		68.5	70.2	66.4			

Location CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong

Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
2-Dec-18	10:20	Sunny	66.4	67.8	64.7	66.4	64.2	62.4
	10:25		66.6	67.8	64.5			
	10:30		66.3	67.6	64.5			
7-Dec-18	22:20	Cloudy	64.9	66.8	62.9	65.2		58.3
	22:25		65.2	67.0	63.3			
	22:30		65.4	67.3	64.0			
9-Dec-18	10:30	Cloudy	65.9	66.9	64.9	67.2		64.2
	10:35		67.1	68.0	66.0			
	10:40		68.2	69.9	66.1			
14-Dec-18	22:20	Fine	65.7	66.8	64.3	65.7		60.4
	22:25		66.2	67.5	64.6			
	22:30		65.2	66.2	64.1			
16-Dec-18	13:45	Cloudy	66.4	67.5	65.0	66.5		62.6
	13:50		66.8	67.8	64.4			
	13:55		66.2	67.3	65.1			
21-Dec-18	22:20	Fine	65.3	66.5	63.8	65.2		58.3
	22:25		65.1	66.1	64.0			
	22:30		65.1	66.3	63.8			
23-Dec-18	11:00	Rainy	66.6	67.6	64.5	66.6		62.9
	11:05		66.8	67.9	64.7			
	11:10		66.5	67.5	64.7			
28-Dec-18	22:25	Fine	65.3	66.6	64.0	65.3		58.8
	22:30		65.6	66.8	64.0			
	22:35		64.9	66.1	63.2			
30-Dec-18	14:05	Sunny	64.2	66.3	62.0	64.6		54.0
	14:10		64.6	67.1	62.6			
	14:15		65.1	67.2	63.5			

Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong

Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
2-Dec-18	9:50	Sunny	64.9	66.7	63.6	64.9	64.7	51.4
	9:55		65.2	67.1	63.9			
	10:00		64.7	66.9	63.5			
7-Dec-18	21:50	Cloudy	65.3	66.9	63.6	65.1		54.5
	21:55		65.1	66.7	63.4			
	22:00		64.9	66.4	63.2			
9-Dec-18	9:40	Cloudy	64.6	65.9	63.0	64.7		64.7 measured <= Baseline
	9:45		64.7	65.8	63.0			
	9:50		64.8	65.9	63.0			
14-Dec-18	21:50	Fine	65.6	66.8	64.1	65.8		59.3
	21:55		66.2	67.5	64.3			
	22:00		65.7	66.7	64.3			
16-Dec-18	13:15	Cloudy	66.3	67.8	64.5	66.0		60.1
	13:20		65.8	66.8	64.5			
	13:25		65.9	67.4	64.2			
21-Dec-18	21:50	Fine	64.8	65.9	63.2	65.0		53.2
	21:55		64.9	65.9	63.4			
	22:00		65.2	66.4	64.0			
23-Dec-18	10:30	Rainy	66.2	67.5	64.6	66.1		60.5
	10:35		65.9	67.2	64.3			
	10:40		66.1	67.4	64.0			
28-Dec-18	21:50	Fine	64.8	65.9	63.4	64.9		51.4
	21:55		64.9	65.9	63.6			
	22:00		65.0	66.8	63.5			
30-Dec-18	13:35	Sunny	67.2	69.1	63.3	66.8		62.6
	13:40		66.7	68.9	62.8			
	13:45		66.4	68.2	62.3			

Appendix G - Noise Monitoring Results

Location CM4 - Tin Hau Temple, Cha Kwo Ling								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
2-Dec-18	9:15	Sunny	60.9	64.7	57.2	61.2	57.0	59.1
	9:20		61.3	65.1	56.9			
	9:25		61.4	65.5	56.9			
7-Dec-18	21:20	Cloudy	53.1	55.7	46.4	53.7		53.7 measured <= Baseline
	21:25		53.8	56.2	46.6			
	21:30		54.1	56.4	46.6			
9-Dec-18	9:15	Cloudy	62.5	65.7	56.4	62.0		60.4
	9:20		61.9	65.5	56.4			
	9:25		61.7	65.5	56.3			
14-Dec-18	21:20	Fine	58.0	59.2	56.4	57.8		49.9
	21:25		57.9	59.1	56.4			
	21:30		57.4	58.7	56.1			
16-Dec-18	14:25	Cloudy	54.2	56.1	46.9	54.4		54.4 measured <= Baseline
	14:30		53.7	55.3	46.5			
	14:35		55.1	58.0	47.4			
21-Dec-18	21:20	Fine	51.2	54.9	44.5	51.6		51.6 measured <= Baseline
	21:25		52.0	55.6	45.3			
	21:30		51.7	55.8	46.1			
23-Dec-18	10:00	Rainy	56.2	58.4	48.1	56.3		56.3 measured <= Baseline
	10:05		56.8	59.1	49.4			
	10:10		55.8	57.9	48.5			
28-Dec-18	21:20	Fine	49.9	53.6	43.0	50.7		50.7 Measured ≦ Baseline
	21:25		52.0	56.1	41.5			
	21:30		50.0	53.6	43.2			
30-Dec-18	13:00	Sunny	56.9	59.4	52.0	57.3		45.5
	13:05		57.4	60.7	52.3			
	13:10		57.5	60.9	52.3			

Appendix G - Noise Monitoring Results

(Restricted Hours - 2300-0700 on all days)

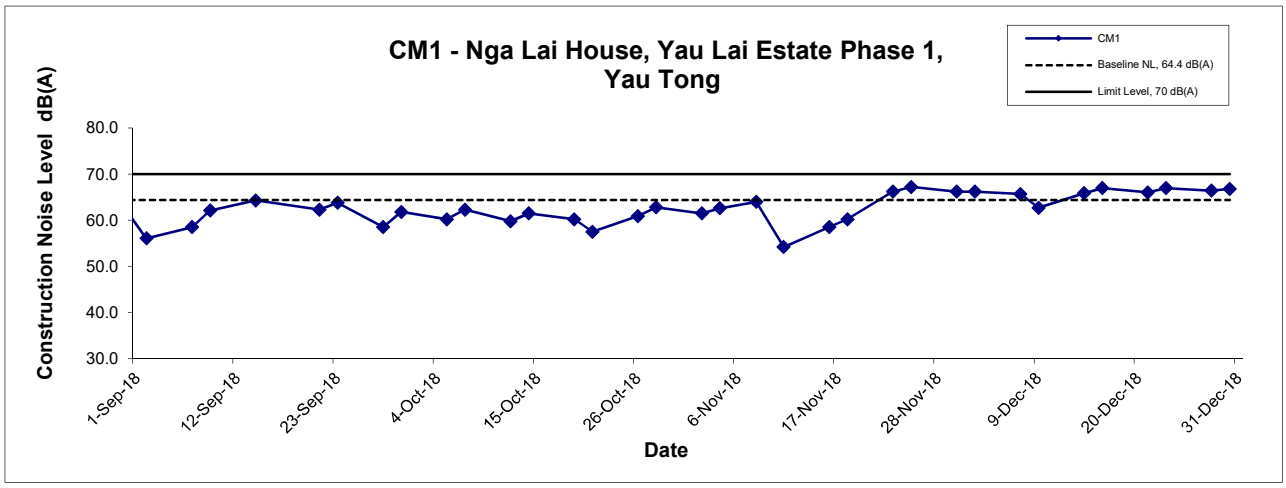
Location CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
7-Dec-18	23:00	Cloudy	68.1	70.1	67.3	68.1	60.5	67.3
	23:05		68.2	70.2	67.2			
	23:10		67.9	70.3	66.8			
14-Dec-18	23:00	Fine	68.3	69.4	66.6	68.3		67.5
	23:05		68.5	69.8	66.9			
	23:10		68.2	69.3	66.8			
21-Dec-18	23:00	Fine	68.1	69.6	66.3	68.5		67.8
	23:05		68.5	69.8	66.8			
	23:10		68.8	69.9	66.3			
28-Dec-18	23:00	Fine	68.1	69.7	66.2	67.9		67.0
	23:05		67.8	69.3	66.0			
	23:10		67.9	69.6	65.8			

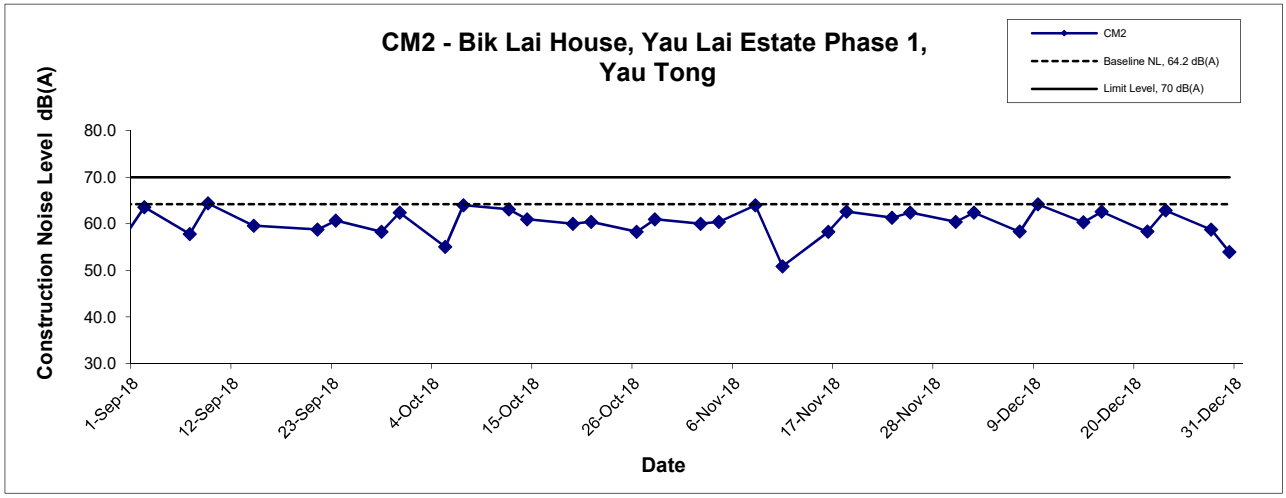
Location CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
7-Dec-18	23:30	Cloudy	66.2	67.8	64.8	66.0	58.0	65.3
	23:35		66.4	67.3	64.5			
	23:40		65.2	66.7	63.6			
14-Dec-18	23:25	Fine	64.9	66.4	62.9	65.1		64.2
	23:30		65.1	66.7	63.4			
	23:35		65.2	66.5	63.6			
21-Dec-18	23:25	Fine	64.2	66.1	62.7	64.3		63.1
	23:30		64.2	66.4	63.0			
	23:35		64.6	66.5	63.4			
28-Dec-18	23:30	Fine	64.4	66.1	63.7	64.8		63.8
	23:35		64.9	66.5	63.8			
	23:40		65.2	66.6	64.0			

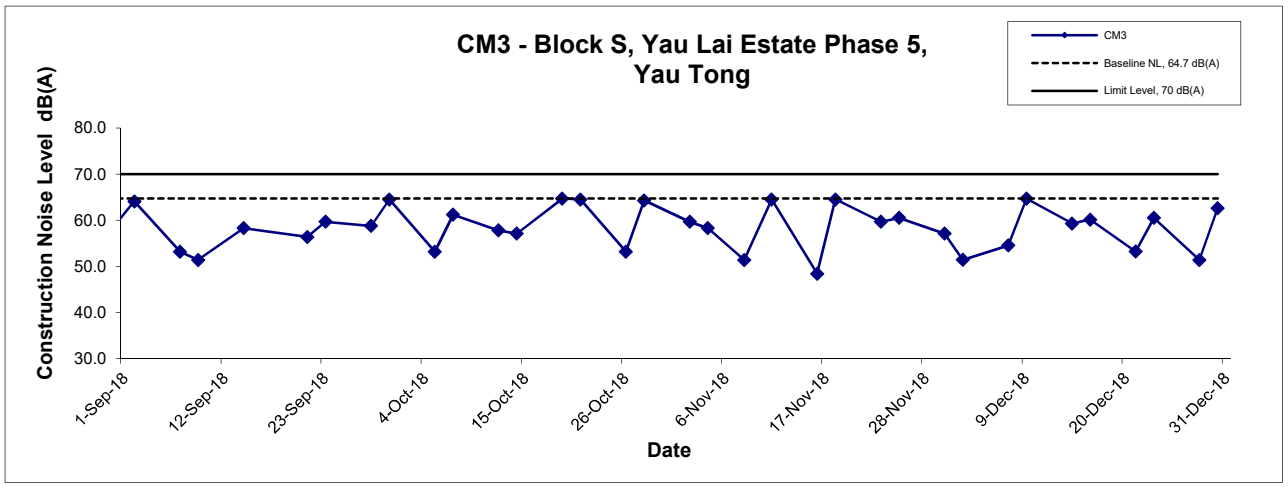
Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
8-Dec-18	0:25	Cloudy	63.7	65.4	59.6	63.7	60.2	61.1
	0:30		63.5	65.1	59.5			
	0:35		63.8	65.2	59.5			
14-Dec-18	23:55	Fine	64.5	66.2	62.7	64.6		62.6
	0:00		64.6	66.5	62.9			
	0:05		64.7	66.9	63.0			
22-Dec-18	0:25	Fine	63.0	64.7	61.7	63.0		59.8
	0:30		62.9	64.6	61.5			
	0:35		63.2	64.9	61.7			
28-Dec-18	0:00	Fine	64.2	65.7	63.2	64.4		62.3
	0:05		64.5	65.8	63.4			
	0:10		64.4	65.8	63.2			

Location CM4 - Tin Hau Temple, Cha Kwo Ling								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
7-Dec-18	23:55	Cloudy	52.4	55.6	46.1	52.5	55.8	52.5 measured <= Baseline
	0:00		52.5	54.9	46.2			
	0:05		52.7	55.0	45.9			
14-Dec-18	0:00	Fine	56.2	58.5	54.1	56.4		47.5
	0:05		56.4	58.4	53.9			
	0:10		56.7	58.6	54.5			
21-Dec-18	23:55	Fine	50.0	54.1	39.1	48.5		48.5 measured <= Baseline
	0:00		46.3	51.0	37.6			
	0:05		48.5	52.5	38.5			
28-Dec-18	0:35	Fine	49.1	53.5	43.0	49.3		49.3 Measured ≦ Baseline
	0:40		49.2	53.4	42.8			
	0:45		49.7	54.0	43.6			

Noise Levels
(Restricted Hours - 07:00 - 23:00 holidays & 19:00 - 23:00 on all other days)

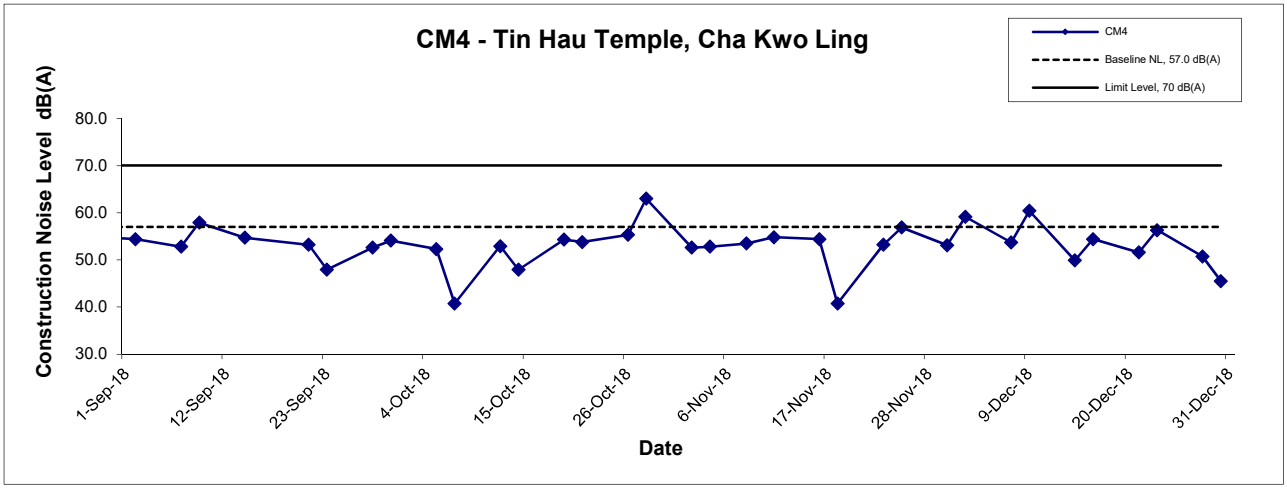






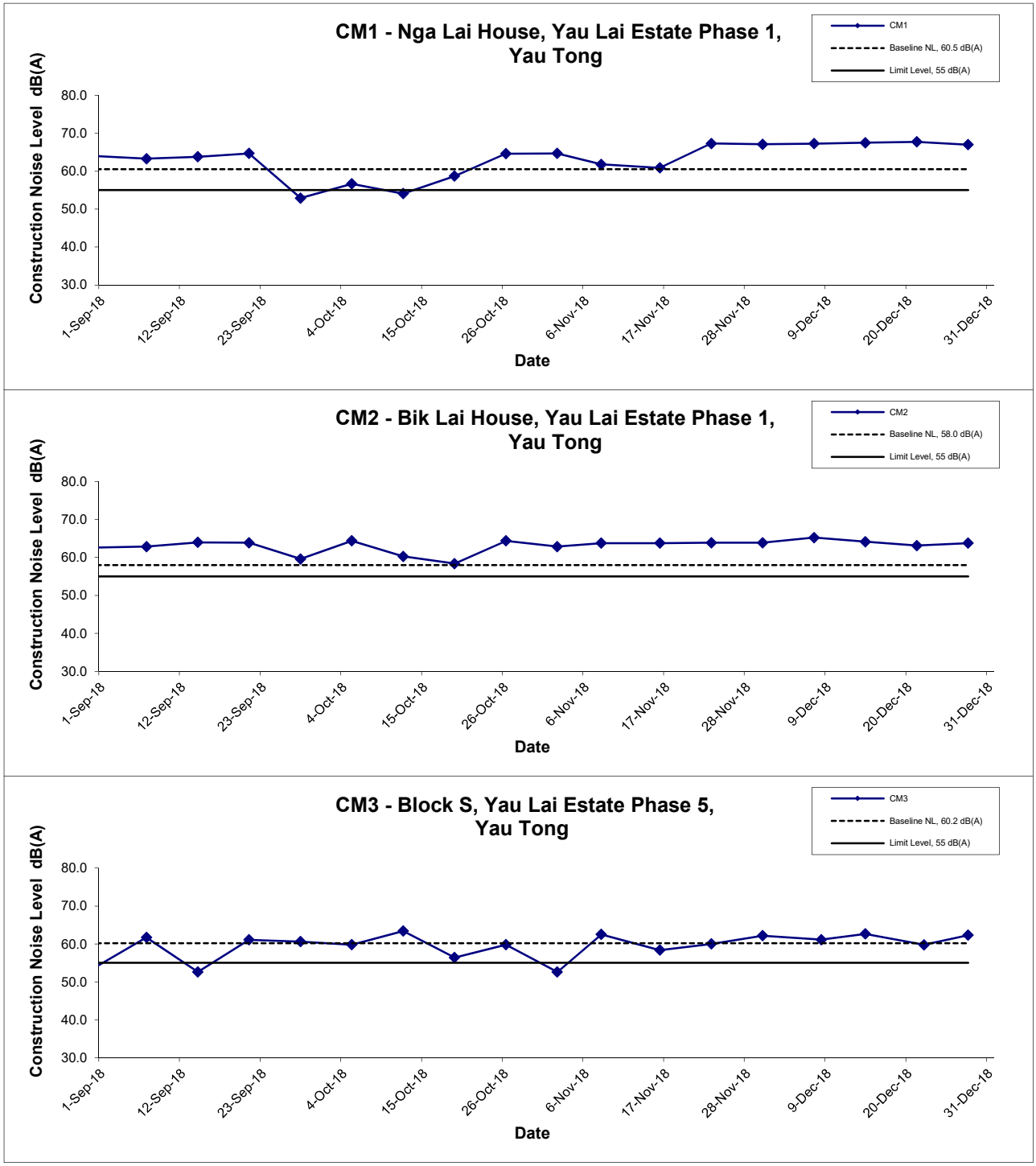
Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale N.T.S Date Dec 18	Project No. MA16034 Appendix G	CINOTECH

Noise Levels
(Restricted Hours - 07:00 - 23:00 holidays & 19:00 - 23:00 on all other days)



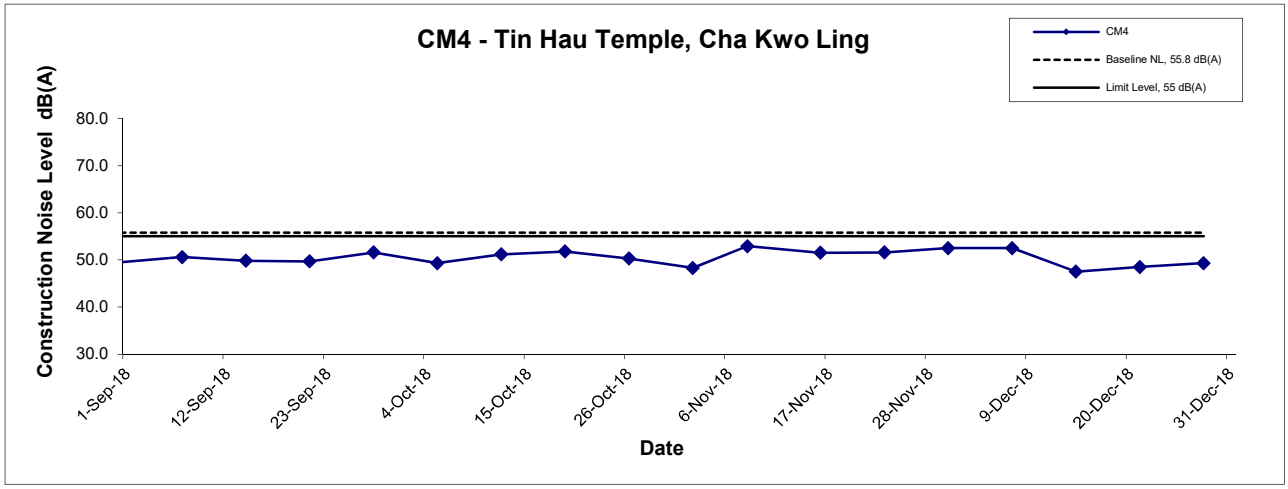
Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale: N.T.S Date: Dec 18	Project No.: MA16034 Appendix: G	CINOTECH

Noise Levels
(Restricted Hours - 2300-0700 on all days)



Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale N.T.S	Project No. MA16034	CINOTECH
		Date Dec 18	Appendix G	

Noise Levels
(Restricted Hours - 2300-0700 on all days)



Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale: N.T.S Date: Dec 18	Project No.: MA16034 Appendix: G	CINOTECH

APPENDIX H
GROUNDWATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction

Groundwater Quality Monitoring Results at Stream 1

Date	Weather Condition	Sampling Time	Depth (m)	Temperature (^{o}C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
6-Dec-18	Cloudy	13:16	Middle	22.5 22.5	22.5	7.9 7.9	7.9	0.5 0.5	0.5	92.3 92.3	92.3	8.0 8.0	8.0	2.0 2.0	2.0
18-Dec-18	Sunny	12:16	Middle	18.7 18.7	18.7	7.6 7.6	7.6	0.6 0.6	0.6	87.1 87.1	87.1	8.1 8.1	8.1	1.5 1.5	1.5

Groundwater Quality Monitoring Results at Stream 2

Date	Weather Condition	Sampling Time	Depth (m)	Temperature (^{o}C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
6-Dec-18	Cloudy	14:10	Middle	22.5 22.4	22.5	7.5 7.5	7.5	0.2 0.2	0.2	89.4 89.3	89.4	7.7 7.7	7.7	0.8 0.8	0.8
18-Dec-18	Sunny	13:01	Middle	18.8 18.8	18.8	7.3 7.3	7.3	0.1 0.1	0.1	86.5 86.1	86.3	8.0 8.0	8.0	1.6 1.7	1.7

Groundwater Quality Monitoring Results at Stream 3

Date	Weather Condition	Sampling Time	Depth (m)	Temperature (^{o}C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
6-Dec-18	Cloudy	14:20	Middle	22.1 22.1	22.1	7.3 7.3	7.3	0.2 0.2	0.2	88.0 88.3	88.2	7.7 7.7	7.7	0.9 0.9	0.9
18-Dec-18	Sunny	13:25	Middle	18.8 18.8	18.8	7.2 7.2	7.2	0.2 0.2	0.2	86.0 85.7	85.9	8.0 8.0	8.0	1.3 1.3	1.3

Agreement No. CE/59/2015 (EP)
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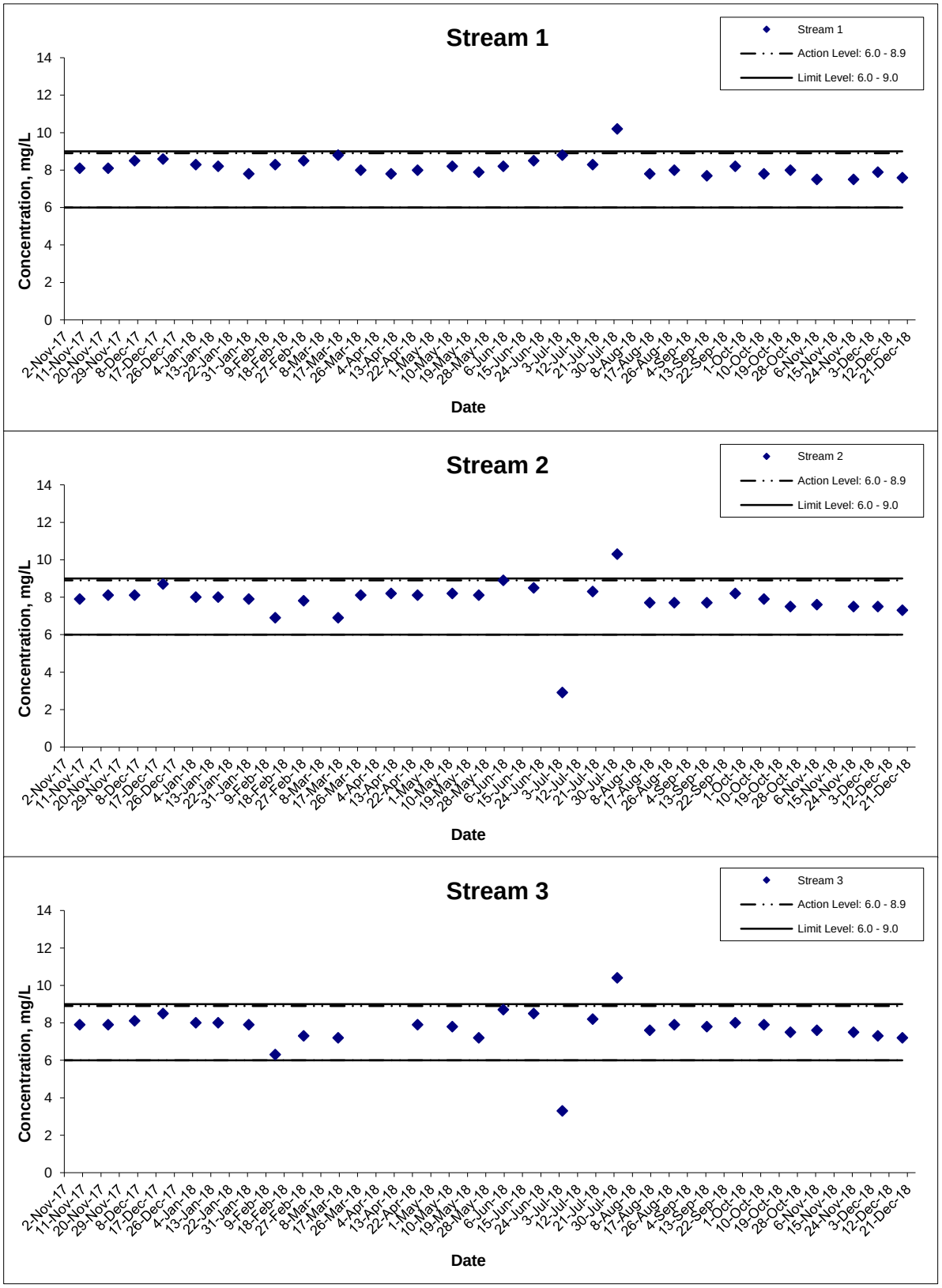
Summary of Groundwater Quality Monitoring Results

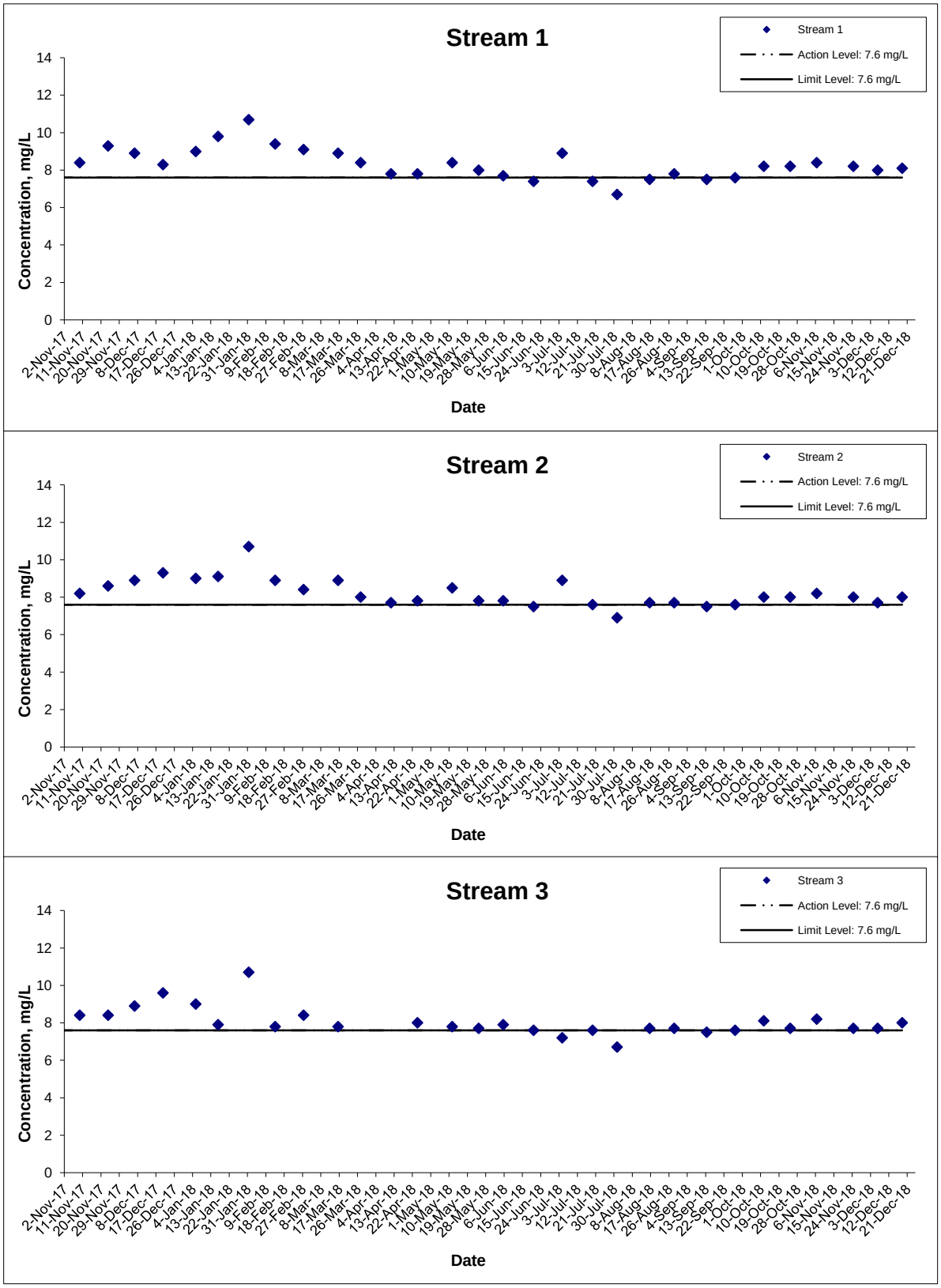
Date	Location	Parameters (unit)								
		pH	Dissolved Oxygen (mg/L)	Turbidity (NTU)	SS (mg/L)	BOD_5 (mgO_2/L	TOC (mg-TOC/L)	Total Nitrogen (mg/L)	NH_2-N (ng NH_3-N/L)	Total Phosphorus (mg-P/L)
2018/12/6	Stream 1	7.9	8	2	3	<2	4	1.9	<0.05	0.14
	Stream 2	7.5	7.7	0.8	3	<2	4	1.5	<0.05	0.14
	Stream 3	7.3	7.7	0.9	3	<2	4	1	<0.05	<0.05
2018/12/18	Stream 1	7.6	8.1	1.5	1	<2	3	<0.6	<0.05	<0.05
	Stream 2	7.3	8	1.7	2	<2	4	2.3	<0.05	0.11
	Stream 3	7.2	8	1.3	8	<2	4	2.3	<0.05	0.11

pH



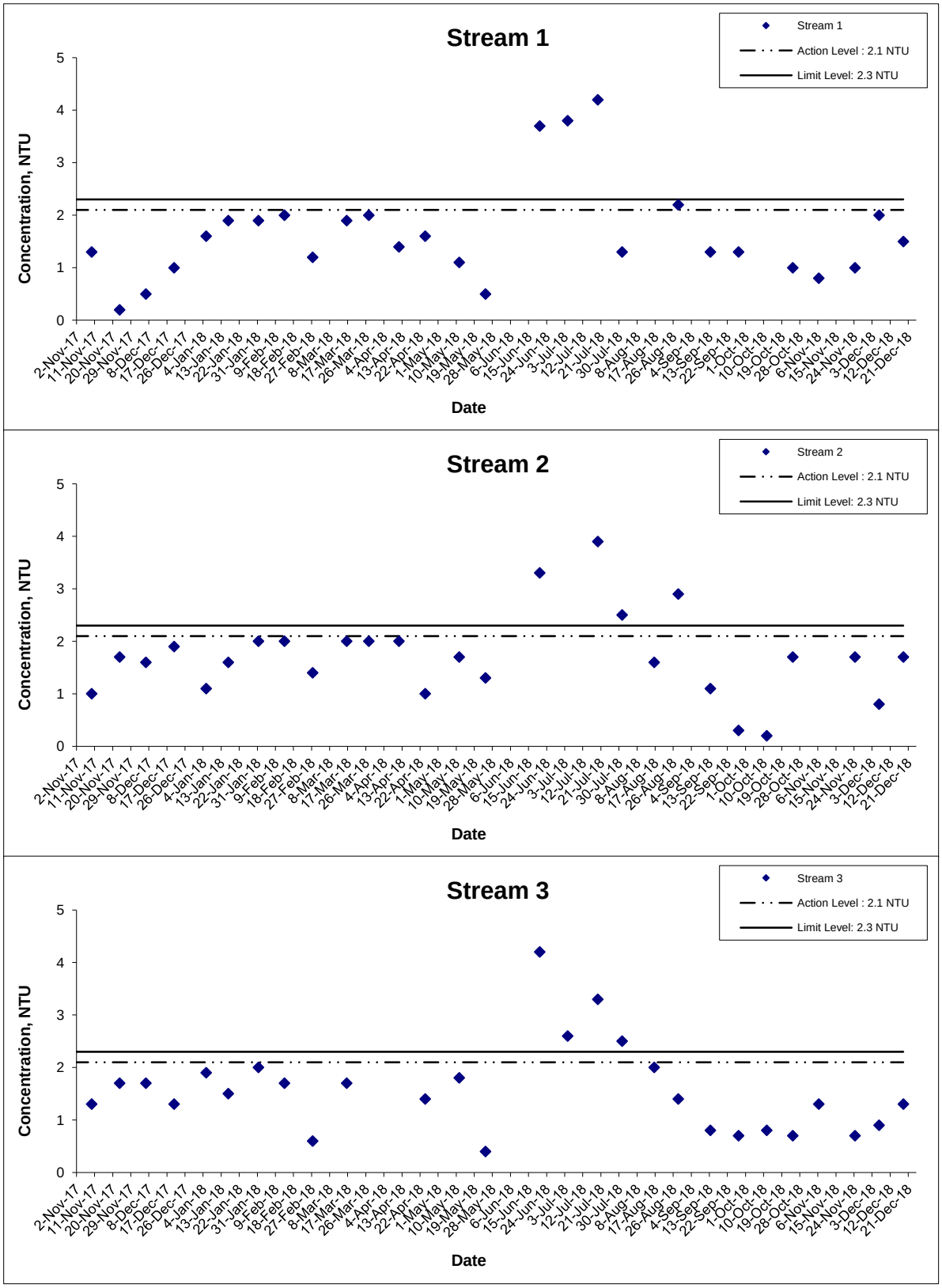
Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale N.T.S Date Dec 18	Project No. MA16034 Appendix H	CINOTECH

Dissolved Oxygen



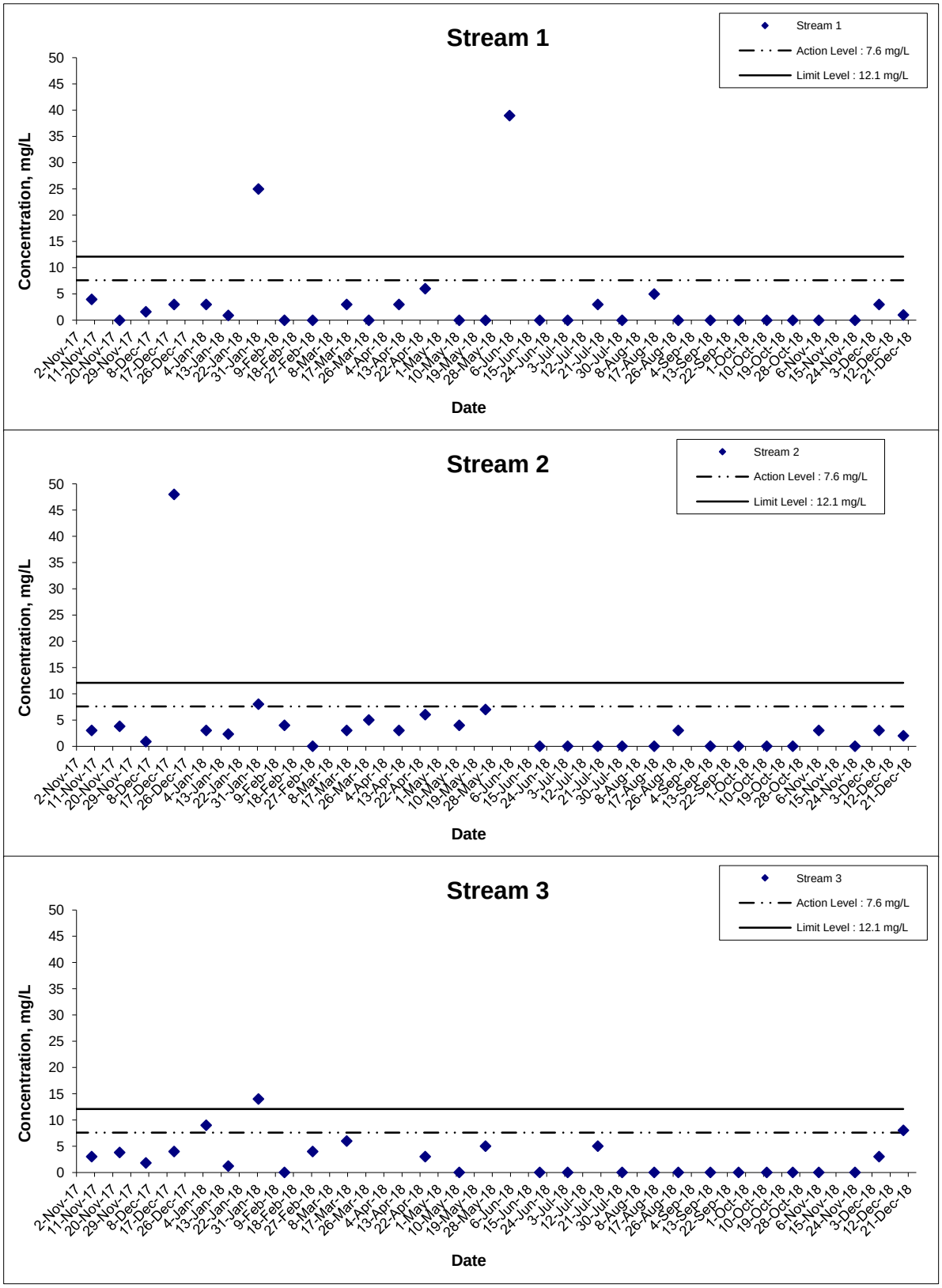
Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Dec 18	Project No.: MA16034 Appendix: H	CINOTECH

Turbidity



Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale N.T.S Date Dec 18	Project No. MA16034 Appendix H	CINOTECH

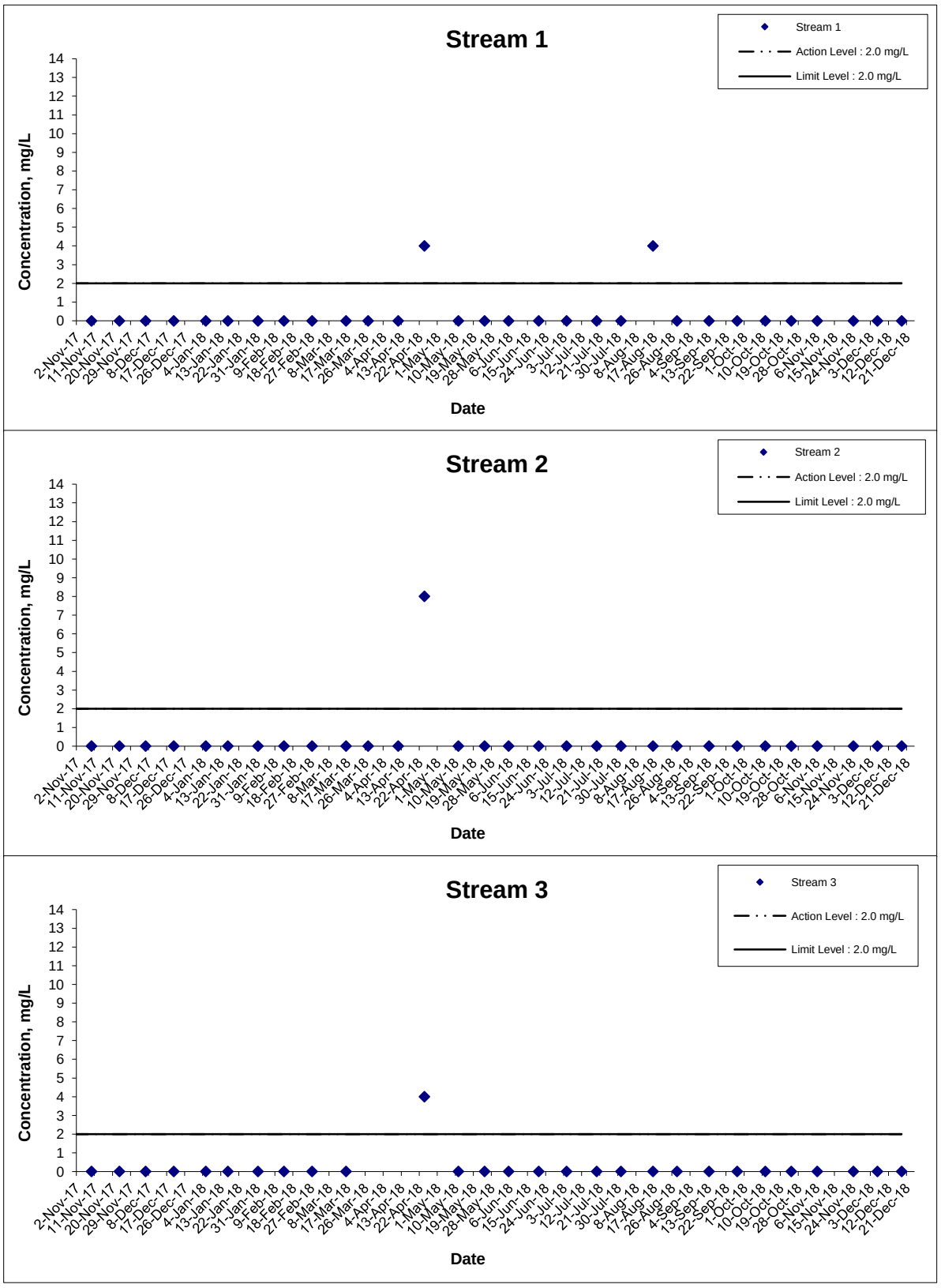
Suspended Solids



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Dec 18	Project No.: MA16034 Appendix: H	CINOTECH

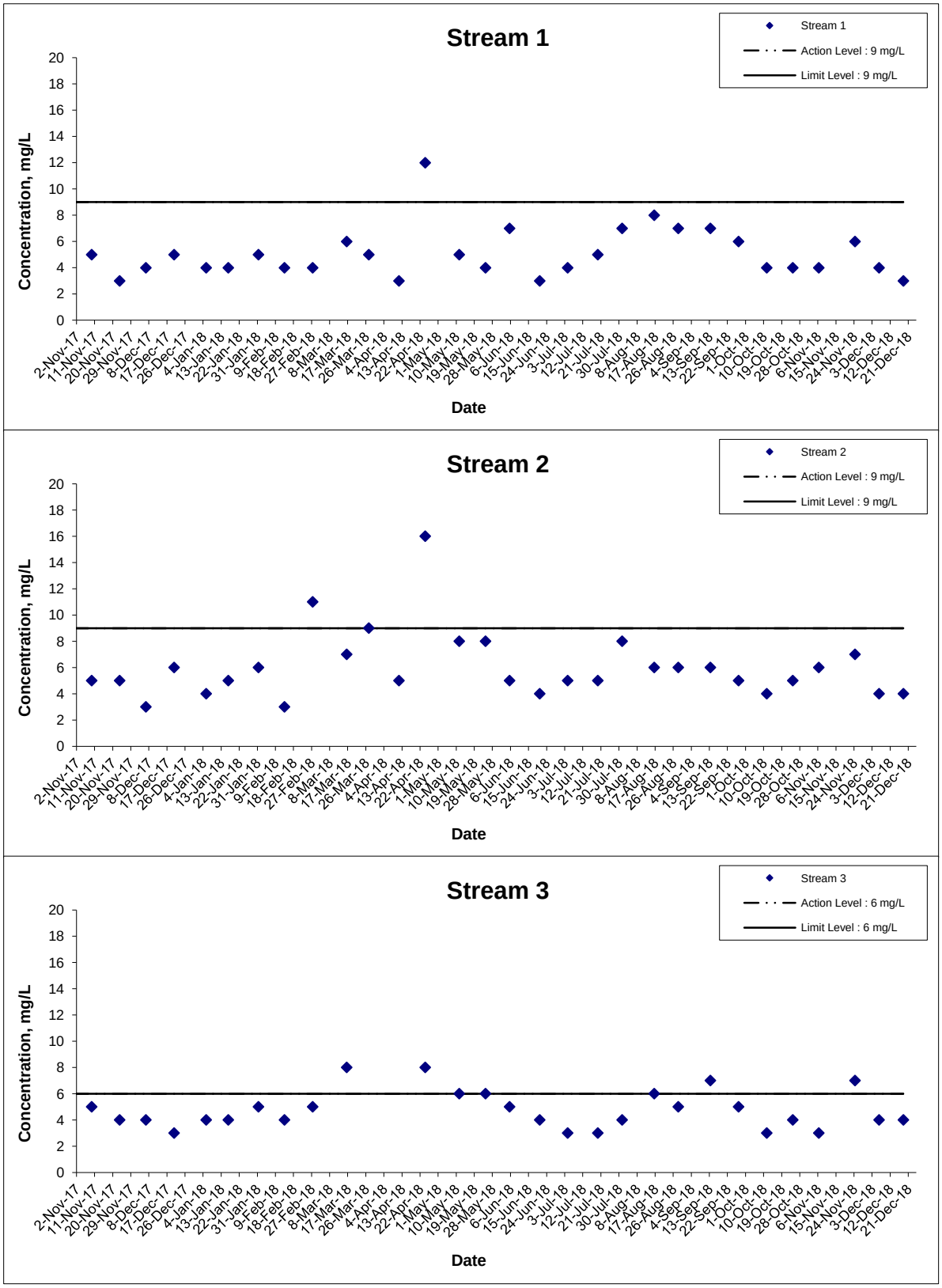
5-day Biochemical Oxygen Demand (BOD_5)



Remarks: The graphical point at zero concentration is presented as <2 mg/L

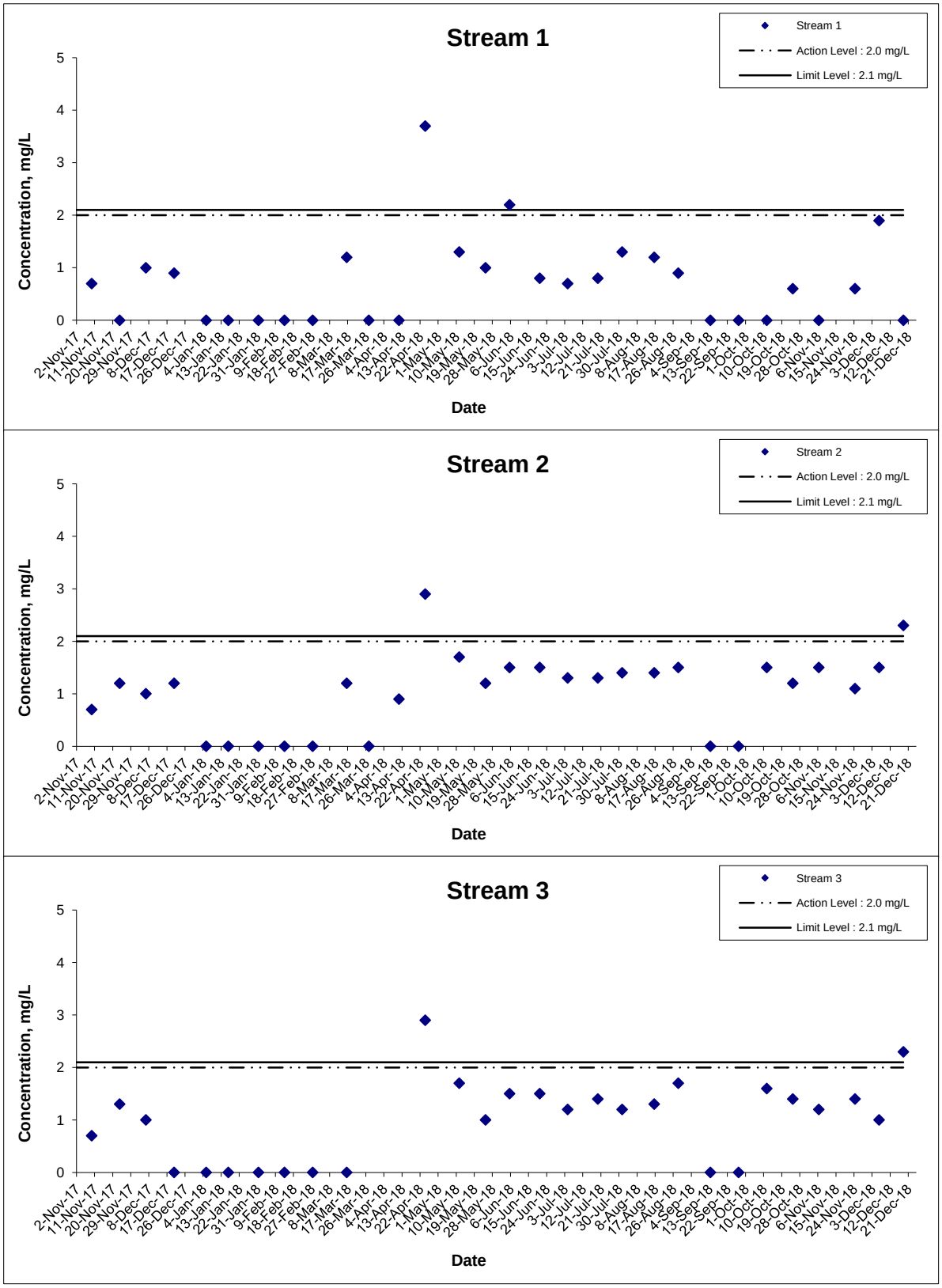
Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Dec 18	Project No.: MA16034 Appendix: H	CINOTECH

Total Organic Carbon (TOC)



Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Dec 18	Project No.: MA16034 Appendix: H	CINOTECH

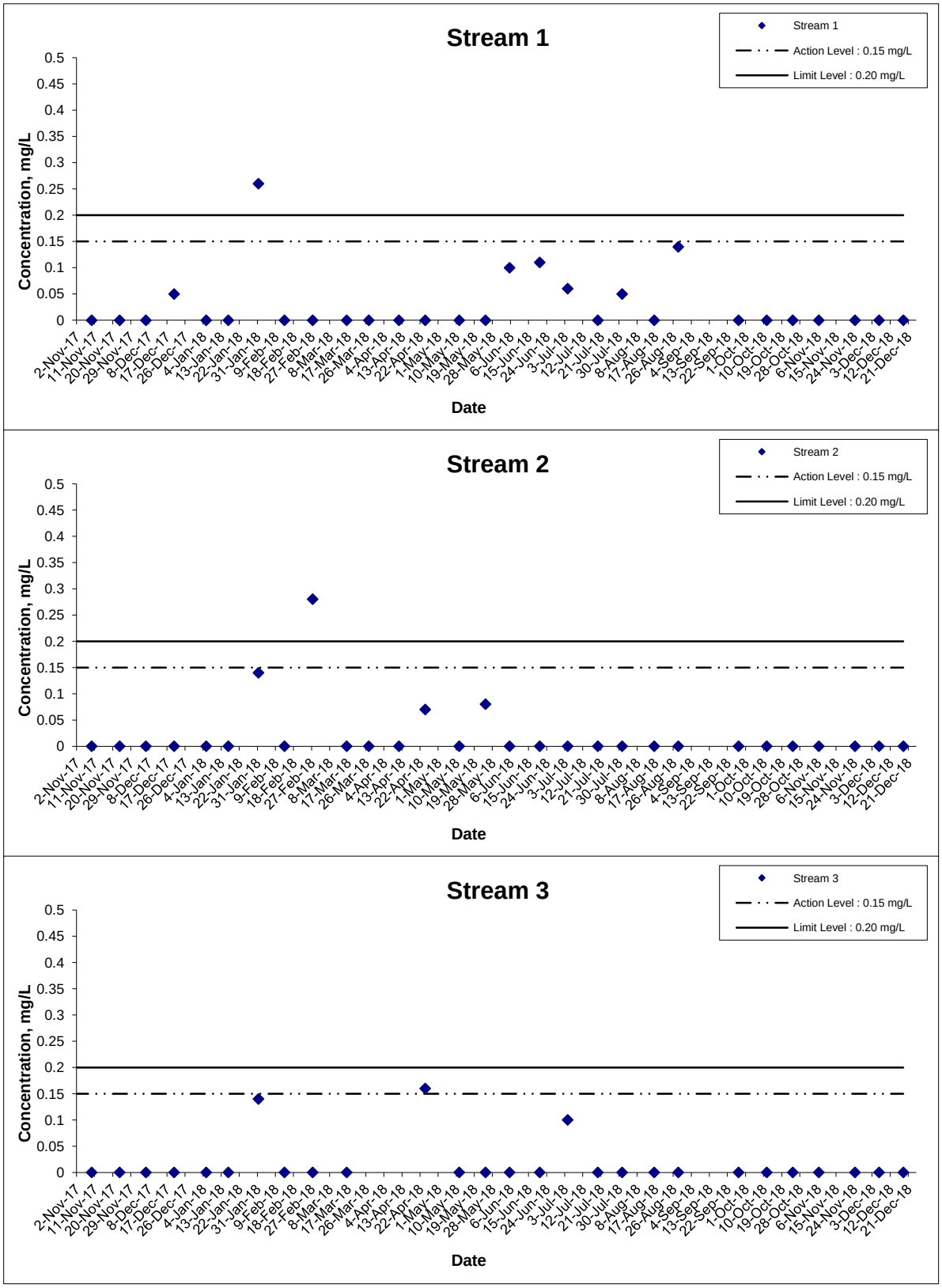
Total Nitrogen



Remarks: The graphical point at zero concentration is presented as <0.6 mg/L

Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction	Scale N.T.S	Project No. MA16034	CINOTECH
	Graphical Presentation of Groundwater Quality Monitoring Result	Date Dec 18	Appendix H	

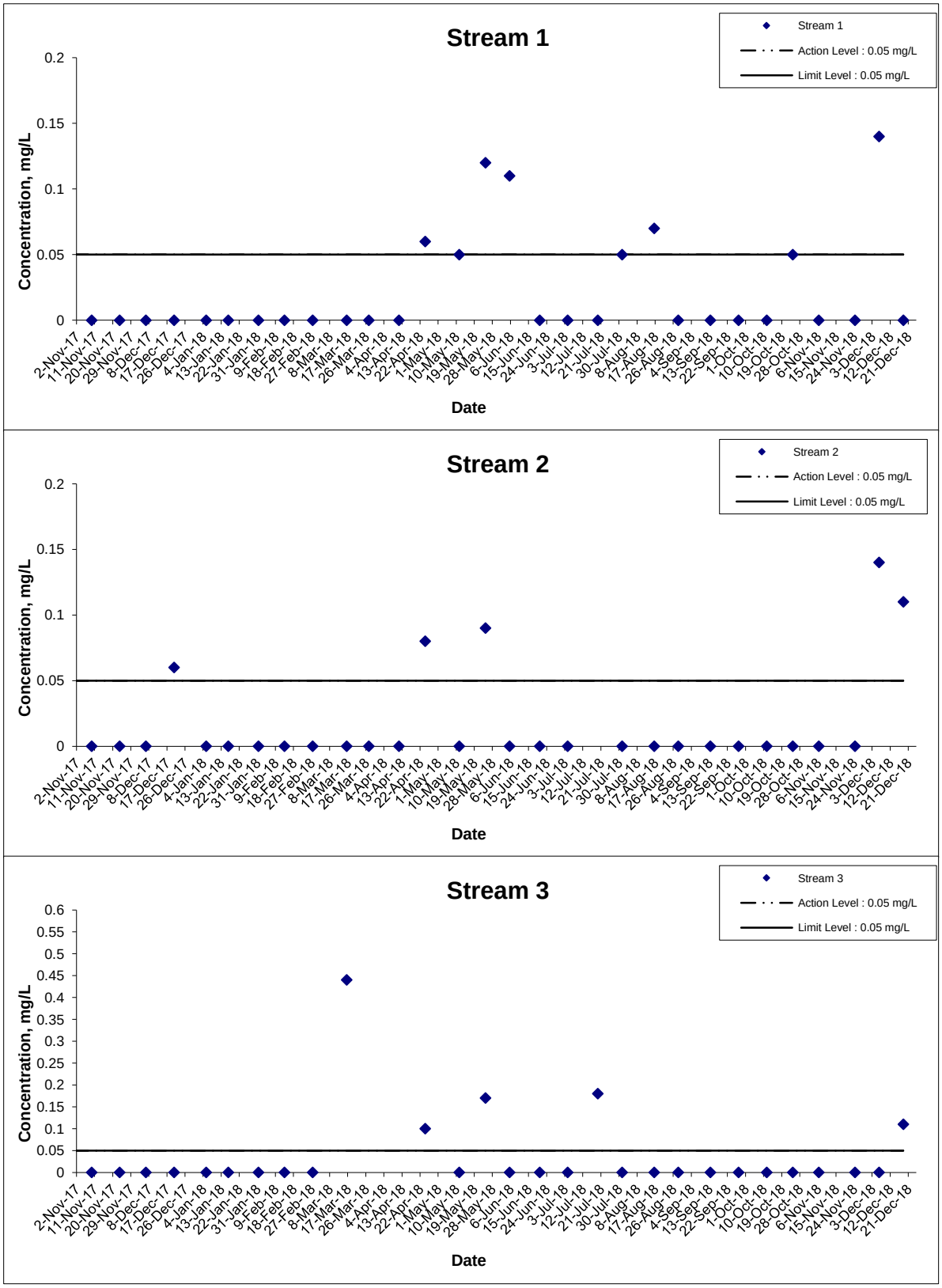
Ammonia-Nitrogen



Remarks: The graphical point at zero concentration is presented as <0.05 mg/L

Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Dec 18	Project No.: MA16034 Appendix: H	CINOTECH

Total Phosphate



Remarks: The graphical point at zero concentration is presented as <0.05 mg/L

Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Dec 18	Project No.: MA16034 Appendix: H	CINOTECH

APPENDIX I
MARINE WATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix I - Action and Limit Levels for Marine Water Quality on 3-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 2.2 NTU	***C2: 2.3 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 4.6 mg/L	***C2: 4.9 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 4.6 mg/L	***C2: 4.9 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 7.3 mg/L	***C2: 7.9 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 03 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	09:36	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.8 31.8	31.8	93.7 93.6	93.7	6.7 6.7	6.7	6.7	1.0 1.1	1.1	1.5	3.9 4.0	4.0	4.5
				Middle	9	23.0 23.0	23.0	8.0 8.0	8.0	32.0 32.0	32.0	91.9 91.9	91.9	6.6 6.6	6.6		1.8 1.8	1.8		4.5 4.7	4.6	
				Bottom	17	23.0 23.0	23.0	8.1 8.1	8.1	32.1 32.1	32.1	94.1 94.4	94.3	6.7 6.7	6.7	6.7	1.7 1.7	1.7		4.7 4.8	4.8	
C2	Sunny	Calm	08:08	Surface	1	23.0 23.0	23.0	7.9 7.9	7.9	31.7 31.7	31.7	87.9 87.8	87.9	6.3 6.3	6.3	6.4	1.3 1.3	1.3	1.5	3.7 3.8	3.8	4.2
				Middle	16.5	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	89.0 89.0	89.0	6.4 6.4	6.4		1.5 1.5	1.5		2.7 2.7	2.7	
				Bottom	32	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	89.4 89.5	89.5	6.4 6.4	6.4	6.4	1.7 1.8	1.8		6.2 6.0	6.1	
G1	Sunny	Calm	08:33	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.8 31.8	31.8	93.3 92.5	92.9	6.7 6.6	6.7	6.7	0.5 0.6	0.6	0.8	3.0 3.0	3.0	4.6
				Middle	4	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	93.8 93.8	93.8	6.7 6.7	6.7		0.8 0.8	0.8		4.3 4.3	4.3	
				Bottom	7	23.0 23.0	23.0	8.0 8.0	8.0	32.0 32.0	32.0	93.0 93.0	93.0	6.6 6.6	6.6	6.6	0.9 0.8	0.9		6.4 6.3	6.4	
G2	Sunny	Calm	08:23	Surface	1	22.9 22.9	22.9	8.0 8.0	8.0	31.8 31.8	31.8	94.5 94.0	94.3	6.8 6.7	6.8	6.7	0.7 0.7	0.7	1.3	4.5 4.2	4.4	4.4
				Middle	5	23.0 23.0	23.0	8.0 8.0	8.0	32.0 32.0	32.0	93.0 93.0	93.0	6.6 6.6	6.6		1.4 1.4	1.4		3.1 3.2	3.2	
				Bottom	9	23.0 23.0	23.0	8.1 8.1	8.1	32.1 32.2	32.2	94.0 94.2	94.1	6.7 6.7	6.7	6.7	1.7 1.8	1.8		5.4 5.5	5.5	
G3	Sunny	Calm	08:36	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	94.5 93.2	93.9	6.7 6.7	6.7	6.7	1.7 1.7	1.7	1.5	2.3 2.2	2.3	3.0
				Middle	4	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	93.6 93.2	93.4	6.7 6.7	6.7		1.3 1.4	1.4		4.0 3.8	3.9	
				Bottom	7	23.0 23.0	23.0	8.0 8.0	8.0	32.0 32.0	32.0	93.2 93.0	93.1	6.7 6.6	6.7	6.7	1.5 1.5	1.5		2.7 2.6	2.7	
G4	Sunny	Calm	09:19	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	94.6 95.1	94.9	6.8 6.8	6.8	6.8	1.0 1.0	1.0	1.2	3.4 3.4	3.4	4.4
				Middle	4	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	94.1 94.1	94.1	6.7 6.7	6.7		1.3 1.3	1.3		8.2 8.2	8.2	
				Bottom	7	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	92.5 92.4	92.5	6.6 6.6	6.6	6.6	1.2 1.2	1.2		1.7 1.7	1.7	
M1	Sunny	Calm	08:28	Surface	1	22.9 23.0	23.0	8.0 8.0	8.0	32.0 31.9	32.0	94.5 92.2	93.4	6.8 6.6	6.7	6.7	1.4 1.4	1.4	1.5	3.7 3.6	3.7	5.1
				Middle	3	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	91.7 91.8	91.8	6.5 6.6	6.6		1.4 1.4	1.4		5.4 5.4	5.4	
				Bottom	5	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	92.6 92.7	92.7	6.6 6.6	6.6	6.6	1.6 1.5	1.6		6.0 6.5	6.3	
M2	Sunny	Calm	08:20	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	94.8 94.7	94.8	6.8 6.8	6.8	6.8	0.8 0.8	0.8	1.1	4.3 4.4	4.4	4.4
				Middle	5.5	23.0 23.0	23.0	8.0 8.0	8.0	32.0 32.0	32.0	93.2 93.7	93.5	6.7 6.7	6.7		1.3 1.2	1.3		4.6 4.6	4.6	
				Bottom	10	23.0 23.0	23.0	8.0 8.0	8.0	32.0 32.0	32.0	93.0 93.1	93.1	6.6 6.6	6.6	6.6	1.3 1.3	1.3		4.3 4.3	4.3	
M3	Sunny	Calm	08:40	Surface	1	23.1 23.1	23.1	8.0 8.0	8.0	31.9 31.9	31.9	95.1 95.1	95.1	6.8 6.8	6.8	6.8	0.8 0.9	0.9	1.1	3.6 3.6	3.6	3.8
				Middle	4	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	94.1 94.1	94.1	6.7 6.7	6.7		1.0 0.9	1.0		3.2 3.2	3.2	
				Bottom	7	23.0 23.0	23.0	8.0 8.0	8.0	31.9 32.0	32.0	93.3 92.6	93.0	6.7 6.6	6.7	6.7	1.2 1.4	1.3		4.6 4.4	4.5	
M4	Sunny	Calm	08:15	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.8 31.8	31.8	89.6 90.8	90.2	6.4 6.5	6.5	6.5	1.2 1.1	1.2	1.2	3.4 3.3	3.4	4.4
				Middle	5	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	91.0 91.0	91.0	6.5 6.5	6.5		1.2 1.2	1.2		7.0 7.1	7.1	
				Bottom	9	23.0 23.0	23.0	8.0 8.0	8.0	32.0 32.0	32.0	91.5 91.5	91.5	6.5 6.5	6.5	6.5	1.3 1.3	1.3		2.7 2.8	2.8	
M5	Sunny	Calm	09:30	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	91.2 91.3	91.3	6.5 6.5	6.5	6.6	0.9 0.8	0.9	1.5	2.9 2.9	2.9	4.4
				Middle	6	23.0 23.0	23.0	8.1 8.1	8.1	32.1 32.1	32.1	93.0 93.1	93.1	6.6 6.6	6.6		1.6 1.7	1.7		6.5 6.3	6.4	
				Bottom	11	23.0 23.0	23.0	8.1 8.1	8.1	32.2 32.2	32.2	93.3 93.8	93.6	6.7 6.7	6.7	6.7	1.8 1.8	1.8		4.0 4.0	4.0	
M6	Sunny	Calm	09:25	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.5	- -	-	0.9	- -	-	3.9
				Middle	2.2	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	91.6 91.4	91.5	6.5 6.5	6.5		0.9 0.8	0.9		3.9 3.8	3.9	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 3-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 2.4 NTU	***C1: 2.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 6.1 mg/L	***C1: 6.6 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 6.1 mg/L	***C1: 6.6 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 4.1 mg/L	***C1: 4.4 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 03 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	16:07	Surface	1	23.1 23.1	23.1	8.0 8.0	8.0	31.8 31.8	31.8	95.2 95.0	95.1	6.8 6.8	6.8	6.9	1.1 1.0	1.1	1.4	5.0 5.1	5.1	3.9
				Middle	9	23.0 23.0	23.0	8.1 8.1	8.1	32.2 32.2	32.2	98.0 97.7	97.9	7.0 7.0	7.0		1.1 1.0	1.1		3.2 3.3	3.3	
				Bottom	17	23.0 23.0	23.0	8.1 8.1	8.1	32.2 32.2	32.2	97.6 97.5	97.6	7.0 7.0	7.0	7.0	1.9 2.0	2.0		3.4 3.3	3.4	
C2	Sunny	Calm	14:53	Surface	1	23.3 23.3	23.3	8.0 8.0	8.0	31.6 31.6	31.6	90.6 90.3	90.5	6.4 6.4	6.4	6.4	1.4 1.4	1.4	1.6	2.4 2.4	2.4	2.4
				Middle	16	23.1 23.1	23.1	8.0 8.0	8.0	31.7 31.7	31.7	87.8 87.8	87.8	6.3 6.3	6.3		1.7 1.7	1.7		1.8 1.8	1.8	
				Bottom	31	23.1 23.1	23.1	8.0 8.0	8.0	31.7 31.7	31.7	87.7 87.6	87.7	6.3 6.2	6.3	6.3	1.7 1.6	1.7		2.9 2.8	2.9	
G1	Sunny	Calm	15:16	Surface	1	23.6 23.6	23.6	8.1 8.1	8.1	31.8 31.8	31.8	105.6 105.7	105.7	7.5 7.5	7.5	7.5	0.9 0.9	0.9	1.1	2.8 2.8	2.8	3.3
				Middle	4	23.4 23.3	23.4	8.1 8.1	8.1	31.9 31.9	31.9	105.4 105.1	105.3	7.5 7.5	7.5		1.0 1.1	1.1		4.7 4.7	4.7	
				Bottom	7	23.1 23.1	23.1	8.1 8.1	8.1	32.0 32.0	32.0	100.4 100.4	100.4	7.2 7.2	7.2	7.2	1.1 1.2	1.2		2.4 2.3	2.4	
G2	Sunny	Calm	15:07	Surface	1	23.8 23.7	23.8	8.1 8.1	8.1	31.8 31.8	31.8	100.7 100.8	100.8	7.1 7.1	7.1	7.1	1.4 1.4	1.4	1.6	2.5 2.5	2.5	2.4
				Middle	5	23.1 23.1	23.1	8.1 8.1	8.1	32.0 32.0	32.0	98.6 98.9	98.8	7.0 7.1	7.1		1.7 1.6	1.7		2.1 2.1	2.1	
				Bottom	9	23.0 23.0	23.0	8.1 8.1	8.1	32.1 32.1	32.1	95.1 95.0	95.1	6.8 6.8	6.8	6.8	1.7 1.8	1.8		2.5 2.5	2.5	
G3	Sunny	Calm	15:20	Surface	1	23.5 23.6	23.6	8.1 8.1	8.1	31.8 31.8	31.8	103.7 104.2	104.0	7.3 7.4	7.4	7.4	0.5 0.5	0.5	0.7	3.1 3.0	3.1	2.3
				Middle	4	23.1 23.1	23.1	8.1 8.1	8.1	32.0 32.0	32.0	102.2 103.4	102.8	7.3 7.4	7.4		0.8 0.7	0.8		1.8 1.8	1.8	
				Bottom	7	23.0 23.0	23.0	8.1 8.1	8.1	32.0 32.0	32.0	96.9 97.1	97.0	6.9 6.9	6.9	6.9	0.8 0.8	0.8		2.0 2.0	2.0	
G4	Sunny	Calm	15:53	Surface	1	23.7 23.7	23.7	8.1 8.1	8.1	31.8 31.8	31.8	102.1 102.1	102.1	7.2 7.2	7.2	7.3	1.4 1.4	1.4	1.5	4.3 4.2	4.3	4.3
				Middle	4	23.5 23.5	23.5	8.1 8.1	8.1	31.9 31.9	31.9	103.4 103.3	103.4	7.3 7.3	7.3		1.3 1.3	1.3		5.0 5.0	5.0	
				Bottom	7	23.1 23.1	23.1	8.1 8.1	8.1	32.0 32.0	32.0	100.8 100.6	100.7	7.2 7.2	7.2	7.2	1.8 1.8	1.8		3.8 3.6	3.7	
M1	Sunny	Calm	15:12	Surface	1	23.3 23.3	23.3	8.1 8.1	8.1	31.9 31.9	31.9	97.3 97.3	97.3	6.9 6.9	6.9	6.9	1.8 1.8	1.8	1.8	2.8 2.8	2.8	3.6
				Middle	3	23.2 23.2	23.2	8.1 8.1	8.1	31.9 31.9	31.9	96.5 96.7	96.6	6.9 6.9	6.9		1.9 1.8	1.9		4.7 4.4	4.6	
				Bottom	5	23.1 23.1	23.1	8.1 8.1	8.1	32.0 32.0	32.0	95.1 95.3	95.2	6.8 6.8	6.8	6.8	1.7 1.7	1.7		3.5 3.5	3.5	
M2	Sunny	Calm	15:04	Surface	1	23.4 23.4	23.4	8.1 8.1	8.1	31.9 31.9	31.9	102.0 101.6	101.8	7.2 7.2	7.2	7.1	1.5 1.5	1.5	1.7	1.5 1.4	1.5	2.8
				Middle	5.5	23.0 23.0	23.0	8.1 8.1	8.1	32.0 32.0	32.0	97.0 96.9	97.0	6.9 6.9	6.9		1.8 1.8	1.8		5.1 5.2	5.2	
				Bottom	10	23.0 23.0	23.0	8.1 8.1	8.1	32.1 32.1	32.1	92.8 93.5	93.2	6.6 6.7	6.7	6.7	1.7 1.7	1.7		1.8 1.8	1.8	
M3	Sunny	Calm	15:24	Surface	1	23.7 23.7	23.7	8.1 8.1	8.1	31.7 31.7	31.7	104.2 104.0	104.1	7.4 7.3	7.4	7.2	0.4 0.4	0.4	1.1	1.7 1.8	1.8	2.5
				Middle	4	23.1 23.1	23.1	8.1 8.1	8.1	32.0 32.0	32.0	97.3 97.2	97.3	6.9 6.9	6.9		1.2 1.2	1.2		3.1 2.9	3.0	
				Bottom	7	23.0 23.0	23.0	8.1 8.1	8.1	32.1 32.1	32.1	93.3 93.4	93.4	6.7 6.7	6.7	6.7	1.6 1.6	1.6		2.7 2.6	2.7	
M4	Sunny	Calm	14:58	Surface	1	23.2 23.2	23.2	8.1 8.1	8.1	31.9 31.9	31.9	101.4 101.6	101.5	7.2 7.2	7.2	6.9	1.4 1.3	1.4	1.8	3.2 3.1	3.2	2.7
				Middle	5	23.0 23.0	23.0	8.0 8.0	8.0	32.0 32.0	32.0	93.0 92.8	92.9	6.6 6.6	6.6		2.0 1.9	2.0		2.2 2.2	2.2	
				Bottom	9	23.2 23.0	23.1	8.1 8.0	8.1	31.9 32.0	32.0	101.6 91.9	96.8	7.2 6.6	6.9	6.9	2.0 2.0	2.0		2.5 2.6	2.6	
M5	Sunny	Calm	16:03	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.7 31.7	31.7	93.7 93.7	93.7	6.7 6.7	6.7	6.7	1.8 1.9	1.9	2.0	3.9 3.7	3.8	3.0
				Middle	5.5	23.0 23.1	23.1	8.1 8.0	8.1	32.0 32.0	32.0	93.7 93.3	93.5	6.7 6.7	6.7		1.9 1.9	1.9		2.7 2.7	2.7	
				Bottom	10	23.0 23.0	23.0	8.1 8.1	8.1	32.2 32.2	32.2	95.5 96.4	96.0	6.8 6.9	6.9	6.9	2.0 2.1	2.1		2.5 2.4	2.5	
M6	Sunny	Calm	15:57	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.3	- -	-	1.1	- -	-	3.3
				Middle	2.2	23.3 23.3	23.3	8.1 8.1	8.1	31.9 31.9	31.9	102.6 102.6	102.6	7.3 7.3	7.3		1.1 1.1	1.1		3.3 3.2	3.3	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 5-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 2.8 NTU	***C2: 3.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 7.0 mg/L	***C2: 7.5 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 7.0 mg/L	***C2: 7.5 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 7.4 mg/L	***C2: 8.1 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 05 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	11:29	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	93.9 93.8	93.9	6.7 6.7	6.7	6.7	1.5 1.5	1.5	1.8	5.0 5.0	5.0	4.1
				Middle	9	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	92.9 93.1	93.0	6.6 6.6	6.6		1.5 1.5	1.5		3.9 3.9	3.9	
				Bottom	17	23.0 23.0	23.0	8.1 8.1	8.1	32.2 32.2	32.2	94.2 93.6	93.9	6.7 6.7	6.7	6.7	2.2 2.3	2.3		3.2 3.3	3.3	
C2	Cloudy	Moderate	09:53	Surface	1	23.0 23.2	23.1	8.0 7.9	8.0	32.4 31.7	32.1	93.7 89.8	91.8	6.7 6.4	6.6	6.6	1.3 1.3	1.3	1.6	5.8 5.8	5.8	5.1
				Middle	16	23.1 23.1	23.1	7.9 8.0	8.0	31.9 31.9	31.9	91.3 90.5	90.9	6.5 6.4	6.5		1.2 1.2	1.2		3.2 3.3	3.3	
				Bottom	31	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	91.2 91.2	91.2	6.5 6.5	6.5	6.5	2.2 2.3	2.3		6.1 6.2	6.2	
G1	Cloudy	Moderate	10:32	Surface	1	23.3 23.3	23.3	8.0 8.0	8.0	31.7 31.8	31.8	96.6 95.5	96.1	6.9 6.8	6.9	6.9	0.9 1.0	1.0	1.4	5.2 5.4	5.3	6.4
				Middle	4	23.3 23.2	23.3	8.0 8.0	8.0	31.8 31.9	31.9	95.0 93.9	94.5	6.8 6.7	6.8		1.6 1.7	1.7		8.3 8.7	8.5	
				Bottom	7	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	93.4 93.5	93.5	6.7 6.7	6.7	6.7	1.6 1.6	1.6		5.2 5.3	5.3	
G2	Cloudy	Moderate	10:17	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.9	31.9	95.0 94.8	94.9	6.8 6.7	6.8	6.8	1.0 1.1	1.1	1.2	5.0 4.9	5.0	5.0
				Middle	6	23.2 23.1	23.2	8.0 8.0	8.0	31.9 32.0	32.0	93.8 93.7	93.8	6.7 6.7	6.7		1.0 1.0	1.0		5.2 5.0	5.1	
				Bottom	11	23.1 23.1	23.1	8.0 8.0	8.0	32.1 32.1	32.1	93.7 93.8	93.8	6.7 6.7	6.7	6.7	1.4 1.4	1.4		4.7 4.8	4.8	
G3	Cloudy	Moderate	10:36	Surface	1	23.3 23.3	23.3	8.0 8.0	8.0	31.6 31.6	31.6	92.2 91.6	91.9	6.6 6.5	6.6	6.6	1.4 1.3	1.4	1.6	3.4 3.4	3.4	4.8
				Middle	4	23.3 23.3	23.3	8.0 8.0	8.0	31.7 31.7	31.7	93.1 92.8	93.0	6.6 6.6	6.6		1.6 1.5	1.6		6.7 6.9	6.8	
				Bottom	7	23.3 23.3	23.3	8.0 8.0	8.0	31.9 31.8	31.9	95.0 94.6	94.8	6.8 6.7	6.8	6.8	1.8 1.7	1.8		4.2 4.1	4.2	
G4	Cloudy	Moderate	11:12	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.8	31.8	91.1 90.9	91.0	6.5 6.5	6.5	6.5	1.8 1.8	1.8	2.2	4.2 4.2	4.2	4.5
				Middle	4	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.8	31.9	91.8 90.8	91.3	6.5 6.5	6.5		2.3 2.1	2.2		4.6 4.6	4.6	
				Bottom	7	23.1 23.1	23.1	8.1 8.0	8.1	32.1 32.1	32.1	93.1 92.6	92.9	6.6 6.6	6.6	6.6	2.4 2.5	2.5		4.7 4.5	4.6	
M1	Cloudy	Moderate	10:26	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.9	31.9	92.6 92.5	92.6	6.6 6.6	6.6	6.6	2.1 2.1	2.1	2.2	4.4 4.3	4.4	4.9
				Middle	3	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	92.4 92.7	92.6	6.6 6.6	6.6		2.1 2.1	2.1		4.4 4.5	4.5	
				Bottom	5	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	92.5 92.6	92.6	6.6 6.6	6.6	6.6	2.4 2.4	2.4		5.8 5.8	5.8	
M2	Cloudy	Moderate	10:12	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	95.1 94.1	94.6	6.8 6.7	6.8	6.8	1.4 1.5	1.5	1.6	4.2 4.3	4.3	3.4
				Middle	5	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	93.8 93.2	93.5	6.7 6.6	6.7		1.6 1.6	1.6		3.0 3.0	3.0	
				Bottom	9	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	92.6 92.8	92.7	6.6 6.6	6.6	6.6	1.7 1.7	1.7		2.9 2.9	2.9	
M3	Cloudy	Moderate	10:39	Surface	1	23.3 23.3	23.3	8.0 8.0	8.0	31.6 31.7	31.7	92.5 91.4	92.0	6.6 6.5	6.6	6.7	0.8 0.8	0.8	1.0	3.3 3.3	3.3	5.2
				Middle	4	23.4 23.3	23.4	8.0 8.0	8.0	31.8 31.8	31.8	93.7 93.2	93.5	6.7 6.6	6.7		0.8 0.9	0.9		6.0 6.0	6.0	
				Bottom	7	23.3 23.3	23.3	8.0 8.0	8.0	31.9 31.9	31.9	94.2 94.0	94.1	6.7 6.7	6.7	6.7	1.2 1.2	1.2		6.3 6.3	6.3	
M4	Cloudy	Moderate	10:08	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.9	31.9	93.1 93.0	93.1	6.6 6.6	6.6	6.6	1.1 1.1	1.1	1.1	4.9 4.8	4.9	4.8
				Middle	6	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	93.0 92.9	93.0	6.6 6.6	6.6		1.2 1.1	1.2		4.1 4.2	4.2	
				Bottom	11	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	92.5 92.7	92.6	6.6 6.6	6.6	6.6	1.0 1.1	1.1		5.0 5.5	5.3	
M5	Cloudy	Moderate	11:22	Surface	1	23.1 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	93.5 93.3	93.4	6.7 6.6	6.7	6.7	1.7 1.9	1.8	2.3	5.6 5.9	5.8	5.9
				Middle	6	23.1 23.1	23.1	8.0 8.0	8.0	32.1 32.0	32.1	92.6 92.5	92.6	6.6 6.6	6.6		2.9 2.8	2.9		8.2 8.1	8.2	
				Bottom	11	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	93.6 93.9	93.8	6.7 6.7	6.7	6.7	2.2 2.0	2.1		3.7 3.7	3.7	
M6	Cloudy	Moderate	11:17	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.3	- -	-	2.8	- -	-	6.4
				Middle	2.3	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	88.7 88.8	88.8	6.3 6.3	6.3		2.8 2.8	2.8		6.4 6.4	6.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 5-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 3.2 NTU	***C1: 3.5 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 5.5 mg/L	***C1: 6.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 5.5 mg/L	***C1: 6.0 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 6.4 mg/L	***C1: 6.9 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 05 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	17:23	Surface	1	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	99.4 99.6	99.5	7.1 7.1	7.1	7.1	0.6 0.6	0.6	1.3	4.6 4.5	4.6	5.1
				Middle	9	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	99.1 99.0	99.1	7.1 7.1	7.1		0.6 0.6	0.6		5.5 5.4	5.5	
				Bottom	17	23.0 23.1	23.1	8.1 8.1	8.1	32.2 32.2	32.2	95.1 95.7	95.4	6.8 6.8	6.8	6.8	2.7 2.7	2.7		5.3 5.3	5.3	
C2	Cloudy	Moderate	16:02	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.6 31.7	31.7	90.3 89.9	90.1	6.4 6.4	6.4	6.4	1.2 1.3	1.3	1.6	2.9 2.9	2.9	3.6
				Middle	16	23.2 23.2	23.2	8.0 8.0	8.0	31.7 31.8	31.8	87.7 87.9	87.8	6.2 6.3	6.3		1.9 1.9	1.9		3.8 3.7	3.8	
				Bottom	31	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.8	31.8	87.5 87.6	87.6	6.2 6.2	6.2	6.2	1.4 1.5	1.5		4.0 4.2	4.1	
G1	Cloudy	Moderate	16:30	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.6 31.6	31.6	96.4 96.4	96.4	6.9 6.9	6.9	6.8	1.0 0.9	1.0	2.1	3.0 2.9	3.0	3.8
				Middle	4	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.9	31.9	94.6 94.3	94.5	6.7 6.7	6.7		2.7 2.9	2.8		3.5 3.6	3.6	
				Bottom	7	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	92.3 91.9	92.1	6.6 6.5	6.6	6.6	2.3 2.4	2.4		4.6 4.8	4.7	
G2	Cloudy	Moderate	16:18	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.8	31.8	96.9 97.0	97.0	6.9 6.9	6.9	6.9	1.2 1.2	1.2	1.8	3.5 3.6	3.6	3.9
				Middle	6	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	96.6 95.8	96.2	6.9 6.8	6.9		1.8 1.8	1.8		3.7 3.7	3.7	
				Bottom	11	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	95.4 93.3	94.4	6.8 6.6	6.7	6.7	2.4 2.5	2.5		4.2 4.3	4.3	
G3	Cloudy	Moderate	16:35	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.7 31.7	31.7	96.8 96.1	96.5	6.9 6.8	6.9	6.8	1.1 1.2	1.2	2.3	4.6 4.8	4.7	7.4
				Middle	4	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.8	31.8	93.8 92.7	93.3	6.7 6.6	6.7		2.8 2.6	2.7		11.6 11.7	11.7	
				Bottom	7	23.2 23.1	23.2	8.0 8.0	8.0	31.9 32.0	32.0	92.0 92.4	92.2	6.6 6.6	6.6	6.6	2.8 3.0	2.9		5.7 5.6	5.7	
G4	Cloudy	Moderate	17:09	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.8	31.8	95.4 94.9	95.2	6.8 6.8	6.8	6.8	1.2 1.3	1.3	1.5	4.0 4.2	4.1	4.9
				Middle	4	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	94.7 93.9	94.3	6.7 6.7	6.7		1.4 1.6	1.5		4.8 4.9	4.9	
				Bottom	7	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	92.4 92.6	92.5	6.6 6.6	6.6	6.6	1.6 1.6	1.6		5.6 5.5	5.6	
M1	Cloudy	Moderate	16:25	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.8	31.8	95.6 95.1	95.4	6.8 6.8	6.8	6.8	2.3 2.3	2.3	2.5	5.4 5.5	5.5	5.7
				Middle	3	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.8	31.8	95.1 94.8	95.0	6.8 6.7	6.8		2.3 2.4	2.4		7.2 6.9	7.1	
				Bottom	5	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.9	31.9	95.2 94.1	94.7	6.8 6.7	6.8	6.8	2.7 2.7	2.7		4.4 4.5	4.5	
M2	Cloudy	Moderate	16:14	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	95.7 95.8	95.8	6.8 6.8	6.8	6.8	1.8 1.7	1.8	1.8	4.0 3.9	4.0	3.9
				Middle	5	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	95.5 95.4	95.5	6.8 6.8	6.8		1.8 1.7	1.8		3.4 3.5	3.5	
				Bottom	9	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	95.1 95.1	95.1	6.8 6.8	6.8	6.8	1.9 1.9	1.9		4.2 4.2	4.2	
M3	Cloudy	Moderate	16:40	Surface	1	23.2 23.3	23.3	8.0 8.0	8.0	31.8 31.6	31.7	93.7 95.8	94.8	6.7 6.8	6.8	6.8	1.7 1.7	1.7	2.2	4.9 5.1	5.0	4.4
				Middle	4	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	94.1 93.4	93.8	6.7 6.7	6.7		2.5 2.7	2.6		4.5 4.6	4.6	
				Bottom	7	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	91.5 91.3	91.4	6.5 6.5	6.5	6.5	2.5 2.3	2.4		3.5 3.6	3.6	
M4	Cloudy	Moderate	16:08	Surface	1	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.8	31.9	93.6 92.7	93.2	6.7 6.6	6.7	6.7	1.4 1.5	1.5	1.6	5.1 5.2	5.2	4.7
				Middle	6	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.8	31.9	93.7 92.5	93.1	6.7 6.6	6.7		1.6 1.6	1.6		3.9 3.9	3.9	
				Bottom	11	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	93.1 92.7	92.9	6.6 6.6	6.6	6.6	1.5 1.6	1.6		5.2 4.9	5.1	
M5	Cloudy	Moderate	17:18	Surface	1	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	95.0 95.1	95.1	6.8 6.8	6.8	6.8	1.5 1.5	1.5	2.0	3.4 3.4	3.4	4.8
				Middle	6	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	94.1 93.9	94.0	6.7 6.7	6.7		1.8 2.1	2.0		5.3 5.5	5.4	
				Bottom	11	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	93.5 93.3	93.4	6.7 6.6	6.7	6.7	2.5 2.6	2.6		5.5 5.4	5.5	
M6	Cloudy	Moderate	17:14	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.9	- -	-	1.2	- -	-	2.6
				Middle	2	23.2 23.2	23.2	8.0 8.0	8.0	31.9 31.9	31.9	96.4 96.8	96.6	6.9 6.9	6.9		1.1 1.2	1.2		2.6 2.6	2.6	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 7-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 3.2 NTU	***C2: 3.5 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 6.8 mg/L	***C2: 7.4 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 6.8 mg/L	***C2: 7.4 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 7.1 mg/L	***C2: 7.7 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 07 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Rainy	Moderate	13:56	Surface	1	23.1 23.1	23.1	8.1 8.0	8.1	32.0 32.0	32.0	94.9 95.0	95.0	6.8 6.8	6.8	6.8	1.9 1.8	1.9	1.7	5.2 5.1	5.2	4.9
				Middle	9	23.1 23.1	23.1	8.1 8.0	8.1	32.0 32.0	32.0	94.4 94.2	94.3	6.7 6.7	6.7		1.6 1.7	1.7		3.7 3.7	3.7	
				Bottom	17	23.1 23.1	23.1	8.1 8.0	8.1	32.1 32.1	32.1	93.8 93.4	93.6	6.7 6.7	6.7		1.6 1.6	1.6		5.7 5.7	5.7	
C2	Rainy	Moderate	12:26	Surface	1	23.1 23.1	23.1	8.0 8.0	8.0	31.9 31.9	31.9	92.2 91.3	91.8	6.6 6.5	6.6	6.6	2.0 1.9	2.0	2.2	5.7 5.7	5.7	6.0
				Middle	16	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	90.8 90.5	90.7	6.5 6.4	6.5		1.9 1.9	1.9		6.2 6.3	6.3	
				Bottom	31	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	90.7 90.6	90.7	6.5 6.5	6.5	6.5	2.6 2.7	2.7		5.9 5.8	5.9	
G1	Rainy	Moderate	12:57	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.8 31.8	31.8	93.5 93.4	93.5	6.7 6.7	6.7	6.7	1.6 1.5	1.6	2.1	3.7 3.7	3.7	3.2
				Middle	4	23.1 23.1	23.1	8.0 8.0	8.0	31.9 32.0	32.0	92.9 93.0	93.0	6.6 6.6	6.6		2.3 2.2	2.3		4.2 4.1	4.2	
				Bottom	7	23.1 23.1	23.1	8.1 8.0	8.1	32.1 32.1	32.1	93.6 93.1	93.4	6.7 6.6	6.7	6.7	2.3 2.2	2.3		1.8 1.8	1.8	
G2	Rainy	Moderate	12:46	Surface	1	23.1 23.1	23.1	8.0 8.1	8.1	32.0 32.0	32.0	94.9 94.7	94.8	6.8 6.8	6.8	6.8	1.4 1.4	1.4	1.6	1.4 1.5	1.5	1.4
				Middle	6	23.1 23.1	23.1	8.1 8.1	8.1	32.0 32.0	32.0	94.3 94.1	94.2	6.7 6.7	6.7		1.5 1.4	1.5		1.0 1.1	1.1	
				Bottom	11	23.1 23.1	23.1	8.1 8.1	8.1	32.2 32.2	32.2	94.6 94.5	94.6	6.7 6.7	6.7	6.7	2.0 1.9	2.0		1.5 1.5	1.5	
G3	Rainy	Moderate	13:01	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.8 31.1	31.5	95.0 93.0	94.0	6.8 6.7	6.8	6.8	1.4 1.4	1.4	1.9	1.3 1.2	1.3	2.4
				Middle	4	23.1 23.1	23.1	8.0 8.0	8.0	31.9 32.0	32.0	93.5 92.6	93.1	6.7 6.6	6.7		1.7 1.8	1.8		3.0 3.0	3.0	
				Bottom	7	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	91.6 91.3	91.5	6.5 6.5	6.5	6.5	2.5 2.5	2.5		2.9 2.9	2.9	
G4	Rainy	Moderate	13:40	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	94.6 94.1	94.4	6.8 6.7	6.8	6.7	1.1 1.2	1.2	1.8	3.5 3.4	3.5	3.4
				Middle	4	23.1 23.1	23.1	8.0 8.0	8.0	32.1 32.0	32.1	92.3 92.7	92.5	6.6 6.6	6.6		2.1 2.0	2.1		2.8 2.7	2.8	
				Bottom	7	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.2	32.2	94.3 94.7	94.5	6.7 6.7	6.7	6.7	2.0 2.0	2.0		3.9 3.8	3.9	
M1	Rainy	Moderate	12:51	Surface	1	23.1 23.1	23.1	8.0 8.0	8.0	31.9 31.9	31.9	91.5 91.8	91.7	6.5 6.6	6.6	6.6	1.8 1.6	1.7	2.2	5.9 6.0	6.0	5.2
				Middle	3	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	91.6 92.5	92.1	6.5 6.6	6.6		2.5 2.4	2.5		5.2 5.3	5.3	
				Bottom	5	23.1 23.1	23.1	8.1 8.0	8.1	32.1 32.1	32.1	92.9 93.0	93.0	6.6 6.6	6.6	6.6	2.5 2.5	2.5		4.3 4.3	4.3	
M2	Rainy	Moderate	12:40	Surface	1	23.1 23.1	23.1	8.0 8.1	8.1	32.0 32.0	32.0	95.1 94.7	94.9	6.8 6.8	6.8	6.8	1.2 1.0	1.1	1.1	3.3 3.4	3.4	4.3
				Middle	5	23.1 23.1	23.1	8.1 8.0	8.1	32.0 32.0	32.0	94.3 94.4	94.4	6.7 6.7	6.7		1.1 1.0	1.1		4.0 4.1	4.1	
				Bottom	9	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	94.1 94.4	94.3	6.7 6.7	6.7	6.7	1.3 1.1	1.2		5.3 5.2	5.3	
M3	Rainy	Moderate	13:06	Surface	1	23.1 23.1	23.1	8.0 8.0	8.0	31.8 31.8	31.8	94.2 94.6	94.4	6.7 6.8	6.8	6.8	1.0 1.0	1.0	1.4	2.4 2.4	2.4	2.9
				Middle	4	23.1 23.1	23.1	8.0 8.0	8.0	31.9 31.9	31.9	93.7 93.1	93.4	6.7 6.6	6.7		1.2 1.2	1.2		3.7 3.6	3.7	
				Bottom	7	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	91.4 91.4	91.4	6.5 6.5	6.5	6.5	1.9 1.8	1.9		2.5 2.5	2.5	
M4	Rainy	Moderate	12:33	Surface	1	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	95.5 95.0	95.3	6.8 6.8	6.8	6.8	1.0 1.0	1.0	1.1	2.3 2.3	2.3	2.5
				Middle	6	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	94.7 94.8	94.8	6.7 6.8	6.8		1.2 1.1	1.2		3.3 3.3	3.3	
				Bottom	11	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	94.5 94.4	94.5	6.7 6.7	6.7	6.7	1.2 1.2	1.2		1.9 1.9	1.9	
M5	Rainy	Moderate	13:49	Surface	1	23.0 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	94.5 94.1	94.3	6.7 6.7	6.7	6.7	1.4 1.3	1.4	2.3	4.9 5.1	5.0	3.3
				Middle	6	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	94.4 94.2	94.3	6.7 6.7	6.7		2.4 2.3	2.4		3.5 3.6	3.6	
				Bottom	11	23.1 23.1	23.1	8.1 8.1	8.1	32.2 32.2	32.2	94.3 94.3	94.3	6.7 6.7	6.7	6.7	3.0 3.0	3.0		1.4 1.4	1.4	
M6	Rainy	Moderate	13:45	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.7	- -	-	1.4	- -	-	2.3
				Middle	2.3	23.1 23.1	23.1	8.0 8.0	8.0	32.0 31.9	32.0	93.6 93.5	93.6	6.7 6.7	6.7		1.4 1.4	1.4		2.3 2.3	2.3	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 7-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 2.3 NTU	***C1: 2.5 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 4.2 mg/L	***C1: 4.6 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 4.2 mg/L	***C1: 4.6 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 5.9 mg/L	***C1: 6.4 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 07 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Rainy	Moderate	19:06	Surface	1	23.1 23.1	23.1	8.1 8.1	8.1	32.2 32.2	32.2	97.2 97.4	97.3	6.9 6.9	6.9	6.9	0.9 0.9	0.9	1.3	3.5 3.5	3.5	3.8
				Middle	9	23.1 23.1	23.1	8.1 8.1	8.1	32.2 32.2	32.2	96.4 96.6	96.5	6.9 6.9	6.9		1.2 1.2	1.2		3.0 3.1	3.1	
				Bottom	17	23.1 23.1	23.1	8.1 8.1	8.1	32.2 32.2	32.2	95.2 95.3	95.3	6.8 6.8	6.8	6.8	1.9 1.8	1.9		4.9 4.9	4.9	
C2	Rainy	Moderate	17:35	Surface	1	23.0 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	95.4 95.5	95.5	6.8 6.8	6.8	6.8	1.1 1.0	1.1	1.3	2.9 3.0	3.0	2.9
				Middle	16	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	93.6 93.7	93.7	6.7 6.7	6.7		1.2 1.1	1.2		2.9 2.9	2.9	
				Bottom	31	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	93.1 93.2	93.2	6.6 6.6	6.6	6.6	1.8 1.5	1.7		2.6 2.7	2.7	
G1	Rainy	Moderate	18:03	Surface	1	22.9 23.0	23.0	8.0 8.0	8.0	31.8 31.8	31.8	94.6 94.6	94.6	6.8 6.8	6.8	6.8	1.7 1.5	1.6	1.7	3.4 3.4	3.4	2.6
				Middle	4	23.0 23.0	23.0	8.0 8.0	8.0	32.0 32.0	32.0	94.4 94.4	94.4	6.7 6.7	6.7		1.7 1.7	1.7		1.7 1.7	1.7	
				Bottom	7	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	93.9 94.0	94.0	6.7 6.7	6.7	6.7	1.8 1.9	1.9		2.6 2.6	2.6	
G2	Rainy	Moderate	17:51	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	95.1 94.7	94.9	6.8 6.8	6.8	6.8	1.3 1.3	1.3	1.3	2.7 2.7	2.7	2.0
				Middle	6	23.0 23.0	23.0	8.1 8.0	8.1	32.0 32.0	32.0	94.5 94.4	94.5	6.7 6.7	6.7		1.3 1.3	1.3		1.7 1.7	1.7	
				Bottom	11	23.1 23.1	23.1	8.1 8.0	8.1	32.1 32.1	32.1	93.4 93.6	93.5	6.7 6.7	6.7	6.7	1.3 1.2	1.3		1.6 1.7	1.7	
G3	Rainy	Moderate	18:08	Surface	1	22.9 23.0	23.0	8.0 8.0	8.0	31.8 31.9	31.9	94.1 93.5	93.8	6.7 6.7	6.7	6.7	1.7 1.9	1.8	1.7	2.5 2.6	2.6	1.8
				Middle	4	23.1 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	92.3 92.8	92.6	6.6 6.6	6.6		1.7 1.5	1.6		1.2 1.1	1.2	
				Bottom	7	23.1 23.1	23.1	8.1 8.0	8.1	32.1 32.0	32.1	91.5 91.4	91.5	6.5 6.5	6.5	6.5	1.8 1.7	1.8		1.7 1.7	1.7	
G4	Rainy	Moderate	18:49	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.9 32.0	32.0	93.7 93.3	93.5	6.7 6.7	6.7	6.7	1.8 1.8	1.8	1.9	2.2 2.2	2.2	2.7
				Middle	4	23.0 23.0	23.0	8.1 8.0	8.1	32.0 32.0	32.0	92.7 92.6	92.7	6.6 6.6	6.6		1.8 1.9	1.9		2.8 2.7	2.8	
				Bottom	7	23.1 23.1	23.1	8.1 8.1	8.1	32.2 32.2	32.2	93.5 93.5	93.5	6.7 6.7	6.7	6.7	2.1 2.1	2.1		3.2 3.2	3.2	
M1	Rainy	Moderate	17:58	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	92.9 92.2	92.6	6.6 6.6	6.6	6.6	1.7 1.9	1.8	1.9	2.7 2.7	2.7	3.4
				Middle	3	23.0 23.0	23.0	8.0 8.0	8.0	31.9 31.9	31.9	92.6 92.1	92.4	6.6 6.6	6.6		1.8 1.6	1.7		4.5 4.6	4.6	
				Bottom	5	23.1 23.1	23.1	8.1 8.0	8.1	32.0 32.0	32.0	92.2 92.1	92.2	6.6 6.6	6.6	6.6	2.0 2.2	2.1		3.0 2.9	3.0	
M2	Rainy	Moderate	17:46	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.9 32.0	32.0	94.7 94.6	94.7	6.8 6.8	6.8	6.8	1.7 1.7	1.7	1.6	3.6 3.7	3.7	2.5
				Middle	5	23.0 23.0	23.0	8.1 8.0	8.1	32.0 32.0	32.0	94.3 94.2	94.3	6.7 6.7	6.7		1.6 1.6	1.6		2.3 2.3	2.3	
				Bottom	9	23.1 23.1	23.1	8.1 8.1	8.1	32.0 32.0	32.0	94.5 94.5	94.5	6.7 6.7	6.7	6.7	1.5 1.6	1.6		1.6 1.6	1.6	
M3	Rainy	Moderate	18:12	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	31.8 31.8	31.8	93.3 92.8	93.1	6.7 6.6	6.7	6.7	1.9 1.7	1.8	1.9	4.1 4.0	4.1	3.8
				Middle	4	23.0 23.1	23.1	8.0 8.0	8.0	32.0 32.0	32.0	93.7 93.4	93.6	6.7 6.7	6.7		1.6 1.7	1.7		4.0 4.1	4.1	
				Bottom	7	23.1 23.1	23.1	8.0 8.0	8.0	32.1 32.1	32.1	86.5 86.7	86.6	6.2 6.2	6.2	6.2	2.2 2.2	2.2		3.0 3.1	3.1	
M4	Rainy	Moderate	17:41	Surface	1	23.0 23.0	23.0	8.1 8.1	8.1	32.0 32.0	32.0	95.4 95.0	95.2	6.8 6.8	6.8	6.8	1.3 1.3	1.3	1.5	2.2 2.2	2.2	1.7
				Middle	6	23.0 23.0	23.0	8.1 8.1	8.1	32.0 32.0	32.0	94.7 94.7	94.7	6.8 6.8	6.8		1.4 1.4	1.4		1.8 1.8	1.8	
				Bottom	11	23.0 23.0	23.0	8.1 8.1	8.1	32.0 32.0	32.0	94.1 94.1	94.1	6.7 6.7	6.7	6.7	1.7 1.9	1.8		1.0 1.1	1.1	
M5	Rainy	Moderate	19:00	Surface	1	23.1 23.1	23.1	8.1 8.1	8.1	32.1 32.1	32.1	95.6 95.1	95.4	6.8 6.8	6.8	6.8	1.3 1.4	1.4	1.6	1.8 1.8	1.8	2.7
				Middle	6	23.1 23.1	23.1	8.1 8.1	8.1	32.2 32.2	32.2	95.3 95.2	95.3	6.8 6.8	6.8		1.3 1.5	1.4		2.7 2.8	2.8	
				Bottom	11	23.1 23.1	23.1	8.1 8.1	8.1	32.2 32.2	32.2	94.9 94.9	94.9	6.8 6.8	6.8	6.8	1.8 1.9	1.9		3.4 3.4	3.4	
M6	Rainy	Moderate	18:55	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.6	- -	-	1.9	- -	-	1.6
				Middle	2	23.0 23.0	23.0	8.0 8.1	8.1	32.1 32.1	32.1	92.8 92.4	92.6	6.6 6.6	6.6		1.9 1.8	1.9		1.6 1.6	1.6	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 10-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 2.3 NTU	***C2: 2.5 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 6.5 mg/L	***C2: 7.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 6.5 mg/L	***C2: 7.0 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 6.5 mg/L	***C2: 7.0 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 10 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	14:35	Surface	1	22.4 22.4	22.4	8.3 8.3	8.3	33.0 33.0	33.0	100.6 100.6	100.6	7.2 7.2	7.2	7.2	0.6 0.6	0.6	0.7	3.4 3.2	3.3	3.4
				Middle	9	22.4 22.4	22.4	8.3 8.3	8.3	33.0 33.0	33.0	99.3 99.1	99.2	7.1 7.1	7.1		0.7 0.7	0.7		2.4 2.5	2.5	
				Bottom	17	22.4 22.4	22.4	8.3 8.3	8.3	33.0 33.0	33.0	99.5 99.2	99.4	7.1 7.1	7.1	7.1	0.9 0.9	0.9		4.3 4.2	4.3	
C2	Cloudy	Moderate	13:13	Surface	1	22.4 22.5	22.5	8.2 8.3	8.3	32.9 33.0	33.0	99.8 99.3	99.6	7.2 7.1	7.2	7.2	0.9 0.9	0.9	1.4	5.4 5.3	5.4	5.1
				Middle	16	22.5 22.5	22.5	8.3 8.3	8.3	33.0 33.0	33.0	99.0 99.1	99.1	7.1 7.1	7.1		1.4 1.5	1.5		4.4 4.5	4.5	
				Bottom	31	22.4 22.4	22.4	8.3 8.3	8.3	33.0 33.0	33.0	99.1 99.1	99.1	7.1 7.1	7.1	7.1	1.9 1.9	1.9		5.3 5.4	5.4	
G1	Cloudy	Moderate	13:39	Surface	1	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	96.7 96.3	96.5	6.9 6.9	6.9	6.9	1.5 1.4	1.5	1.6	5.4 5.7	5.6	5.4
				Middle	4	22.4 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.4 96.4	96.4	6.9 6.9	6.9		1.7 1.8	1.8		4.8 5.0	4.9	
				Bottom	7	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	97.2 96.8	97.0	7.0 6.9	7.0	7.0	1.6 1.6	1.6		5.4 5.7	5.6	
G2	Cloudy	Moderate	13:29	Surface	1	22.5 22.5	22.5	8.3 8.3	8.3	33.0 33.0	33.0	98.8 98.6	98.7	7.1 7.1	7.1	7.1	0.8 0.8	0.8	0.9	5.0 5.1	5.1	3.5
				Middle	5	22.5 22.5	22.5	8.3 8.3	8.3	33.0 33.0	33.0	98.1 98.0	98.1	7.0 7.0	7.0		0.9 0.9	0.9		1.8 1.8	1.8	
				Bottom	9	22.4 22.4	22.4	8.3 8.3	8.3	33.0 33.0	33.0	97.8 97.7	97.8	7.0 7.0	7.0	7.0	1.1 1.1	1.1		3.5 3.6	3.6	
G3	Cloudy	Moderate	13:44	Surface	1	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	96.2 95.2	95.7	6.9 6.8	6.9	6.9	2.1 2.3	2.2	2.1	3.8 3.8	3.8	3.9
				Middle	4	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.7 96.7	96.7	6.9 6.9	6.9		2.0 1.9	2.0		4.4 4.4	4.4	
				Bottom	7	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.2 96.3	96.3	6.9 6.9	6.9	6.9	2.1 2.0	2.1		3.5 3.5	3.5	
G4	Cloudy	Moderate	14:21	Surface	1	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	98.5 97.9	98.2	7.1 7.0	7.1	7.1	1.0 0.9	1.0	1.0	4.8 4.6	4.7	5.0
				Middle	4	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	97.8 97.8	97.8	7.0 7.0	7.0		0.9 0.9	0.9		5.3 5.4	5.4	
				Bottom	7	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	97.6 97.0	97.3	7.0 7.0	7.0	7.0	0.9 1.0	1.0		4.8 4.7	4.8	
M1	Cloudy	Moderate	13:34	Surface	1	22.3 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	96.4 95.5	96.0	6.9 6.9	6.9	6.9	1.0 1.0	1.0	1.0	4.1 3.9	4.0	4.6
				Middle	3	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	95.4 95.1	95.3	6.8 6.8	6.8		1.1 1.1	1.1		4.6 4.4	4.5	
				Bottom	5	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	95.1 95.1	95.1	6.8 6.8	6.8	6.8	0.9 0.9	0.9		5.2 5.3	5.3	
M2	Cloudy	Moderate	13:24	Surface	1	22.5 22.5	22.5	8.3 8.3	8.3	32.9 33.0	33.0	99.1 98.5	98.8	7.1 7.1	7.1	7.1	1.0 1.0	1.0	0.9	2.5 2.5	2.5	3.9
				Middle	5.5	22.4 22.5	22.5	8.3 8.3	8.3	33.0 33.0	33.0	98.2 97.9	98.1	7.0 7.0	7.0		0.8 0.8	0.8		4.9 5.1	5.0	
				Bottom	10	22.4 22.4	22.4	8.3 8.3	8.3	33.0 33.0	33.0	98.1 97.9	98.0	7.0 7.0	7.0	7.0	0.9 0.9	0.9		4.2 4.0	4.1	
M3	Cloudy	Moderate	13:48	Surface	1	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	98.3 97.7	98.0	7.0 7.0	7.0	7.0	0.9 0.9	0.9	1.1	4.4 4.3	4.4	4.1
				Middle	4	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.9 97.0	97.0	6.9 7.0	7.0		1.0 1.1	1.1		3.7 3.7	3.7	
				Bottom	7	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.3 96.2	96.3	6.9 6.9	6.9	6.9	1.1 1.2	1.2		4.1 4.2	4.2	
M4	Cloudy	Moderate	13:19	Surface	1	22.5 22.5	22.5	8.3 8.3	8.3	32.9 33.0	33.0	98.9 98.8	98.9	7.1 7.1	7.1	7.1	1.3 1.3	1.3	1.6	5.2 5.1	5.2	4.6
				Middle	5	22.5 22.5	22.5	8.3 8.3	8.3	33.0 33.0	33.0	97.9 97.9	97.9	7.0 7.0	7.0		1.6 1.6	1.6		4.2 4.3	4.3	
				Bottom	9	22.4 22.4	22.4	8.3 8.3	8.3	33.0 33.0	33.0	97.9 97.8	97.9	7.0 7.0	7.0	7.0	1.9 1.9	1.9		4.4 4.4	4.4	
M5	Cloudy	Moderate	14:30	Surface	1	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	99.3 98.7	99.0	7.1 7.1	7.1	7.1	1.1 1.0	1.1	1.2	2.0 2.1	2.1	3.8
				Middle	6	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	98.5 98.0	98.3	7.1 7.0	7.1		1.1 1.2	1.2		7.2 7.4	7.3	
				Bottom	11	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	97.6 97.5	97.6	7.0 7.0	7.0	7.0	1.3 1.3	1.3		2.1 2.1	2.1	
M6	Cloudy	Moderate	14:25	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.9	- -	-	0.8	- -	-	2.7
				Middle	2.2	22.3 22.3	22.3	8.3 8.3	8.3	32.9 32.9	32.9	95.5 95.5	95.5	6.9 6.9	6.9		0.8 0.8	0.8		2.7 2.7	2.7	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 10-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 2.4 NTU	***C1: 2.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 5.2 mg/L	***C1: 5.6 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 5.2 mg/L	***C1: 5.6 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 7.8 mg/L	***C1: 8.5 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 10 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	09:56	Surface	1	22.5 22.5	22.5	8.3 8.3	8.3	33.0 33.0	33.0	99.4 99.2	99.3	7.1 7.1	7.1	7.1	1.0 1.0	1.0	1.4	4.3 4.3	4.3	5.9
				Middle	9	22.5 22.5	22.5	8.3 8.3	8.3	33.0 33.0	33.0	98.7 98.6	98.7	7.1 7.1	7.1		1.2 1.2	1.2		6.6 6.9	6.8	
				Bottom	17	22.4 22.4	22.4	8.3 8.3	8.3	33.0 33.0	33.0	99.1 98.9	99.0	7.1 7.1	7.1	7.1	1.9 2.1	2.0		6.4 6.5	6.5	
C2	Cloudy	Moderate	08:31	Surface	1	22.5 22.5	22.5	8.2 8.3	8.3	32.9 32.9	32.9	97.7 97.0	97.4	7.0 6.9	7.0	7.0	1.9 2.0	2.0	2.0	4.5 4.7	4.6	4.9
				Middle	16	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.7 96.5	96.6	6.9 6.9	6.9		1.9 2.0	2.0		5.4 5.5	5.5	
				Bottom	31	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.6 96.6	96.6	6.9 6.9	6.9	6.9	2.0 2.1	2.1		4.6 4.6	4.6	
G1	Cloudy	Moderate	09:01	Surface	1	22.4 22.4	22.4	8.3 8.3	8.3	32.8 32.8	32.8	97.9 97.0	97.5	7.0 7.0	7.0	7.0	0.9 1.0	1.0	1.3	3.2 3.2	3.2	4.3
				Middle	4	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	97.2 97.0	97.1	7.0 6.9	7.0		1.3 1.4	1.4		5.2 5.2	5.2	
				Bottom	7	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	97.1 97.0	97.1	7.0 6.9	7.0	7.0	1.5 1.5	1.5		4.6 4.5	4.6	
G2	Cloudy	Moderate	08:49	Surface	1	22.5 22.5	22.5	8.3 8.3	8.3	32.9 33.0	33.0	97.8 97.5	97.7	7.0 7.0	7.0	7.0	1.8 1.9	1.9	2.0	4.0 3.9	4.0	3.0
				Middle	5	22.5 22.5	22.5	8.3 8.3	8.3	32.9 33.0	33.0	97.3 97.2	97.3	7.0 7.0	7.0		2.0 1.9	2.0		2.2 2.3	2.3	
				Bottom	9	22.5 22.5	22.5	8.3 8.3	8.3	33.0 33.0	33.0	97.1 97.0	97.1	6.9 6.9	6.9	6.9	2.1 2.0	2.1		2.6 2.7	2.7	
G3	Cloudy	Moderate	09:06	Surface	1	22.4 22.4	22.4	8.2 8.3	8.3	32.8 32.8	32.8	96.5 95.5	96.0	6.9 6.9	6.9	6.9	1.3 1.5	1.4	1.8	4.7 4.9	4.8	3.7
				Middle	4	22.5 22.4	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.4 95.6	96.0	6.9 6.9	6.9		1.7 1.7	1.7		3.9 4.0	4.0	
				Bottom	7	22.5 22.4	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.1 95.9	96.0	6.9 6.9	6.9	6.9	2.3 2.1	2.2		2.3 2.3	2.3	
G4	Cloudy	Moderate	09:42	Surface	1	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	97.6 97.1	97.4	7.0 7.0	7.0	7.0	0.9 1.0	1.0	1.2	2.4 2.4	2.4	3.1
				Middle	4	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	96.8 96.8	96.8	7.0 6.9	7.0		1.1 1.2	1.2		2.8 3.0	2.9	
				Bottom	7	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	96.6 96.7	96.7	6.9 6.9	6.9	6.9	1.4 1.5	1.5		3.7 4.0	3.9	
M1	Cloudy	Moderate	08:56	Surface	1	22.3 22.3	22.3	8.2 8.3	8.3	32.9 32.9	32.9	94.3 93.8	94.1	6.8 6.7	6.8	6.8	1.6 1.6	1.6	1.7	5.0 4.8	4.9	3.5
				Middle	3	22.3 22.3	22.3	8.3 8.3	8.3	32.9 32.9	32.9	93.6 93.3	93.5	6.7 6.7	6.7		1.7 1.6	1.7		2.8 2.9	2.9	
				Bottom	5	22.3 22.3	22.3	8.3 8.3	8.3	32.9 32.9	32.9	93.5 92.8	93.2	6.7 6.7	6.7	6.7	1.7 1.6	1.7		2.6 2.6	2.6	
M2	Cloudy	Moderate	08:45	Surface	1	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	98.4 97.2	97.8	7.1 7.0	7.1	7.1	2.1 2.2	2.2	2.0	3.7 3.7	3.7	5.4
				Middle	5.5	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	97.2 96.7	97.0	7.0 6.9	7.0		1.7 1.7	1.7		6.8 6.8	6.8	
				Bottom	10	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.7 96.4	96.6	6.9 6.9	6.9	6.9	2.0 2.0	2.0		5.8 5.7	5.8	
M3	Cloudy	Moderate	09:10	Surface	1	22.6 22.5	22.6	8.3 8.3	8.3	32.9 32.9	32.9	97.5 96.2	96.9	7.0 6.9	7.0	6.9	1.4 1.5	1.5	1.7	3.7 3.9	3.8	2.4
				Middle	4	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	95.4 95.0	95.2	6.8 6.8	6.8		1.8 1.8	1.8		2.2 2.2	2.2	
				Bottom	7	22.4 22.4	22.4	8.3 8.3	8.3	32.9 32.9	32.9	95.2 95.1	95.2	6.8 6.8	6.8	6.8	1.6 1.8	1.7		1.1 1.1	1.1	
M4	Cloudy	Moderate	08:38	Surface	1	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	97.0 96.7	96.9	6.9 6.9	6.9	6.9	1.5 1.5	1.5	1.6	3.5 3.6	3.6	3.9
				Middle	5	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.5 96.3	96.4	6.9 6.9	6.9		1.5 1.5	1.5		4.6 4.5	4.6	
				Bottom	9	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.2 96.1	96.2	6.9 6.9	6.9	6.9	1.9 1.9	1.9		3.4 3.4	3.4	
M5	Cloudy	Moderate	09:51	Surface	1	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	97.7 96.7	97.2	7.0 6.9	7.0	7.0	0.9 0.9	0.9	1.1	3.1 3.2	3.2	3.9
				Middle	6	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.9 96.2	96.6	6.9 6.9	6.9		1.1 1.2	1.2		4.4 4.3	4.4	
				Bottom	11	22.5 22.5	22.5	8.3 8.3	8.3	32.9 32.9	32.9	96.2 96.0	96.1	6.9 6.9	6.9	6.9	1.1 1.1	1.1		4.3 4.1	4.2	
M6	Cloudy	Moderate	09:47	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.9	- -	-	1.2	- -	-	3.6
				Middle	2.2	22.3 22.3	22.3	8.2 8.2	8.2	32.9 32.9	32.9	95.5 95.3	95.4	6.9 6.9	6.9		1.2 1.1	1.2		3.6 3.5	3.6	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 12-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 3.7 NTU	***C2: 4.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 6.2 mg/L	***C2: 6.8 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 6.2 mg/L	***C2: 6.8 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 8.8 mg/L	***C2: 9.5 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 12 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	15:46	Surface	1	21.6 21.6	21.6	8.2 8.2	8.2	32.9 32.9	32.9	101.3 100.6	101.0	7.4 7.3	7.4	7.4	3.1 2.9	3.0	3.1	4.8 4.9	4.9	3.7
				Middle	9	21.6 21.6	21.6	8.2 8.2	8.2	32.9 32.9	32.9	100.4 99.8	100.1	7.3 7.3	7.3		2.9 3.0	3.0		3.0 3.1	3.1	
				Bottom	17	21.6 21.6	21.6	8.2 8.2	8.2	32.9 32.9	32.9	99.3 99.0	99.2	7.2 7.2	7.2	7.2	3.2 3.2	3.2		3.0 3.1	3.1	
C2	Sunny	Moderate	14:29	Surface	1	21.6 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	102.0 100.4	101.2	7.4 7.3	7.4	7.3	2.3 2.3	2.3	2.7	5.2 5.1	5.2	5.9
				Middle	16	21.7 21.6	21.7	8.2 8.2	8.2	32.8 32.8	32.8	99.1 98.8	99.0	7.2 7.2	7.2		2.7 2.8	2.8		5.1 5.1	5.1	
				Bottom	31	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	98.8 98.6	98.7	7.2 7.2	7.2	7.2	3.1 3.1	3.1		7.3 7.2	7.3	
G1	Sunny	Moderate	14:54	Surface	1	21.7 21.7	21.7	8.2 8.2	8.2	32.7 32.8	32.8	99.7 99.5	99.6	7.2 7.2	7.2	7.2	3.3 3.5	3.4	3.4	4.5 4.4	4.5	3.8
				Middle	4	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	99.2 99.1	99.2	7.2 7.2	7.2		3.5 3.4	3.5		3.1 3.1	3.1	
				Bottom	7	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	99.4 99.5	99.5	7.2 7.2	7.2	7.2	3.4 3.3	3.4		3.8 3.9	3.9	
G2	Sunny	Moderate	14:45	Surface	1	21.5 21.5	21.5	8.2 8.2	8.2	32.8 32.8	32.8	100.4 99.7	100.1	7.3 7.3	7.3	7.3	1.9 2.0	2.0	2.1	2.8 2.8	2.8	3.0
				Middle	5	21.5 21.5	21.5	8.2 8.2	8.2	32.8 32.8	32.8	99.8 99.2	99.5	7.3 7.2	7.3		1.9 2.1	2.0		3.6 3.7	3.7	
				Bottom	9	21.5 21.5	21.5	8.2 8.2	8.2	32.8 32.8	32.8	98.8 98.8	98.8	7.2 7.2	7.2	7.2	2.3 2.3	2.3		2.3 2.4	2.4	
G3	Sunny	Moderate	14:58	Surface	1	21.8 21.7	21.8	8.2 8.2	8.2	32.8 32.7	32.8	100.8 99.7	100.3	7.3 7.3	7.3	7.3	2.9 2.9	2.9	2.9	3.4 3.2	3.3	2.8
				Middle	4	21.8 21.7	21.8	8.2 8.2	8.2	32.8 32.8	32.8	99.0 99.0	99.0	7.2 7.2	7.2		2.7 2.9	2.8		2.3 2.3	2.3	
				Bottom	7	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	98.1 98.5	98.3	7.1 7.2	7.2	7.2	3.0 3.2	3.1		2.8 2.8	2.8	
G4	Sunny	Moderate	15:30	Surface	1	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	101.2 101.4	101.3	7.4 7.4	7.4	7.4	2.5 2.4	2.5	2.7	3.3 3.4	3.4	3.2
				Middle	4	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	100.8 101.0	100.9	7.3 7.4	7.4		2.7 2.6	2.7		3.0 2.9	3.0	
				Bottom	7	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	100.3 100.4	100.4	7.3 7.3	7.3	7.3	2.9 2.8	2.9		3.3 3.3	3.3	
M1	Sunny	Moderate	14:50	Surface	1	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	100.4 99.7	100.1	7.3 7.3	7.3	7.3	2.4 2.5	2.5	2.5	3.6 3.7	3.7	4.6
				Middle	3	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	99.7 99.5	99.6	7.3 7.2	7.3		2.4 2.4	2.4		4.4 4.6	4.5	
				Bottom	5	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	99.1 98.9	99.0	7.2 7.2	7.2	7.2	2.5 2.5	2.5		5.5 5.5	5.5	
M2	Sunny	Moderate	14:40	Surface	1	21.5 21.5	21.5	8.2 8.2	8.2	32.8 32.8	32.8	101.7 101.3	101.5	7.4 7.4	7.4	7.4	1.8 1.9	1.9	2.0	5.0 5.3	5.2	5.5
				Middle	5.5	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	101.0 100.8	100.9	7.4 7.3	7.4		2.0 1.9	2.0		6.1 6.0	6.1	
				Bottom	10	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	100.3 100.3	100.3	7.3 7.3	7.3	7.3	2.2 2.0	2.1		5.2 5.0	5.1	
M3	Sunny	Moderate	15:02	Surface	1	21.8 21.8	21.8	8.2 8.2	8.2	32.8 32.8	32.8	100.5 100.2	100.4	7.3 7.3	7.3	7.3	3.5 3.6	3.6	3.8	6.1 6.1	6.1	5.2
				Middle	4	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	99.1 99.3	99.2	7.2 7.2	7.2		4.0 4.1	4.1		5.3 5.3	5.3	
				Bottom	7	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	97.9 98.0	98.0	7.1 7.1	7.1	7.1	3.5 3.6	3.6		4.1 4.1	4.1	
M4	Sunny	Moderate	14:36	Surface	1	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	102.0 101.7	101.9	7.4 7.4	7.4	7.4	2.4 2.4	2.4	2.5	4.0 4.1	4.1	3.3
				Middle	5	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	101.3 101.4	101.4	7.4 7.4	7.4		2.4 2.4	2.4		2.3 2.4	2.4	
				Bottom	9	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	100.4 100.7	100.6	7.3 7.3	7.3	7.3	2.8 2.8	2.8		3.4 3.3	3.4	
M5	Sunny	Moderate	15:40	Surface	1	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	100.9 100.8	100.9	7.4 7.3	7.4	7.4	2.7 2.7	2.7	2.8	3.3 3.2	3.3	4.0
				Middle	6	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	101.1 100.8	101.0	7.4 7.3	7.4		2.9 2.7	2.8		4.7 4.7	4.7	
				Bottom	11	21.6 21.6	21.6	8.2 8.2	8.2	32.9 32.9	32.9	100.6 100.5	100.6	7.3 7.3	7.3	7.3	2.9 3.1	3.0		4.1 4.1	4.1	
M6	Sunny	Moderate	15:35	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.3	- -	-	3.0	- -	-	1.4
				Middle	2.3	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	100.8 100.7	100.8	7.3 7.3	7.3		3.0 2.9	3.0		1.4 1.4	1.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 12-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 3.4 NTU	***C1: 3.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 6.4 mg/L	***C1: 6.9 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 6.4 mg/L	***C1: 6.9 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 7.0 mg/L	***C1: 7.5 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 12 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	11:14	Surface	1	21.7 21.7	21.7	8.2 8.2	8.2	32.9 32.9	32.9	100.5 100.0	100.3	7.3 7.3	7.3	7.3	2.1 2.1	2.1	2.4	5.3 5.3	5.3	5.5
				Middle	9	21.7 21.7	21.7	8.2 8.2	8.2	32.9 32.9	32.9	99.5 99.3	99.4	7.2 7.2	7.2		2.3 2.3	2.3		5.3 5.3	5.3	
				Bottom	17	21.7 21.7	21.7	8.2 8.2	8.2	32.9 32.9	32.9	98.5 98.4	98.5	7.2 7.2	7.2	7.2	2.6 2.9	2.8		5.8 5.8	5.8	
C2	Sunny	Moderate	09:55	Surface	1	21.8 21.8	21.8	8.2 8.2	8.2	32.7 32.8	32.8	99.4 98.6	99.0	7.2 7.2	7.2	7.2	2.2 2.2	2.2	2.4	2.7 2.7	2.7	3.2
				Middle	16	21.8 21.8	21.8	8.2 8.2	8.2	32.7 32.8	32.8	97.5 97.3	97.4	7.1 7.1	7.1		2.0 2.2	2.1		2.7 2.7	2.7	
				Bottom	31	21.8 21.8	21.8	8.2 8.2	8.2	32.8 32.8	32.8	97.1 97.1	97.1	7.0 7.0	7.0	7.0	2.9 2.8	2.9		4.3 4.3	4.3	
G1	Sunny	Moderate	10:22	Surface	1	21.6 21.6	21.6	8.2 8.2	8.2	32.5 32.6	32.6	98.2 97.4	97.8	7.2 7.1	7.2	7.2	2.3 2.3	2.3	2.5	5.5 5.4	5.5	4.1
				Middle	4	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	97.8 97.9	97.9	7.1 7.1	7.1		2.6 2.5	2.6		4.4 4.4	4.4	
				Bottom	7	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	97.6 98.0	97.8	7.1 7.1	7.1	7.1	2.6 2.4	2.5		2.5 2.5	2.5	
G2	Sunny	Moderate	10:11	Surface	1	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	100.2 99.8	100.0	7.3 7.3	7.3	7.3	1.9 1.9	1.9	1.9	3.8 4.0	3.9	3.8
				Middle	5	21.7 21.6	21.7	8.2 8.2	8.2	32.8 32.8	32.8	99.5 99.4	99.5	7.2 7.2	7.2		1.8 1.8	1.8		1.3 1.3	1.3	
				Bottom	9	21.6 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	99.1 99.0	99.1	7.2 7.2	7.2	7.2	1.9 2.1	2.0		6.1 6.0	6.1	
G3	Sunny	Moderate	10:27	Surface	1	21.8 21.8	21.8	8.2 8.2	8.2	32.7 32.7	32.7	97.4 97.1	97.3	7.1 7.1	7.1	7.1	2.5 2.7	2.6	2.8	3.0 3.2	3.1	4.1
				Middle	4	21.8 21.8	21.8	8.2 8.2	8.2	32.8 32.8	32.8	96.7 96.6	96.7	7.0 7.0	7.0		2.8 2.8	2.8		5.1 5.2	5.2	
				Bottom	7	21.8 21.8	21.8	8.2 8.2	8.2	32.8 32.8	32.8	95.7 95.9	95.8	6.9 7.0	7.0	7.0	3.0 3.1	3.1		4.0 3.9	4.0	
G4	Sunny	Moderate	11:00	Surface	1	21.7 21.6	21.7	8.2 8.2	8.2	32.8 32.8	32.8	99.7 99.6	99.7	7.3 7.2	7.3	7.3	1.9 1.9	1.9	2.1	4.0 4.2	4.1	3.9
				Middle	4	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	99.3 99.4	99.4	7.2 7.2	7.2		2.1 2.0	2.1		3.7 3.8	3.8	
				Bottom	7	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	98.9 98.9	98.9	7.2 7.2	7.2	7.2	2.2 2.1	2.2		3.6 3.7	3.7	
M1	Sunny	Moderate	10:17	Surface	1	21.6 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	96.8 96.6	96.7	7.0 7.0	7.0	7.0	2.3 2.3	2.3	2.3	2.3 2.3	2.3	3.6
				Middle	3	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	96.8 96.4	96.6	7.0 7.0	7.0		2.3 2.2	2.3		4.1 4.1	4.1	
				Bottom	5	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	96.6 96.3	96.5	7.0 7.0	7.0	7.0	2.3 2.2	2.3		4.5 4.5	4.5	
M2	Sunny	Moderate	10:06	Surface	1	21.6 21.6	21.6	8.2 8.2	8.2	32.8 32.8	32.8	100.1 99.7	99.9	7.3 7.3	7.3	7.3	2.6 2.6	2.6	2.8	2.7 2.8	2.8	4.4
				Middle	5.5	21.6 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	99.3 99.2	99.3	7.2 7.2	7.2		2.7 2.8	2.8		5.8 5.9	5.9	
				Bottom	10	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	98.9 98.7	98.8	7.2 7.2	7.2	7.2	3.1 3.1	3.1		4.5 4.6	4.6	
M3	Sunny	Moderate	10:31	Surface	1	21.8 21.8	21.8	8.2 8.2	8.2	32.7 32.8	32.8	97.5 97.6	97.6	7.1 7.1	7.1	7.1	3.2 3.3	3.3	3.2	1.7 1.7	1.7	4.0
				Middle	4	21.8 21.8	21.8	8.2 8.2	8.2	32.8 32.8	32.8	97.2 97.3	97.3	7.1 7.1	7.1		3.3 3.3	3.3		4.1 4.0	4.1	
				Bottom	7	21.8 21.8	21.8	8.2 8.2	8.2	32.8 32.8	32.8	96.9 97.1	97.0	7.0 7.0	7.0	7.0	3.1 3.1	3.1		6.2 5.9	6.1	
M4	Sunny	Moderate	10:01	Surface	1	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	99.8 99.4	99.6	7.3 7.2	7.3	7.3	2.3 2.2	2.3	2.3	4.6 4.4	4.5	3.8
				Middle	5	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	99.1 99.1	99.1	7.2 7.2	7.2		2.4 2.1	2.3		3.2 3.2	3.2	
				Bottom	9	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.8	32.8	98.6 98.6	98.6	7.2 7.2	7.2	7.2	2.2 2.1	2.2		3.7 3.6	3.7	
M5	Sunny	Moderate	11:08	Surface	1	21.7 21.7	21.7	8.2 8.2	8.2	32.8 32.9	32.9	100.3 99.9	100.1	7.3 7.3	7.3	7.3	2.3 2.2	2.3	2.6	1.8 1.8	1.8	2.6
				Middle	6	21.7 21.7	21.7	8.2 8.2	8.2	32.9 32.9	32.9	99.6 99.3	99.5	7.2 7.2	7.2		2.3 2.4	2.4		3.4 3.4	3.4	
				Bottom	11	21.7 21.7	21.7	8.2 8.2	8.2	32.9 32.9	32.9	98.7 98.8	98.8	7.2 7.2	7.2	7.2	3.0 2.9	3.0		2.6 2.7	2.7	
M6	Sunny	Moderate	11:04	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.0	- -	-	2.2	- -	-	3.3
				Middle	2.2	21.5 21.5	21.5	8.2 8.2	8.2	32.7 32.7	32.7	95.8 95.8	95.8	7.0 7.0	7.0		2.2 2.1	2.2		3.3 3.3	3.3	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 15-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 2.4 NTU	***C2: 2.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 5.4 mg/L	***C2: 5.9 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 5.4 mg/L	***C2: 5.9 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 5.8 mg/L	***C2: 6.2 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 15 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Fine	Moderate	13:35	Surface	1	21.4 21.4	21.4	8.3 8.3	8.3	33.0 33.0	33.0	102.2 101.7	102.0	7.5 7.4	7.5	7.5	0.7 0.7	0.7	1.1	4.9 5.2	5.1	5.3
				Middle	9	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	100.9 100.4	100.7	7.4 7.3	7.4		0.9 0.9	0.9		5.4 5.4	5.4	
				Bottom	17	21.1 21.1	21.1	8.3 8.3	8.3	33.0 33.0	33.0	98.6 98.0	98.3	7.2 7.2	7.2	7.2	1.5 1.6	1.6		5.4 5.3	5.4	
C2	Fine	Moderate	11:58	Surface	1	21.5 21.5	21.5	8.2 8.3	8.3	32.9 32.9	32.9	100.7 100.0	100.4	7.3 7.3	7.3	7.2	1.0 1.1	1.1	1.6	4.4 4.5	4.5	3.8
				Middle	16	21.3 21.3	21.3	8.3 8.3	8.3	32.9 32.9	32.9	96.1 96.0	96.1	7.0 7.0	7.0		1.7 1.7	1.7		2.1 2.1	2.1	
				Bottom	31	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	96.2 96.1	96.2	7.0 7.0	7.0	7.0	2.0 1.9	2.0		4.7 4.9	4.8	
G1	Fine	Moderate	12:31	Surface	1	21.4 21.4	21.4	8.3 8.3	8.3	32.9 32.9	32.9	102.0 102.1	102.1	7.5 7.5	7.5	7.4	1.5 1.5	1.5	1.6	4.8 4.8	4.8	5.6
				Middle	4	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	99.3 99.4	99.4	7.3 7.3	7.3		1.6 1.6	1.6		7.4 7.5	7.5	
				Bottom	7	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	98.1 98.2	98.2	7.2 7.2	7.2	7.2	1.7 1.7	1.7		4.5 4.4	4.5	
G2	Fine	Moderate	12:19	Surface	1	21.3 21.3	21.3	8.3 8.3	8.3	32.9 32.9	32.9	101.3 100.8	101.1	7.4 7.4	7.4	7.4	1.3 1.2	1.3	1.4	2.3 2.4	2.4	4.5
				Middle	5	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	99.9 99.8	99.9	7.3 7.3	7.3		1.4 1.4	1.4		5.4 5.4	5.4	
				Bottom	9	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	99.1 99.3	99.2	7.3 7.3	7.3	7.3	1.5 1.5	1.5		5.7 5.7	5.7	
G3	Fine	Moderate	12:37	Surface	1	21.3 21.4	21.4	8.3 8.3	8.3	32.9 32.6	32.8	101.4 99.0	100.2	7.4 7.2	7.3	7.3	1.8 1.7	1.8	1.8	4.0 3.9	4.0	4.0
				Middle	4	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	98.1 98.1	98.1	7.2 7.2	7.2		1.4 1.4	1.4		3.8 3.8	3.8	
				Bottom	7	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	97.6 97.3	97.5	7.2 7.1	7.2	7.2	2.1 2.1	2.1		4.4 4.2	4.3	
G4	Fine	Moderate	13:12	Surface	1	21.4 21.5	21.5	8.3 8.3	8.3	32.9 32.9	32.9	100.8 100.1	100.5	7.4 7.3	7.4	7.4	0.9 0.9	0.9	1.3	3.7 3.8	3.8	5.2
				Middle	4	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	100.8 100.4	100.6	7.4 7.3	7.4		1.0 0.9	1.0		5.4 7.4	6.4	
				Bottom	7	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	98.3 97.1	97.7	7.2 7.1	7.2	7.2	1.9 2.0	2.0		5.5 5.4	5.5	
M1	Fine	Moderate	12:25	Surface	1	21.2 21.3	21.3	8.3 8.3	8.3	32.9 32.9	32.9	97.4 97.3	97.4	7.1 7.1	7.1	7.1	1.9 1.8	1.9	1.9	3.8 3.7	3.8	4.8
				Middle	3	21.2 21.2	21.2	8.3 8.3	8.3	32.9 32.9	32.9	96.8 97.4	97.1	7.1 7.1	7.1		1.9 1.9	1.9		6.2 6.1	6.2	
				Bottom	5	21.2 21.2	21.2	8.3 8.3	8.3	32.9 32.9	32.9	96.6 97.0	96.8	7.1 7.1	7.1	7.1	2.0 1.9	2.0		4.4 4.4	4.4	
M2	Fine	Moderate	12:13	Surface	1	21.3 21.4	21.4	8.3 8.3	8.3	32.9 32.9	32.9	102.2 101.3	101.8	7.5 7.4	7.5	7.4	1.1 1.1	1.1	1.3	4.4 4.6	4.5	3.0
				Middle	5.5	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	99.4 99.9	99.7	7.3 7.3	7.3		1.3 1.3	1.3		1.6 1.6	1.6	
				Bottom	10	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	98.1 98.1	98.1	7.2 7.2	7.2	7.2	1.6 1.5	1.6		3.0 3.0	3.0	
M3	Fine	Moderate	12:41	Surface	1	21.4 21.5	21.5	8.3 8.3	8.3	32.8 32.6	32.7	101.1 100.4	100.8	7.4 7.3	7.4	7.4	1.2 1.2	1.2	1.6	3.3 3.4	3.4	3.3
				Middle	4	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	98.8 99.1	99.0	7.2 7.3	7.3		1.5 1.4	1.5		3.6 3.7	3.7	
				Bottom	7	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	97.0 97.2	97.1	7.1 7.1	7.1	7.1	1.9 2.1	2.0		2.7 2.7	2.7	
M4	Fine	Moderate	12:07	Surface	1	21.4 21.4	21.4	8.3 8.3	8.3	33.0 33.0	33.0	100.9 100.1	100.5	7.4 7.3	7.4	7.4	1.2 1.1	1.2	1.6	3.5 3.6	3.6	3.6
				Middle	5	21.4 21.3	21.4	8.3 8.3	8.3	33.0 33.0	33.0	99.5 98.2	98.9	7.3 7.2	7.3		1.7 1.6	1.7		3.4 3.4	3.4	
				Bottom	9	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	97.6 97.6	97.6	7.1 7.1	7.1	7.1	2.0 1.9	2.0		3.7 3.6	3.7	
M5	Fine	Moderate	13:25	Surface	1	21.5 21.5	21.5	8.3 8.3	8.3	33.0 33.0	33.0	102.2 101.6	101.9	7.5 7.4	7.5	7.4	0.8 0.8	0.8	0.9	3.8 3.9	3.9	4.7
				Middle	6	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	99.8 99.7	99.8	7.3 7.3	7.3		0.9 0.9	0.9		6.4 6.7	6.6	
				Bottom	11	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	98.7 98.6	98.7	7.2 7.2	7.2	7.2	1.1 1.1	1.1		3.6 3.6	3.6	
M6	Fine	Moderate	13:19	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.3	- -	-	1.0	- -	-	4.8
				Middle	2.3	21.3 21.2	21.3	8.3 8.3	8.3	33.0 33.0	33.0	99.3 99.2	99.3	7.3 7.3	7.3		1.0 1.0	1.0		4.7 4.8	4.8	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 15-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 2.4 NTU	***C1: 2.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 6.7 mg/L	***C1: 7.3 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 6.7 mg/L	***C1: 7.3 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 7.6 mg/L	***C1: 8.2 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 15 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	18:52	Surface	1	21.4 21.4	21.4	8.3 8.4	8.4	33.0 33.0	33.0	103.6 102.9	103.3	7.6 7.5	7.6	7.5	0.4 0.4	0.4	1.3	5.6 5.5	5.6	6.0
				Middle	9	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	101.8 101.5	101.7	7.4 7.4	7.4		1.5 1.5	1.5		6.1 6.0	6.1	
				Bottom	17	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	99.3 99.1	99.2	7.3 7.3	7.3	7.3	1.9 2.0	2.0		6.2 6.3	6.3	
C2	Sunny	Moderate	17:36	Surface	1	21.5 21.5	21.5	8.2 8.3	8.3	33.0 33.0	33.0	105.3 104.2	104.8	7.7 7.6	7.7	7.6	1.2 1.1	1.2	1.4	5.4 5.6	5.5	5.8
				Middle	16	21.4 21.4	21.4	8.3 8.3	8.3	33.0 33.0	33.0	102.5 102.8	102.7	7.5 7.5	7.5		1.2 1.1	1.2		6.4 6.4	6.4	
				Bottom	31	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	97.8 98.0	97.9	7.2 7.2	7.2	7.2	1.9 1.8	1.9		5.5 5.6	5.6	
G1	Sunny	Moderate	18:04	Surface	1	21.5 21.5	21.5	8.3 8.3	8.3	32.9 32.8	32.9	102.4 102.3	102.4	7.5 7.5	7.5	7.5	1.6 1.6	1.6	1.9	4.9 4.9	4.9	5.7
				Middle	4	21.3 21.4	21.4	8.4 8.3	8.4	32.9 32.9	32.9	100.9 101.3	101.1	7.4 7.4	7.4		2.0 1.9	2.0		5.5 5.7	5.6	
				Bottom	7	21.3 21.2	21.3	8.3 8.3	8.3	33.0 33.0	33.0	99.6 99.4	99.5	7.3 7.3	7.3	7.3	2.1 2.1	2.1		6.7 6.4	6.6	
G2	Sunny	Moderate	17:53	Surface	1	21.4 21.4	21.4	8.4 8.4	8.4	32.9 32.9	32.9	106.7 106.1	106.4	7.8 7.7	7.8	7.8	1.4 1.3	1.4	1.5	5.2 5.0	5.1	5.0
				Middle	5	21.4 21.4	21.4	8.4 8.4	8.4	33.0 33.0	33.0	104.8 105.5	105.2	7.7 7.7	7.7		1.4 1.3	1.4		4.7 4.6	4.7	
				Bottom	9	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	99.2 99.4	99.3	7.3 7.3	7.3	7.3	1.8 1.8	1.8		4.9 5.2	5.1	
G3	Sunny	Moderate	18:09	Surface	1	21.6 21.6	21.6	8.3 8.3	8.3	32.9 32.9	32.9	104.9 104.6	104.8	7.6 7.6	7.6	7.6	1.3 1.3	1.3	1.7	5.9 5.8	5.9	7.7
				Middle	4	21.3 21.3	21.3	8.3 8.4	8.4	33.0 33.0	33.0	102.8 102.6	102.7	7.5 7.5	7.5		1.6 1.7	1.7		11.4 11.4	11.4	
				Bottom	7	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	99.5 99.5	99.5	7.3 7.3	7.3	7.3	2.0 2.2	2.1		5.7 5.6	5.7	
G4	Sunny	Moderate	18:35	Surface	1	21.3 21.3	21.3	8.3 8.3	8.3	32.9 32.9	32.9	102.2 102.0	102.1	7.5 7.5	7.5	7.5	1.3 1.2	1.3	1.6	3.6 3.6	3.6	4.3
				Middle	4	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	101.0 101.2	101.1	7.4 7.4	7.4		1.4 1.3	1.4		4.4 4.2	4.3	
				Bottom	7	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	97.5 97.8	97.7	7.1 7.2	7.2	7.2	2.1 2.2	2.2		5.1 5.1	5.1	
M1	Sunny	Moderate	17:59	Surface	1	21.5 21.5	21.5	8.3 8.3	8.3	32.9 32.9	32.9	103.1 102.4	102.8	7.5 7.5	7.5	7.5	0.9 0.9	0.9	1.1	4.0 5.0	4.5	5.4
				Middle	3	21.4 21.5	21.5	8.3 8.3	8.3	32.9 32.9	32.9	101.8 102.0	101.9	7.4 7.4	7.4		1.2 1.1	1.2		5.6 5.7	5.7	
				Bottom	5	21.4 21.4	21.4	8.3 8.3	8.3	33.0 33.0	33.0	101.2 101.2	101.2	7.4 7.4	7.4	7.4	1.3 1.3	1.3		6.1 6.0	6.1	
M2	Sunny	Moderate	17:48	Surface	1	21.4 21.4	21.4	8.3 8.3	8.3	33.0 33.0	33.0	104.8 104.7	104.8	7.6 7.6	7.6	7.5	1.2 1.1	1.2	1.3	4.6 4.5	4.6	5.1
				Middle	5.5	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	100.3 100.7	100.5	7.3 7.4	7.4		1.3 1.3	1.3		4.9 4.9	4.9	
				Bottom	10	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	98.6 98.8	98.7	7.2 7.2	7.2	7.2	1.6 1.4	1.5		5.9 5.7	5.8	
M3	Sunny	Moderate	18:13	Surface	1	21.7 21.6	21.7	8.3 8.3	8.3	32.9 32.9	32.9	104.7 104.6	104.7	7.6 7.6	7.6	7.5	1.0 1.1	1.1	1.6	1.7 1.7	1.7	4.6
				Middle	4	21.3 21.3	21.3	8.3 8.3	8.3	33.0 33.0	33.0	100.0 101.9	101.0	7.3 7.5	7.4		1.7 1.7	1.7		5.3 5.3	5.3	
				Bottom	7	21.2 21.2	21.2	8.3 8.3	8.3	33.0 33.0	33.0	97.8 98.0	97.9	7.2 7.2	7.2	7.2	2.0 2.0	2.0		6.7 6.6	6.7	
M4	Sunny	Moderate	17:42	Surface	1	21.5 21.5	21.5	8.3 8.3	8.3	33.0 33.0	33.0	104.4 104.2	104.3	7.6 7.6	7.6	7.6	1.1 1.2	1.2	1.2	4.3 4.3	4.3	5.2
				Middle	5	21.4 21.5	21.5	8.3 8.3	8.3	33.0 33.0	33.0	102.3 103.5	102.9	7.5 7.5	7.5		1.1 1.2	1.2		7.9 8.2	8.1	
				Bottom	9	21.4 21.4	21.4	8.3 8.3	8.3	33.0 33.0	33.0	102.4 102.5	102.5	7.5 7.5	7.5	7.5	1.2 1.3	1.3		3.2 3.3	3.3	
M5	Sunny	Moderate	18:47	Surface	1	21.3 21.3	21.3	8.4 8.4	8.4	33.0 33.0	33.0	102.8 102.4	102.6	7.5 7.5	7.5	7.5	0.3 0.3	0.3	0.6	5.7 5.9	5.8	4.9
				Middle	6	21.3 21.3	21.3	8.4 8.4	8.4	33.0 33.0	33.0	101.7 101.3	101.5	7.4 7.4	7.4		0.6 0.6	0.6		5.5 5.6	5.6	
				Bottom	11	21.2 21.2	21.2	8.4 8.4	8.4	33.0 33.0	33.0	99.5 99.7	99.6	7.3 7.3	7.3	7.3	0.9 0.9	0.9		3.3 3.4	3.4	
M6	Sunny	Moderate	18:41	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.6	- -	-	1.3	- -	-	4.7
				Middle	2.3	21.2 21.2	21.2	8.3 8.4	8.4	33.0 33.0	33.0	103.9 104.0	104.0	7.6 7.6	7.6		1.3 1.3	1.3		4.7 4.6	4.7	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 18-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 5.3 NTU	***C2: 5.7 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 17.3 mg/L	***C2: 18.7 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 17.3 mg/L	***C2: 18.7 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 9.8 mg/L	***C2: 10.7 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 18 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	09:38	Surface	1	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	101.1 100.7	100.9	7.5 7.4	7.5	7.5	3.5 3.6	3.6	3.9	4.6 4.6	4.6	5.0
				Middle	9	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	100.4 100.2	100.3	7.4 7.4	7.4		3.6 3.7	3.7		4.3 4.4	4.4	
				Bottom	17	20.9 20.9	20.9	8.1 8.1	8.1	32.2 32.2	32.2	99.0 99.6	99.3	7.3 7.4	7.4	7.4	4.3 4.2	4.3		6.0 6.0	6.0	
C2	Sunny	Calm	08:54	Surface	1	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	98.7 98.1	98.4	7.3 7.2	7.3	7.3	4.1 4.1	4.1	4.2	14.2 14.5	14.4	8.4
				Middle	16.5	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	97.1 97.2	97.2	7.2 7.2	7.2		4.2 4.0	4.1		2.6 2.7	2.7	
				Bottom	32	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	97.2 97.2	97.2	7.2 7.2	7.2	7.2	4.3 4.4	4.4		8.2 8.2	8.2	
G1	Sunny	Calm	09:12	Surface	1	21.1 21.1	21.1	8.1 8.1	8.1	32.0 32.0	32.0	99.5 98.8	99.2	7.4 7.3	7.4	7.4	4.1 3.9	4.0	4.1	10.7 10.8	10.8	7.9
				Middle	4	21.0 21.0	21.0	8.1 8.1	8.1	32.0 32.0	32.0	98.5 98.1	98.3	7.3 7.3	7.3		4.1 4.0	4.1		8.2 8.0	8.1	
				Bottom	7	21.0 20.9	21.0	8.1 8.1	8.1	32.1 32.1	32.1	98.5 98.6	98.6	7.3 7.3	7.3	7.3	4.2 4.1	4.2		4.8 4.8	4.8	
G2	Sunny	Calm	09:04	Surface	1	20.9 20.9	20.9	8.1 8.1	8.1	32.1 32.1	32.1	101.3 100.2	100.8	7.5 7.4	7.5	7.5	3.9 3.9	3.9	4.0	5.1 5.1	5.1	8.0
				Middle	5	20.9 20.9	20.9	8.1 8.1	8.1	32.1 32.1	32.1	100.5 100.2	100.4	7.4 7.4	7.4		3.9 4.0	4.0		14.0 13.6	13.8	
				Bottom	9	20.9 20.9	20.9	8.1 8.1	8.1	32.1 32.1	32.1	99.7 99.6	99.7	7.4 7.4	7.4	7.4	3.9 4.0	4.0		5.1 5.0	5.1	
G3	Sunny	Calm	09:17	Surface	1	21.2 21.2	21.2	8.1 8.1	8.1	32.1 32.0	32.1	101.5 100.5	101.0	7.5 7.4	7.5	7.5	3.5 3.5	3.5	3.9	5.8 5.8	5.8	5.6
				Middle	4	21.1 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	100.8 100.6	100.7	7.4 7.4	7.4		3.9 3.8	3.9		3.2 3.2	3.2	
				Bottom	7	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	99.7 99.2	99.5	7.4 7.3	7.4	7.4	4.3 4.4	4.4		7.6 7.7	7.7	
G4	Sunny	Calm	09:25	Surface	1	21.0 21.0	21.0	8.1 8.1	8.1	32.0 32.1	32.1	100.5 102.0	101.3	7.4 7.5	7.5	7.5	3.8 3.7	3.8	4.0	4.6 4.8	4.7	4.6
				Middle	4	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	100.5 101.2	100.9	7.4 7.5	7.5		3.8 3.7	3.8		5.1 5.3	5.2	
				Bottom	7	20.9 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	99.7 100.4	100.1	7.4 7.4	7.4	7.4	4.6 4.1	4.4		3.8 3.9	3.9	
M1	Sunny	Calm	09:08	Surface	1	21.0 20.9	21.0	8.1 8.1	8.1	31.9 31.9	31.9	98.6 98.2	98.4	7.3 7.3	7.3	7.3	3.5 3.6	3.6	3.6	5.9 6.0	6.0	6.2
				Middle	3	21.0 20.9	21.0	8.1 8.1	8.1	31.9 32.0	32.0	98.4 98.4	98.4	7.3 7.3	7.3		3.4 3.6	3.5		4.0 4.0	4.0	
				Bottom	5	20.9 20.9	20.9	8.1 8.1	8.1	31.9 32.0	32.0	98.1 98.2	98.2	7.3 7.3	7.3	7.3	3.5 3.6	3.6		8.3 8.7	8.5	
M2	Sunny	Calm	09:01	Surface	1	21.0 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	99.7 99.1	99.4	7.4 7.3	7.4	7.4	3.4 3.4	3.4	3.4	4.4 4.4	4.4	3.9
				Middle	5.5	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	98.8 98.7	98.8	7.3 7.3	7.3		3.4 3.4	3.4		3.1 3.2	3.2	
				Bottom	10	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	98.8 98.5	98.7	7.3 7.3	7.3	7.3	3.4 3.4	3.4		3.9 4.0	4.0	
M3	Sunny	Calm	09:21	Surface	1	21.3 21.1	21.2	8.1 8.1	8.1	32.1 32.1	32.1	100.3 99.4	99.9	7.4 7.3	7.4	7.4	4.0 4.1	4.1	4.2	4.5 4.4	4.5	3.5
				Middle	4	21.1 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	99.3 99.4	99.4	7.3 7.3	7.3		4.1 4.1	4.1		2.3 2.3	2.3	
				Bottom	7	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	99.1 98.8	99.0	7.3 7.3	7.3	7.3	4.3 4.2	4.3		3.6 3.7	3.7	
M4	Sunny	Calm	08:57	Surface	1	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	100.1 98.1	99.1	7.4 7.2	7.3	7.3	4.1 3.9	4.0	4.1	6.6 6.6	6.6	4.9
				Middle	5	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	98.3 98.1	98.2	7.3 7.2	7.3		4.2 4.1	4.2		4.9 4.9	4.9	
				Bottom	9	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	97.5 97.8	97.7	7.2 7.2	7.2	7.2	4.3 4.0	4.2		3.1 3.0	3.1	
M5	Sunny	Calm	09:31	Surface	1	20.9 20.9	20.9	8.1 8.1	8.1	32.1 32.1	32.1	101.2 99.9	100.6	7.5 7.4	7.5	7.5	3.8 3.9	3.9	4.1	4.0 4.0	4.0	6.0
				Middle	6	20.9 20.9	20.9	8.1 8.1	8.1	32.1 32.1	32.1	100.1 99.0	99.6	7.4 7.3	7.4		4.0 4.0	4.0		5.7 5.6	5.7	
				Bottom	11	20.9 20.9	20.9	8.1 8.1	8.1	32.2 32.2	32.2	97.7 98.1	97.9	7.2 7.3	7.3	7.3	4.6 4.3	4.5		8.2 8.6	8.4	
M6	Sunny	Calm	09:29	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.4	- -	-	3.9	- -	-	6.2
				Middle	2.3	20.9 20.9	20.9	8.1 8.1	8.1	32.1 32.1	32.1	99.6 99.7	99.7	7.4 7.4	7.4		3.9 3.9	3.9		6.2 6.1	6.2	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 18-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 6.1 NTU	***C1: 6.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 12.1 mg/L	***C1: 13.1 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 12.1 mg/L	***C1: 13.1 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 12.6 mg/L	***C1: 13.7 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 18 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	15:47	Surface	1	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.2	32.2	101.7 99.5	100.6	7.5 7.4	7.5	7.4	4.2 4.4	4.3	4.7	10.0 10.2	10.1	8.7
				Middle	9	21.0 21.0	21.0	8.1 8.1	8.1	32.2 32.2	32.2	99.4 98.6	99.0	7.3 7.3	7.3		4.5 4.8	4.7		5.4 5.3	5.4	
				Bottom	17	21.0 21.0	21.0	8.1 8.1	8.1	32.2 32.2	32.2	98.3 98.4	98.4	7.3 7.3	7.3	7.3	5.0 5.2	5.1		10.4 10.6	10.5	
C2	Sunny	Calm	14:47	Surface	1	21.2 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	102.6 102.6	102.6	7.6 7.6	7.6	7.6	3.7 3.8	3.8	4.1	5.3 5.4	5.4	8.0
				Middle	16	21.2 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	100.9 101.1	101.0	7.4 7.5	7.5		4.2 4.2	4.2		6.8 6.7	6.8	
				Bottom	31	21.2 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	100.9 101.0	101.0	7.4 7.4	7.4	7.4	4.3 4.4	4.4		11.9 11.4	11.7	
G1	Sunny	Calm	15:15	Surface	1	21.2 21.1	21.2	8.1 8.1	8.1	32.1 32.1	32.1	104.7 101.7	103.2	7.7 7.5	7.6	7.7	3.5 3.7	3.6	3.7	3.5 3.6	3.6	6.1
				Middle	4	21.1 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	103.8 103.5	103.7	7.7 7.6	7.7		3.6 3.6	3.6		4.5 4.4	4.5	
				Bottom	7	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	102.6 102.7	102.7	7.6 7.6	7.6	7.6	3.8 3.8	3.8		9.9 10.2	10.1	
G2	Sunny	Calm	15:06	Surface	1	21.1 21.1	21.1	8.1 8.1	8.1	32.0 32.1	32.1	105.2 103.5	104.4	7.8 7.6	7.7	7.7	3.5 3.4	3.5	3.4	7.1 7.1	7.1	6.2
				Middle	5	21.0 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	104.3 103.5	103.9	7.7 7.6	7.7		3.5 3.4	3.5		6.4 6.7	6.6	
				Bottom	9	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	101.7 102.9	102.3	7.5 7.6	7.6	7.6	3.2 3.4	3.3		5.0 5.0	5.0	
G3	Sunny	Calm	15:17	Surface	1	21.2 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	104.0 103.1	103.6	7.7 7.6	7.7	7.7	3.6 3.4	3.5	3.7	3.0 3.0	3.0	4.8
				Middle	4	21.2 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	103.6 103.7	103.7	7.6 7.6	7.6		3.9 3.5	3.7		6.4 6.3	6.4	
				Bottom	7	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	101.8 101.9	101.9	7.5 7.5	7.5	7.5	4.1 3.9	4.0		5.1 5.1	5.1	
G4	Sunny	Calm	15:28	Surface	1	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	104.1 104.2	104.2	7.7 7.7	7.7	7.7	3.7 3.6	3.7	3.9	5.9 6.0	6.0	5.9
				Middle	4	21.1 21.0	21.1	8.1 8.1	8.1	32.1 32.1	32.1	104.0 103.8	103.9	7.7 7.7	7.7		3.9 4.1	4.0		6.4 6.6	6.5	
				Bottom	7	21.0 20.8	20.9	8.1 8.1	8.1	32.1 32.1	32.1	102.7 99.5	101.1	7.6 7.4	7.5	7.5	3.8 4.1	4.0		5.1 5.1	5.1	
M1	Sunny	Calm	15:12	Surface	1	21.0 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	100.8 101.2	101.0	7.4 7.5	7.5	7.5	3.6 3.8	3.7	4.2	2.9 2.9	2.9	4.4
				Middle	3	21.0 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	100.4 101.0	100.7	7.4 7.5	7.5		4.6 4.0	4.3		4.8 4.7	4.8	
				Bottom	5	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	100.2 100.6	100.4	7.4 7.4	7.4	7.4	4.6 4.4	4.5		5.5 5.5	5.5	
M2	Sunny	Calm	15:01	Surface	1	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	105.1 105.0	105.1	7.8 7.8	7.8	7.8	3.0 3.1	3.1	3.2	9.5 9.7	9.6	8.8
				Middle	5	21.1 21.0	21.1	8.1 8.1	8.1	32.1 32.1	32.1	104.7 103.3	104.0	7.7 7.6	7.7		3.2 3.1	3.2		12.9 13.5	13.2	
				Bottom	9	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	101.7 101.5	101.6	7.5 7.5	7.5	7.5	3.2 3.2	3.2		3.4 3.5	3.5	
M3	Sunny	Calm	15:21	Surface	1	21.2 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	103.3 103.2	103.3	7.6 7.6	7.6	7.6	3.7 3.6	3.7	3.8	6.1 5.8	6.0	9.0
				Middle	4	21.2 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	103.1 103.3	103.2	7.6 7.6	7.6		3.7 3.7	3.7		8.5 8.5	8.5	
				Bottom	7	21.2 21.1	21.2	8.1 8.1	8.1	32.1 32.1	32.1	102.8 101.4	102.1	7.6 7.5	7.6	7.6	3.8 4.0	3.9		12.9 12.3	12.6	
M4	Sunny	Calm	14:54	Surface	1	21.2 21.2	21.2	8.1 8.1	8.1	32.1 32.1	32.1	103.0 101.4	102.2	7.6 7.5	7.6	7.5	3.2 3.2	3.2	3.2	11.7 11.7	11.7	9.9
				Middle	5	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	100.9 100.5	100.7	7.4 7.4	7.4		3.3 3.1	3.2		8.2 8.6	8.4	
				Bottom	9	21.1 21.1	21.1	8.1 8.1	8.1	32.1 32.1	32.1	100.0 100.3	100.2	7.4 7.4	7.4	7.4	3.3 3.2	3.3		9.8 9.5	9.7	
M5	Sunny	Calm	15:42	Surface	1	21.0 21.0	21.0	8.1 8.1	8.1	32.2 32.2	32.2	100.5 99.2	99.9	7.4 7.3	7.4	7.4	4.0 4.2	4.1	4.5	4.6 4.6	4.6	6.4
				Middle	5.5	21.0 21.0	21.0	8.1 8.1	8.1	32.2 32.2	32.2	98.7 98.3	98.5	7.3 7.3	7.3		4.6 4.5	4.6		8.7 8.5	8.6	
				Bottom	10	20.9 20.9	20.9	8.1 8.1	8.1	32.2 32.2	32.2	98.0 98.1	98.1	7.3 7.3	7.3	7.3	4.8 4.8	4.8		5.9 6.0	6.0	
M6	Sunny	Calm	15:35	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.8	- -	-	3.4	- -	-	6.4
				Middle	2.3	21.0 21.0	21.0	8.1 8.1	8.1	32.1 32.1	32.1	104.9 105.2	105.1	7.7 7.8	7.8		3.4 3.4	3.4		6.3 6.5	6.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 20-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 4.1 NTU	***C2: 4.4 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 24.2 mg/L	***C2: 26.3 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 24.2 mg/L	***C2: 26.3 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 20.3 mg/L	***C2: 22.0 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 20 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Calm	11:38	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	100.1 99.6	99.9	7.4 7.4	7.4	7.4	1.6 1.6	1.6	2.0	10.7 10.3	10.5	11.9
				Middle	9	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	98.0 98.1	98.1	7.3 7.3	7.3		1.6 1.6	1.6		7.0 7.0	7.0	
				Bottom	17	20.8 20.8	20.8	8.3 8.3	8.3	32.2 32.2	32.2	97.0 97.0	97.0	7.2 7.2	7.2	7.2	2.8 2.9	2.9		18.1 18.2	18.2	
C2	Cloudy	Calm	10:30	Surface	1	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	97.0 96.3	96.7	7.2 7.1	7.2	7.1	2.6 2.5	2.6	3.1	20.4 19.9	20.2	14.7
				Middle	16	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	95.2 95.1	95.2	7.0 7.0	7.0		3.3 3.3	3.3		6.9 6.8	6.9	
				Bottom	31	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	94.6 94.7	94.7	7.0 7.0	7.0	7.0	3.3 3.4	3.4		16.7 17.0	16.9	
G1	Cloudy	Calm	10:59	Surface	1	20.9 20.9	20.9	8.3 8.3	8.3	32.0 32.0	32.0	99.1 97.5	98.3	7.3 7.2	7.3	7.3	2.1 2.2	2.2	2.6	18.1 18.3	18.2	12.8
				Middle	4	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	95.8 96.9	96.4	7.1 7.2	7.2		2.3 2.5	2.4		7.6 7.5	7.6	
				Bottom	7	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	95.2 95.8	95.5	7.1 7.1	7.1	7.1	3.1 3.3	3.2		12.4 12.5	12.5	
G2	Cloudy	Calm	10:50	Surface	1	20.9 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	99.5 98.7	99.1	7.4 7.3	7.4	7.4	1.8 1.7	1.8	2.5	23.8 24.2	24.0	17.4
				Middle	5	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	98.3 97.9	98.1	7.3 7.3	7.3		2.0 2.1	2.1		9.8 9.7	9.8	
				Bottom	9	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.5 96.3	96.4	7.1 7.1	7.1	7.1	3.8 3.6	3.7		18.6 18.4	18.5	
G3	Cloudy	Calm	11:04	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	31.8 31.8	31.8	98.8 97.9	98.4	7.3 7.3	7.3	7.2	1.7 1.6	1.7	2.8	21.3 21.7	21.5	14.4
				Middle	4	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	94.6 96.0	95.3	7.0 7.1	7.1		3.2 3.3	3.3		8.3 8.3	8.3	
				Bottom	7	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	95.4 94.9	95.2	7.1 7.0	7.1	7.1	3.4 3.5	3.5		13.4 13.2	13.3	
G4	Cloudy	Calm	11:16	Surface	1	20.9 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	99.8 98.9	99.4	7.4 7.3	7.4	7.4	2.9 2.6	2.8	3.0	10.3 10.3	10.3	11.4
				Middle	4	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	99.5 98.8	99.2	7.4 7.3	7.4		2.7 2.4	2.6		12.1 12.8	12.5	
				Bottom	7	20.8 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	97.3 98.4	97.9	7.2 7.3	7.3	7.3	3.6 3.4	3.5		11.4 11.3	11.4	
M1	Cloudy	Calm	10:54	Surface	1	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	97.1 96.5	96.8	7.2 7.1	7.2	7.2	1.7 1.8	1.8	2.0	12.9 12.7	12.8	15.4
				Middle	3	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.4 96.4	96.4	7.1 7.1	7.1		1.9 2.0	2.0		21.7 22.6	22.2	
				Bottom	5	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.5 96.5	96.5	7.2 7.2	7.2	7.2	2.1 2.3	2.2		11.2 11.3	11.3	
M2	Cloudy	Calm	10:44	Surface	1	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	99.8 99.2	99.5	7.4 7.3	7.4	7.4	1.6 1.6	1.6	2.2	15.2 15.2	15.2	11.1
				Middle	6	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	98.1 97.9	98.0	7.3 7.3	7.3		2.1 1.9	2.0		10.0 10.5	10.3	
				Bottom	11	20.8 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.4 96.5	96.5	7.1 7.1	7.1	7.1	3.1 2.8	3.0		7.8 7.7	7.8	
M3	Cloudy	Calm	11:10	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	32.0 32.0	32.0	97.8 98.5	98.2	7.2 7.3	7.3	7.3	2.5 2.7	2.6	2.9	7.7 7.7	7.7	8.2
				Middle	4	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.9 98.1	97.5	7.2 7.3	7.3		2.9 2.8	2.9		6.8 6.7	6.8	
				Bottom	7	20.9 20.8	20.9	8.3 8.3	8.3	32.1 32.1	32.1	95.7 95.9	95.8	7.1 7.1	7.1	7.1	3.1 3.5	3.3		10.0 10.3	10.2	
M4	Cloudy	Calm	10:37	Surface	1	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	97.3 96.7	97.0	7.2 7.2	7.2	7.2	2.5 2.3	2.4	2.5	7.7 7.6	7.7	10.7
				Middle	5	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.6 96.6	96.6	7.2 7.2	7.2		2.3 2.4	2.4		15.0 15.6	15.3	
				Bottom	9	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.2 96.1	96.2	7.1 7.1	7.1	7.1	2.7 2.7	2.7		9.3 9.1	9.2	
M5	Cloudy	Calm	11:31	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	99.8 97.7	98.8	7.4 7.2	7.3	7.2	1.6 1.7	1.7	2.2	6.4 6.6	6.5	8.5
				Middle	5.5	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.3 96.2	96.3	7.1 7.1	7.1		2.4 2.5	2.5		5.8 5.6	5.7	
				Bottom	10	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.1 95.8	96.0	7.1 7.1	7.1	7.1	2.3 2.4	2.4		13.4 13.3	13.4	
M6	Cloudy	Calm	11:24	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.4	- -	-	1.9	- -	-	7.0
				Middle	2.3	21.0 20.9	21.0	8.3 8.3	8.3	32.1 32.1	32.1	99.9 99.9	99.9	7.4 7.4	7.4		1.9 1.9	1.9		6.9 7.1	7.0	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 20-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 4.2 NTU	***C1: 4.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 13.9 mg/L	***C1: 15.1 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 13.9 mg/L	***C1: 15.1 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 10.4 mg/L	***C1: 11.3 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 20 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Calm	16:28	Surface	1	20.9 20.9	20.9	8.3 8.3	8.3	32.2 32.2	32.2	100.1 99.9	100.0	7.4 7.4	7.4	7.4	1.4 1.3	1.4	2.6	11.6 11.6	11.6	9.8
				Middle	9	20.9 20.9	20.9	8.3 8.3	8.3	32.2 32.2	32.2	98.9 98.8	98.9	7.3 7.3	7.3		2.8 2.9	2.9		8.9 9.0	9.0	
				Bottom	17	20.8 20.9	20.9	8.3 8.3	8.3	32.2 32.2	32.2	97.0 97.0	97.0	7.2 7.2	7.2	7.2	3.5 3.5	3.5		8.8 8.6	8.7	
C2	Cloudy	Calm	15:26	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	32.1 32.0	32.1	99.0 97.4	98.2	7.3 7.2	7.3	7.2	1.8 1.9	1.9	2.3	5.6 5.7	5.7	6.8
				Middle	16	20.9 20.9	20.9	8.2 8.2	8.2	32.1 32.1	32.1	95.6 95.7	95.7	7.1 7.1	7.1		2.5 2.4	2.5		7.8 7.9	7.9	
				Bottom	31	20.9 20.9	20.9	8.2 8.2	8.2	32.1 32.1	32.1	95.3 95.3	95.3	7.1 7.1	7.1	7.1	2.7 2.5	2.6		6.7 6.6	6.7	
G1	Cloudy	Calm	15:55	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	32.0 32.0	32.0	100.6 101.1	100.9	7.4 7.5	7.5	7.5	1.6 1.6	1.6	1.7	7.4 7.4	7.4	5.5
				Middle	4	21.0 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	100.8 100.9	100.9	7.5 7.5	7.5		1.6 1.7	1.7		4.7 4.6	4.7	
				Bottom	7	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	99.8 99.3	99.6	7.4 7.4	7.4	7.4	1.9 1.9	1.9		4.4 4.4	4.4	
G2	Cloudy	Calm	15:46	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	32.0 32.0	32.0	99.3 98.9	99.1	7.3 7.3	7.3	7.3	2.2 2.0	2.1	3.1	8.2 8.3	8.3	7.6
				Middle	5	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	98.2 97.4	97.8	7.3 7.2	7.3		3.2 3.3	3.3		4.6 4.7	4.7	
				Bottom	9	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	95.7 95.9	95.8	7.1 7.1	7.1	7.1	4.0 4.0	4.0		9.5 9.8	9.7	
G3	Cloudy	Calm	15:59	Surface	1	21.1 21.1	21.1	8.3 8.3	8.3	32.0 32.0	32.0	102.4 101.0	101.7	7.6 7.5	7.6	7.5	1.6 1.8	1.7	2.1	9.7 10.1	9.9	6.6
				Middle	4	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	99.8 100.3	100.1	7.4 7.4	7.4		1.9 1.9	1.9		6.5 6.3	6.4	
				Bottom	7	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	97.4 97.4	97.4	7.2 7.2	7.2	7.2	2.9 2.6	2.8		3.5 3.5	3.5	
G4	Cloudy	Calm	16:09	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	102.6 102.3	102.5	7.6 7.6	7.6	7.6	1.8 1.8	1.8	2.1	2.7 2.7	2.7	5.7
				Middle	4	21.0 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	100.8 101.3	101.1	7.5 7.5	7.5		1.8 1.7	1.8		7.2 6.9	7.1	
				Bottom	7	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	97.7 98.8	98.3	7.2 7.3	7.3	7.3	2.7 2.6	2.7		7.3 7.4	7.4	
M1	Cloudy	Calm	15:50	Surface	1	21.1 21.1	21.1	8.3 8.3	8.3	32.0 32.0	32.0	99.9 99.1	99.5	7.4 7.3	7.4	7.4	1.8 1.9	1.9	2.3	10.8 11.3	11.1	8.9
				Middle	3	21.0 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	98.7 98.7	98.7	7.3 7.3	7.3		2.1 2.2	2.2		9.1 9.3	9.2	
				Bottom	5	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.9 97.3	97.1	7.2 7.2	7.2	7.2	2.7 2.7	2.7		6.5 6.5	6.5	
M2	Cloudy	Calm	15:39	Surface	1	21.1 21.1	21.1	8.3 8.3	8.3	32.1 32.1	32.1	101.5 100.9	101.2	7.5 7.5	7.5	7.4	1.5 1.5	1.5	2.2	7.3 7.3	7.3	7.3
				Middle	6	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	99.0 97.4	98.2	7.3 7.2	7.3		1.8 1.9	1.9		6.3 6.4	6.4	
				Bottom	11	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	95.9 95.7	95.8	7.1 7.1	7.1	7.1	3.3 3.1	3.2		8.2 8.3	8.3	
M3	Cloudy	Calm	16:04	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	32.0 32.0	32.0	100.0 99.5	99.8	7.4 7.4	7.4	7.4	1.9 2.0	2.0	2.9	7.7 7.6	7.7	6.0
				Middle	4	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	99.1 98.3	98.7	7.3 7.3	7.3		2.7 2.6	2.7		6.1 6.0	6.1	
				Bottom	7	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	96.3 95.8	96.1	7.1 7.1	7.1	7.1	3.9 4.0	4.0		4.1 4.3	4.2	
M4	Cloudy	Calm	15:33	Surface	1	21.1 21.1	21.1	8.3 8.3	8.3	32.1 32.1	32.1	101.2 101.0	101.1	7.5 7.5	7.5	7.5	1.4 1.5	1.5	1.8	12.2 12.4	12.3	10.2
				Middle	5	21.0 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	100.6 100.4	100.5	7.4 7.4	7.4		1.5 1.7	1.6		12.9 12.7	12.8	
				Bottom	9	20.9 20.9	20.9	8.3 8.3	8.3	32.1 32.1	32.1	98.1 98.2	98.2	7.3 7.3	7.3	7.3	2.2 2.2	2.2		5.5 5.3	5.4	
M5	Cloudy	Calm	16:21	Surface	1	21.0 21.0	21.0	8.3 8.3	8.3	32.1 32.1	32.1	100.0 99.7	99.9	7.4 7.4	7.4	7.4	1.9 1.8	1.9	2.5	7.7 7.9	7.8	6.0
				Middle	5.5	20.9 20.9	20.9	8.3 8.3	8.3	32.2 32.2	32.2	98.0 98.1	98.1	7.3 7.3	7.3		2.6 2.6	2.6		6.1 6.0	6.1	
				Bottom	10	20.9 20.9	20.9	8.3 8.3	8.3	32.2 32.2	32.2	97.1 96.9	97.0	7.2 7.2	7.2	7.2	3.0 3.1	3.1		4.0 4.0	4.0	
M6	Cloudy	Calm	16:15	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.5	- -	-	1.9	- -	-	9.6
				Middle	2.3	21.1 21.1	21.1	8.3 8.3	8.3	32.1 32.1	32.1	101.9 101.9	101.9	7.5 7.5	7.5		1.8 1.9	1.9		9.7 9.5	9.6	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 22-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 2.4 NTU	***C2: 2.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 12.0 mg/L	***C2: 13.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 12.0 mg/L	***C2: 13.0 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 7.3 mg/L	***C2: 7.9 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 22 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	12:45	Surface	1	21.0 21.0	21.0	8.0 8.0	8.0	32.9 32.9	32.9	97.7 97.9	97.8	7.2 7.2	7.2	7.3	1.3 1.3	1.3	1.6	7.7 7.6	7.7	13.1
				Middle	9	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	98.2 98.2	98.2	7.3 7.3	7.3		1.5 1.5	1.5		7.7 7.7	7.7	
				Bottom	17	20.5 20.5	20.5	8.0 8.0	8.0	33.0 33.0	33.0	97.0 97.4	97.2	7.2 7.2	7.2	7.2	2.1 2.1	2.1		23.7 23.8	23.8	
C2	Sunny	Moderate	11:50	Surface	1	20.7 20.7	20.7	8.0 8.0	8.0	32.9 32.9	32.9	95.2 95.2	95.2	7.0 7.0	7.0	7.0	2.0 2.1	2.1	2.1	10.1 9.9	10.0	9.5
				Middle	16	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	94.8 94.6	94.7	7.0 7.0	7.0		2.4 2.2	2.3		12.2 12.5	12.4	
				Bottom	31	20.5 20.5	20.5	8.0 8.0	8.0	32.9 32.9	32.9	95.7 95.7	95.7	7.1 7.1	7.1	7.1	1.9 2.0	2.0		6.0 6.1	6.1	
G1	Sunny	Moderate	12:17	Surface	1	20.8 20.7	20.8	8.0 8.0	8.0	32.7 32.8	32.8	95.4 95.0	95.2	7.1 7.0	7.1	7.1	1.8 1.9	1.9	2.0	8.9 8.9	8.9	7.2
				Middle	4	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	94.8 94.7	94.8	7.0 7.0	7.0		2.1 2.1	2.1		5.0 4.9	5.0	
				Bottom	7	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	94.8 94.6	94.7	7.0 7.0	7.0	7.0	2.0 2.1	2.1		7.6 7.7	7.7	
G2	Sunny	Moderate	12:08	Surface	1	20.8 20.9	20.9	8.0 8.0	8.0	32.9 32.9	32.9	98.1 97.7	97.9	7.2 7.2	7.2	7.2	1.4 1.5	1.5	1.7	7.6 7.6	7.6	6.5
				Middle	5	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	96.3 95.9	96.1	7.1 7.1	7.1		1.7 1.7	1.7		7.9 7.7	7.8	
				Bottom	9	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	95.7 95.6	95.7	7.1 7.1	7.1	7.1	2.0 2.0	2.0		4.2 4.2	4.2	
G3	Sunny	Moderate	12:21	Surface	1	20.8 20.8	20.8	8.0 8.0	8.0	32.8 32.7	32.8	96.8 96.2	96.5	7.2 7.1	7.2	7.2	1.5 1.5	1.5	1.8	11.7 11.2	11.5	9.2
				Middle	4	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	95.0 96.1	95.6	7.0 7.1	7.1		1.8 1.8	1.8		7.6 7.7	7.7	
				Bottom	7	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	94.8 95.0	94.9	7.0 7.0	7.0	7.0	1.9 2.0	2.0		8.3 8.2	8.3	
G4	Sunny	Moderate	12:31	Surface	1	20.9 20.8	20.9	7.9 7.9	7.9	32.8 32.9	32.9	97.8 96.9	97.4	7.2 7.2	7.2	7.2	1.3 1.5	1.4	1.6	1.6 1.6	1.6	6.3
				Middle	4	20.6 20.6	20.6	8.0 7.9	8.0	32.9 32.9	32.9	96.5 96.4	96.5	7.2 7.1	7.2		1.6 1.6	1.6		5.6 5.7	5.7	
				Bottom	7	20.6 20.6	20.6	8.0 7.9	8.0	32.9 32.9	32.9	95.7 95.6	95.7	7.1 7.1	7.1	7.1	1.8 1.8	1.8		11.4 11.7	11.6	
M1	Sunny	Moderate	12:13	Surface	1	20.8 20.8	20.8	8.1 8.0	8.1	32.8 32.8	32.8	97.9 98.7	98.3	7.2 7.3	7.3	7.3	1.5 1.5	1.5	1.7	5.6 5.6	5.6	9.5
				Middle	3	20.7 20.7	20.7	8.1 8.0	8.1	32.8 32.8	32.8	96.4 96.8	96.6	7.1 7.2	7.2		1.6 1.7	1.7		8.2 8.4	8.3	
				Bottom	5	20.6 20.6	20.6	8.1 8.0	8.1	32.8 32.8	32.8	95.3 95.4	95.4	7.1 7.1	7.1	7.1	1.8 1.8	1.8		14.3 14.7	14.5	
M2	Sunny	Moderate	12:03	Surface	1	20.9 21.0	21.0	8.0 8.0	8.0	32.9 32.9	32.9	97.9 97.8	97.9	7.2 7.2	7.2	7.2	1.4 1.4	1.4	1.6	21.8 22.8	22.3	16.8
				Middle	5.5	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	96.9 97.0	97.0	7.2 7.2	7.2		1.7 1.7	1.7		21.7 21.7	21.7	
				Bottom	10	20.5 20.5	20.5	8.0 8.0	8.0	32.9 32.9	32.9	97.3 97.1	97.2	7.2 7.2	7.2	7.2	1.7 1.6	1.7		6.6 6.4	6.5	
M3	Sunny	Moderate	12:25	Surface	1	20.9 20.9	20.9	8.0 8.0	8.0	32.8 32.7	32.8	96.9 95.8	96.4	7.2 7.1	7.2	7.2	1.4 1.3	1.4	1.8	20.5 20.1	20.3	14.2
				Middle	4	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	95.4 95.4	95.4	7.1 7.1	7.1		1.9 1.8	1.9		9.5 9.5	9.5	
				Bottom	7	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	94.6 93.8	94.2	7.0 7.0	7.0	7.0	2.1 2.3	2.2		12.8 13.0	12.9	
M4	Sunny	Moderate	11:58	Surface	1	20.7 20.7	20.7	8.0 8.0	8.0	32.9 32.9	32.9	95.3 95.1	95.2	7.0 7.0	7.0	7.1	2.1 2.0	2.1	2.0	9.4 9.2	9.3	10.5
				Middle	5	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	95.3 95.0	95.2	7.1 7.0	7.1		2.0 2.0	2.0		9.4 9.7	9.6	
				Bottom	9	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	95.7 95.9	95.8	7.1 7.1	7.1	7.1	2.0 2.0	2.0		12.5 12.9	12.7	
M5	Sunny	Moderate	12:40	Surface	1	20.9 20.9	20.9	7.9 7.9	7.9	32.8 32.8	32.8	96.0 96.0	96.0	7.1 7.1	7.1	7.1	1.6 1.6	1.6	1.6	11.1 11.7	11.4	9.5
				Middle	6	20.7 20.7	20.7	7.9 7.9	7.9	32.9 32.9	32.9	95.2 95.6	95.4	7.0 7.1	7.1		1.7 1.7	1.7		8.4 8.2	8.3	
				Bottom	11	20.6 20.6	20.6	7.9 7.9	7.9	32.9 32.9	32.9	96.2 96.4	96.3	7.1 7.2	7.2	7.2	1.6 1.6	1.6		8.9 8.8	8.9	
M6	Sunny	Moderate	12:36	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.2	- -	-	1.4	- -	-	12.7
				Middle	2.2	20.7 20.7	20.7	7.9 7.9	7.9	32.9 32.9	32.9	97.0 96.9	97.0	7.2 7.2	7.2		1.4 1.4	1.4		12.5 12.9	12.7	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 22-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 3.6 NTU	***C1: 3.9 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 7.7 mg/L	***C1: 8.3 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 7.7 mg/L	***C1: 8.3 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 19.6 mg/L	***C1: 21.2 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 22 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	16:15	Surface	1	20.7 20.9	20.8	8.0 8.0	8.0	32.9 32.9	32.9	97.3 96.9	97.1	7.2 7.1	7.2	7.2	1.8 1.7	1.8	2.4	6.3 6.4	6.4	9.1
				Middle	9	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	96.5 95.9	96.2	7.2 7.1	7.2		2.4 2.3	2.4		4.5 4.6	4.6	
				Bottom	17	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	96.3 96.1	96.2	7.1 7.1	7.1	7.1	3.0 3.0	3.0		16.4 16.2	16.3	
C2	Sunny	Moderate	17:06	Surface	1	20.8 20.8	20.8	8.0 8.0	8.0	32.8 32.8	32.8	95.0 95.0	95.0	7.0 7.0	7.0	7.0	1.9 1.9	1.9	2.3	28.0 28.0	28.0	17.3
				Middle	16	20.7 20.7	20.7	8.0 8.0	8.0	32.9 32.9	32.9	93.9 93.9	93.9	7.0 7.0	7.0		2.4 2.5	2.5		8.2 8.2	8.2	
				Bottom	31	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	93.6 93.6	93.6	6.9 6.9	6.9	6.9	2.6 2.6	2.6		15.7 15.8	15.8	
G1	Sunny	Moderate	16:41	Surface	1	21.4 21.3	21.4	7.9 8.0	8.0	32.7 32.8	32.8	99.0 98.3	98.7	7.2 7.2	7.2	7.2	1.3 1.3	1.3	2.0	13.2 13.7	13.5	10.5
				Middle	4	20.7 20.7	20.7	8.0 8.0	8.0	32.9 32.9	32.9	95.2 95.4	95.3	7.0 7.1	7.1		2.3 2.4	2.4		11.5 11.5	11.5	
				Bottom	7	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	94.3 94.2	94.3	7.0 7.0	7.0	7.0	2.2 2.2	2.2		6.4 6.6	6.5	
G2	Sunny	Moderate	16:51	Surface	1	20.9 20.8	20.9	8.0 8.0	8.0	32.8 32.9	32.9	95.8 95.4	95.6	7.1 7.0	7.1	7.1	1.9 2.0	2.0	2.4	3.7 3.8	3.8	8.5
				Middle	5	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	94.6 94.7	94.7	7.0 7.0	7.0		2.4 2.4	2.4		9.3 9.3	9.3	
				Bottom	9	20.5 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	95.0 94.7	94.9	7.0 7.0	7.0	7.0	2.7 2.6	2.7		12.5 12.1	12.3	
G3	Sunny	Moderate	16:37	Surface	1	21.0 21.1	21.1	8.0 8.0	8.0	32.6 32.6	32.6	97.5 97.2	97.4	7.2 7.2	7.2	7.2	1.3 1.4	1.4	1.6	15.3 15.0	15.2	19.1
				Middle	4	20.7 20.9	20.8	8.0 8.0	8.0	32.8 32.8	32.8	96.3 96.6	96.5	7.1 7.1	7.1		1.6 1.5	1.6		13.6 13.1	13.4	
				Bottom	7	20.6 20.7	20.7	8.0 8.0	8.0	32.9 32.9	32.9	95.8 96.2	96.0	7.1 7.1	7.1	7.1	1.8 1.7	1.8		28.0 29.1	28.6	
G4	Sunny	Moderate	16:29	Surface	1	21.2 21.0	21.1	8.0 8.0	8.0	32.9 32.9	32.9	98.9 98.3	98.6	7.3 7.2	7.3	7.3	1.3 1.2	1.3	1.5	12.8 13.1	13.0	17.3
				Middle	4	20.7 20.7	20.7	8.0 8.0	8.0	32.9 32.9	32.9	97.6 97.7	97.7	7.2 7.2	7.2		1.5 1.5	1.5		23.7 23.5	23.6	
				Bottom	7	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	96.3 96.3	96.3	7.1 7.1	7.1	7.1	1.6 1.6	1.6		15.4 14.9	15.2	
M1	Sunny	Moderate	16:47	Surface	1	20.9 21.0	21.0	8.0 8.0	8.0	32.8 32.8	32.8	96.5 96.7	96.6	7.1 7.1	7.1	7.1	1.4 1.4	1.4	2.1	22.9 22.9	22.9	12.1
				Middle	3	20.9 20.9	20.9	8.0 8.0	8.0	32.8 32.8	32.8	96.6 96.4	96.5	7.1 7.1	7.1		1.5 1.5	1.5		9.4 9.4	9.4	
				Bottom	5	20.7 20.7	20.7	8.0 8.0	8.0	32.8 32.8	32.8	94.5 94.8	94.7	7.0 7.0	7.0	7.0	3.5 3.5	3.5		3.9 4.0	4.0	
M2	Sunny	Moderate	16:56	Surface	1	21.1 21.1	21.1	8.0 8.0	8.0	32.9 32.9	32.9	97.6 97.4	97.5	7.2 7.2	7.2	7.2	1.4 1.4	1.4	1.8	2.2 2.2	2.2	7.0
				Middle	5.5	20.6 20.7	20.7	8.0 8.0	8.0	32.9 32.9	32.9	95.8 95.8	95.8	7.1 7.1	7.1		1.6 1.7	1.7		10.4 10.7	10.6	
				Bottom	10	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	95.2 95.1	95.2	7.1 7.1	7.1	7.1	2.2 2.1	2.2		8.2 8.4	8.3	
M3	Sunny	Moderate	16:33	Surface	1	21.2 21.2	21.2	8.0 8.0	8.0	32.6 32.5	32.6	97.2 97.2	97.2	7.1 7.1	7.1	7.1	1.2 1.2	1.2	1.5	20.8 21.0	20.9	16.9
				Middle	4	20.8 20.8	20.8	8.0 8.0	8.0	32.8 32.8	32.8	96.7 96.5	96.6	7.1 7.1	7.1		1.5 1.5	1.5		21.3 21.6	21.5	
				Bottom	7	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	95.1 95.2	95.2	7.1 7.1	7.1	7.1	1.8 1.9	1.9		8.1 8.2	8.2	
M4	Sunny	Moderate	17:01	Surface	1	20.8 21.0	20.9	8.0 8.0	8.0	32.9 32.9	32.9	98.4 98.1	98.3	7.3 7.2	7.3	7.2	1.4 1.4	1.4	1.7	8.3 8.6	8.5	10.6
				Middle	5	20.6 20.7	20.7	8.0 8.0	8.0	32.9 32.9	32.9	96.3 96.4	96.4	7.1 7.1	7.1		1.7 1.7	1.7		10.8 10.7	10.8	
				Bottom	9	20.5 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	94.9 95.3	95.1	7.0 7.1	7.1	7.1	2.1 2.0	2.1		12.6 12.5	12.6	
M5	Sunny	Moderate	16:21	Surface	1	20.8 20.7	20.8	8.0 8.0	8.0	32.9 32.9	32.9	97.1 97.4	97.3	7.2 7.2	7.2	7.2	1.8 1.8	1.8	1.6	15.4 15.0	15.2	14.5
				Middle	6	20.6 20.6	20.6	8.0 8.0	8.0	32.9 32.9	32.9	97.5 97.4	97.5	7.2 7.2	7.2		1.5 1.5	1.5		10.4 10.2	10.3	
				Bottom	11	20.5 20.5	20.5	8.0 8.0	8.0	32.9 32.9	32.9	98.0 97.8	97.9	7.3 7.3	7.3	7.3	1.5 1.6	1.6		18.1 17.7	17.9	
M6	Sunny	Moderate	16:27	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.2	- -	-	1.5	- -	-	29.2
				Middle	2.3	20.7 20.7	20.7	8.0 8.0	8.0	32.9 32.9	32.9	96.8 96.8	96.8	7.2 7.2	7.2		1.5 1.5	1.5		28.8 29.5	29.2	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 24-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 2.0 NTU	***C2: 2.2 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 7.9 mg/L	***C2: 8.5 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 7.9 mg/L	***C2: 8.5 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 15.1 mg/L	***C2: 16.3 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 12/24/2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Calm	14:24	Surface	1.0	20.9 20.9	20.9	8.3 8.3	8.3	32.8 32.8	32.8	96.5 96.3	96.4	7.1 7.1	7.1	7.1	1.2 1.4	1.3	1.5	10.2 10.4	10.3	6.9
				Middle	9.1	20.9 20.9	20.9	8.3 8.3	8.3	32.9 32.9	32.9	96.3 96.1	96.2	7.1 7.1	7.1		1.4 1.4	1.4		6.0 6.2	6.1	
				Bottom	17.0	20.9 20.9	20.9	8.3 8.3	8.3	33.0 33.0	33.0	97.7 97.4	97.6	7.2 7.2	7.2	7.2	1.7 2.1	1.9		4.3 4.5	4.4	
C2	Cloudy	Calm	12:56	Surface	1.0	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.8	32.7	93.3 94.1	93.7	6.9 6.9	6.9	6.9	1.9 1.6	1.8	1.7	6.4 6.7	6.6	7.9
				Middle	16.6	20.9 20.9	20.9	8.3 8.3	8.3	32.8 32.8	32.8	94.5 94.7	94.6	7.0 7.0	7.0		1.7 1.5	1.6		4.7 4.6	4.7	
				Bottom	32.0	20.9 20.9	20.9	8.3 8.3	8.3	32.9 32.8	32.8	95.4 94.8	95.1	7.0 7.0	7.0	7.0	1.8 1.5	1.7		12.4 12.7	12.6	
G1	Cloudy	Calm	13:33	Surface	1.0	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	92.5 92.3	92.4	6.8 6.8	6.8	6.8	1.8 1.6	1.7	2.1	7.5 7.6	7.6	7.9
				Middle	4.1	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	91.4 91.5	91.5	6.7 6.7	6.7		2.5 2.3	2.4		9.7 9.8	9.8	
				Bottom	7.1	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	92.2 92.0	92.1	6.8 6.8	6.8	6.8	2.0 2.3	2.1		6.4 6.3	6.4	
G2	Cloudy	Calm	13:23	Surface	1.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	92.6 92.6	92.6	6.8 6.8	6.8	6.8	3.6 3.8	3.7	4.4	6.4 6.5	6.5	12.5
				Middle	5.1	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	92.4 92.3	92.4	6.8 6.8	6.8		3.2 3.6	3.4		12.3 12.4	12.4	
				Bottom	9.0	20.9 20.9	20.9	8.3 8.3	8.3	32.8 32.8	32.8	92.6 92.5	92.6	6.8 6.8	6.8	6.8	6.2 6.3	6.2		18.5 19.0	18.8	
G3	Cloudy	Calm	13:38	Surface	1.1	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	91.3 91.3	91.3	6.7 6.7	6.7	6.7	1.5 1.8	1.6	1.7	4.2 4.2	4.2	7.1
				Middle	4.1	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	91.3 91.2	91.3	6.7 6.7	6.7		1.5 1.8	1.6		7.6 7.7	7.7	
				Bottom	7.0	21.0 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	91.2 91.4	91.3	6.7 6.7	6.7	6.7	2.0 2.0	2.0		9.4 9.5	9.5	
G4	Cloudy	Calm	14:09	Surface	1.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	95.3 94.0	94.7	7.0 6.9	7.0	6.9	1.4 1.4	1.4	1.4	7.4 7.2	7.3	8.0
				Middle	4.0	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	93.8 94.0	93.9	6.9 6.9	6.9		1.5 1.4	1.5		8.8 8.9	8.9	
				Bottom	7.0	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.7	32.8	92.0 93.5	92.8	6.8 6.9	6.8	6.8	1.3 1.6	1.4		8.0 7.9	8.0	
M1	Cloudy	Calm	13:28	Surface	1.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	92.7 91.8	92.3	6.8 6.8	6.8	6.8	2.0 1.9	1.9	2.7	5.5 5.5	5.5	7.7
				Middle	3.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	91.9 91.7	91.8	6.8 6.8	6.8		2.4 2.1	2.2		8.0 8.3	8.2	
				Bottom	5.1	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	91.7 91.6	91.7	6.8 6.7	6.7	6.7	3.8 3.9	3.8		9.7 9.4	9.6	
M2	Cloudy	Calm	13:19	Surface	1.0	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	93.4 94.0	93.7	6.9 6.9	6.9	6.9	1.7 1.7	1.7	2.0	19.0 18.6	18.8	13.4
				Middle	5.6	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	93.5 93.4	93.5	6.9 6.9	6.9		1.7 1.6	1.7		6.1 6.0	6.1	
				Bottom	10.1	20.9 20.9	20.9	8.3 8.3	8.3	32.9 32.9	32.9	93.9 94.3	94.1	6.9 7.0	6.9	6.9	2.4 2.6	2.5		15.2 15.6	15.4	
M3	Cloudy	Calm	13:41	Surface	1.1	21.1 21.1	21.1	8.3 8.3	8.3	32.6 32.7	32.7	93.1 91.3	92.2	6.9 6.7	6.8	6.7	1.7 1.4	1.6	1.5	5.5 5.4	5.5	9.9
				Middle	4.0	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	91.2 90.8	91.0	6.7 6.7	6.7		1.5 1.2	1.4		12.9 12.6	12.8	
				Bottom	7.0	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	91.5 91.3	91.4	6.7 6.7	6.7	6.7	1.6 1.4	1.5		11.3 11.4	11.4	
M4	Cloudy	Calm	13:08	Surface	1.1	20.9 20.9	20.9	8.3 8.3	8.3	32.9 32.9	32.9	95.6 95.3	95.5	7.1 7.0	7.0	7.0	2.3 2.5	2.4	2.6	8.1 8.1	8.1	9.1
				Middle	5.0	20.9 20.9	20.9	8.3 8.3	8.3	32.9 32.9	32.9	95.4 95.1	95.3	7.0 7.0	7.0		2.4 3.0	2.7		9.5 9.7	9.6	
				Bottom	9.0	20.9 20.9	20.9	8.3 8.3	8.3	32.9 32.9	32.9	95.2 94.9	95.1	7.0 7.0	7.0	7.0	2.6 3.1	2.8		9.7 9.5	9.6	
M5	Cloudy	Calm	14:18	Surface	1.0	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	97.2 94.0	95.6	7.2 6.9	7.0	6.9	1.4 1.7	1.6	2.3	13.0 13.3	13.2	7.8
				Middle	6.0	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	93.5 92.8	93.2	6.9 6.8	6.9		2.1 2.6	2.4		5.4 5.5	5.5	
				Bottom	11.0	20.9 20.9	20.9	8.3 8.3	8.3	32.8 32.8	32.8	93.2 92.9	93.1	6.9 6.8	6.9	6.9	2.8 3.0	2.9		4.7 4.6	4.7	
M6	Cloudy	Calm	14:13	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.9	- -	-	1.2	- -	-	5.0
				Middle	2.3	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	93.1 93.2	93.2	6.9 6.9	6.9		1.2 1.2	1.2		5.0 4.9	5.0	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 24-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 2.7 NTU	***C1: 2.9 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 4.1 mg/L	***C1: 4.5 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 4.1 mg/L	***C1: 4.5 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 6.4 mg/L	***C1: 6.9 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 12/24/2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Calm	9:29	Surface	1.0	20.9 20.9	20.9	8.3 8.3	8.3	32.8 32.8	32.8	97.7 97.1	97.4	7.2 7.2	7.2	7.2	2.0 1.7	1.8	2.1	3.4 3.5	3.5	8.8
				Middle	9.0	20.9 20.9	20.9	8.3 8.3	8.3	32.8 32.9	32.9	96.9 96.8	96.9	7.2 7.1	7.1		2.2 2.1	2.1		17.7 17.3	17.5	
				Bottom	17.0	20.9 20.9	20.9	8.3 8.3	8.3	33.0 32.9	33.0	97.7 96.9	97.3	7.2 7.1	7.2		2.4 2.1	2.3		5.3 5.3	5.3	
C2	Cloudy	Calm	7:55	Surface	1.1	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	92.4 92.5	92.5	6.8 6.8	6.8	6.9	1.5 1.4	1.4	1.6	6.1 6.2	6.2	8.2
				Middle	16.0	20.9 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	94.5 93.5	94.0	7.0 6.9	6.9		1.8 1.6	1.7		9.4 9.0	9.2	
				Bottom	31.0	20.9 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	94.8 93.7	94.3	7.0 6.9	6.9	6.9	1.7 1.6	1.7		9.2 9.2	9.2	
G1	Cloudy	Calm	8:27	Surface	1.0	21.0 21.1	21.0	8.3 8.3	8.3	32.7 32.7	32.7	93.5 91.4	92.5	6.9 6.7	6.8	6.8	1.2 1.2	1.2	1.4	11.7 11.9	11.8	9.4
				Middle	4.0	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	92.3 91.1	91.7	6.8 6.7	6.7		1.4 1.4	1.4		8.4 8.8	8.6	
				Bottom	7.0	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.7	32.7	91.8 91.2	91.5	6.8 6.7	6.7	6.7	1.8 1.6	1.7		7.7 7.8	7.8	
G2	Cloudy	Calm	8:15	Surface	1.0	21.0 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	94.8 92.0	93.4	7.0 6.8	6.9	6.8	1.5 1.6	1.6	1.9	6.3 6.2	6.3	7.5
				Middle	5.0	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	92.6 91.6	92.1	6.8 6.7	6.8		1.7 1.9	1.8		11.3 11.4	11.4	
				Bottom	9.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	92.1 91.6	91.9	6.8 6.7	6.8	6.8	2.7 2.2	2.5		4.9 4.9	4.9	
G3	Cloudy	Calm	8:32	Surface	1.1	21.0 21.0	21.0	8.3 8.3	8.3	32.6 32.6	32.6	92.5 91.2	91.9	6.8 6.7	6.8	6.8	1.6 1.7	1.6	2.0	6.4 6.1	6.3	7.8
				Middle	4.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	91.8 91.4	91.6	6.8 6.7	6.7		2.0 1.8	1.9		8.1 8.1	8.1	
				Bottom	7.0	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	91.3 91.1	91.2	6.7 6.7	6.7	6.7	2.3 2.5	2.4		8.7 9.1	8.9	
G4	Cloudy	Calm	9:13	Surface	1.1	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	91.5 91.8	91.7	6.7 6.8	6.7	6.7	1.3 1.4	1.4	1.4	26.3 26.2	26.3	14.1
				Middle	4.1	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	91.2 91.3	91.3	6.7 6.7	6.7		1.4 1.4	1.4		11.5 11.9	11.7	
				Bottom	7.1	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.7	32.8	91.8 91.3	91.6	6.8 6.7	6.7	6.7	1.6 1.5	1.6		4.4 4.4	4.4	
M1	Cloudy	Calm	8:21	Surface	1.0	20.9 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	92.9 91.6	92.3	6.9 6.8	6.8	6.8	1.6 1.8	1.7	1.8	5.4 5.5	5.5	11.2
				Middle	3.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	91.8 91.5	91.7	6.8 6.7	6.8		2.0 1.8	1.9		14.6 14.7	14.7	
				Bottom	5.0	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	91.6 91.3	91.5	6.8 6.7	6.7	6.7	2.0 1.8	1.9		13.5 13.6	13.6	
M2	Cloudy	Calm	8:10	Surface	1.1	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	92.8 92.3	92.6	6.8 6.8	6.8	6.8	1.9 1.8	1.8	1.9	12.4 12.0	12.2	8.8
				Middle	5.0	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	92.3 92.1	92.2	6.8 6.8	6.8		2.0 1.8	1.9		9.5 9.4	9.5	
				Bottom	9.0	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	92.2 92.0	92.1	6.8 6.8	6.8	6.8	2.0 2.1	2.0		4.8 4.9	4.9	
M3	Cloudy	Calm	8:36	Surface	1.0	21.0 21.0	21.0	8.3 8.3	8.3	32.5 32.6	32.6	93.2 91.7	92.5	6.9 6.8	6.8	6.8	1.4 1.4	1.4	1.8	3.6 3.7	3.7	5.9
				Middle	4.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	92.0 91.5	91.8	6.8 6.7	6.8		1.6 1.8	1.7		6.5 6.5	6.5	
				Bottom	7.0	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.7	32.8	91.4 91.5	91.5	6.7 6.7	6.7	6.7	2.3 2.1	2.2		7.8 7.5	7.7	
M4	Cloudy	Calm	8:03	Surface	1.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	93.1 92.4	92.8	6.9 6.8	6.8	6.8	2.2 2.0	2.1	2.2	5.7 5.7	5.7	9.4
				Middle	5.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	92.6 92.3	92.5	6.8 6.8	6.8		2.5 2.0	2.3		15.7 15.6	15.7	
				Bottom	9.0	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	92.2 91.9	92.1	6.8 6.8	6.8	6.8	2.5 2.1	2.3		6.9 6.8	6.9	
M5	Cloudy	Calm	9:23	Surface	1.0	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	94.5 92.0	93.3	7.0 6.8	6.9	6.8	2.1 2.2	2.1	2.3	11.5 11.5	11.5	8.1
				Middle	6.0	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.7	32.8	92.4 91.7	92.1	6.8 6.8	6.8		2.5 2.3	2.4		9.0 8.7	8.9	
				Bottom	11.1	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	92.5 92.3	92.4	6.8 6.8	6.8	6.8	2.2 2.6	2.4		3.8 3.8	3.8	
M6	Cloudy	Calm	9:18	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.8	- -	-	1.8	- -	-	4.8
				Middle	2.2	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.7	32.7	92.7 92.1	92.4	6.8 6.8	6.8		1.8 1.8	1.8		4.8 4.8	4.8	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 27-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 3.3 NTU	***C2: 3.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 3.8 mg/L	***C2: 4.1 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 3.8 mg/L	***C2: 4.1 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 10.3 mg/L	***C2: 11.2 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 27 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	15:43	Surface	1.1	21.3 21.3	21.3	8.3 8.3	8.3	32.8 32.8	32.8	96.0 94.5	95.3	7.0 6.9	7.0	7.0	2.1 2.2	2.1	2.5	12.5 12.6	12.6	9.0
				Middle	9.0	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.9	32.9	95.6 95.0	95.3	7.0 7.0	7.0		2.4 2.4	2.4		5.4 5.5	5.5	
				Bottom	17.0	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.9	32.9	96.3 95.8	96.1	7.1 7.1	7.1	7.1	2.8 2.8	2.8		8.8 8.9	8.9	
C2	Sunny	Calm	14:52	Surface	1.0	21.2 21.1	21.1	8.3 8.3	8.3	32.8 32.9	32.8	96.1 95.4	95.8	7.1 7.0	7.0	7.0	2.6 2.7	2.6	2.7	3.1 3.2	3.2	6.1
				Middle	16.1	21.1 21.1	21.1	8.3 8.3	8.3	32.9 32.9	32.9	95.3 95.0	95.2	7.0 7.0	7.0		2.7 2.7	2.7		6.5 6.6	6.6	
				Bottom	31.0	21.1 21.1	21.1	8.3 8.3	8.3	32.9 32.9	32.9	95.1 94.9	95.0	7.0 7.0	7.0	7.0	2.8 2.8	2.8		8.5 8.7	8.6	
G1	Sunny	Calm	15:11	Surface	1.1	21.2 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	98.4 93.0	95.7	7.2 6.8	7.0	7.0	2.1 2.1	2.1	2.3	2.9 2.9	2.9	5.1
				Middle	4.1	21.0 21.1	21.1	8.3 8.3	8.3	32.9 32.8	32.8	94.3 93.2	93.8	6.9 6.8	6.9		2.6 2.5	2.6		7.2 7.2	7.2	
				Bottom	7.1	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.9	32.9	92.7 92.8	92.8	6.8 6.8	6.8	6.8	2.3 2.5	2.4		5.2 5.2	5.2	
G2	Sunny	Calm	15:02	Surface	1.1	21.2 21.1	21.2	8.3 8.3	8.3	32.8 32.8	32.8	97.1 94.7	95.9	7.1 7.0	7.0	7.0	2.4 2.1	2.3	2.4	4.0 4.1	4.1	5.3
				Middle	5.1	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	94.7 94.3	94.5	7.0 6.9	6.9		2.5 2.3	2.4		6.5 6.4	6.5	
				Bottom	9.0	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.9	32.9	94.8 95.2	95.0	7.0 7.0	7.0	7.0	2.6 2.5	2.6		5.4 5.5	5.5	
G3	Sunny	Calm	15:14	Surface	1.0	21.5 21.3	21.4	8.3 8.3	8.3	32.6 32.7	32.7	96.4 94.3	95.4	7.0 6.9	7.0	7.0	2.6 2.8	2.7	2.9	14.0 14.0	14.0	7.4
				Middle	4.0	21.3 21.3	21.3	8.3 8.3	8.3	32.8 32.7	32.7	94.8 95.0	94.9	6.9 7.0	6.9		2.9 2.8	2.8		5.1 5.1	5.1	
				Bottom	7.0	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.9	32.8	93.6 93.6	93.6	6.9 6.9	6.9	6.9	3.0 3.1	3.1		2.9 3.0	3.0	
G4	Sunny	Calm	15:32	Surface	1.1	21.5 21.3	21.4	8.3 8.3	8.3	32.8 32.8	32.8	98.8 94.7	96.8	7.2 6.9	7.1	7.0	2.3 2.3	2.3	2.3	3.9 3.8	3.9	7.0
				Middle	4.0	21.3 21.3	21.3	8.3 8.3	8.3	32.8 32.8	32.8	95.5 94.6	95.1	7.0 6.9	7.0		2.2 2.3	2.2		10.0 10.0	10.0	
				Bottom	7.1	21.2 21.2	21.2	8.3 8.3	8.3	32.8 32.8	32.8	94.3 94.1	94.2	6.9 6.9	6.9	6.9	2.4 2.5	2.4		7.0 7.0	7.0	
M1	Sunny	Calm	15:08	Surface	1.1	21.3 21.3	21.3	8.3 8.3	8.3	32.7 32.8	32.7	97.6 94.2	95.9	7.2 6.9	7.0	7.0	2.4 2.5	2.5	2.5	7.4 7.4	7.4	6.2
				Middle	3.1	21.2 21.3	21.2	8.3 8.3	8.3	32.8 32.8	32.8	94.8 94.4	94.6	7.0 6.9	6.9		2.5 2.7	2.6		5.6 5.4	5.5	
				Bottom	5.0	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	94.1 93.1	93.6	6.9 6.8	6.9	6.9	2.6 2.5	2.5		5.6 5.6	5.6	
M2	Sunny	Calm	14:59	Surface	1.0	21.4 21.3	21.3	8.3 8.3	8.3	32.8 32.8	32.8	95.4 95.2	95.3	7.0 7.0	7.0	7.0	2.5 2.6	2.5	2.7	6.1 6.1	6.1	5.9
				Middle	5.6	21.1 21.2	21.2	8.3 8.3	8.3	32.8 32.8	32.8	94.6 94.4	94.5	6.9 6.9	6.9		2.7 2.9	2.8		6.0 5.9	6.0	
				Bottom	10.1	21.0 21.1	21.1	8.3 8.3	8.3	32.9 32.9	32.9	94.7 94.2	94.5	7.0 6.9	6.9	6.9	2.7 2.9	2.8		5.6 5.5	5.6	
M3	Sunny	Calm	15:16	Surface	1.1	21.4 21.2	21.3	8.3 8.3	8.3	32.6 32.8	32.7	98.2 94.4	96.3	7.2 6.9	7.1	7.0	2.4 2.4	2.4	2.6	6.4 6.8	6.6	7.4
				Middle	4.1	21.2 21.3	21.3	8.3 8.3	8.3	32.8 32.7	32.7	96.2 95.3	95.8	7.1 7.0	7.0		2.6 2.6	2.6		8.2 8.3	8.3	
				Bottom	7.0	21.1 21.2	21.1	8.3 8.3	8.3	32.8 32.8	32.8	95.1 95.3	95.2	7.0 7.0	7.0	7.0	2.8 2.9	2.9		7.2 7.2	7.2	
M4	Sunny	Calm	14:55	Surface	1.0	21.2 21.2	21.2	8.3 8.3	8.3	32.8 32.8	32.8	96.6 95.4	96.0	7.1 7.0	7.0	7.0	2.6 2.7	2.6	2.8	6.6 6.4	6.5	6.7
				Middle	5.0	21.1 21.1	21.1	8.3 8.3	8.3	32.9 32.9	32.9	95.4 95.0	95.2	7.0 7.0	7.0		2.7 3.0	2.9		5.9 6.1	6.0	
				Bottom	9.1	21.1 21.0	21.1	8.3 8.3	8.3	32.9 32.9	32.9	95.1 95.0	95.1	7.0 7.0	7.0	7.0	2.8 3.1	3.0		7.5 7.4	7.5	
M5	Sunny	Calm	15:39	Surface	1.1	21.2 21.2	21.2	8.3 8.3	8.3	32.8 32.8	32.8	94.7 93.4	94.1	6.9 6.8	6.9	6.9	2.6 2.7	2.6	2.7	5.7 5.5	5.6	5.1
				Middle	6.0	21.0 21.1	21.1	8.3 8.3	8.3	32.9 32.9	32.9	93.0 92.7	92.9	6.8 6.8	6.8		2.5 2.9	2.7		5.7 5.8	5.8	
				Bottom	11.0	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.9	32.9	94.7 92.8	93.8	7.0 6.8	6.9	6.9	2.8 2.9	2.9		3.8 3.9	3.9	
M6	Sunny	Calm	15:35	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.0	- -	-	2.7	- -	-	7.3
				Middle	2.2	21.2 21.2	21.2	8.3 8.3	8.3	32.8 32.8	32.8	96.7 94.0	95.4	7.1 6.9	7.0		2.8 2.7	2.7		7.3 7.2	7.3	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 27-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 2.4 NTU	***C1: 2.6 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 5.9 mg/L	***C1: 6.4 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 5.9 mg/L	***C1: 6.4 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 9.8 mg/L	***C1: 10.7 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 27 December 2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Calm	10:27	Surface	1.0	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	93.6 93.4	93.5	6.9 6.9	6.9	6.9	1.8 1.8	1.8	1.9	4.9 5.0	5.0	6.3
				Middle	9.1	21.0 20.9	20.9	8.3 8.3	8.3	32.9 33.0	32.9	93.2 94.3	93.8	6.9 6.9	6.9		2.0 2.0	2.0		5.6 5.7	5.7	
				Bottom	17.1	20.9 20.9	20.9	8.3 8.3	8.3	33.0 33.0	33.0	95.1 95.3	95.2	7.0 7.0	7.0	7.0	2.0 2.1	2.0		8.1 8.3	8.2	
C2	Cloudy	Calm	9:35	Surface	1.0	21.2 21.2	21.2	8.3 8.3	8.3	32.7 32.7	32.7	89.1 87.0	88.1	6.5 6.4	6.5	6.4	2.2 2.3	2.3	2.5	6.9 6.9	6.9	8.4
				Middle	16.0	21.2 21.2	21.2	8.3 8.3	8.3	32.7 32.7	32.7	87.1 86.9	87.0	6.4 6.4	6.4		2.6 2.4	2.5		8.4 8.2	8.3	
				Bottom	31.1	21.2 21.2	21.2	8.3 8.3	8.3	32.7 32.7	32.7	86.7 86.5	86.6	6.4 6.4	6.4	6.4	2.8 2.5	2.7		9.8 10.1	10.0	
G1	Cloudy	Calm	9:54	Surface	1.0	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.8	32.8	94.8 92.9	93.9	7.0 6.8	6.9	6.9	2.8 2.9	2.8	2.9	5.7 5.7	5.7	6.8
				Middle	4.1	21.0 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	93.3 93.0	93.2	6.9 6.8	6.9		2.9 2.9	2.9		7.9 8.0	8.0	
				Bottom	7.0	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	92.9 92.8	92.9	6.8 6.8	6.8	6.8	2.9 2.9	2.9		6.8 6.9	6.9	
G2	Cloudy	Calm	9:46	Surface	1.1	21.0 21.0	21.0	8.3 8.3	8.3	32.7 32.8	32.8	93.6 91.8	92.7	6.9 6.8	6.8	6.8	2.0 2.1	2.1	2.2	5.4 5.4	5.4	4.9
				Middle	5.0	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	91.9 91.5	91.7	6.8 6.7	6.7		2.2 2.0	2.1		3.4 3.2	3.3	
				Bottom	9.1	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.9	32.8	91.4 91.8	91.6	6.7 6.8	6.7	6.7	2.4 2.4	2.4		5.9 5.9	5.9	
G3	Cloudy	Calm	9:57	Surface	1.1	21.1 21.0	21.0	8.3 8.3	8.3	32.6 32.9	32.7	94.9 90.8	92.9	7.0 6.7	6.8	6.7	1.7 1.8	1.7	2.1	9.0 9.2	9.1	6.0
				Middle	4.0	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.8	32.8	90.2 90.1	90.2	6.6 6.6	6.6		2.4 2.2	2.3		4.1 4.2	4.2	
				Bottom	7.1	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.9	32.9	89.9 89.7	89.8	6.6 6.6	6.6	6.6	2.5 2.4	2.4		4.8 4.8	4.8	
G4	Cloudy	Calm	10:16	Surface	1.1	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	91.6 91.2	91.4	6.7 6.7	6.7	6.7	2.7 2.8	2.8	2.8	4.5 4.6	4.6	9.0
				Middle	4.1	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	91.0 90.9	91.0	6.7 6.7	6.7		2.7 2.7	2.7		14.6 15.1	14.9	
				Bottom	7.1	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.9	32.9	91.2 91.3	91.3	6.7 6.7	6.7	6.7	2.9 2.8	2.9		7.6 7.4	7.5	
M1	Cloudy	Calm	9:50	Surface	1.0	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	94.1 91.2	92.7	6.9 6.7	6.8	6.8	2.4 2.5	2.4	2.5	13.8 13.4	13.6	11.3
				Middle	3.0	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	92.2 91.2	91.7	6.8 6.7	6.7		2.6 2.4	2.5		9.6 9.2	9.4	
				Bottom	5.0	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	91.5 91.0	91.3	6.7 6.7	6.7	6.7	2.7 2.6	2.7		10.8 10.9	10.9	
M2	Cloudy	Calm	9:43	Surface	1.1	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.8	32.7	92.5 90.9	91.7	6.8 6.7	6.7	6.7	1.9 1.8	1.9	1.9	5.7 5.8	5.8	5.6
				Middle	5.6	21.1 21.1	21.1	8.3 8.3	8.3	32.7 32.7	32.7	90.3 90.0	90.2	6.6 6.6	6.6		1.9 1.8	1.9		6.2 6.1	6.2	
				Bottom	10.0	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	90.4 90.1	90.3	6.7 6.6	6.6	6.6	1.9 1.9	1.9		4.9 4.7	4.8	
M3	Cloudy	Calm	9:59	Surface	1.1	21.2 21.0	21.1	8.3 8.3	8.3	32.7 32.8	32.8	94.2 89.4	91.8	6.9 6.6	6.7	6.7	1.9 2.2	2.1	2.4	5.6 5.7	5.7	8.6
				Middle	4.1	21.1 21.0	21.1	8.3 8.3	8.3	32.8 32.9	32.8	91.9 89.9	90.9	6.8 6.6	6.7		2.6 2.6	2.6		7.2 7.3	7.3	
				Bottom	7.0	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.9	32.9	90.2 89.6	89.9	6.6 6.6	6.6	6.6	2.5 2.7	2.6		12.5 13.1	12.8	
M4	Cloudy	Calm	9:39	Surface	1.1	21.1 21.1	21.1	8.2 8.3	8.3	32.7 32.8	32.7	91.1 90.9	91.0	6.7 6.7	6.7	6.7	1.2 1.2	1.2	1.5	10.9 11.0	11.0	7.5
				Middle	5.0	21.1 21.0	21.1	8.3 8.3	8.3	32.8 32.8	32.8	90.1 90.8	90.5	6.6 6.7	6.6		1.6 1.6	1.6		5.3 5.5	5.4	
				Bottom	9.0	21.1 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	90.9 90.7	90.8	6.7 6.7	6.7	6.7	1.6 1.7	1.6		6.1 6.0	6.1	
M5	Cloudy	Calm	10:22	Surface	1.0	21.0 21.1	21.1	8.3 8.3	8.3	32.8 32.7	32.8	93.0 90.1	91.6	6.8 6.6	6.7	6.7	2.2 1.9	2.0	2.3	2.9 2.9	2.9	4.3
				Middle	6.0	21.0 21.1	21.1	8.3 8.3	8.3	32.8 32.8	32.8	90.8 89.8	90.3	6.7 6.6	6.6		2.2 2.0	2.1		3.5 3.6	3.6	
				Bottom	11.1	21.0 21.0	21.0	8.3 8.3	8.3	32.9 32.9	32.9	91.4 91.8	91.6	6.7 6.8	6.7	6.7	2.7 3.0	2.8		6.6 6.5	6.6	
M6	Cloudy	Calm	10:19	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.8	- -	-	2.7	- -	-	4.6
				Middle	2.2	21.0 21.0	21.0	8.3 8.3	8.3	32.8 32.8	32.8	92.9 92.6	92.8	6.8 6.8	6.8		2.7 2.7	2.7		4.5 4.6	4.6	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 29-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 3.0 NTU	***C2: 3.2 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 8.8 mg/L	***C2: 9.6 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 8.8 mg/L	***C2: 9.6 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 7.7 mg/L	***C2: 8.3 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 12/29/2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	18:33	Surface	1.1	20.4 20.4	20.4	8.3 8.3	8.3	32.9 32.9	32.9	98.9 98.6	98.8	7.4 7.3	7.3	7.3	1.4 1.5	1.5	1.7	7.5 7.2	7.4	5.8
				Middle	8.9	20.4 20.4	20.4	8.3 8.3	8.3	32.9 32.9	32.9	98.7 98.5	98.6	7.3 7.3	7.3		1.6 1.8	1.7		3.7 3.7	3.7	
				Bottom	16.9	20.4 20.4	20.4	8.3 8.3	8.3	32.9 33.0	32.9	98.7 98.8	98.8	7.3 7.3	7.3	7.3	1.9 2.0	2.0		6.4 6.4	6.4	
C2	Cloudy	Moderate	17:17	Surface	1.0	20.4 20.5	20.4	8.3 8.3	8.3	32.9 32.9	32.9	102.1 99.3	100.7	7.6 7.4	7.5	7.4	1.6 1.6	1.6	2.0	7.3 7.4	7.4	6.0
				Middle	16.0	20.5 20.5	20.5	8.4 8.3	8.3	32.9 33.0	32.9	99.9 99.0	99.5	7.4 7.4	7.4		1.8 1.9	1.9		4.3 4.4	4.4	
				Bottom	30.9	20.4 20.4	20.4	8.4 8.3	8.3	33.0 33.0	33.0	99.6 98.9	99.3	7.4 7.4	7.4	7.4	2.5 2.5	2.5		6.4 6.4	6.4	
G1	Cloudy	Moderate	17:45	Surface	1.0	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.1 96.0	96.1	7.1 7.1	7.1	7.1	3.3 3.1	3.2	3.3	7.2 7.1	7.2	6.3
				Middle	4.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.0 96.1	96.1	7.1 7.1	7.1		3.2 3.2	3.2		7.2 7.2	7.2	
				Bottom	7.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.1 96.4	96.3	7.1 7.1	7.1	7.1	3.3 3.4	3.4		4.6 4.7	4.7	
G2	Cloudy	Moderate	17:35	Surface	1.1	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	97.6 97.0	97.3	7.3 7.2	7.2	7.2	2.1 2.0	2.0	2.1	9.3 8.9	9.1	6.3
				Middle	5.0	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	97.4 96.9	97.2	7.2 7.2	7.2		2.1 2.1	2.1		6.0 6.1	6.1	
				Bottom	9.1	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	97.8 97.6	97.7	7.3 7.2	7.2	7.2	2.2 2.2	2.2		3.7 3.7	3.7	
G3	Cloudy	Moderate	17:49	Surface	1.0	20.6 20.5	20.6	8.3 8.3	8.3	32.8 32.7	32.8	96.8 95.3	96.1	7.2 7.1	7.1	7.1	2.7 2.6	2.6	3.0	6.9 7.0	7.0	8.2
				Middle	4.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.0 95.4	95.7	7.1 7.1	7.1		3.0 2.9	3.0		8.6 8.4	8.5	
				Bottom	7.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	95.5 95.1	95.3	7.1 7.1	7.1	7.1	3.5 3.5	3.5		9.0 9.0	9.0	
G4	Cloudy	Moderate	18:19	Surface	1.1	20.5 20.4	20.5	8.3 8.3	8.3	32.9 32.9	32.9	95.4 95.1	95.3	7.1 7.1	7.1	7.1	2.3 2.2	2.2	2.7	9.4 9.5	9.5	9.8
				Middle	4.1	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	95.1 95.0	95.1	7.1 7.1	7.1		2.4 2.6	2.5		10.2 10.1	10.2	
				Bottom	7.0	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	95.0 94.8	94.9	7.1 7.0	7.0	7.0	3.2 3.2	3.2		9.6 9.7	9.7	
M1	Cloudy	Moderate	17:40	Surface	1.0	20.5 20.6	20.5	8.4 8.3	8.3	32.9 32.9	32.9	98.2 97.5	97.9	7.3 7.2	7.3	7.2	3.6 3.6	3.6	3.8	16.4 16.6	16.5	13.4
				Middle	3.0	20.6 20.6	20.6	8.4 8.3	8.3	32.9 32.9	32.9	97.8 97.1	97.5	7.3 7.2	7.2		3.5 3.7	3.6		13.8 14.0	13.9	
				Bottom	5.0	20.5 20.6	20.6	8.4 8.3	8.3	32.9 32.9	32.9	97.0 96.8	96.9	7.2 7.2	7.2	7.2	4.2 4.1	4.2		9.9 9.6	9.8	
M2	Cloudy	Moderate	17:30	Surface	1.0	20.5 20.5	20.5	8.4 8.3	8.3	32.9 32.9	32.9	99.1 98.6	98.9	7.4 7.3	7.3	7.3	1.8 1.7	1.8	2.0	10.1 10.3	10.2	11.9
				Middle	5.5	20.5 20.5	20.5	8.4 8.3	8.3	32.9 32.9	32.9	99.0 98.4	98.7	7.4 7.3	7.3		1.8 1.7	1.7		11.7 11.5	11.6	
				Bottom	9.9	20.4 20.4	20.4	8.4 8.3	8.3	33.0 33.0	33.0	99.4 99.0	99.2	7.4 7.4	7.4	7.4	2.5 2.5	2.5		13.8 14.1	14.0	
M3	Cloudy	Moderate	17:52	Surface	1.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.0 95.7	95.9	7.1 7.1	7.1	7.1	2.5 2.6	2.6	2.6	12.7 12.9	12.8	13.8
				Middle	4.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	95.7 95.2	95.5	7.1 7.1	7.1		2.6 2.7	2.6		15.5 16.2	15.9	
				Bottom	7.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	95.5 94.8	95.2	7.1 7.0	7.1	7.1	2.5 2.6	2.6		12.7 12.6	12.7	
M4	Cloudy	Moderate	17:25	Surface	1.0	20.4 20.5	20.4	8.3 8.4	8.3	32.9 32.9	32.9	100.4 99.7	100.1	7.5 7.4	7.4	7.4	1.1 1.3	1.2	1.7	10.1 10.3	10.2	8.7
				Middle	4.9	20.4 20.4	20.4	8.4 8.3	8.4	33.0 33.0	33.0	100.1 99.5	99.8	7.4 7.4	7.4		1.6 1.7	1.7		3.6 3.6	3.6	
				Bottom	8.8	20.4 20.4	20.4	8.4 8.3	8.4	33.0 33.0	33.0	99.9 99.5	99.7	7.4 7.4	7.4	7.4	2.3 2.1	2.2		12.2 12.1	12.2	
M5	Cloudy	Moderate	18:28	Surface	1.1	20.5 20.5	20.5	8.4 8.4	8.4	32.9 32.9	32.9	98.3 97.5	97.9	7.3 7.2	7.3	7.3	1.7 1.6	1.7	2.1	14.8 14.5	14.7	7.7
				Middle	5.9	20.5 20.5	20.5	8.4 8.3	8.4	32.9 32.9	32.9	97.9 97.2	97.6	7.3 7.2	7.2		1.9 1.9	1.9		5.2 5.3	5.3	
				Bottom	11.0	20.5 20.5	20.5	8.4 8.3	8.4	33.0 33.0	33.0	97.7 97.6	97.7	7.3 7.2	7.2	7.2	2.7 2.6	2.7		3.0 3.1	3.1	
M6	Cloudy	Moderate	18:23	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.0	- -	-	4.6	- -	-	10.0
				Middle	2.2	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	94.9 94.9	94.9	7.0 7.0	7.0		4.6 4.6	4.6		9.9 10.1	10.0	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 29-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 2.8 NTU	***C1: 3.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 7.0 mg/L	***C1: 7.5 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 7.0 mg/L	***C1: 7.5 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 12.2 mg/L	***C1: 13.3 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 12/29/2018

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	13:30	Surface	1.1	20.4 20.4	20.4	8.3 8.3	8.3	32.9 33.0	32.9	101.9 101.4	101.7	7.6 7.5	7.6	7.5	2.2 2.2	2.2	2.2	5.9 5.7	5.8	7.7
				Middle	9.0	20.4 20.4	20.4	8.3 8.3	8.3	33.0 33.0	33.0	100.1 99.6	99.9	7.4 7.4	7.4		2.0 2.0	2.0		7.1 7.3	7.2	
				Bottom	17.1	20.4 20.4	20.4	8.3 8.3	8.3	33.0 33.0	33.0	99.4 99.1	99.3	7.4 7.4	7.4	7.4	2.3 2.3	2.3		10.4 10.0	10.2	
C2	Cloudy	Moderate	12:09	Surface	1.1	20.6 20.7	20.6	8.3 8.3	8.3	32.8 32.9	32.9	100.0 96.4	98.2	7.4 7.1	7.3	7.2	1.7 1.9	1.8	2.4	9.4 9.7	9.6	7.0
				Middle	16.1	20.6 20.7	20.7	8.3 8.3	8.3	32.9 32.9	32.9	97.3 95.9	96.6	7.2 7.1	7.2		2.5 2.5	2.5		2.3 2.3	2.3	
				Bottom	30.9	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	97.3 96.2	96.8	7.2 7.1	7.2	7.2	2.7 2.9	2.8		9.2 9.1	9.2	
G1	Cloudy	Moderate	12:47	Surface	1.1	20.6 20.6	20.6	8.3 8.3	8.3	32.7 32.7	32.7	97.3 95.8	96.6	7.2 7.1	7.2	7.1	1.9 1.9	1.9	2.2	17.1 16.5	16.8	9.9
				Middle	4.0	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.8	32.9	96.4 95.5	96.0	7.1 7.1	7.1		2.2 2.2	2.2		8.7 8.8	8.8	
				Bottom	7.0	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.2 95.7	96.0	7.1 7.1	7.1	7.1	2.7 2.5	2.6		4.1 4.2	4.2	
G2	Cloudy	Moderate	12:24	Surface	1.1	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	97.7 96.1	96.9	7.3 7.1	7.2	7.2	1.7 1.7	1.7	2.1	5.2 5.3	5.3	8.7
				Middle	5.1	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	96.3 95.7	96.0	7.1 7.1	7.1		2.1 2.1	2.1		8.8 8.5	8.7	
				Bottom	9.0	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	95.7 95.2	95.5	7.1 7.1	7.1	7.1	2.6 2.6	2.6		12.0 12.1	12.1	
G3	Cloudy	Moderate	12:50	Surface	1.0	20.7 20.8	20.8	8.3 8.3	8.3	32.8 32.9	32.9	101.3 95.4	98.4	7.5 7.0	7.3	7.2	1.8 1.8	1.8	2.4	6.9 7.0	7.0	7.3
				Middle	4.1	20.7 20.7	20.7	8.3 8.3	8.3	32.9 32.9	32.9	96.1 95.0	95.6	7.1 7.0	7.1		2.2 2.0	2.1		8.6 8.3	8.5	
				Bottom	7.0	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	94.9 94.6	94.8	7.0 7.0	7.0	7.0	3.1 3.2	3.1		6.4 6.6	6.5	
G4	Cloudy	Moderate	13:16	Surface	1.0	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	97.1 96.1	96.6	7.2 7.1	7.2	7.1	1.9 2.0	1.9	2.2	10.1 10.0	10.1	6.8
				Middle	4.1	20.6 20.7	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.5 96.3	96.4	7.1 7.1	7.1		1.8 2.0	1.9		4.8 4.9	4.9	
				Bottom	7.0	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	95.8 94.8	95.3	7.1 7.0	7.1	7.1	2.9 2.8	2.8		5.5 5.4	5.5	
M1	Cloudy	Moderate	12:43	Surface	1.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	95.9 94.8	95.4	7.1 7.0	7.1	7.0	2.5 2.6	2.5	2.5	17.2 16.7	17.0	12.8
				Middle	3.0	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	95.3 94.4	94.9	7.1 7.0	7.0		2.5 2.5	2.5		9.7 9.9	9.8	
				Bottom	5.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	95.2 94.2	94.7	7.1 7.0	7.0	7.0	2.7 2.6	2.6		11.4 11.8	11.6	
M2	Cloudy	Moderate	12:19	Surface	1.0	20.7 20.7	20.7	8.3 8.3	8.3	32.9 32.9	32.9	96.7 96.1	96.4	7.2 7.1	7.1	7.1	2.0 1.8	1.9	2.2	13.3 13.1	13.2	8.8
				Middle	5.5	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.4 95.9	96.2	7.1 7.1	7.1		2.2 2.3	2.2		5.3 5.4	5.4	
				Bottom	10.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.0 95.8	95.9	7.1 7.1	7.1	7.1	2.5 2.6	2.5		8.0 7.9	8.0	
M3	Cloudy	Moderate	12:54	Surface	1.1	20.7 20.8	20.8	8.3 8.3	8.3	32.9 32.9	32.9	97.1 94.7	95.9	7.2 7.0	7.1	7.1	2.6 2.5	2.6	2.7	5.6 5.8	5.7	7.0
				Middle	4.1	20.7 20.7	20.7	8.3 8.3	8.3	32.9 32.9	32.9	95.3 94.3	94.8	7.1 7.0	7.0		2.3 2.3	2.3		6.7 6.5	6.6	
				Bottom	7.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	95.1 94.9	95.0	7.0 7.0	7.0	7.0	3.1 3.1	3.1		8.6 8.8	8.7	
M4	Cloudy	Moderate	12:15	Surface	1.0	20.6 20.7	20.6	8.3 8.3	8.3	32.9 32.9	32.9	100.0 96.6	98.3	7.4 7.2	7.3	7.2	2.1 2.2	2.1	2.4	5.4 5.5	5.5	7.8
				Middle	5.0	20.6 20.7	20.6	8.3 8.3	8.3	32.9 32.9	32.9	97.5 96.3	96.9	7.2 7.1	7.2		2.0 2.1	2.1		6.4 6.3	6.4	
				Bottom	9.0	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	96.9 96.1	96.5	7.2 7.1	7.1	7.1	3.0 2.8	2.9		11.5 11.6	11.6	
M5	Cloudy	Moderate	13:25	Surface	1.1	20.5 20.6	20.6	8.3 8.3	8.3	32.8 32.9	32.9	102.9 97.2	100.1	7.6 7.2	7.4	7.3	1.6 1.6	1.6	1.7	5.6 5.6	5.6	5.0
				Middle	6.1	20.6 20.6	20.6	8.3 8.3	8.3	32.9 32.9	32.9	98.1 96.9	97.5	7.3 7.2	7.2		1.7 1.6	1.6		5.4 5.1	5.3	
				Bottom	11.1	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	98.1 97.3	97.7	7.3 7.2	7.2	7.2	2.2 2.0	2.1		4.1 4.1	4.1	
M6	Cloudy	Moderate	13:22	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.2	- -	-	2.7	- -	-	7.1
				Middle	2.2	20.5 20.5	20.5	8.3 8.3	8.3	32.9 32.9	32.9	98.0 96.4	97.2	7.3 7.2	7.2		2.6 2.7	2.7		7.1 7.1	7.1	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 31-12-2018 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C2: 2.1 NTU	***C2: 2.3 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 3.2 mg/L	***C2: 3.4 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 3.2 mg/L	***C2: 3.4 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C2: 3.4 mg/L	***C2: 3.7 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 31 December 2018

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Calm	9:11	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	33.0 33.0	33.0	100.8 100.5	100.7	7.6 7.6	7.6	7.5	2.2 2.2	2.2	2.3	3.2 3.1	3.2	3.6
				Middle	9.1	19.6 19.6	19.6	8.3 8.3	8.3	33.0 33.0	33.0	99.5 99.5	99.5	7.5 7.5	7.5		2.4 2.5	2.4		3.3 3.2	3.3	
				Bottom	17.1	19.6 19.6	19.6	8.3 8.3	8.3	33.0 33.0	33.0	99.3 99.3	99.3	7.5 7.5	7.5	7.5	2.3 2.4	2.3		4.2 4.4	4.3	
C2	Cloudy	Calm	8:00	Surface	1.1	19.9 19.9	19.9	8.3 8.3	8.3	32.8 32.8	32.8	98.0 97.9	98.0	7.4 7.4	7.4	7.3	1.8 1.7	1.8	1.8	2.7 2.6	2.7	16.0
				Middle	16.5	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	97.1 97.1	97.1	7.3 7.3	7.3		1.8 1.9	1.8		42.2 42.6	42.4	
				Bottom	32.0	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	97.1 97.1	97.1	7.3 7.3	7.3	7.3	1.8 1.8	1.8		2.9 2.8	2.9	
G1	Cloudy	Calm	8:21	Surface	1.0	19.8 19.8	19.8	8.3 8.3	8.3	32.8 32.8	32.8	98.5 98.1	98.3	7.4 7.4	7.4	7.3	2.5 2.5	2.5	2.8	2.7 2.7	2.7	3.3
				Middle	4.0	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	97.1 96.9	97.0	7.3 7.3	7.3		2.7 2.7	2.7		3.6 3.6	3.6	
				Bottom	7.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	96.0 95.8	95.9	7.2 7.2	7.2	7.2	3.1 3.3	3.2		3.6 3.6	3.6	
G2	Cloudy	Calm	8:13	Surface	1.1	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	98.6 98.5	98.6	7.4 7.4	7.4	7.4	2.0 2.0	2.0	2.1	3.9 3.9	3.9	5.0
				Middle	5.1	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	98.0 97.9	98.0	7.4 7.4	7.4		2.1 2.1	2.1		5.5 5.4	5.5	
				Bottom	9.1	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	97.6 97.6	97.6	7.4 7.4	7.4	7.4	2.1 2.2	2.1		5.8 5.7	5.8	
G3	Cloudy	Calm	8:24	Surface	1.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	98.7 97.6	98.2	7.4 7.3	7.4	7.3	3.1 3.1	3.1	3.1	12.8 12.7	12.8	9.0
				Middle	4.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	97.3 97.2	97.3	7.3 7.3	7.3		3.1 3.0	3.0		7.8 7.7	7.8	
				Bottom	7.0	19.8 19.8	19.8	8.3 8.3	8.3	32.9 32.9	32.9	96.9 96.8	96.9	7.3 7.3	7.3	7.3	3.3 3.3	3.3		6.5 6.5	6.5	
G4	Cloudy	Calm	8:33	Surface	1.1	19.9 19.9	19.9	8.3 8.3	8.3	33.0 33.0	33.0	97.1 97.1	97.1	7.2 7.2	7.2	7.2	2.3 2.2	2.3	2.4	4.6 4.6	4.6	5.8
				Middle	4.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	96.8 96.8	96.8	7.2 7.3	7.3		2.4 2.5	2.5		5.8 5.9	5.9	
				Bottom	7.0	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	96.7 96.7	96.7	7.3 7.3	7.3	7.3	2.5 2.5	2.5		6.8 7.0	6.9	
M1	Cloudy	Calm	8:17	Surface	1.0	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	99.2 99.0	99.1	7.5 7.5	7.5	7.4	2.1 2.1	2.1	2.1	6.1 6.0	6.1	4.9
				Middle	3.1	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	98.6 98.6	98.6	7.4 7.4	7.4		2.2 2.2	2.2		5.3 5.4	5.4	
				Bottom	5.0	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	98.3 98.2	98.3	7.4 7.4	7.4	7.4	2.1 2.1	2.1		3.4 3.4	3.4	
M2	Cloudy	Calm	8:09	Surface	1.1	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	98.9 98.7	98.8	7.5 7.4	7.4	7.4	1.9 1.9	1.9	2.4	3.0 3.0	3.0	3.1
				Middle	5.6	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	98.1 98.1	98.1	7.4 7.4	7.4		2.4 2.3	2.3		3.2 3.2	3.2	
				Bottom	10.3	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	98.0 98.0	98.0	7.4 7.4	7.4	7.4	2.9 2.9	2.9		3.1 3.1	3.1	
M3	Cloudy	Calm	8:28	Surface	1.0	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	99.4 98.6	99.0	7.5 7.4	7.4	7.4	2.4 2.4	2.4	2.5	7.4 7.5	7.5	7.4
				Middle	4.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	97.3 97.3	97.3	7.3 7.3	7.3		2.5 2.4	2.5		7.9 7.9	7.9	
				Bottom	7.0	19.8 19.8	19.8	8.3 8.3	8.3	32.9 32.9	32.9	97.0 97.0	97.0	7.3 7.3	7.3	7.3	2.5 2.6	2.6		6.8 6.7	6.8	
M4	Cloudy	Calm	8:05	Surface	1.1	19.8 19.8	19.8	8.3 8.3	8.3	32.9 32.9	32.9	101.8 100.8	101.3	7.7 7.6	7.6	7.5	1.4 1.4	1.4	2.1	8.1 7.8	8.0	5.3
				Middle	5.0	19.8 19.7	19.8	8.3 8.3	8.3	32.9 32.9	32.9	99.0 98.9	99.0	7.5 7.4	7.4		1.9 2.1	2.0		3.6 3.6	3.6	
				Bottom	9.0	19.7 19.7	19.7	8.3 8.3	8.3	32.8 32.9	32.8	97.7 97.7	97.7	7.4 7.4	7.4	7.4	2.6 3.0	2.8		4.3 4.3	4.3	
M5	Cloudy	Calm	9:05	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	33.0 33.0	33.0	101.3 101.1	101.2	7.7 7.6	7.6	7.6	1.5 1.5	1.5	1.7	3.2 3.2	3.2	3.4
				Middle	6.1	19.5 19.5	19.5	8.4 8.4	8.4	33.0 33.0	33.0	100.0 100.0	100.0	7.6 7.6	7.6		1.5 1.5	1.5		3.2 3.2	3.2	
				Bottom	11.0	19.5 19.5	19.5	8.4 8.4	8.4	33.0 33.0	33.0	99.6 99.6	99.6	7.5 7.5	7.5	7.5	2.2 2.2	2.2		3.8 3.9	3.9	
M6	Cloudy	Calm	9:02	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.3	- -	-	3.7	- -	-	5.0
				Middle	2.2	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	96.4 96.3	96.4	7.3 7.3	7.3		3.7 3.7	3.7		4.9 5.1	5.0	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 31-12-2018 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		C1: 2.8 NTU	***C1: 3.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 4.6 mg/L	***C1: 5.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 4.6 mg/L	***C1: 5.0 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		C1: 5.9 mg/L	***C1: 6.4 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

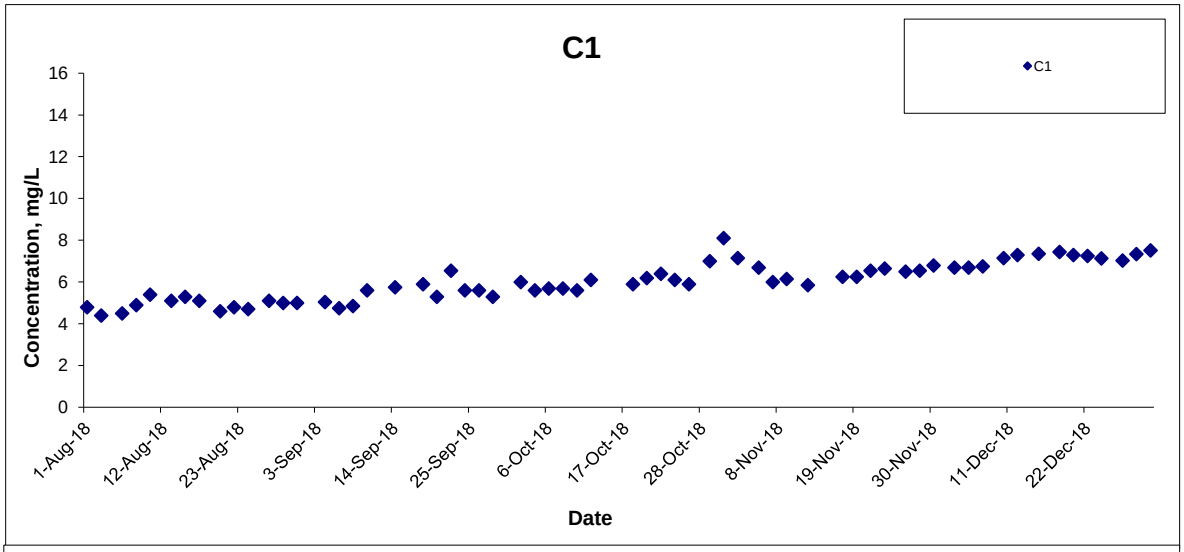
Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 31 December 2018

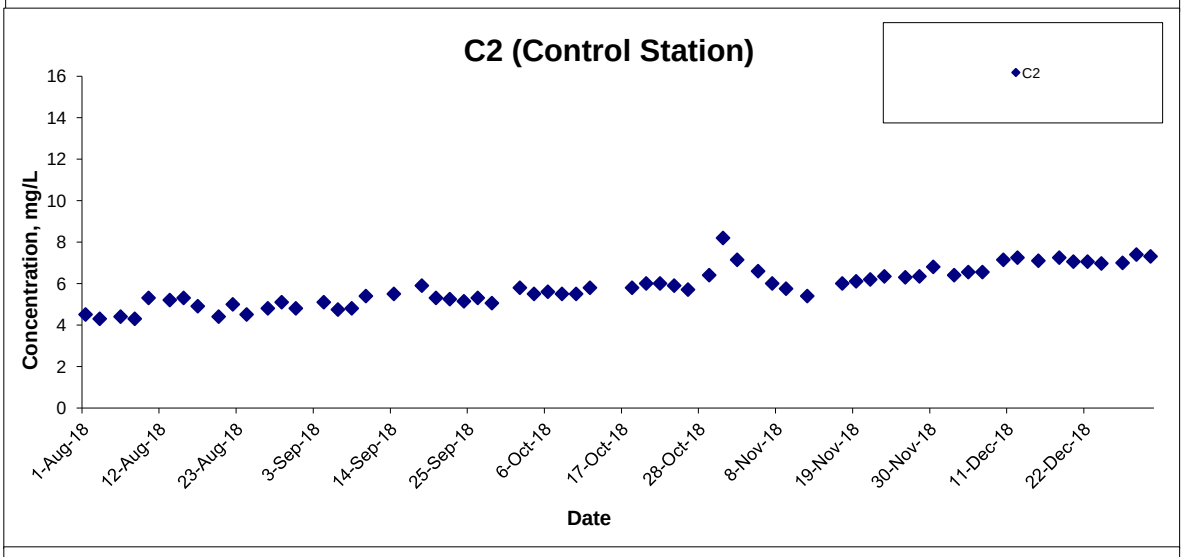
(Mid-Flood Tide)

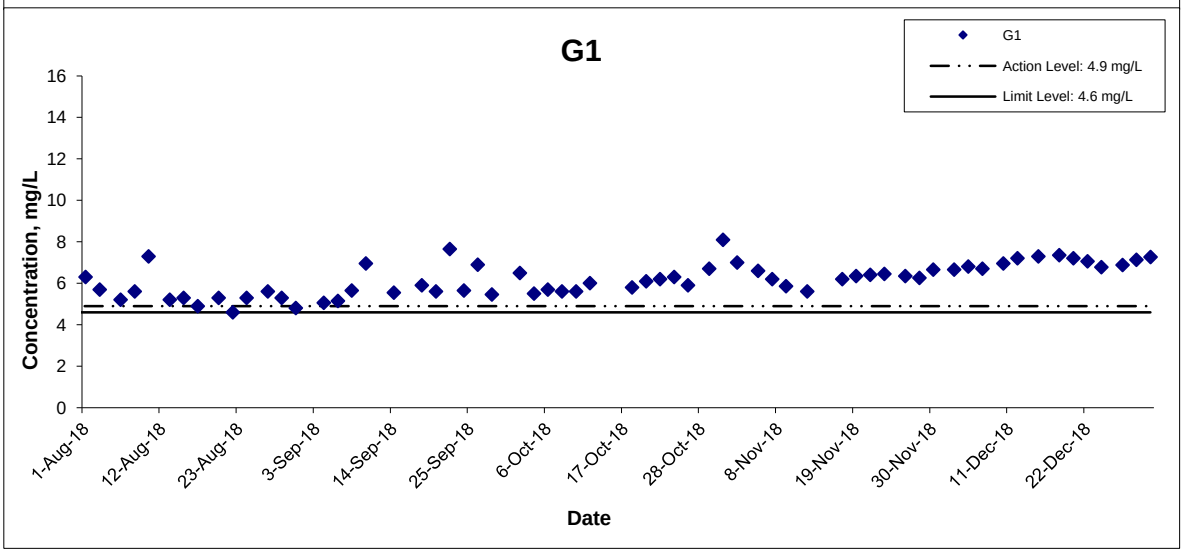
Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	14:34	Surface	1.1	19.6 19.6	19.6	8.3 8.3	8.3	33.0 33.0	33.0	99.5 99.6	99.6	7.5 7.5	7.5	7.5	2.2 2.1	2.1	2.3	3.9 3.8	3.9	4.2
				Middle	9.0	19.6 19.6	19.6	8.3 8.3	8.3	33.0 33.0	33.0	99.4 99.4	99.4	7.5 7.5	7.5		2.3 2.3	2.3		3.9 3.9	3.9	
				Bottom	17.0	19.6 19.6	19.6	8.3 8.3	8.3	33.0 33.0	33.0	99.3 99.3	99.3	7.5 7.5	7.5	7.5	2.3 2.3	2.3		5.0 4.9	5.0	
C2	Sunny	Calm	13:16	Surface	1.1	19.9 19.9	19.9	8.3 8.3	8.3	32.7 32.7	32.7	97.0 96.8	96.9	7.3 7.3	7.3	7.3	1.1 0.9	1.0	1.3	4.4 4.4	4.4	4.9
				Middle	16.0	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	96.8 96.7	96.8	7.3 7.3	7.3		1.3 1.6	1.5		7.1 7.2	7.2	
				Bottom	31.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	96.8 96.8	96.8	7.3 7.3	7.3	7.3	1.5 1.6	1.5		3.2 3.2	3.2	
G1	Sunny	Calm	13:40	Surface	1.1	19.8 19.8	19.8	8.3 8.3	8.3	32.8 32.7	32.7	95.5 95.6	95.6	7.2 7.2	7.2	7.2	2.5 2.3	2.4	2.6	6.9 7.1	7.0	6.5
				Middle	4.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	95.5 95.5	95.5	7.2 7.2	7.2		2.6 2.5	2.5		6.6 6.5	6.6	
				Bottom	7.0	19.9 19.8	19.9	8.3 8.3	8.3	32.9 32.9	32.9	95.2 95.1	95.2	7.2 7.1	7.1	7.1	2.8 2.8	2.8		6.0 6.1	6.1	
G2	Sunny	Calm	13:30	Surface	1.0	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	97.8 97.8	97.8	7.4 7.4	7.4	7.3	1.9 1.9	1.9	2.0	13.4 13.3	13.4	8.1
				Middle	5.1	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	97.5 97.4	97.5	7.3 7.3	7.3		2.0 2.0	2.0		7.3 7.4	7.4	
				Bottom	9.0	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	97.4 97.4	97.4	7.3 7.3	7.3	7.3	2.0 2.0	2.0		3.6 3.6	3.6	
G3	Sunny	Calm	13:44	Surface	1.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	96.9 96.8	96.9	7.3 7.3	7.3	7.3	2.8 2.8	2.8	2.8	5.6 5.7	5.7	6.1
				Middle	4.0	20.0 20.0	20.0	8.3 8.3	8.3	32.9 32.9	32.9	96.9 96.9	96.9	7.3 7.3	7.3		2.8 2.8	2.8		5.8 5.7	5.8	
				Bottom	7.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	96.7 96.7	96.7	7.3 7.3	7.3	7.3	2.7 2.8	2.8		7.0 7.0	7.0	
G4	Sunny	Calm	13:54	Surface	1.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	97.1 97.1	97.1	7.3 7.3	7.3	7.3	2.0 2.0	2.0	2.1	5.4 5.3	5.4	5.6
				Middle	4.0	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	96.8 96.8	96.8	7.3 7.3	7.3		2.0 2.1	2.1		5.3 5.4	5.4	
				Bottom	7.1	19.8 19.8	19.8	8.3 8.3	8.3	32.9 32.9	32.9	96.8 96.7	96.8	7.3 7.3	7.3	7.3	2.3 2.4	2.3		6.2 6.2	6.2	
M1	Sunny	Calm	13:35	Surface	1.0	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	97.9 97.9	97.9	7.4 7.4	7.4	7.4	2.8 2.8	2.8	2.8	5.3 5.2	5.3	6.1
				Middle	3.0	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	97.6 97.6	97.6	7.4 7.4	7.4		2.8 2.7	2.7		4.5 4.6	4.6	
				Bottom	5.1	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	97.5 97.5	97.5	7.4 7.4	7.4	7.4	2.8 2.8	2.8		8.4 8.4	8.4	
M2	Sunny	Calm	13:26	Surface	1.1	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	99.4 98.4	98.9	7.5 7.4	7.4	7.4	2.2 2.0	2.1	2.0	6.8 6.9	6.9	8.0
				Middle	5.5	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	98.2 98.2	98.2	7.4 7.4	7.4		2.0 1.9	2.0		10.6 10.5	10.6	
				Bottom	10.1	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	98.0 98.0	98.0	7.4 7.4	7.4	7.4	1.9 2.1	2.0		6.5 6.4	6.5	
M3	Sunny	Calm	13:48	Surface	1.0	19.9 20.0	20.0	8.3 8.3	8.3	32.9 32.9	32.9	97.3 97.3	97.3	7.3 7.3	7.3	7.3	2.1 2.2	2.1	2.3	5.6 5.8	5.7	5.4
				Middle	4.1	19.9 19.9	19.9	8.3 8.3	8.3	32.9 32.9	32.9	97.0 97.0	97.0	7.3 7.3	7.3		2.2 2.2	2.2		6.4 6.4	6.4	
				Bottom	7.0	19.8 19.8	19.8	8.3 8.3	8.3	32.9 32.9	32.9	96.9 96.9	96.9	7.3 7.3	7.3	7.3	2.6 2.6	2.6		3.9 4.0	4.0	
M4	Sunny	Calm	13:22	Surface	1.1	19.8 19.8	19.8	8.3 8.3	8.3	32.9 32.9	32.9	97.7 97.7	97.7	7.3 7.3	7.3	7.3	1.8 1.9	1.9	2.2	4.7 4.8	4.8	5.9
				Middle	5.0	19.8 19.8	19.8	8.3 8.3	8.3	32.9 32.9	32.9	97.4 97.4	97.4	7.3 7.3	7.3		2.0 2.1	2.1		5.2 5.2	5.2	
				Bottom	9.1	19.8 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	97.5 97.5	97.5	7.3 7.3	7.3	7.3	2.7 2.8	2.7		7.5 7.9	7.7	
M5	Sunny	Calm	14:28	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	33.0 33.0	33.0	99.7 99.7	99.7	7.5 7.5	7.5	7.5	1.6 1.5	1.5	1.6	9.5 9.2	9.4	8.9
				Middle	6.1	19.5 19.5	19.5	8.3 8.3	8.3	33.0 33.0	33.0	99.7 99.6	99.7	7.5 7.5	7.5		1.6 1.6	1.6		9.5 9.7	9.6	
				Bottom	11.1	19.5 19.5	19.5	8.3 8.3	8.3	33.0 33.0	33.0	99.4 99.4	99.4	7.5 7.5	7.5	7.5	1.6 1.6	1.6		7.5 7.8	7.7	
M6	Sunny	Calm	14:25	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.3	- -	-	3.6	- -	-	8.3
				Middle	2.2	19.7 19.7	19.7	8.3 8.3	8.3	32.9 32.9	32.9	96.3 96.2	96.3	7.3 7.3	7.3		3.6 3.6	3.6		8.2 8.4	8.3	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide







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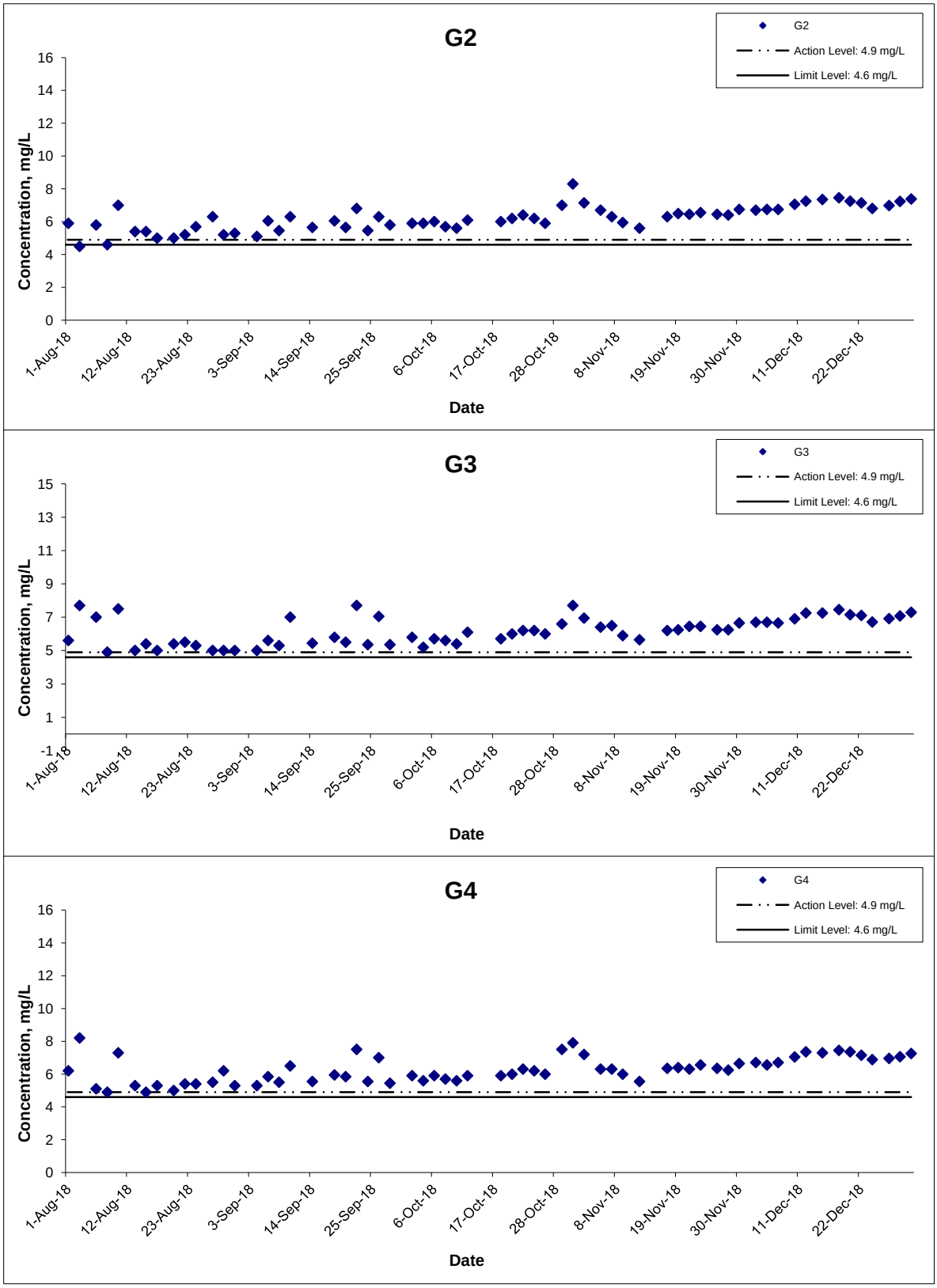
Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



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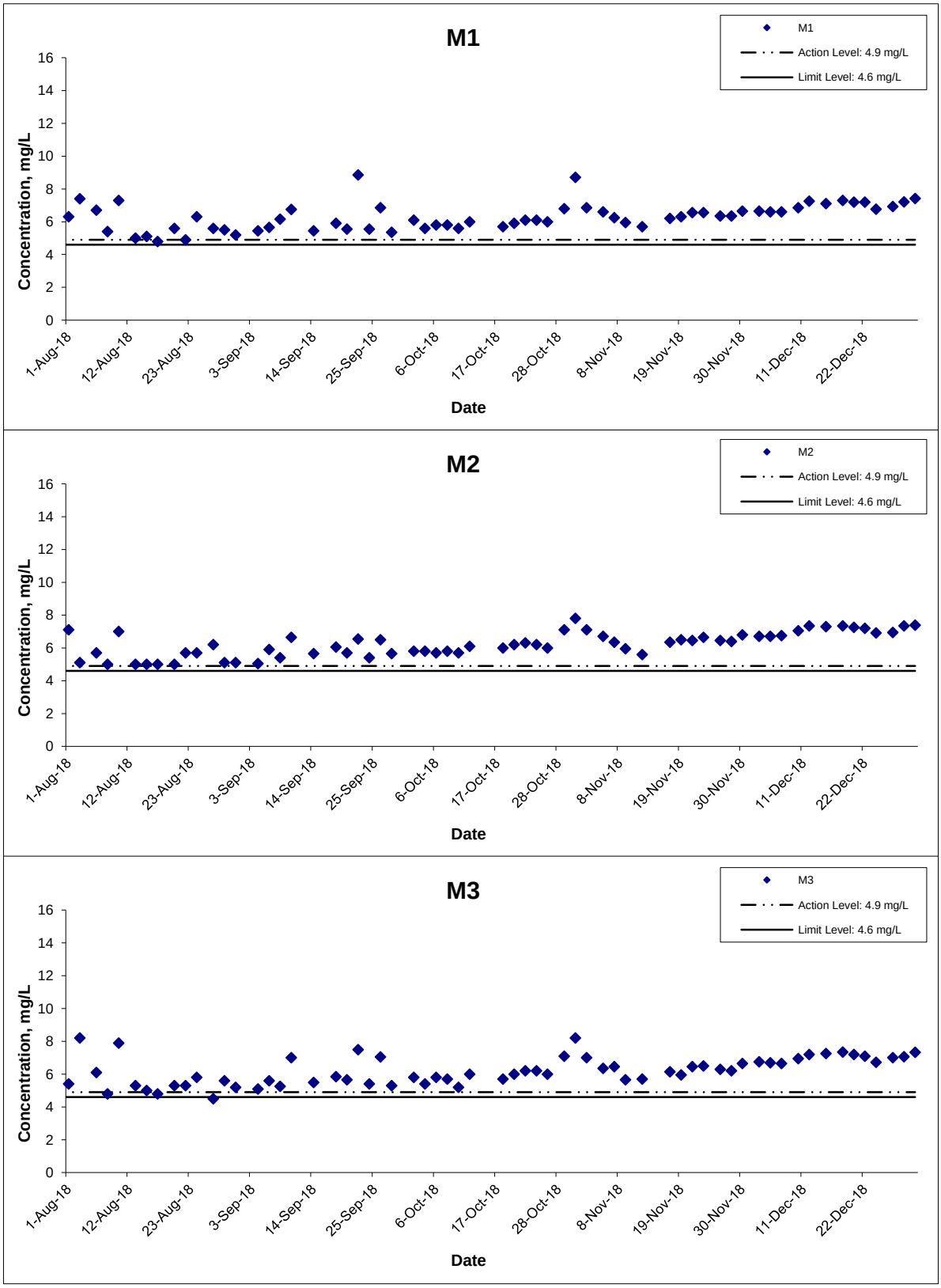
Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



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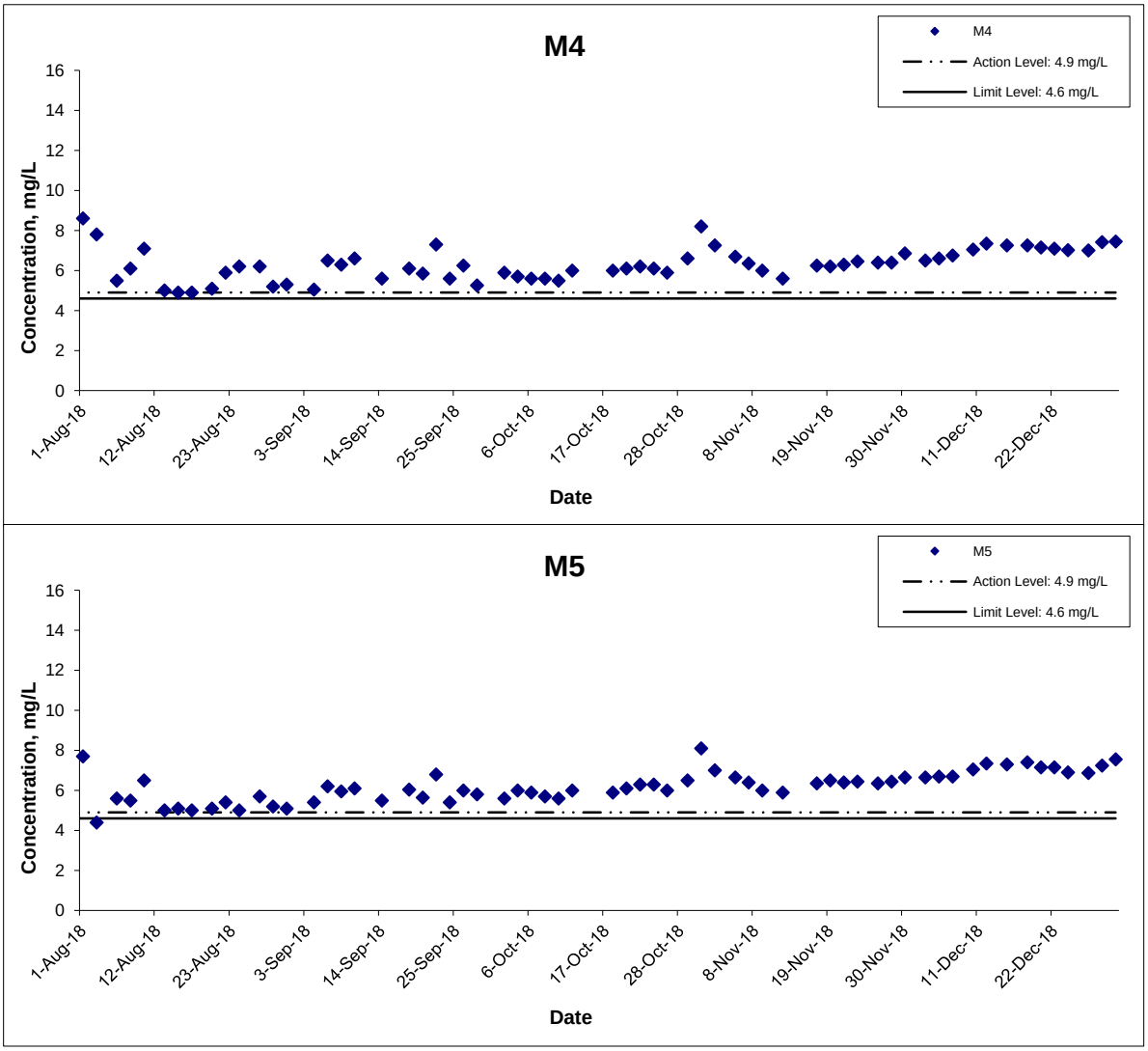
Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



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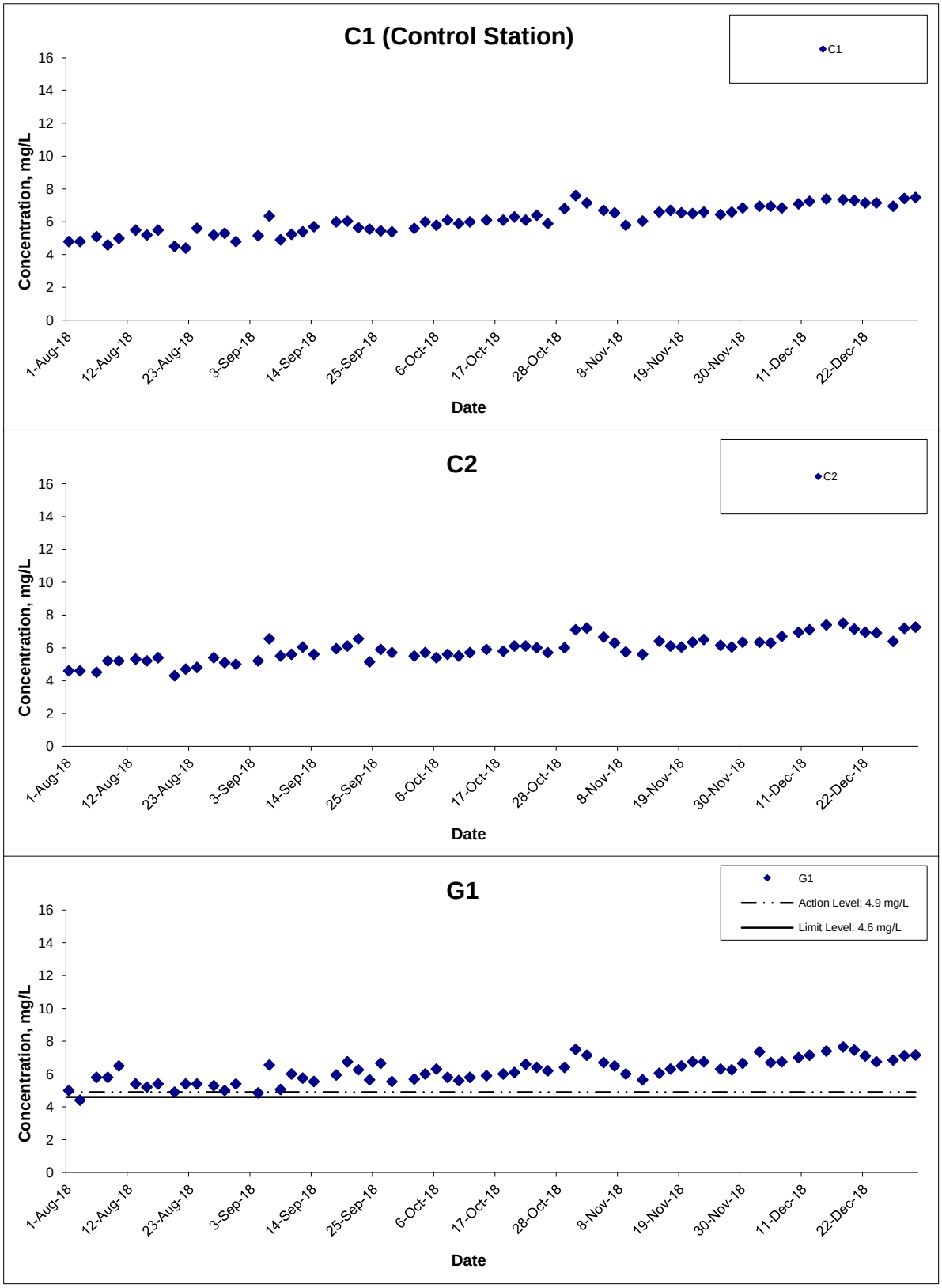
Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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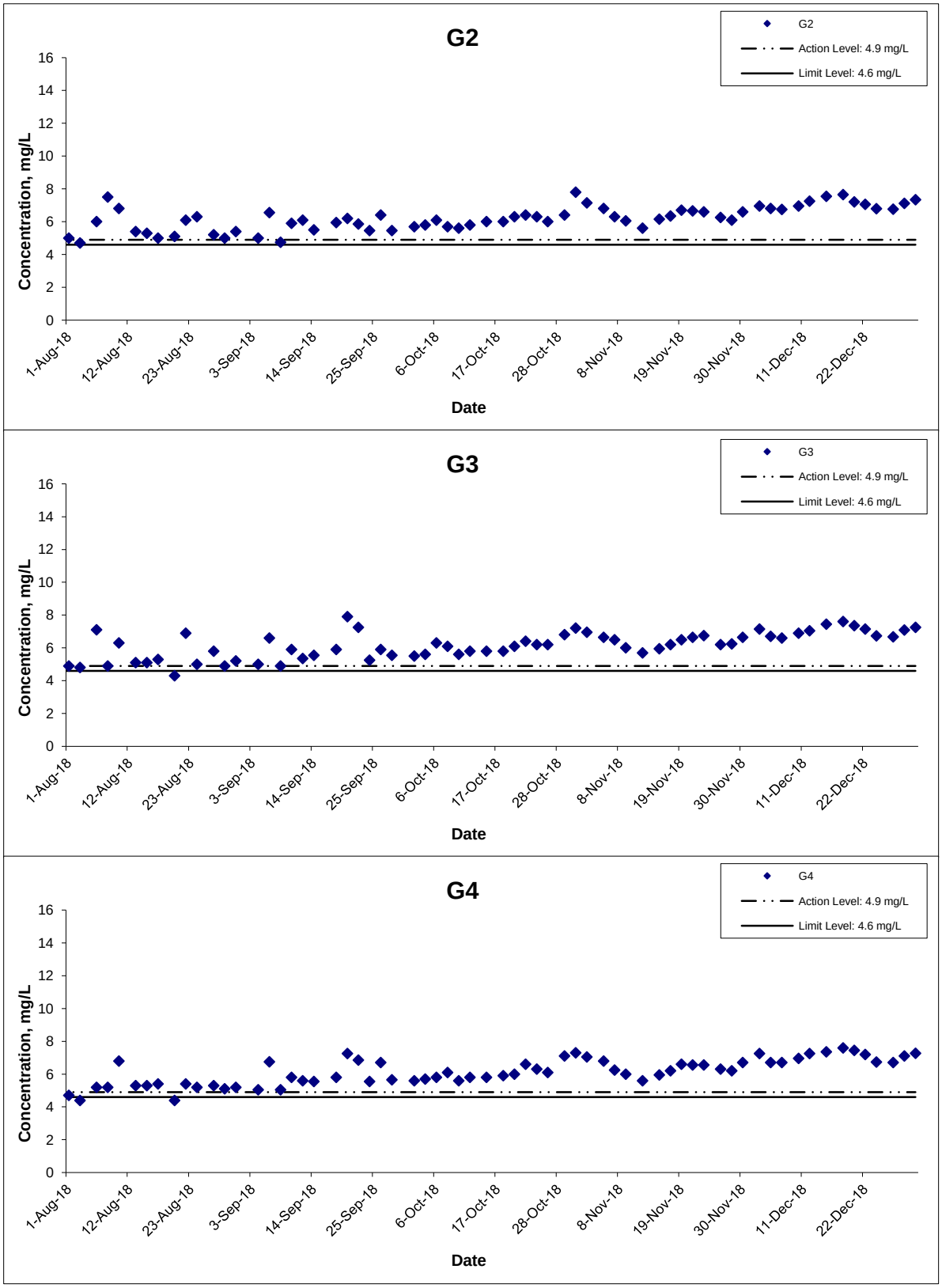
Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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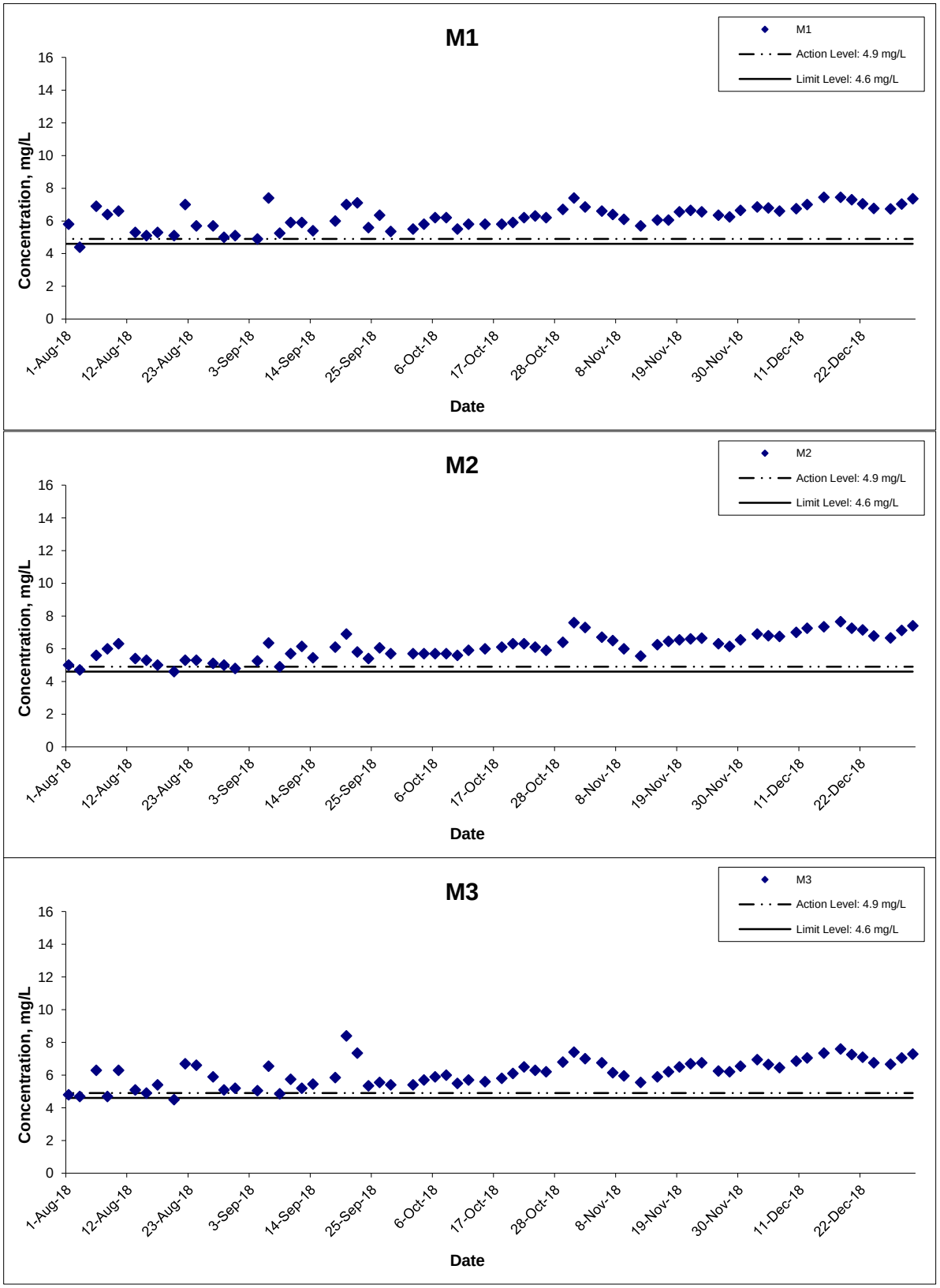
Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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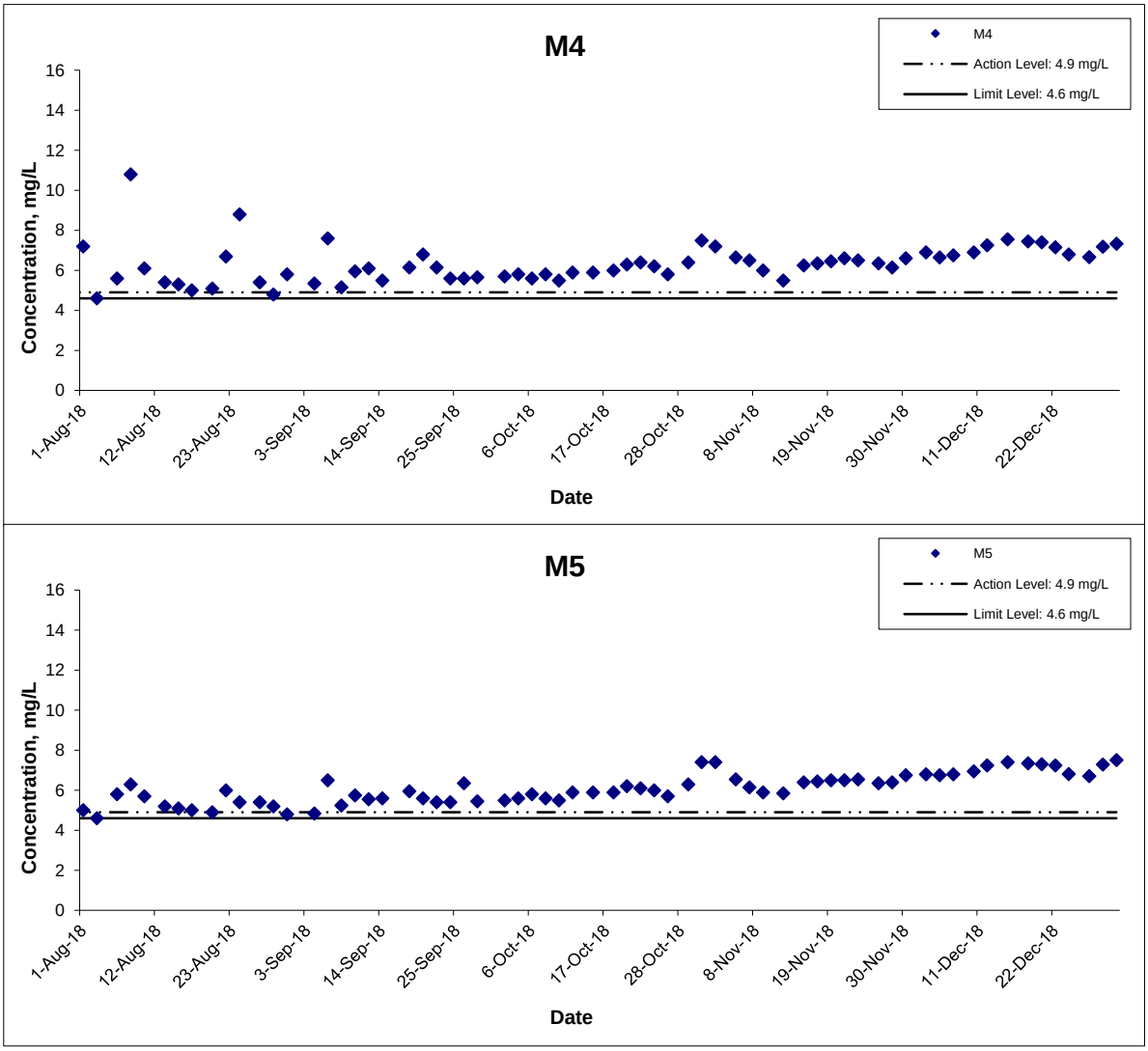
Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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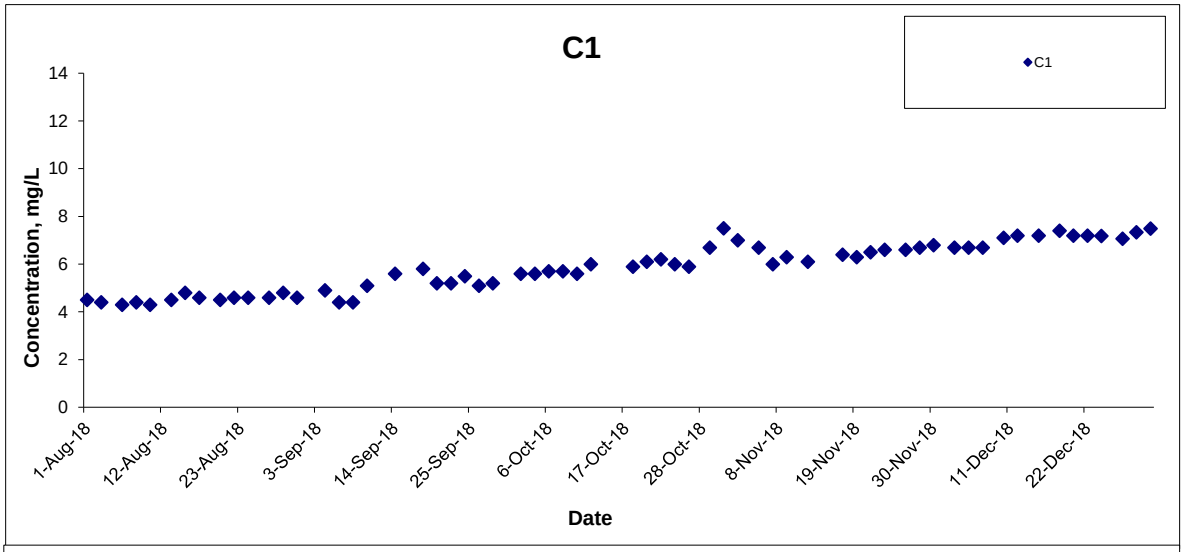
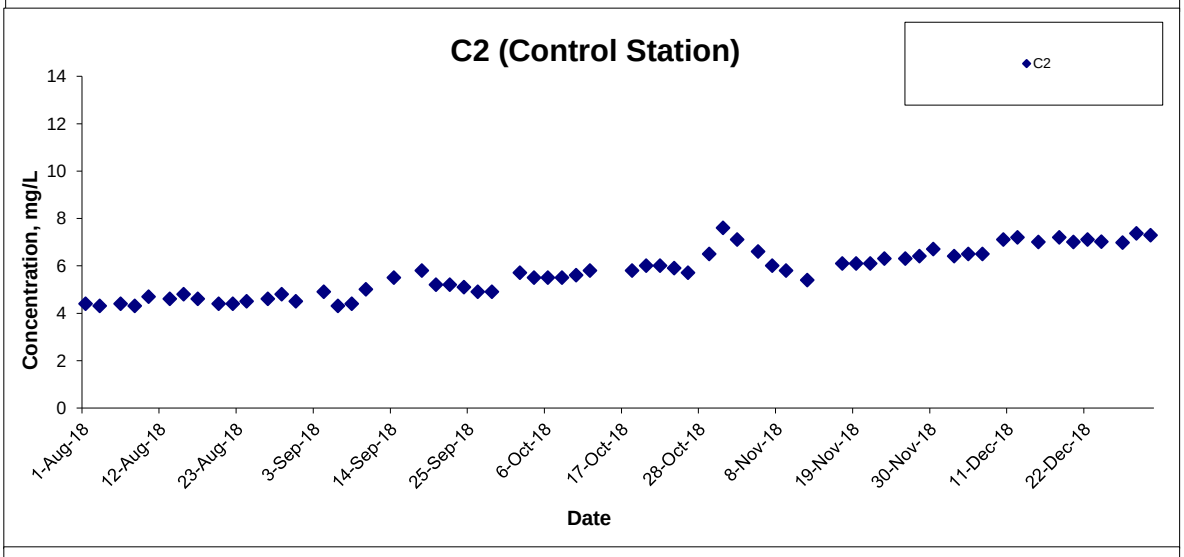
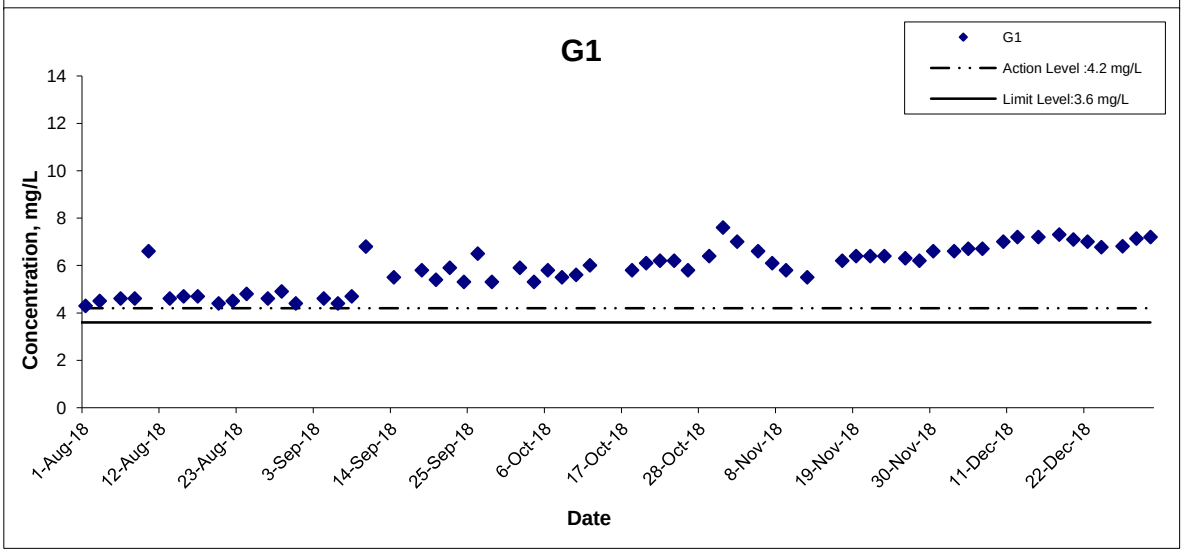
Dissolved Oxygen (Bottom) at Mid-Ebb Tide







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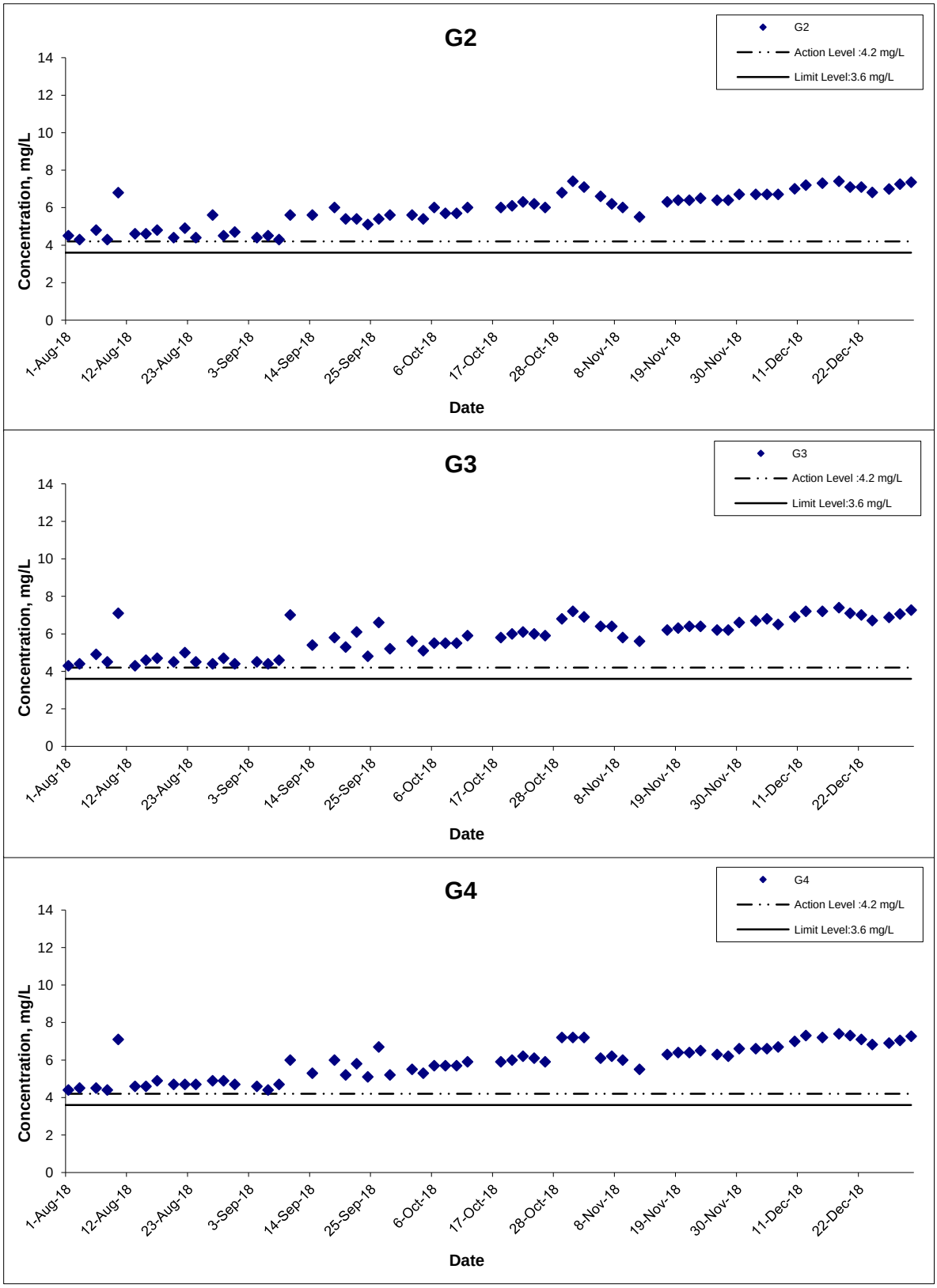
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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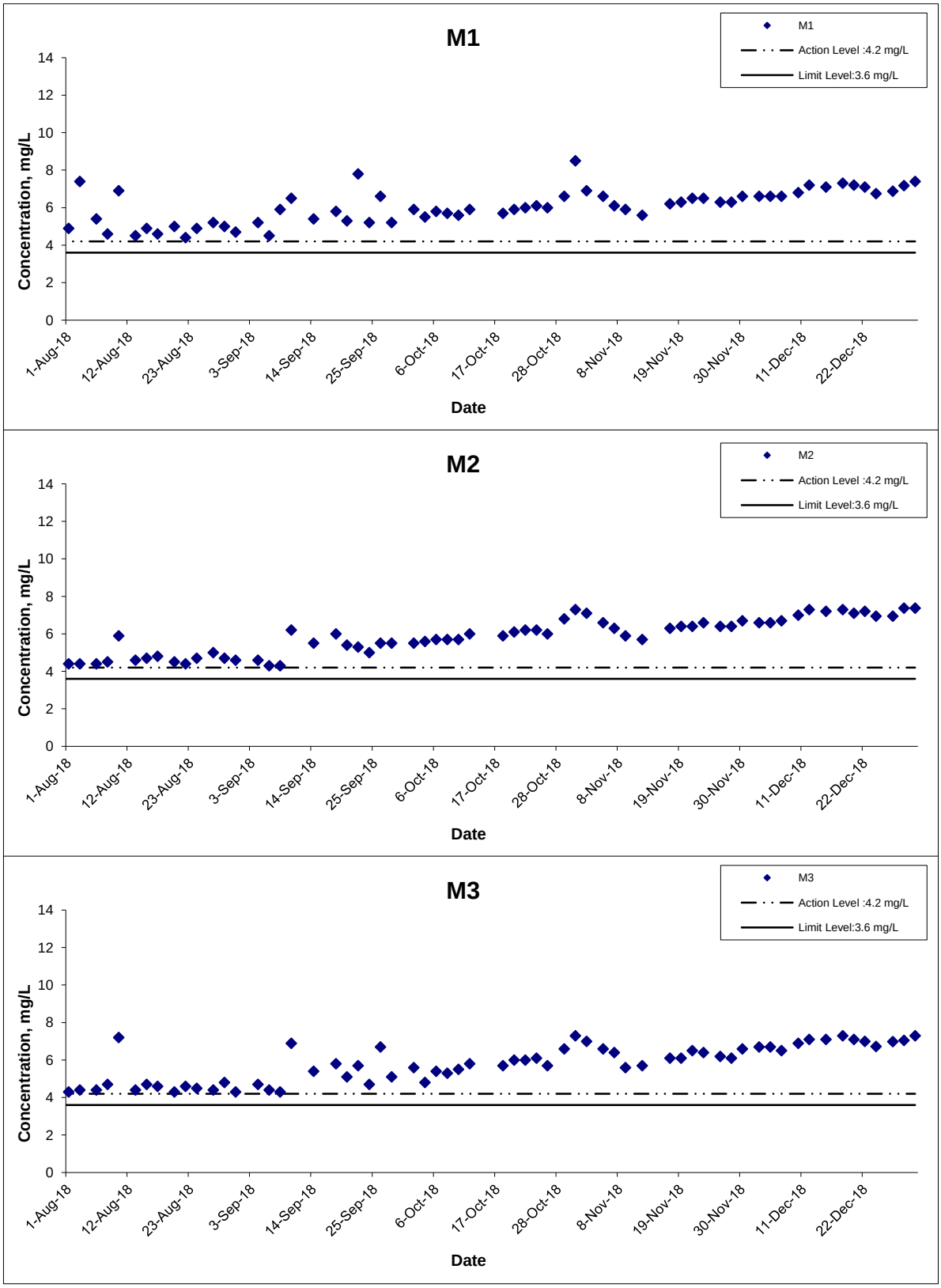
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
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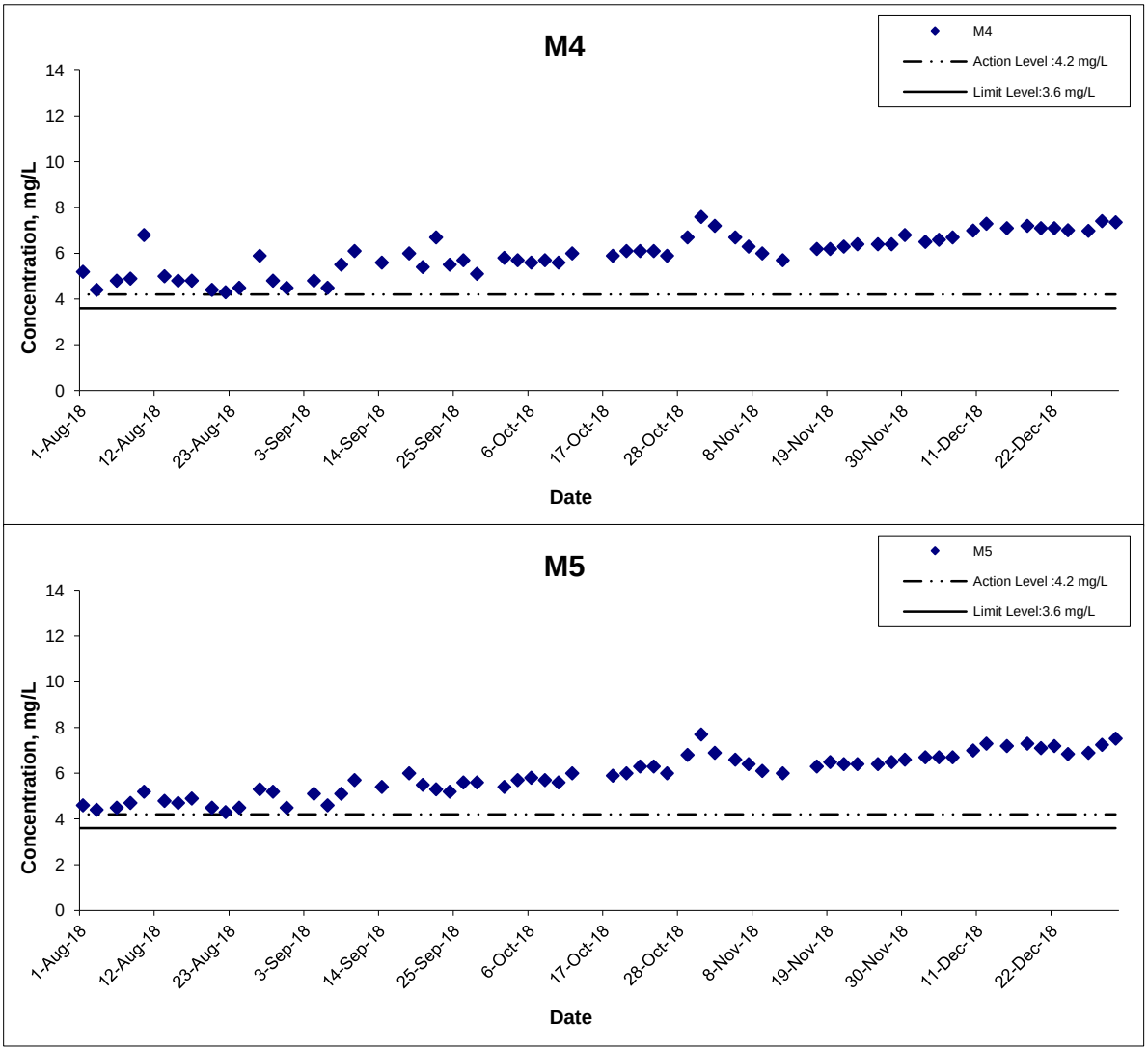
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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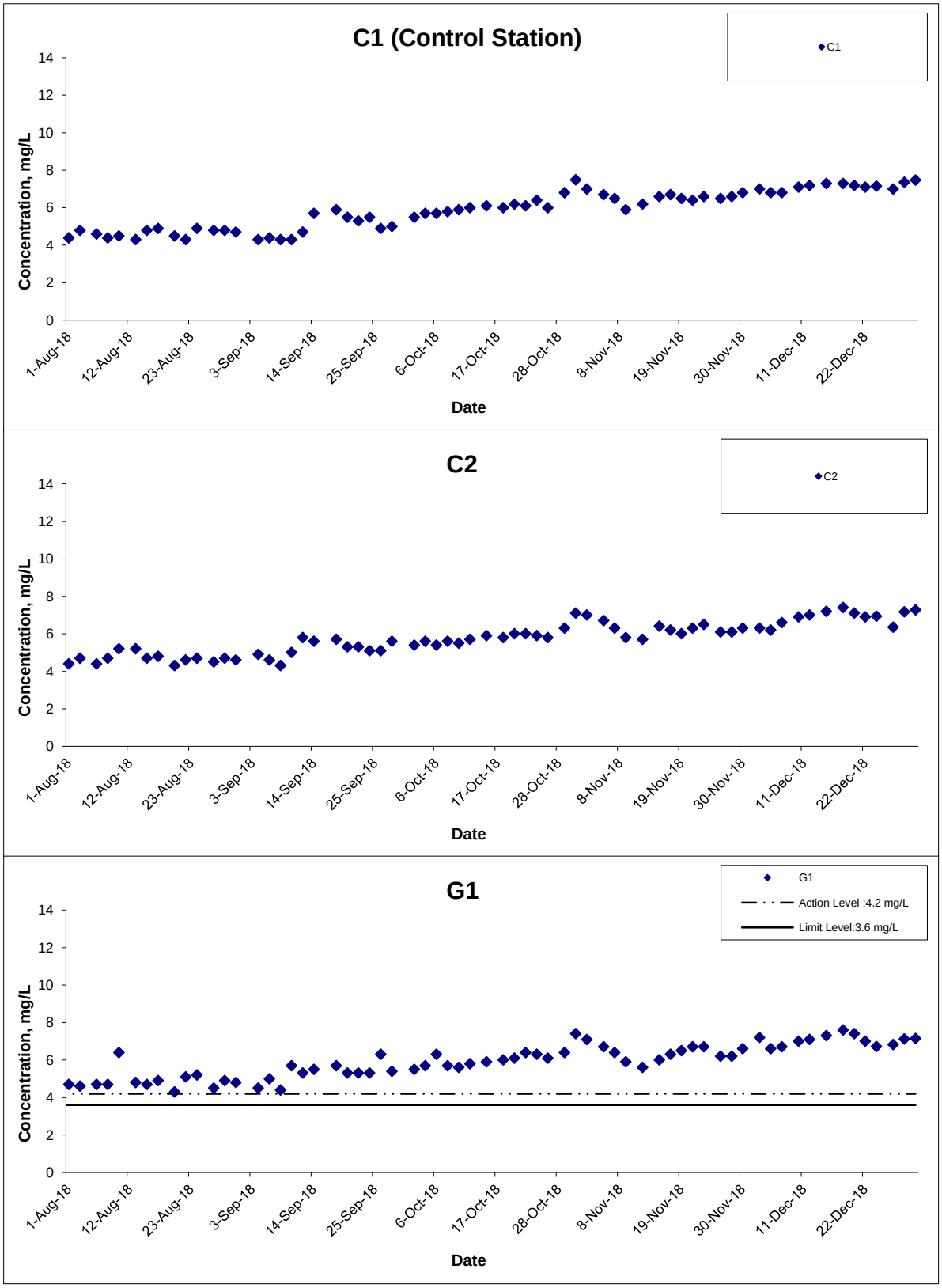
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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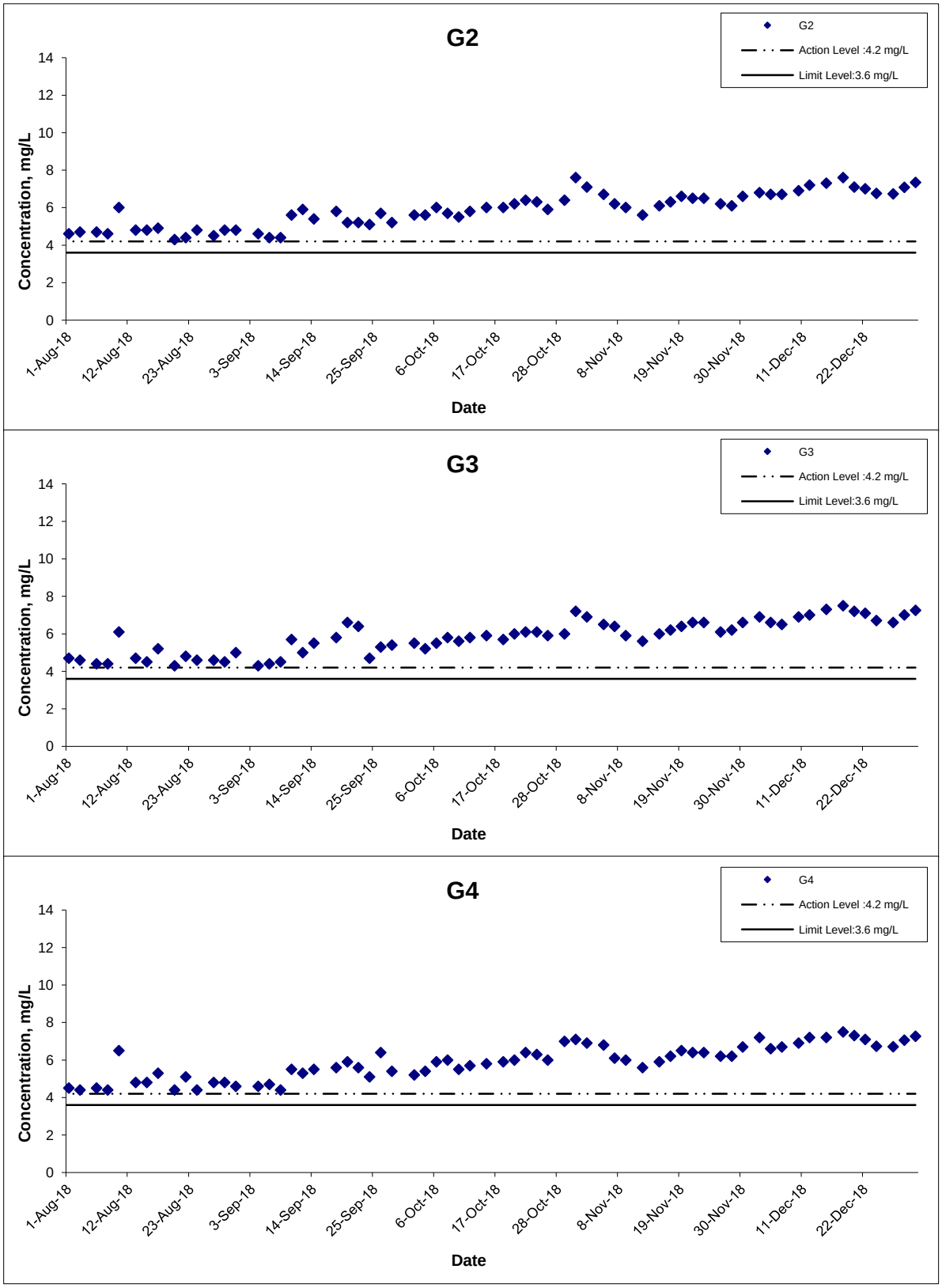
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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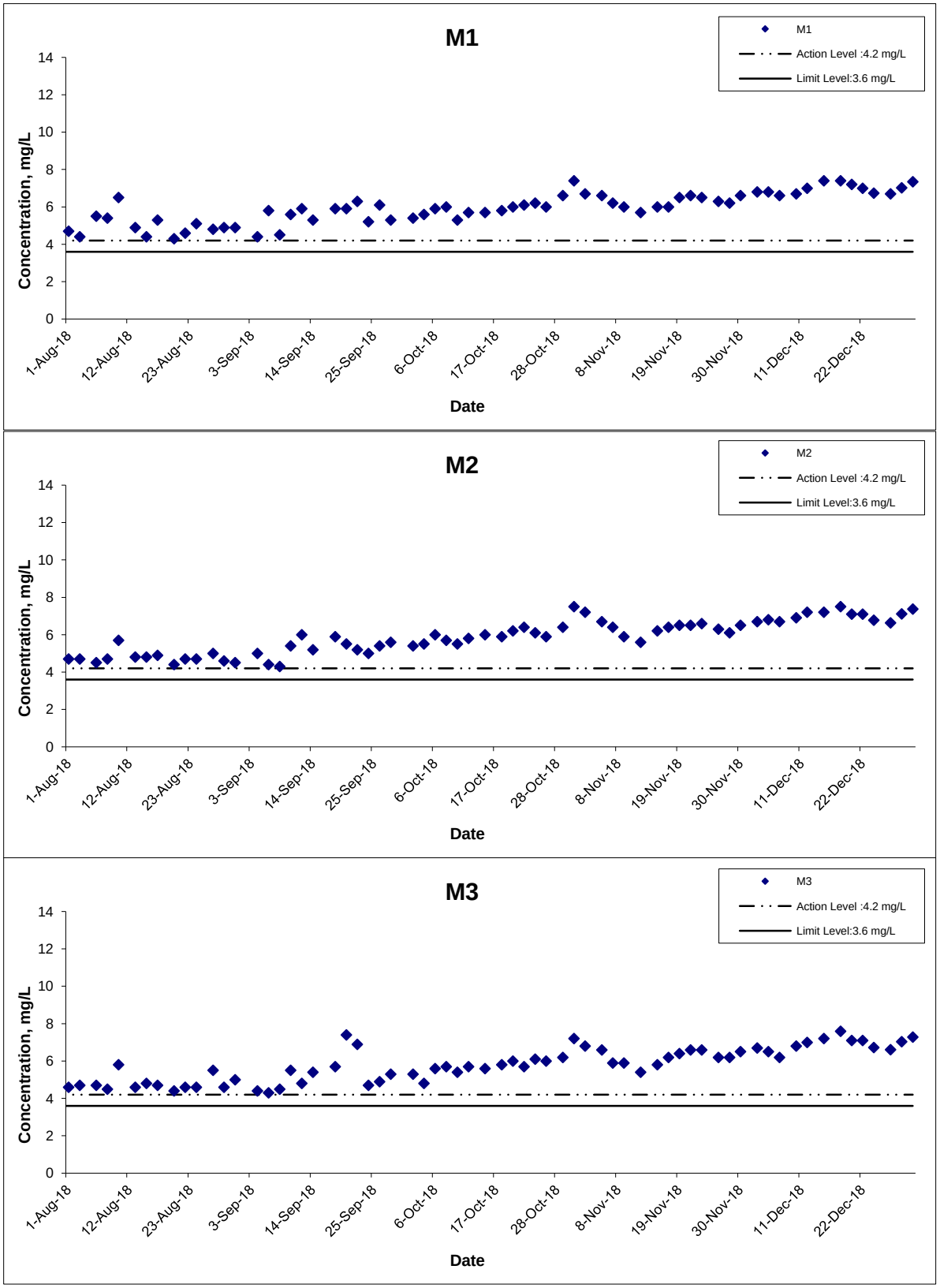
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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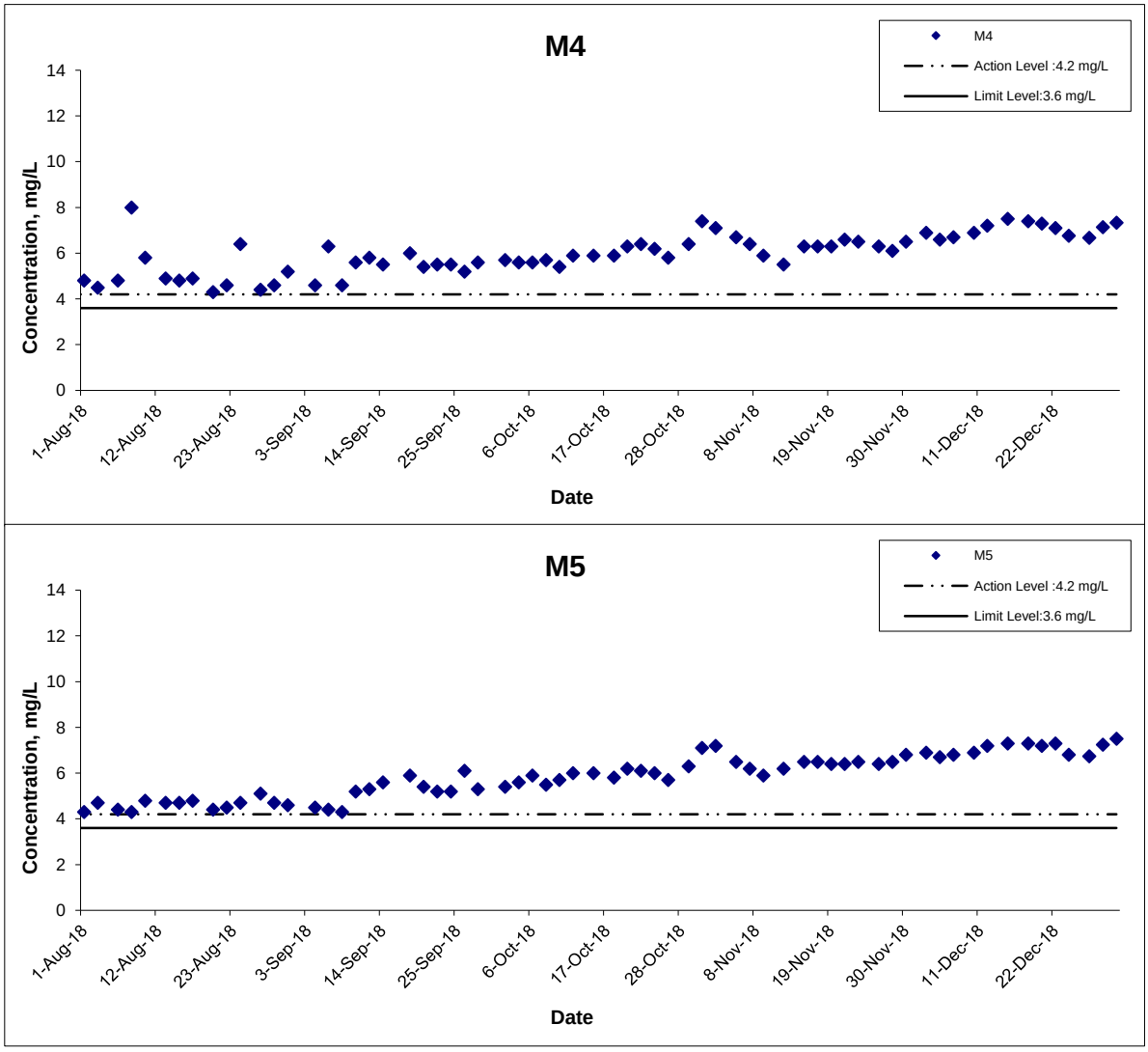
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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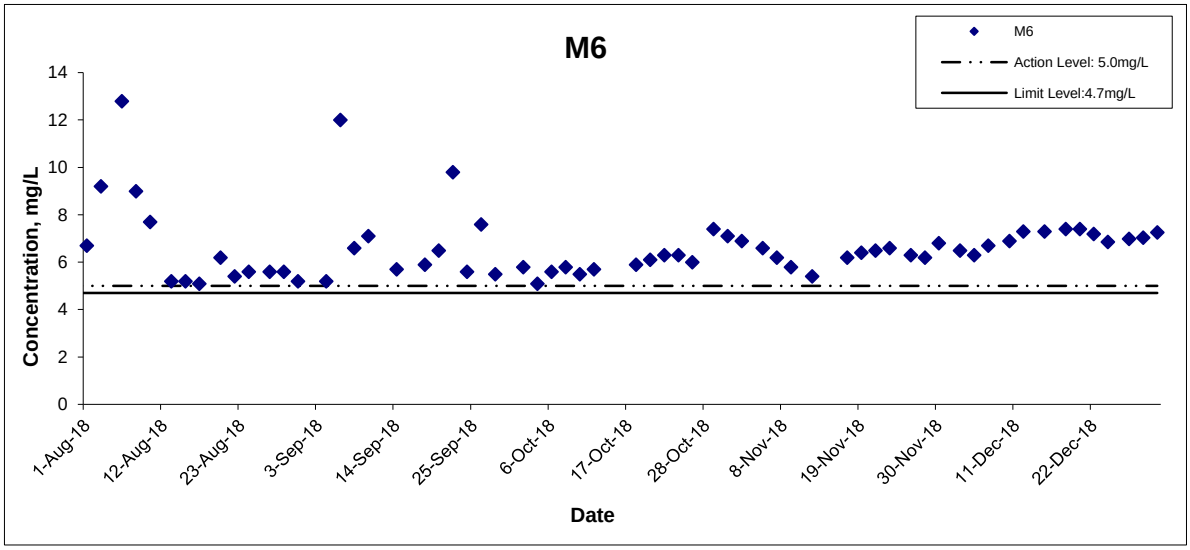
Dissolved Oxygen (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



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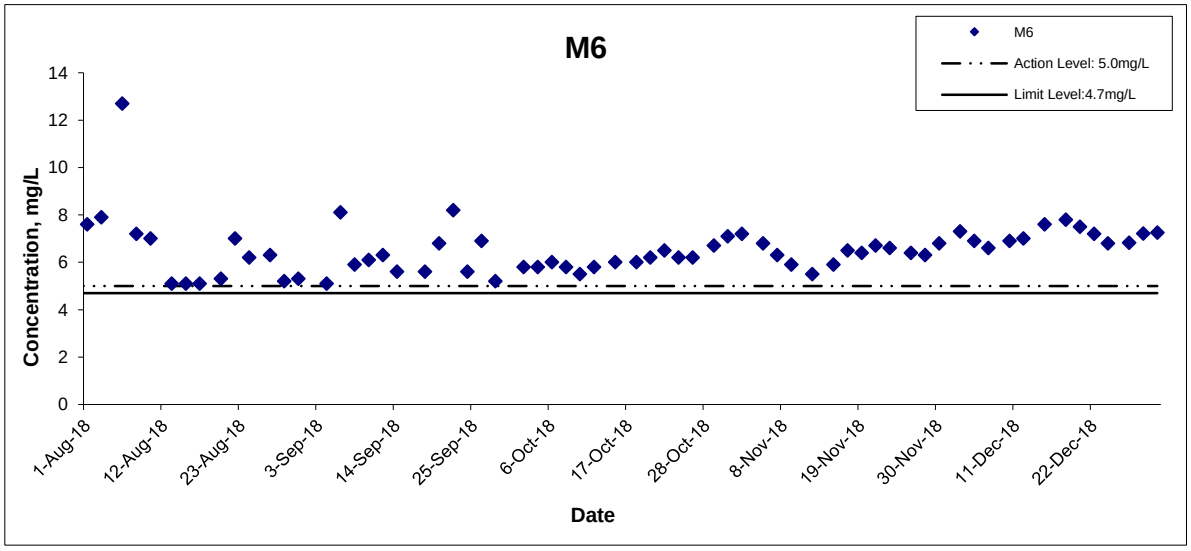
Dissolved Oxygen (Intake Level of WSD Salt Water Intake) at Mid-Flood Tide



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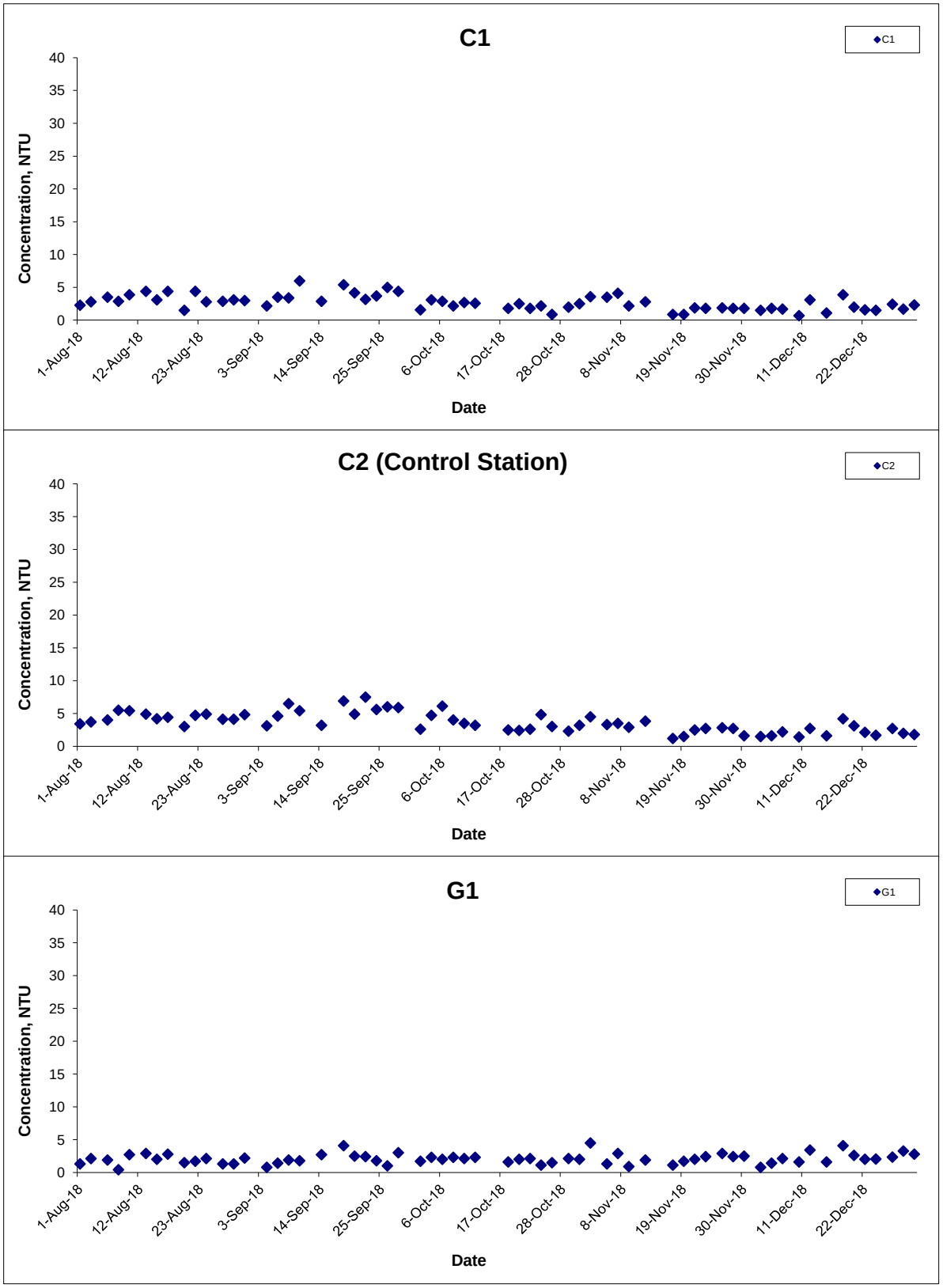
Turbidity (Depth-averaged) at Mid-Ebb Tide



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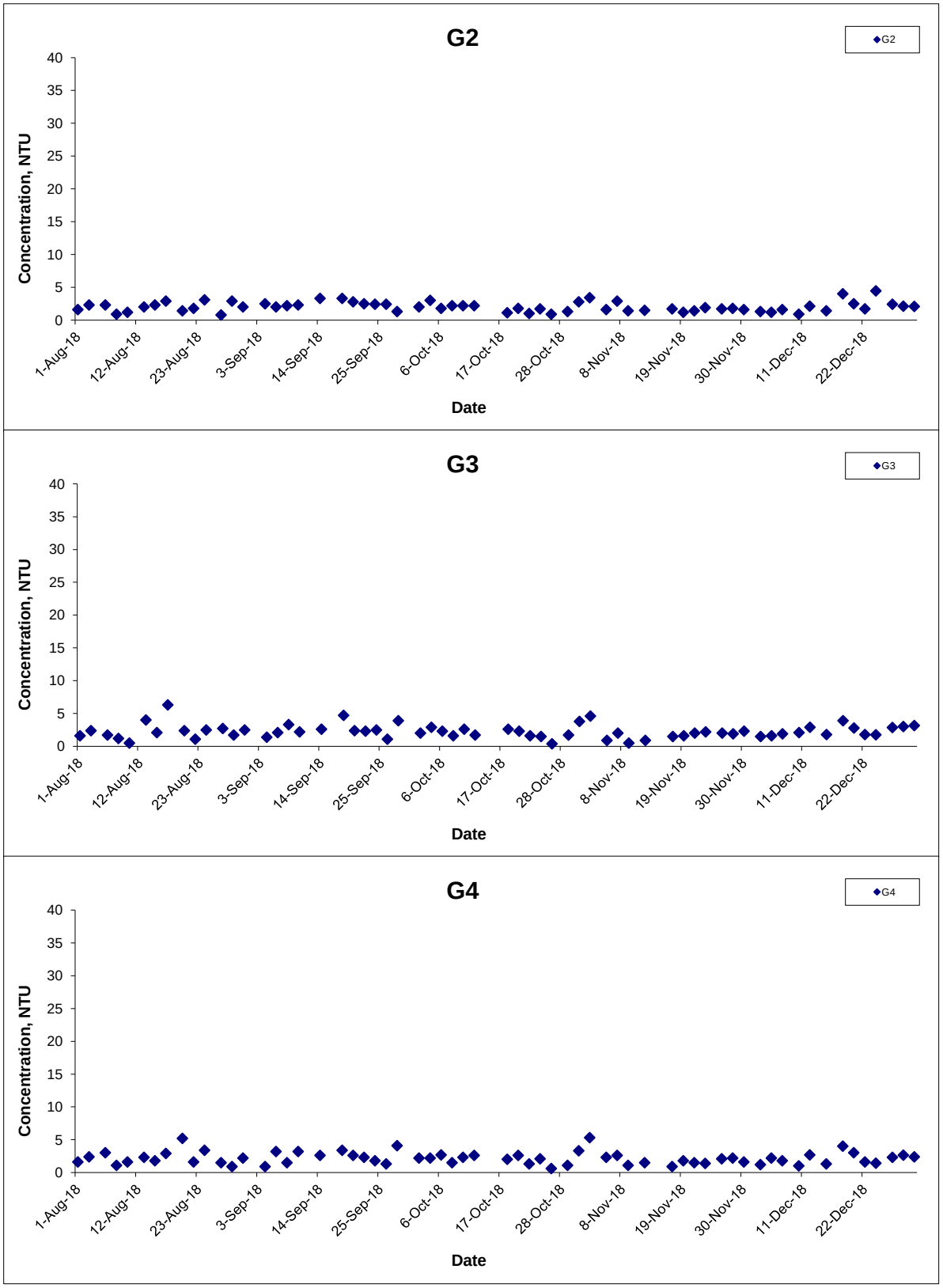
Turbidity (Depth-averaged) at Mid-Ebb Tide



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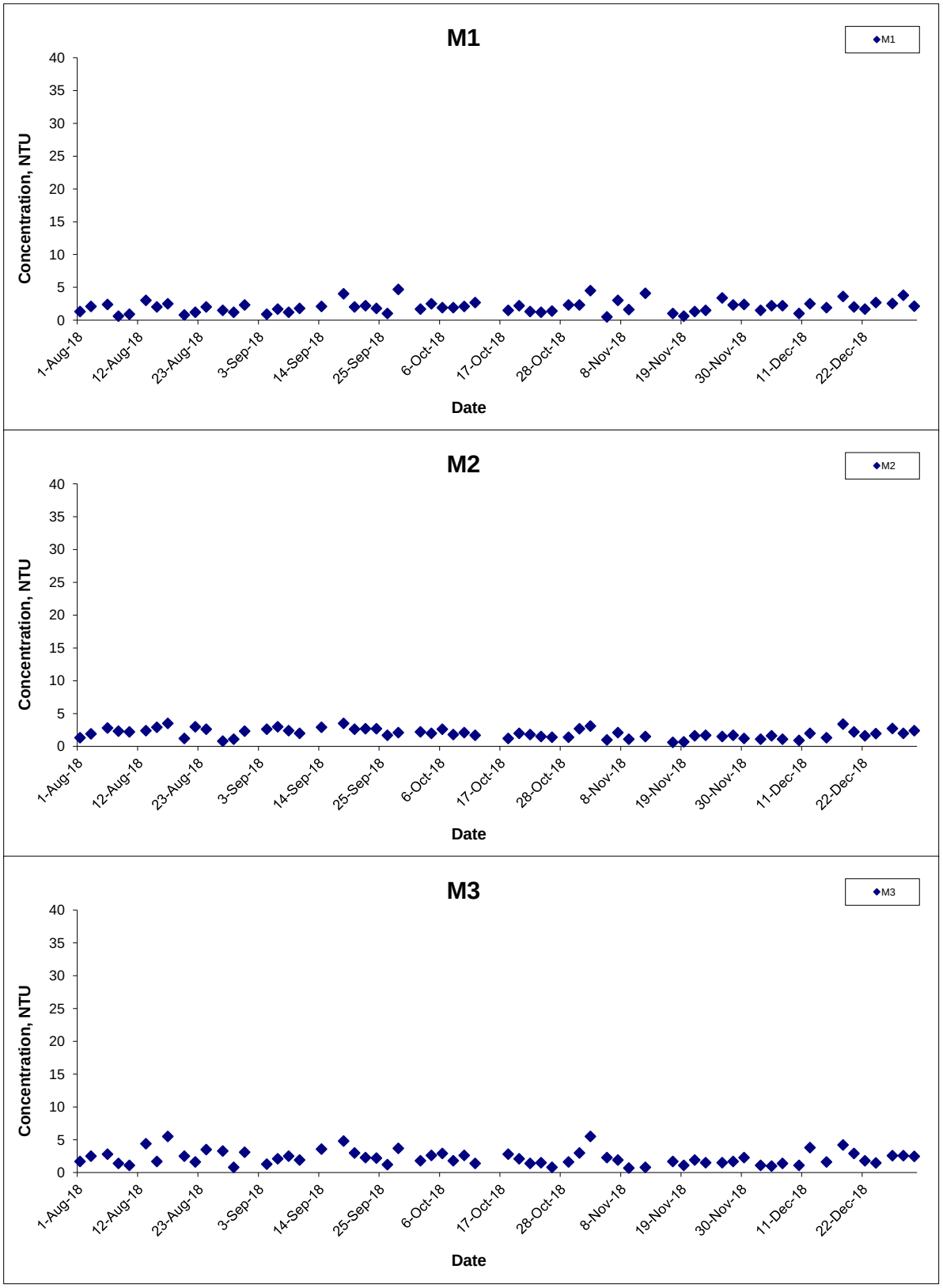
Turbidity (Depth-averaged) at Mid-Ebb Tide



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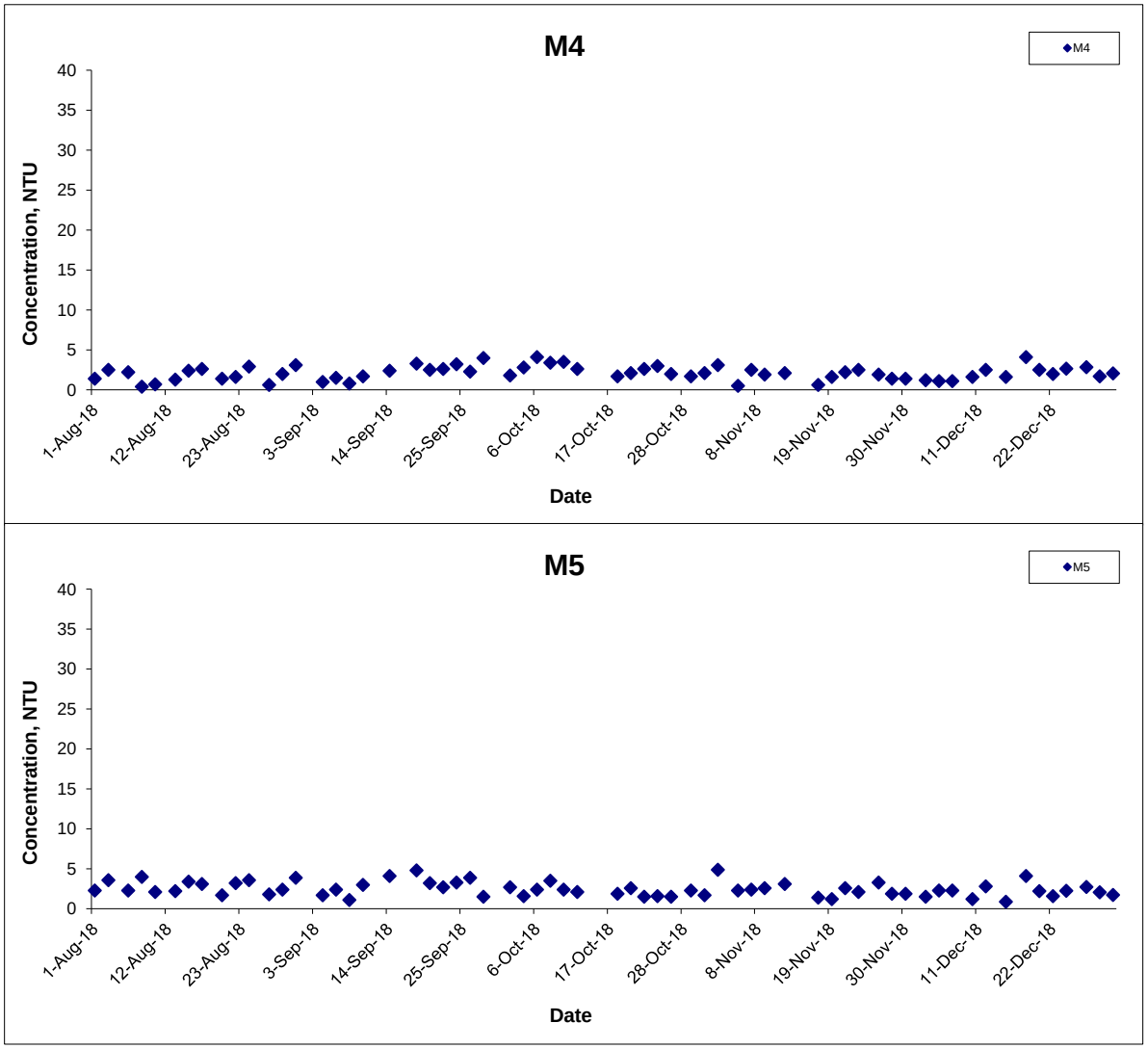
Turbidity (Depth-averaged) at Mid-Ebb Tide



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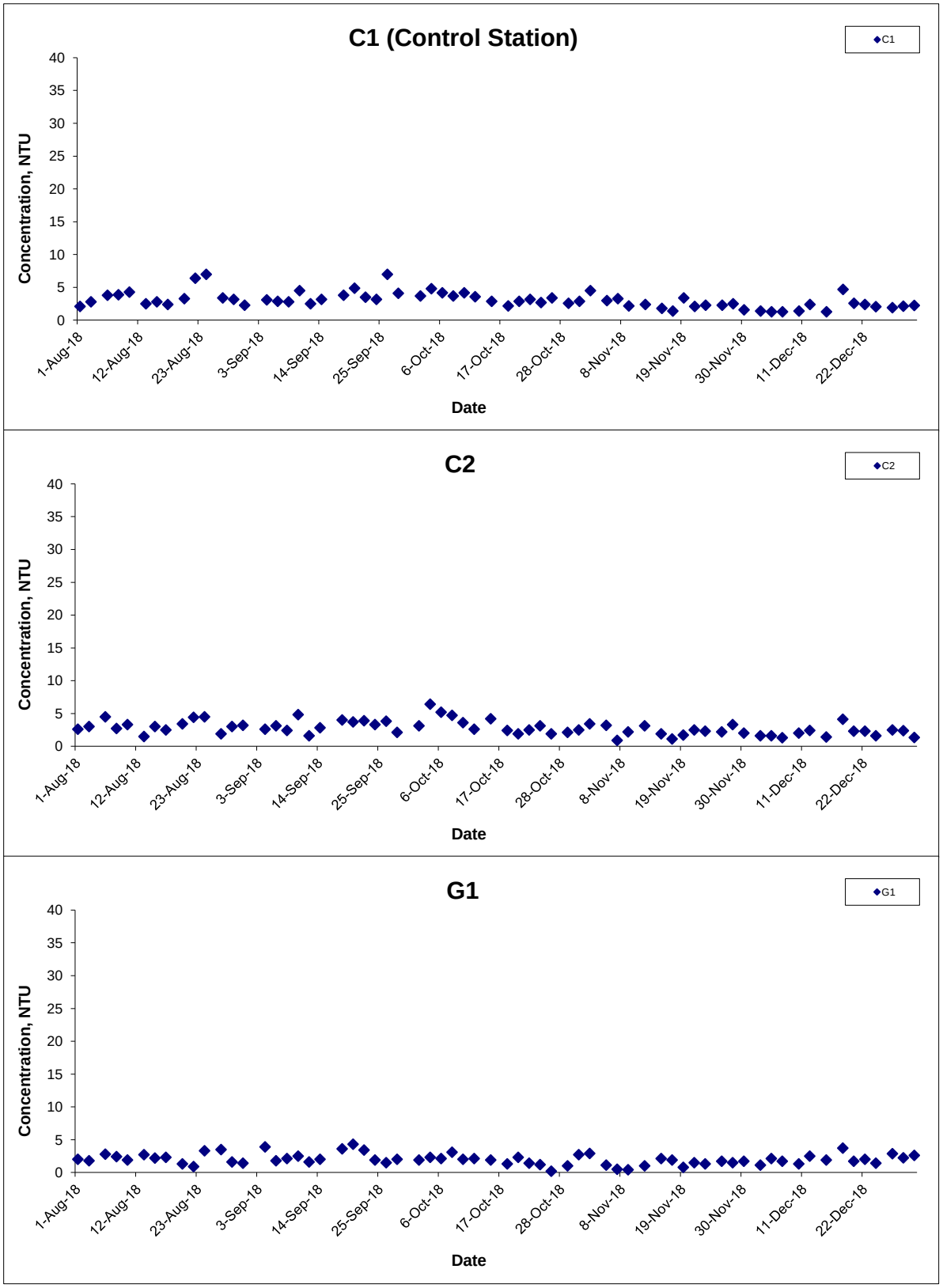
Turbidity (Depth-averaged) at Mid-Flood Tide



Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA16034	CINOTECH
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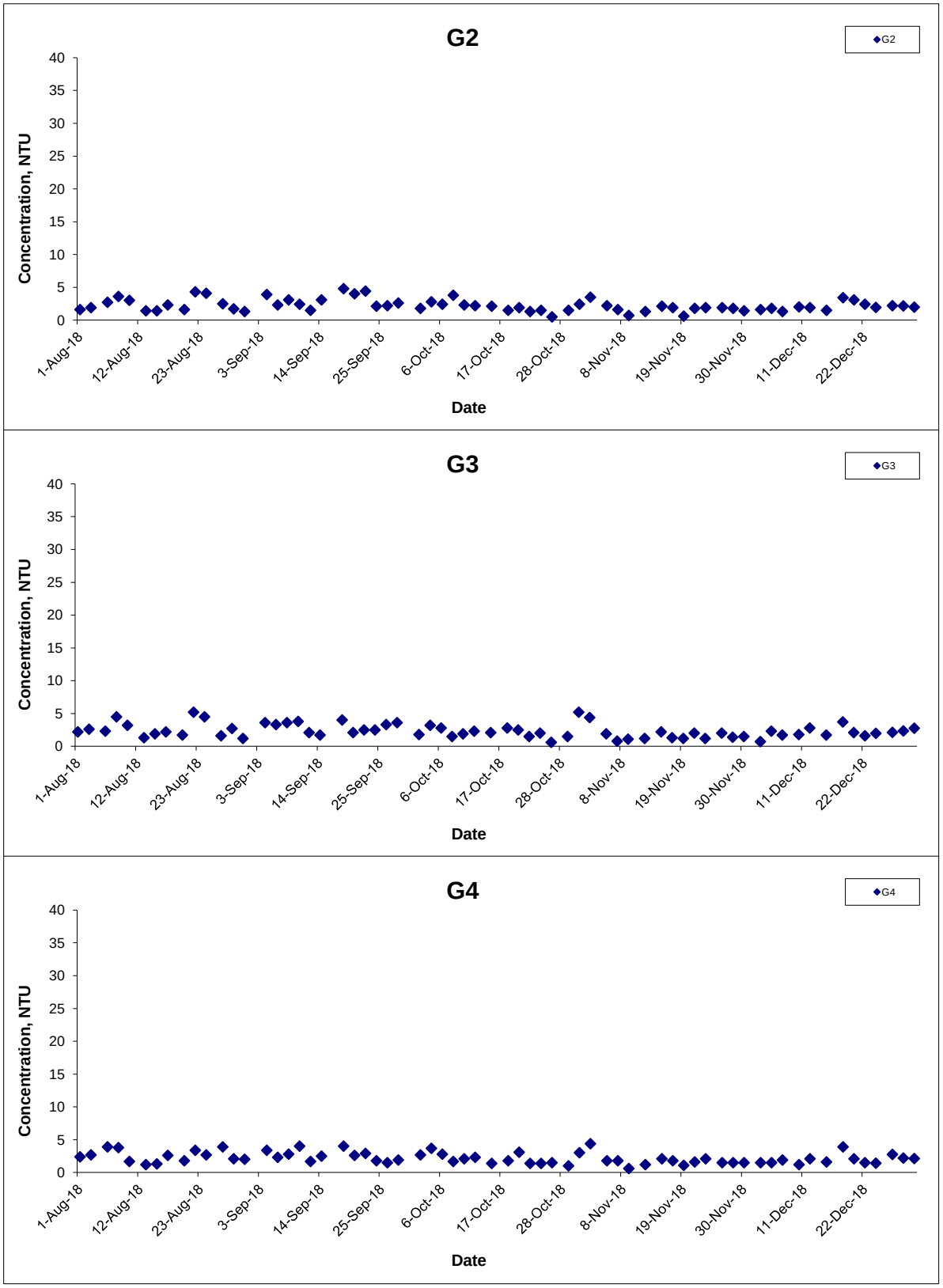
Turbidity (Depth-averaged) at Mid-Flood Tide



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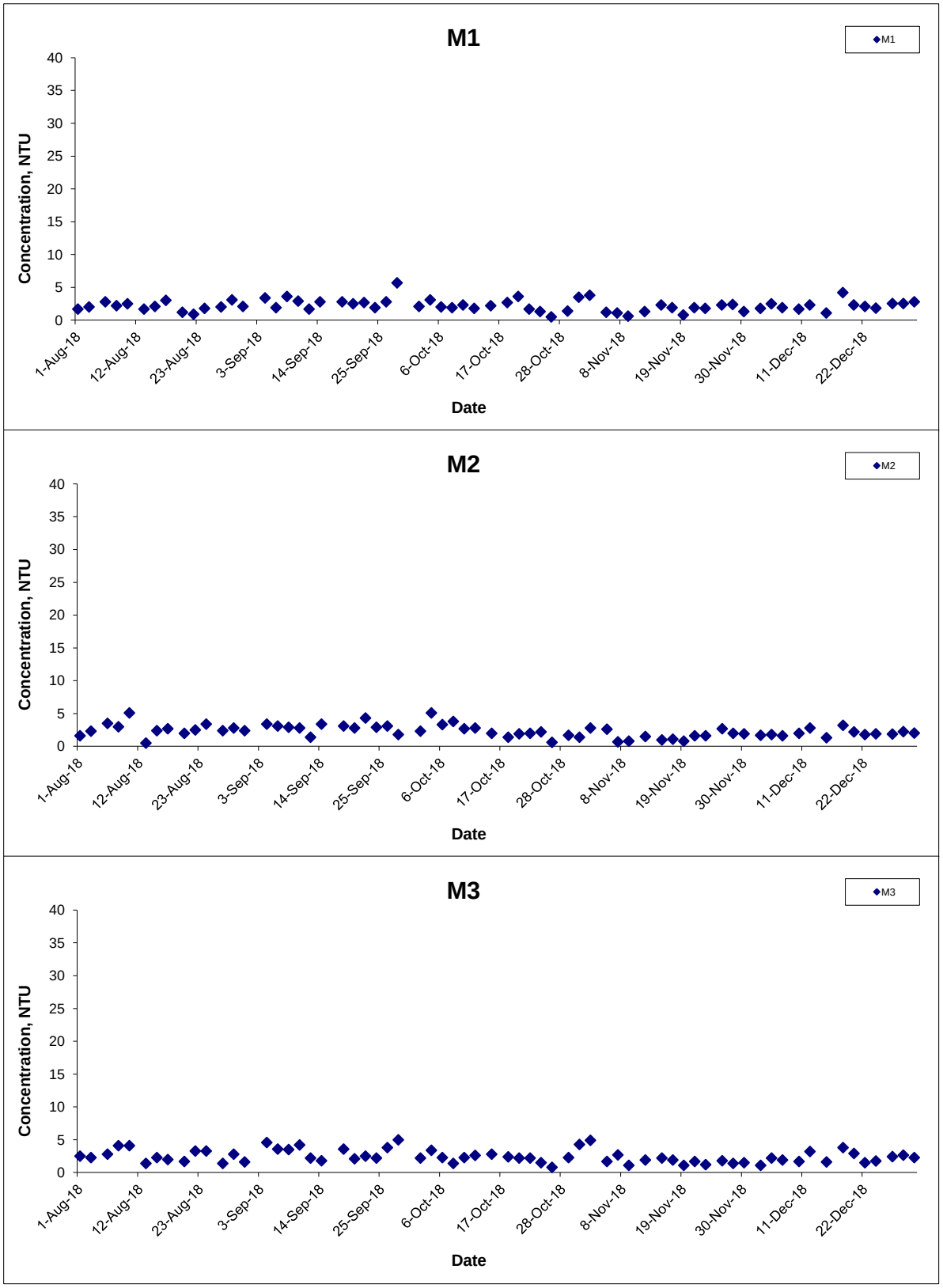
Turbidity (Depth-averaged) at Mid-Flood Tide



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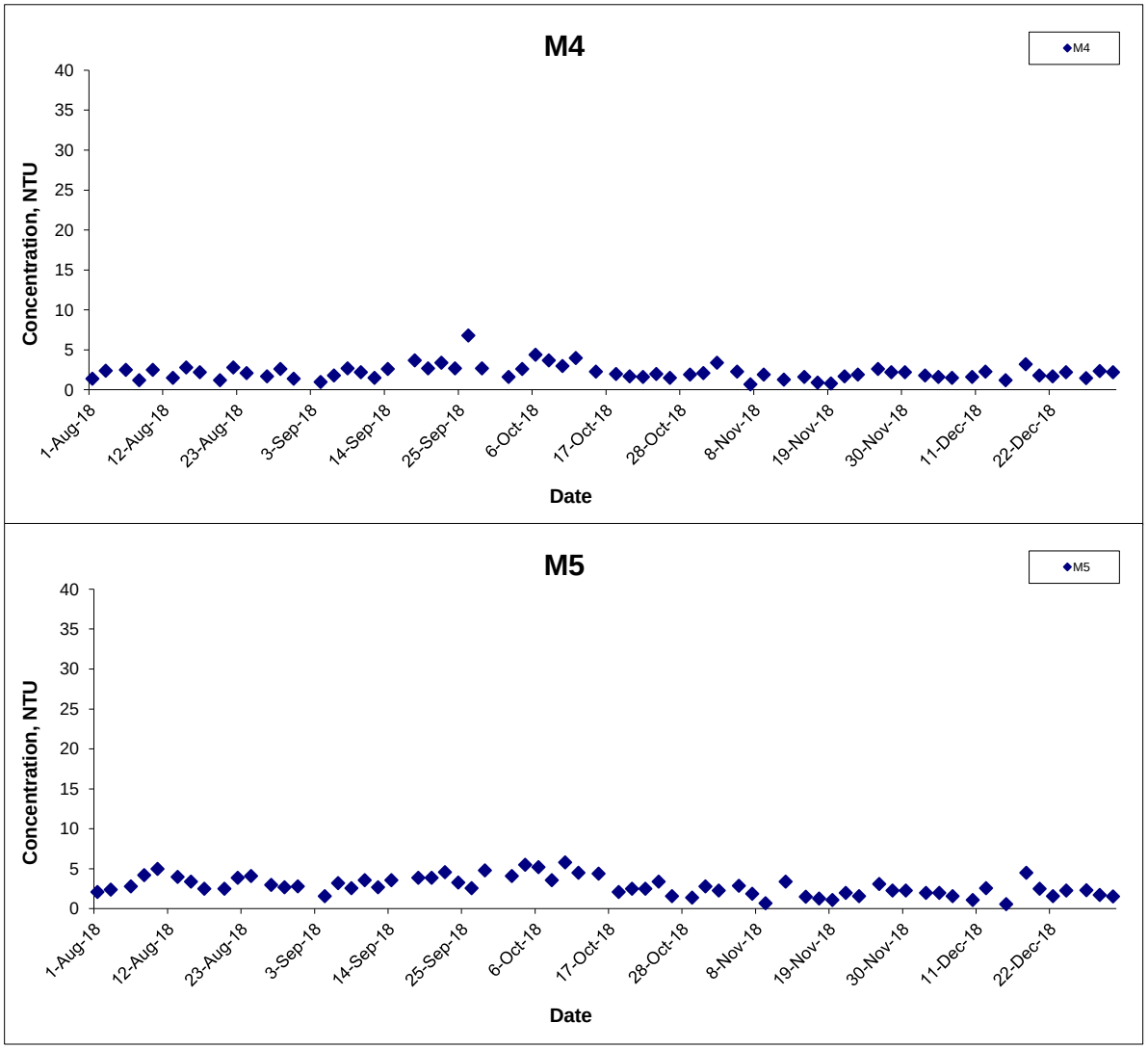
Turbidity (Depth-averaged) at Mid-Flood Tide



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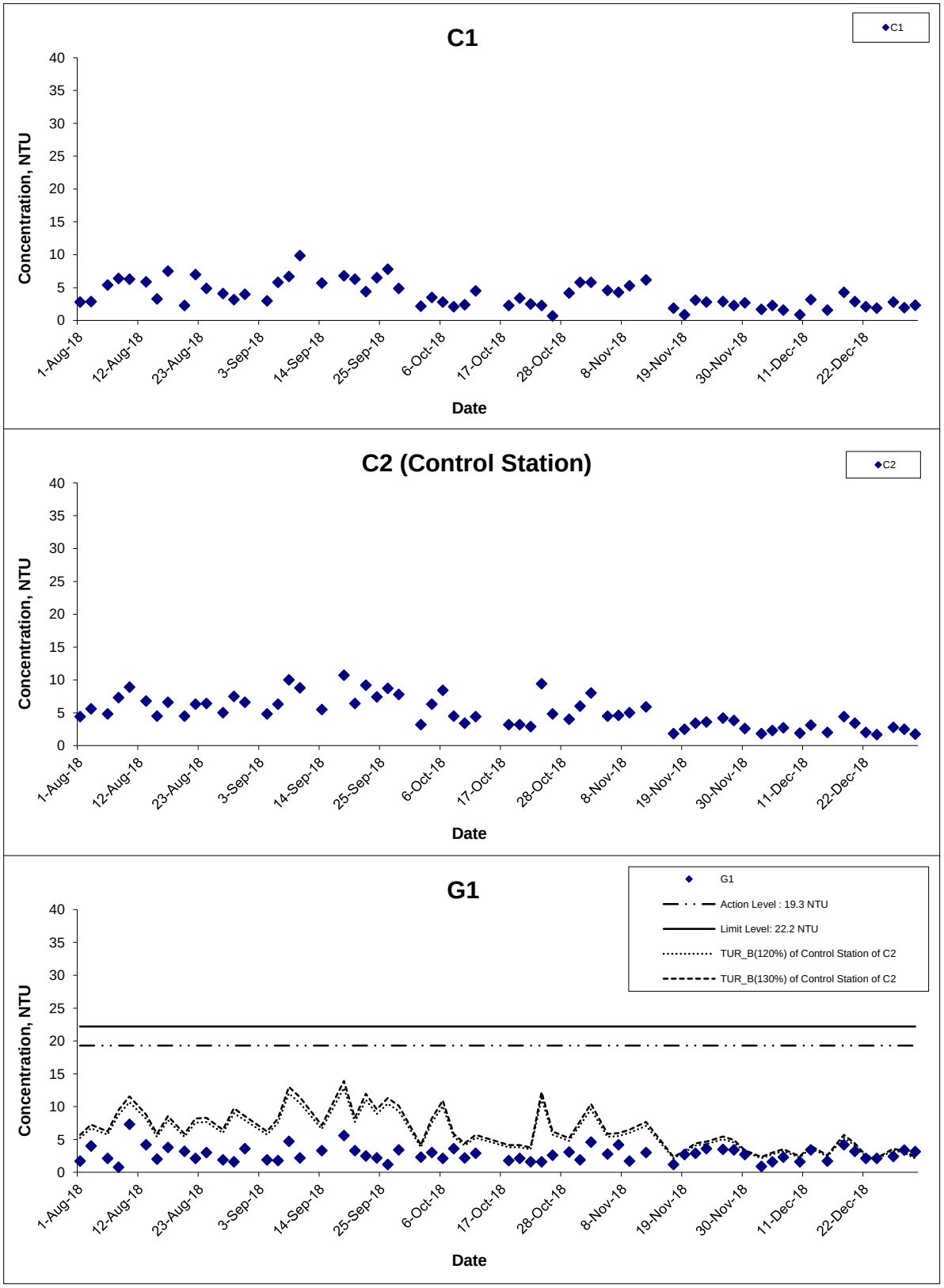
Turbidity (Bottom) at Mid-Ebb Tide



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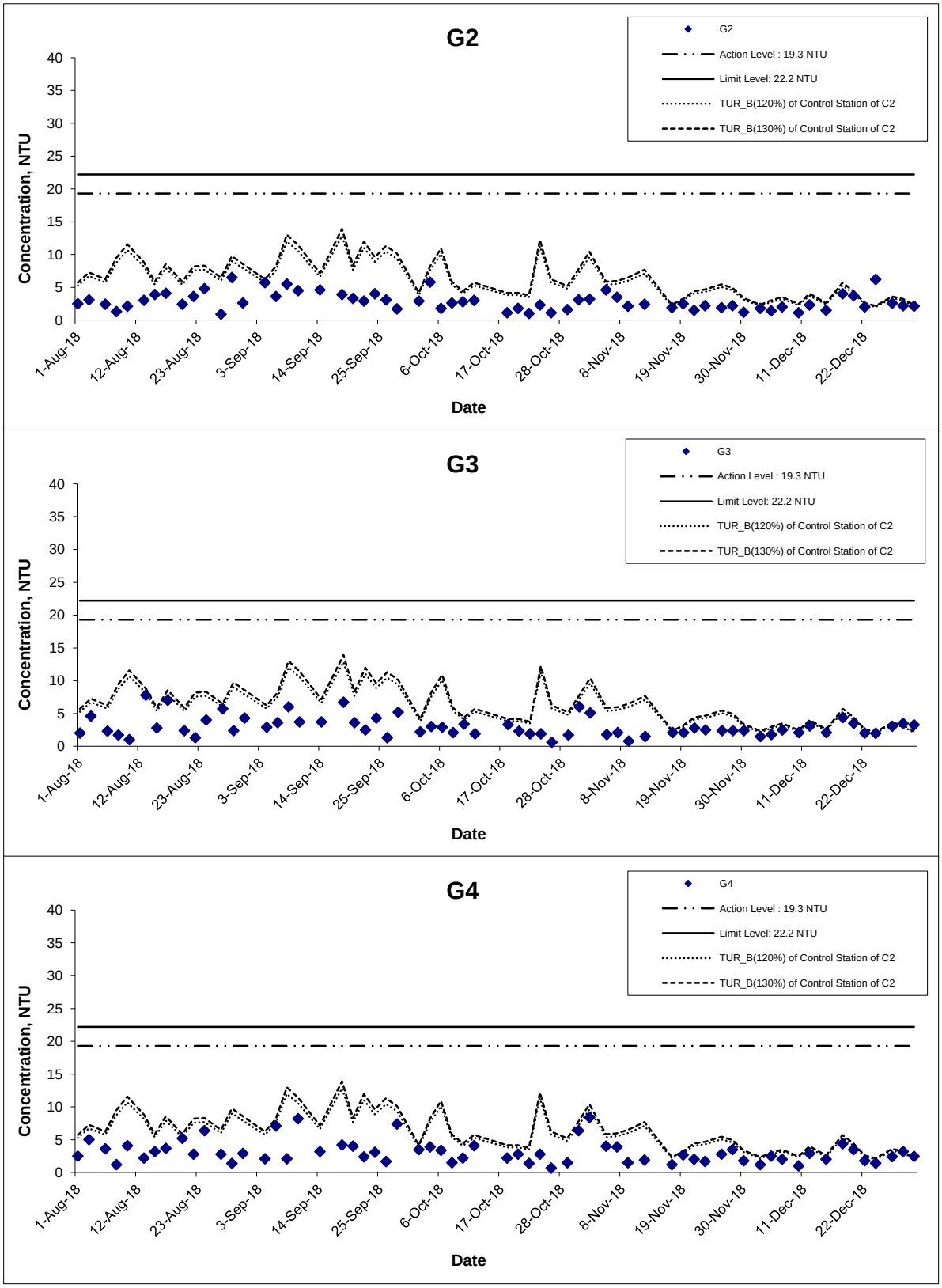
Turbidity (Bottom) at Mid-Ebb Tide



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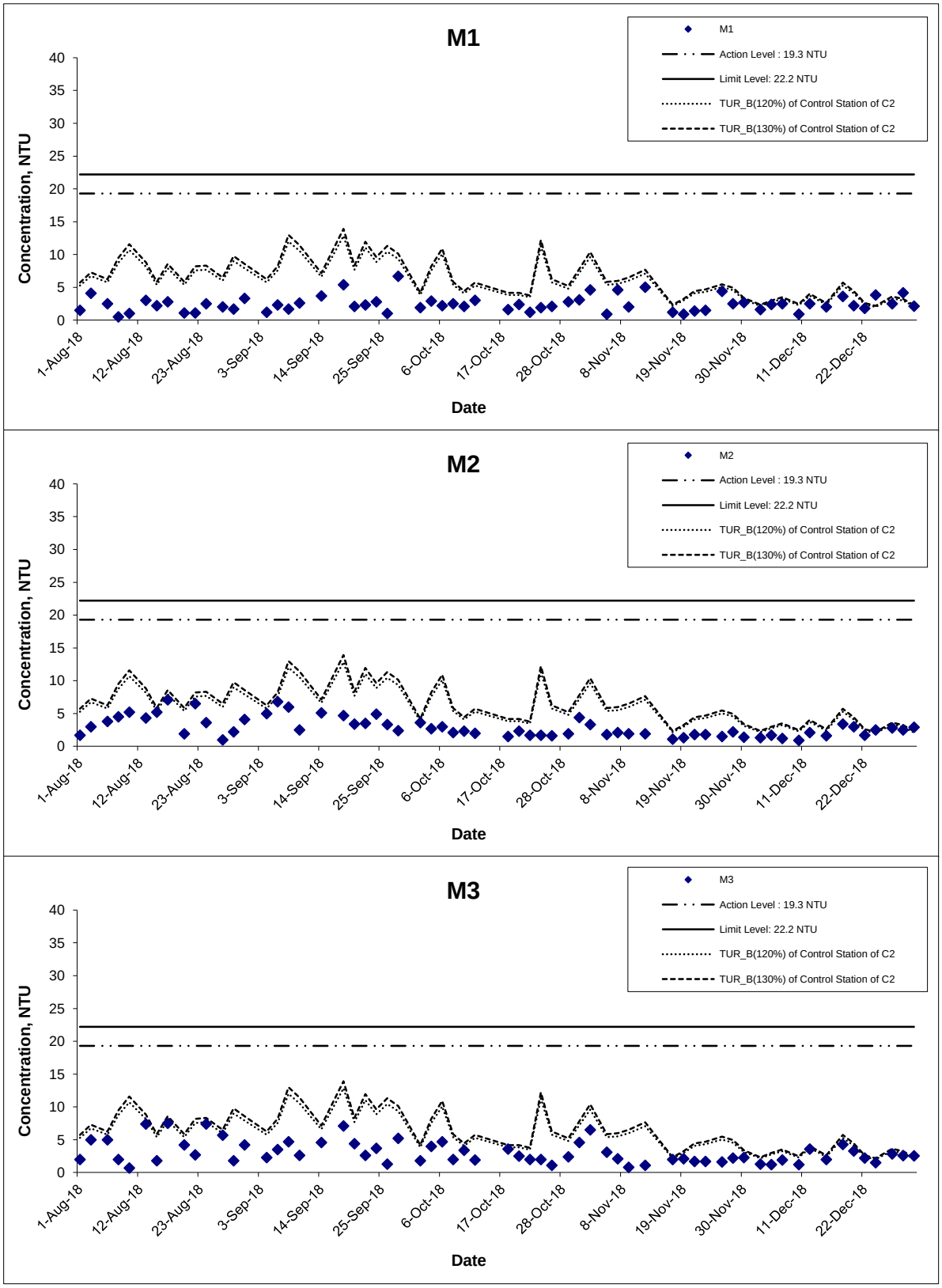
Turbidity (Bottom) at Mid-Ebb Tide



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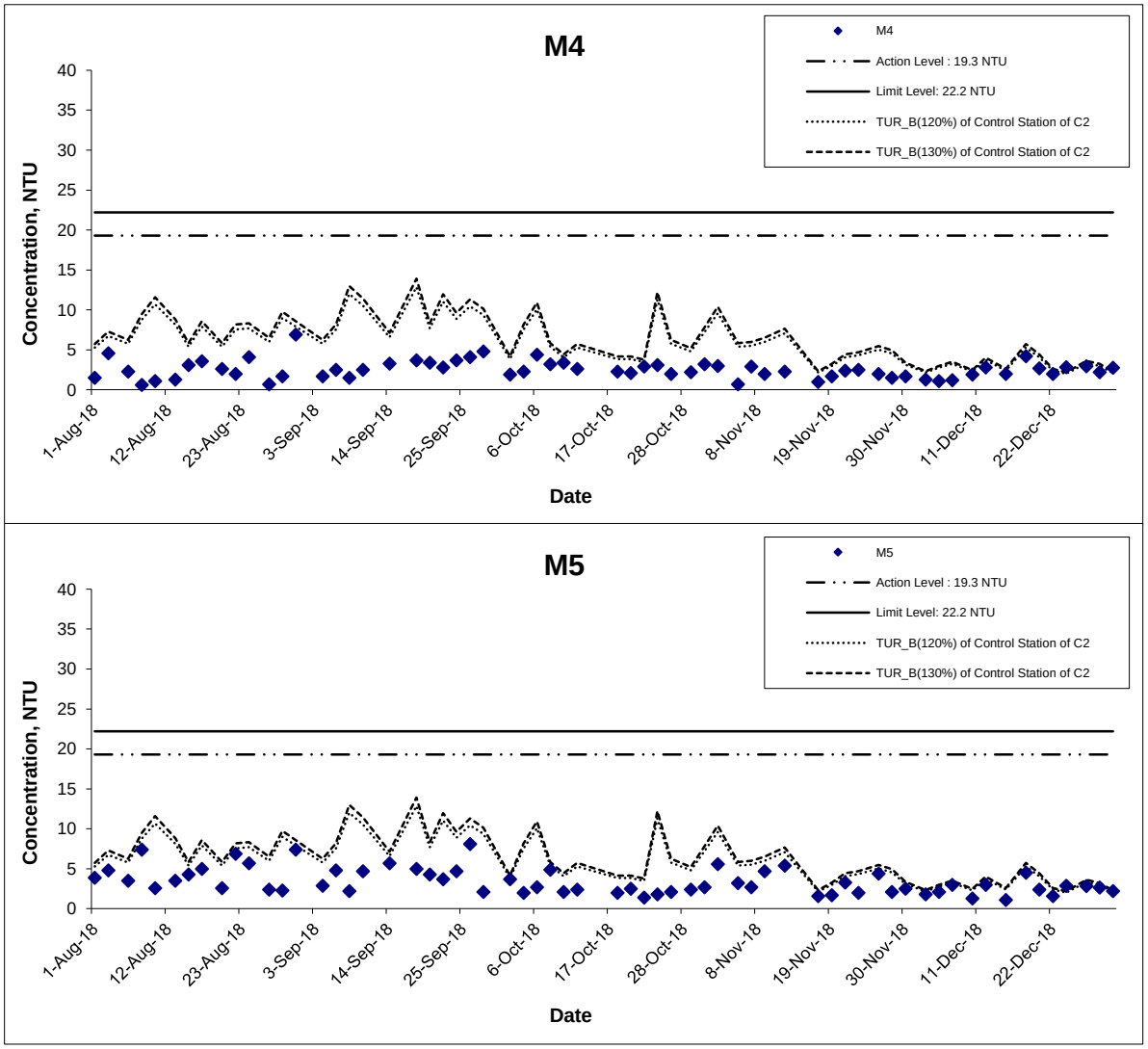
Turbidity (Bottom) at Mid-Ebb Tide



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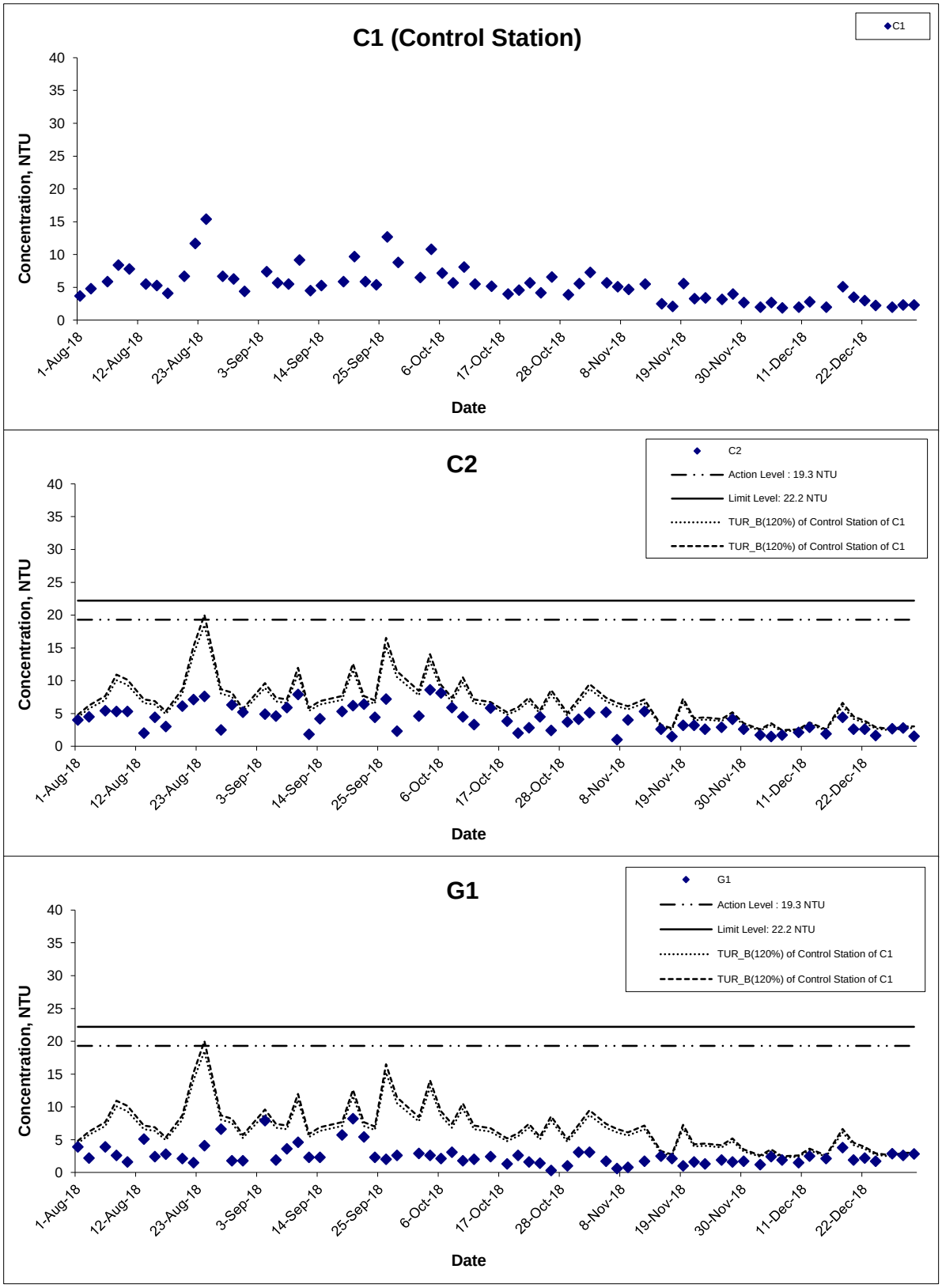
Turbidity (Bottom) at Mid-Flood Tide



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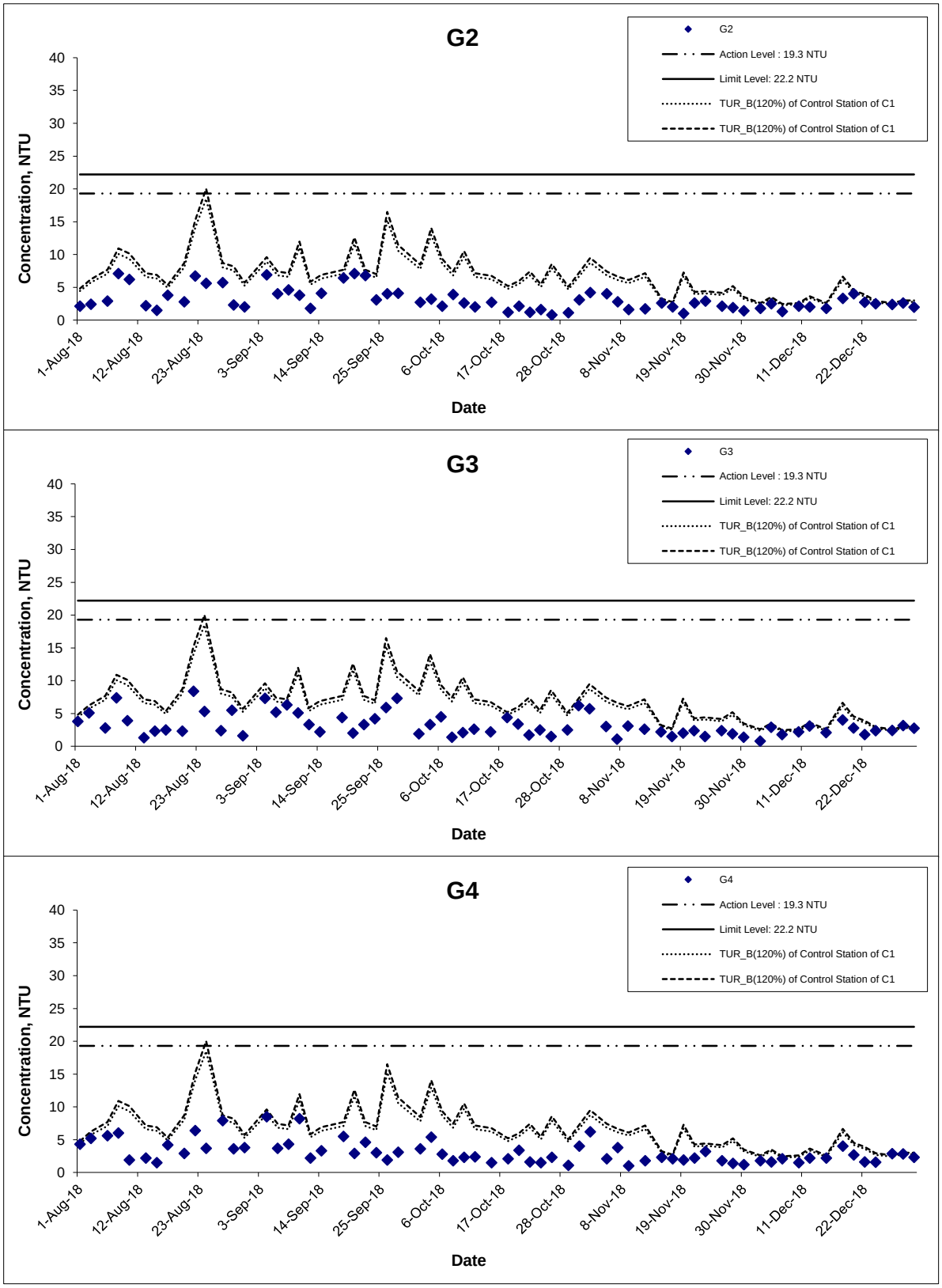
Turbidity (Bottom) at Mid-Flood Tide



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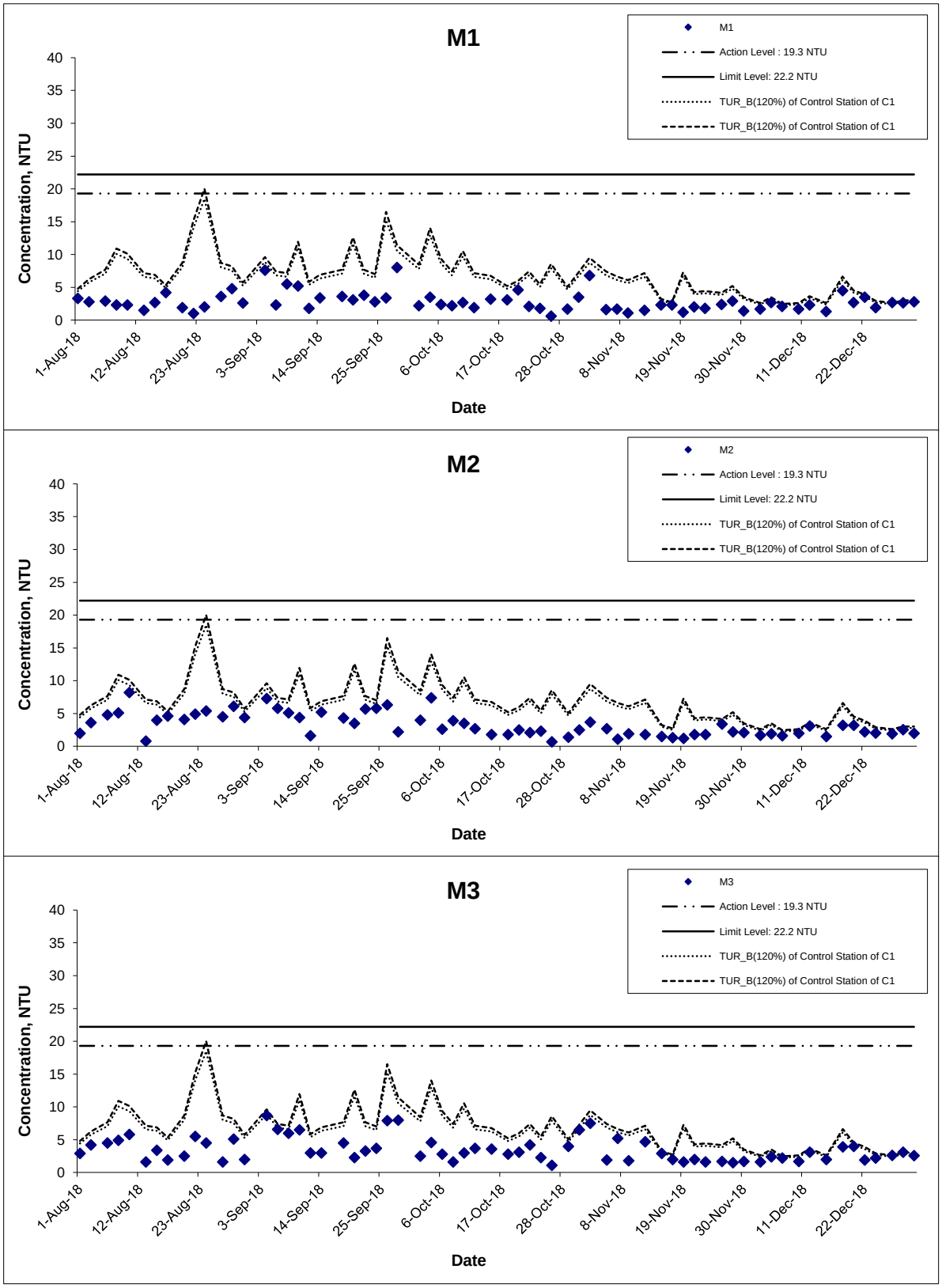
Turbidity (Bottom) at Mid-Flood Tide



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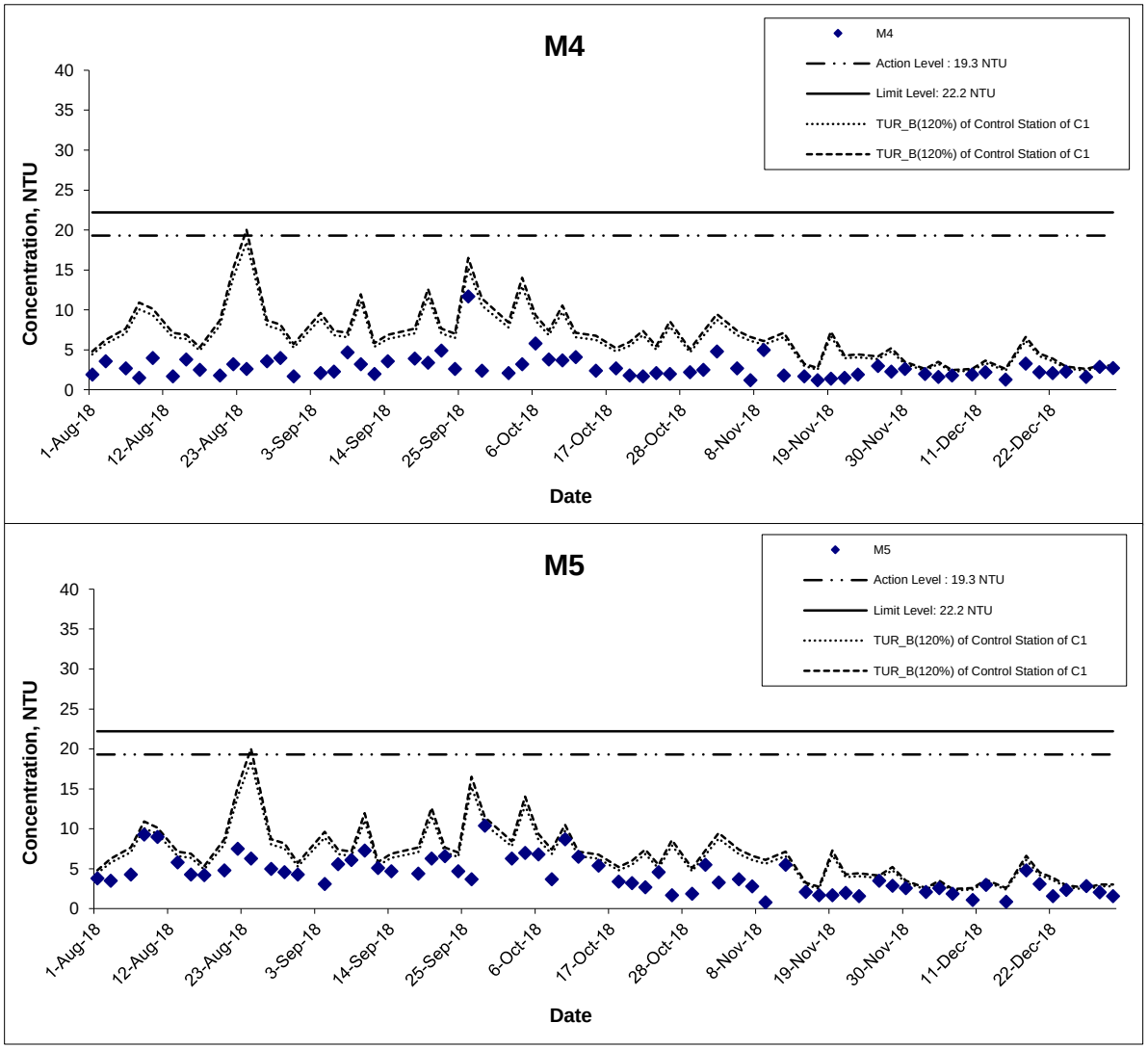
Turbidity (Bottom) at Mid-Flood Tide



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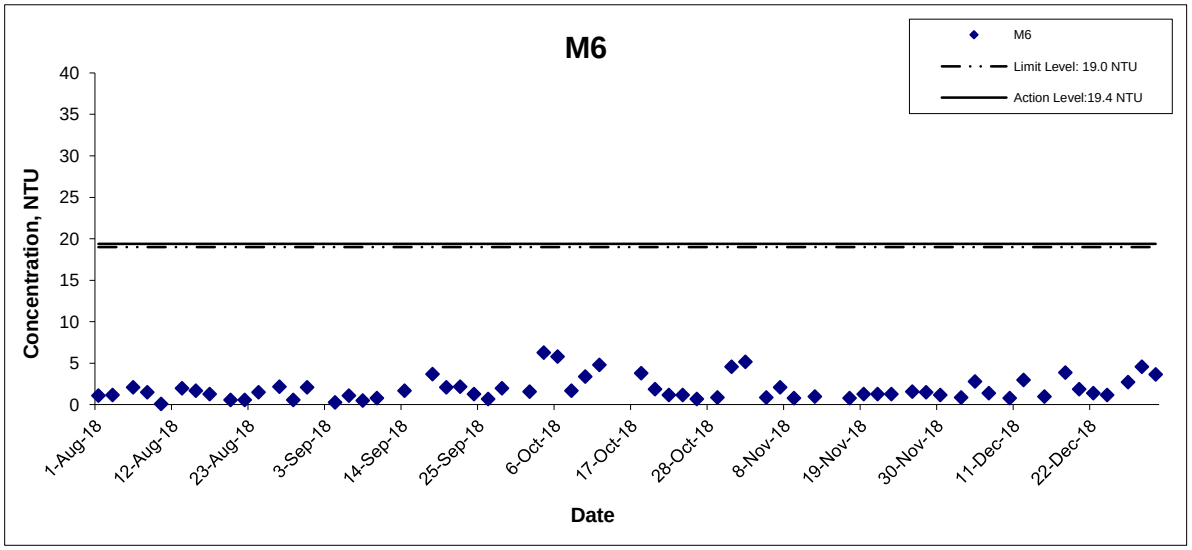
Turbidity (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



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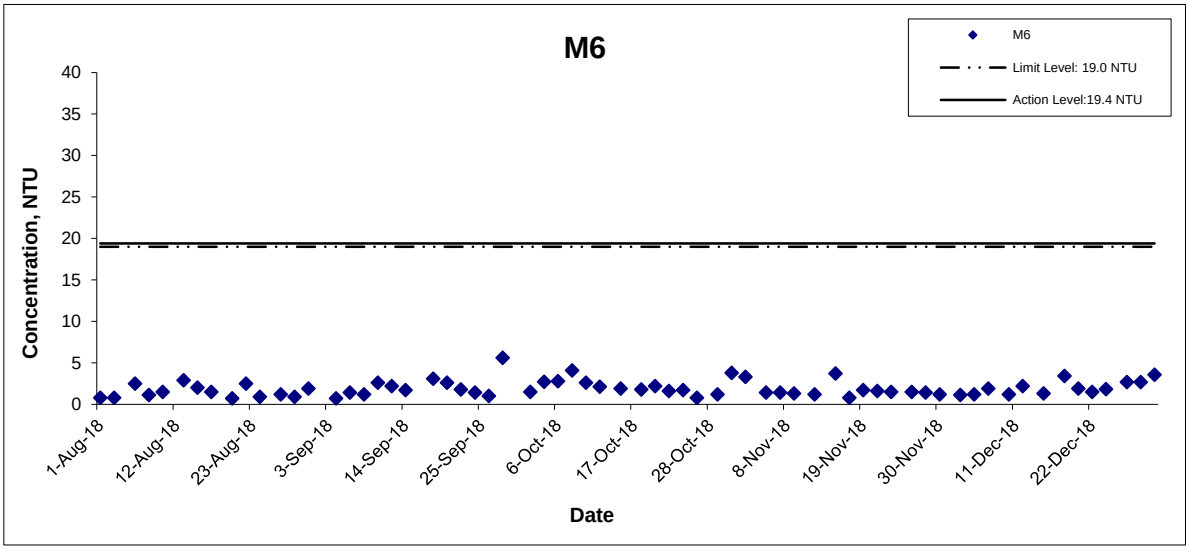

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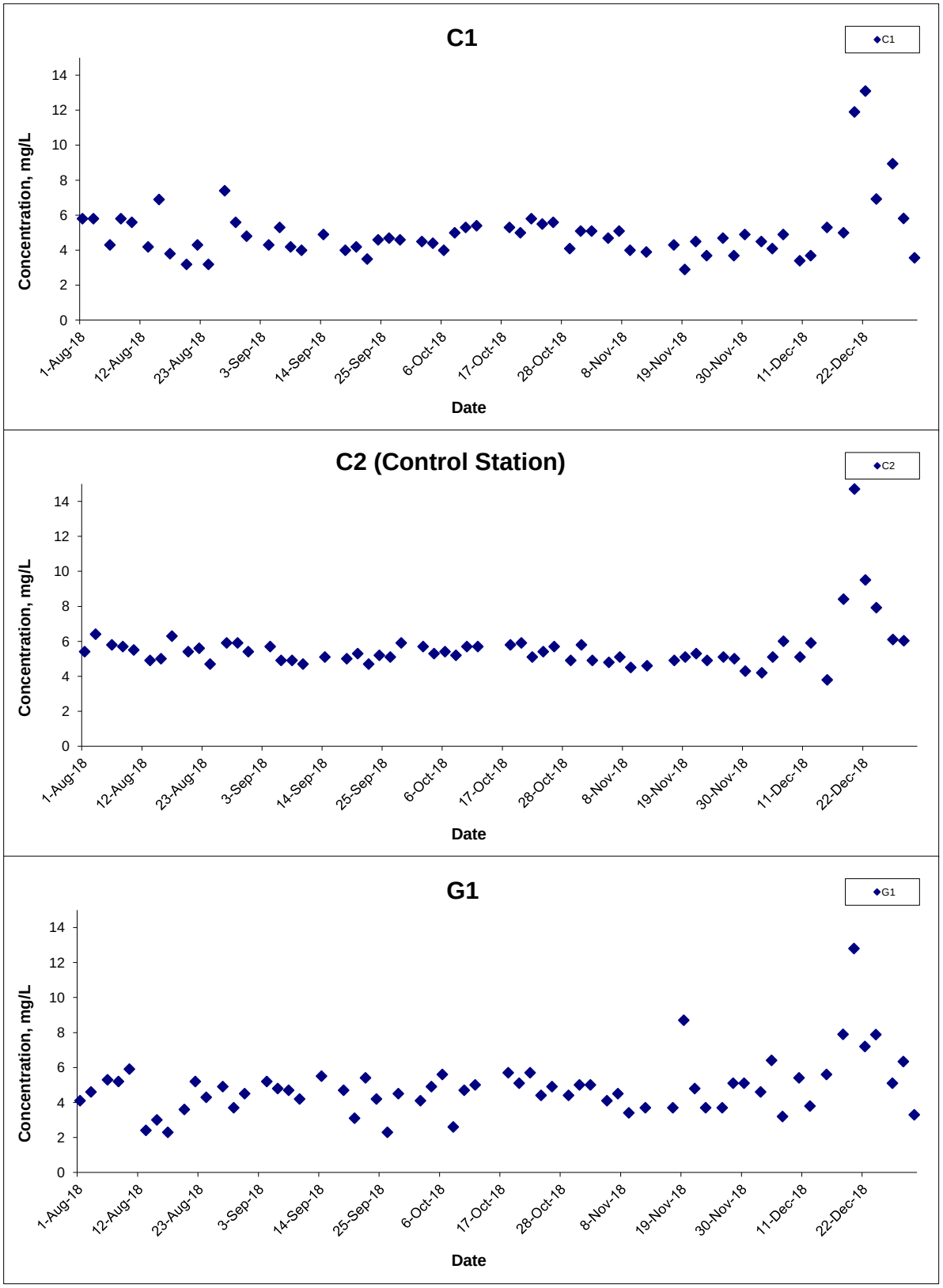
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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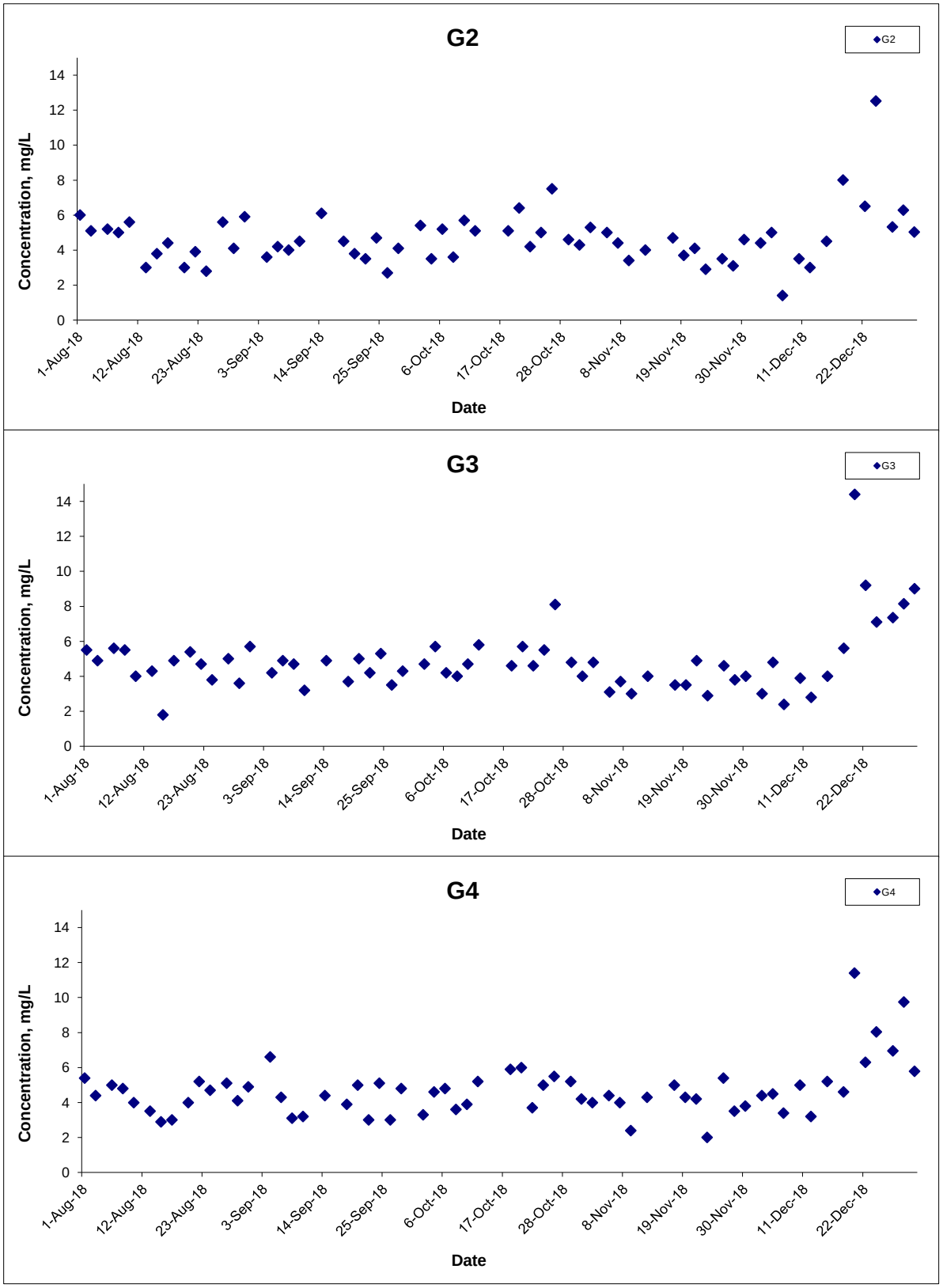

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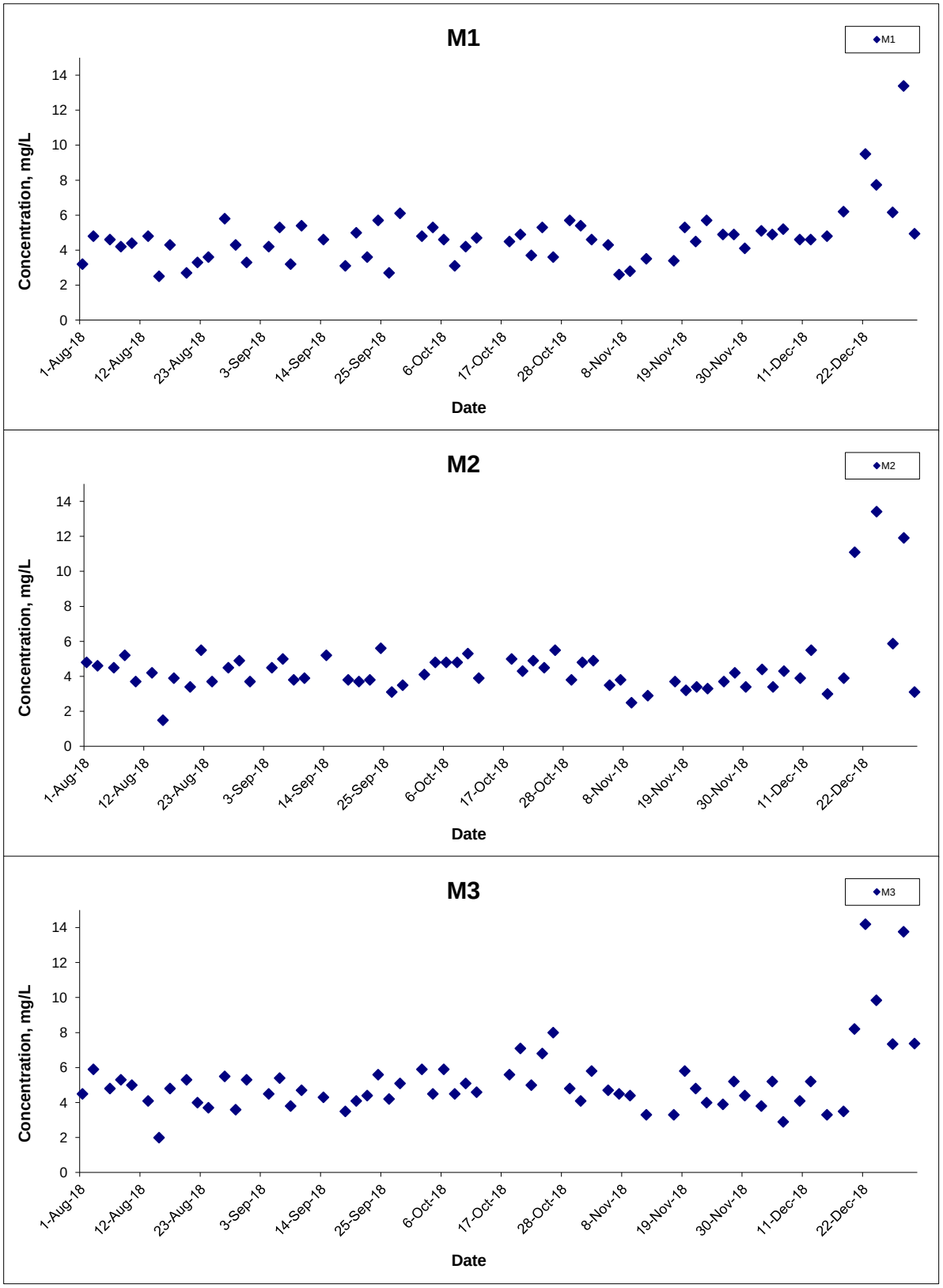

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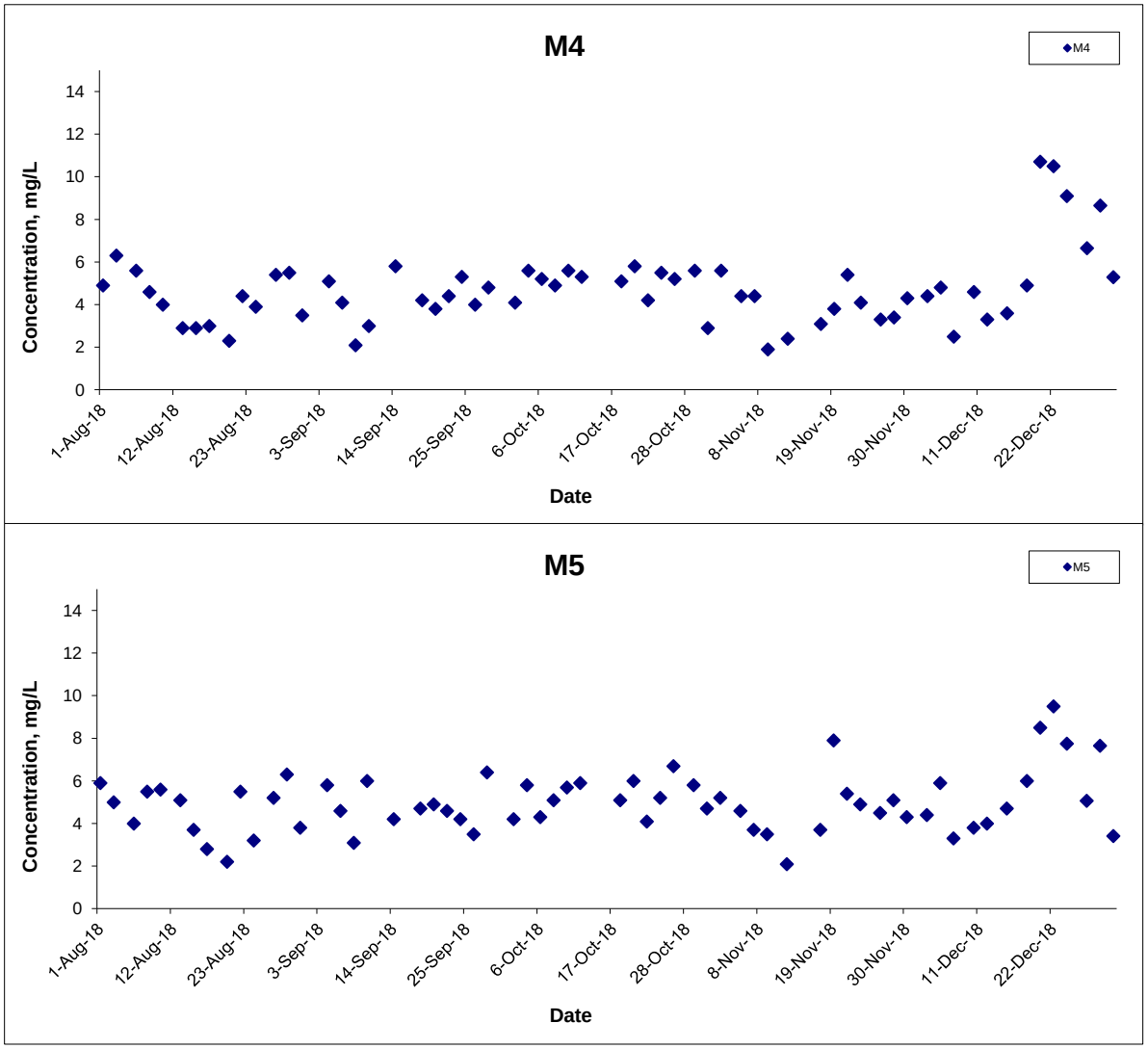

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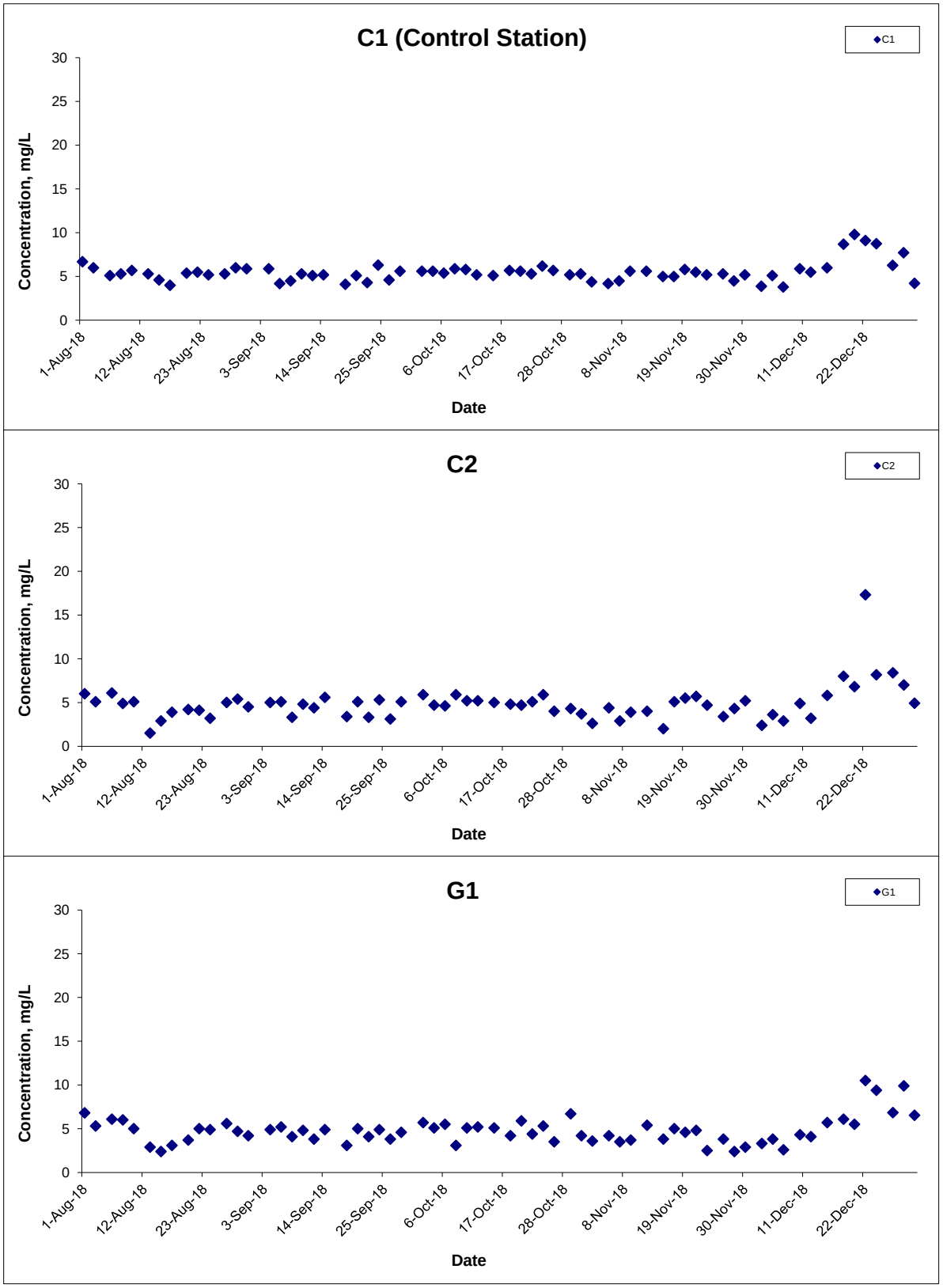

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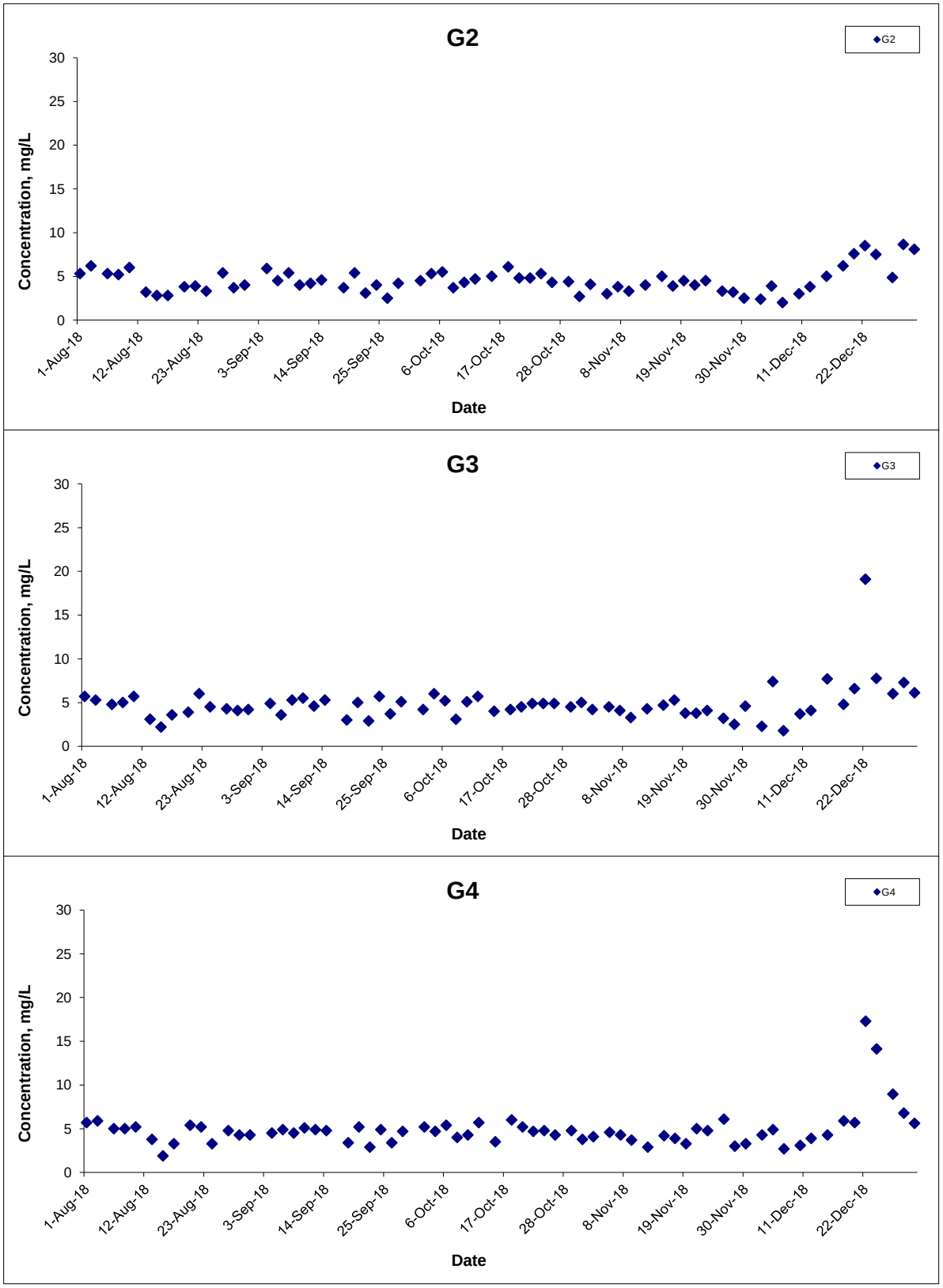

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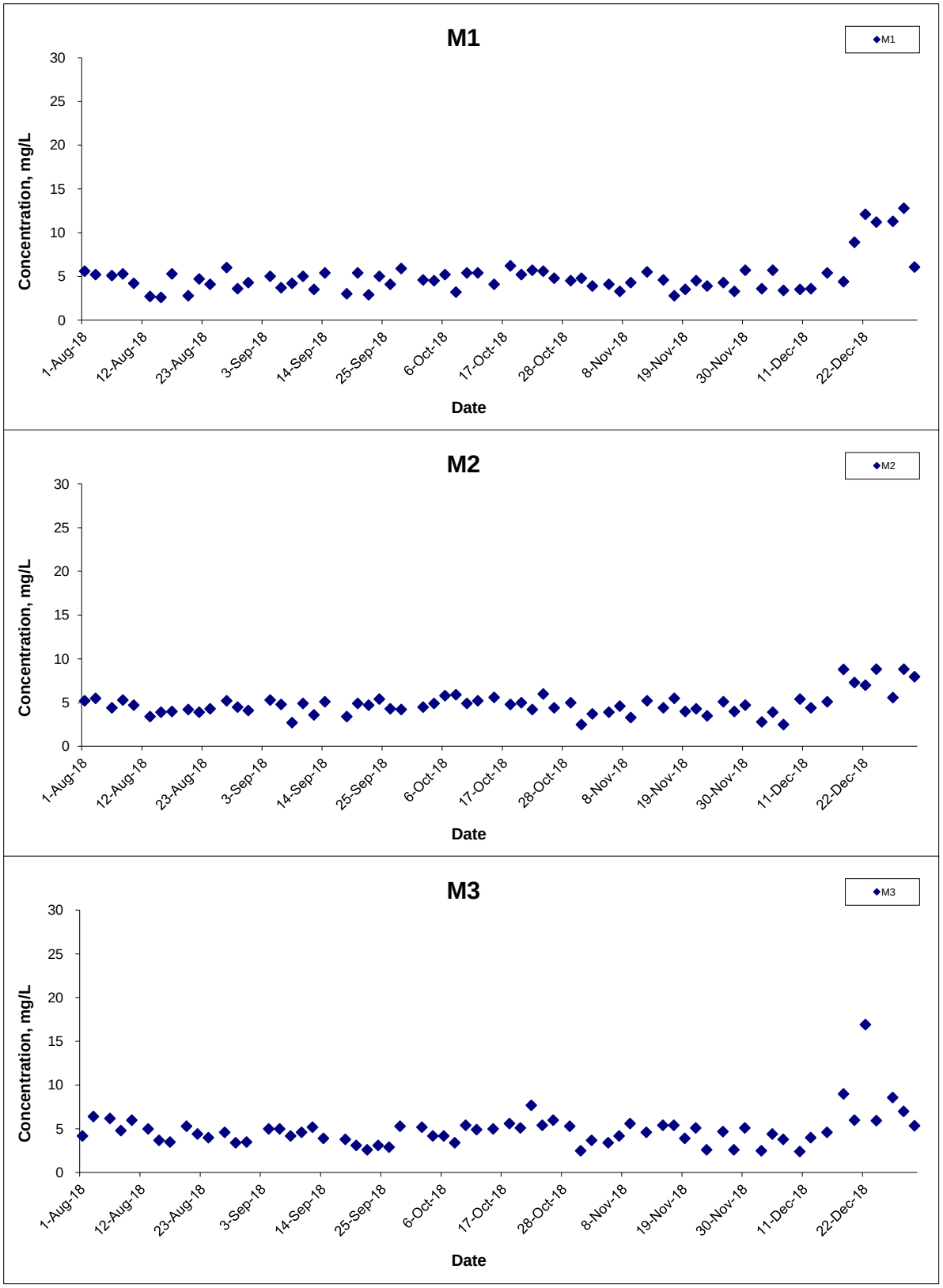

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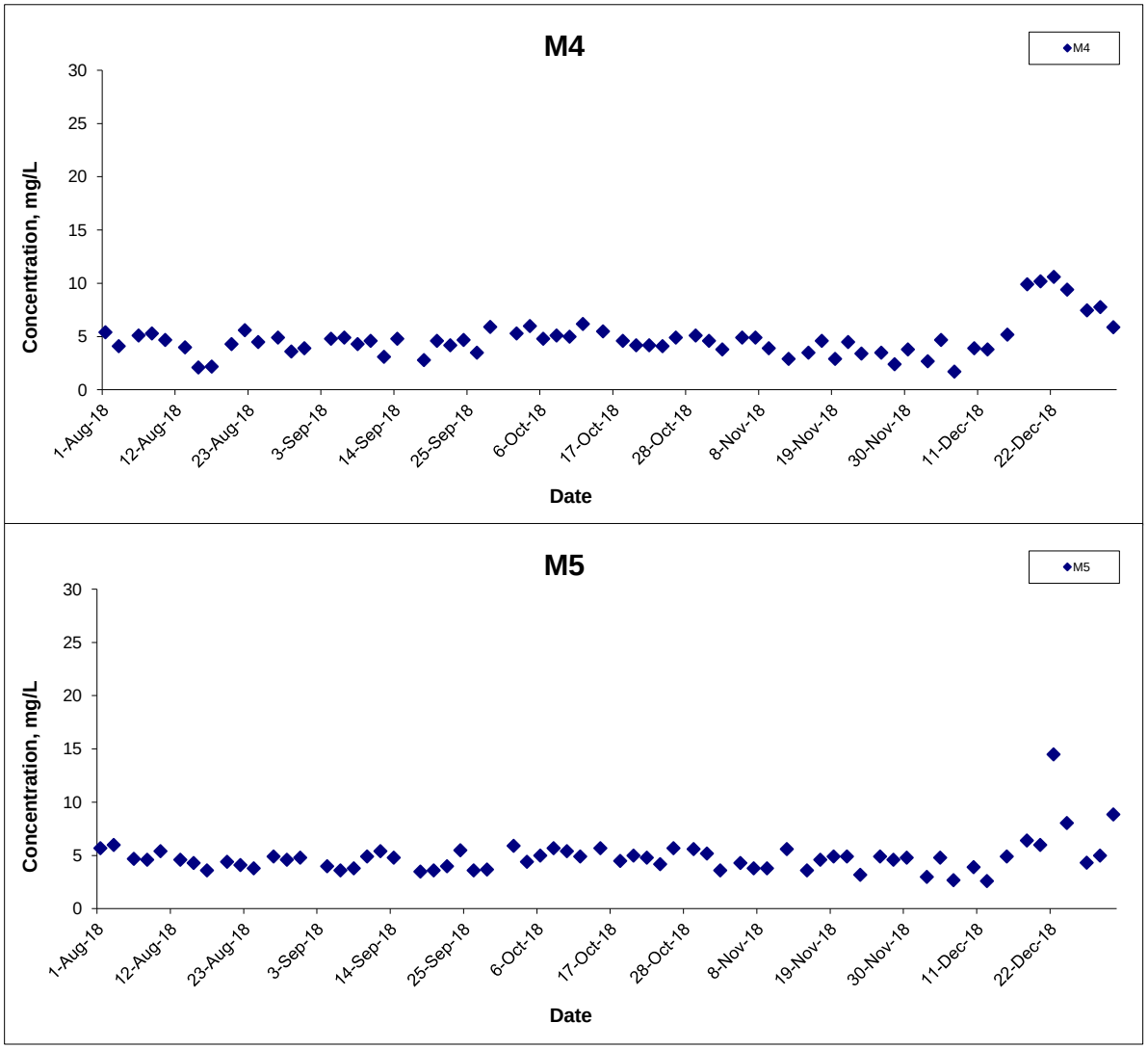

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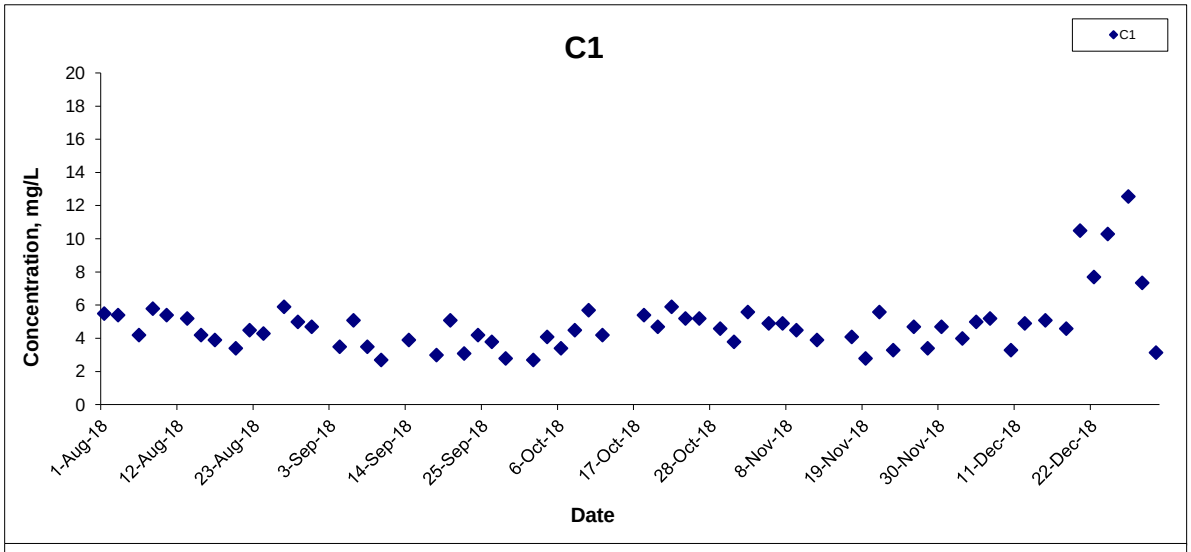
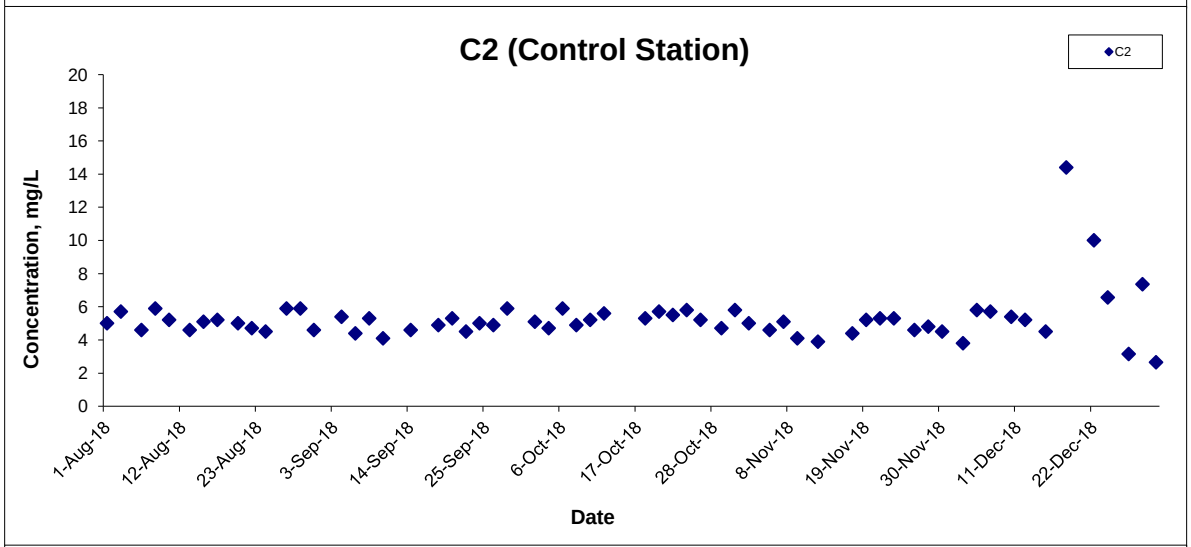
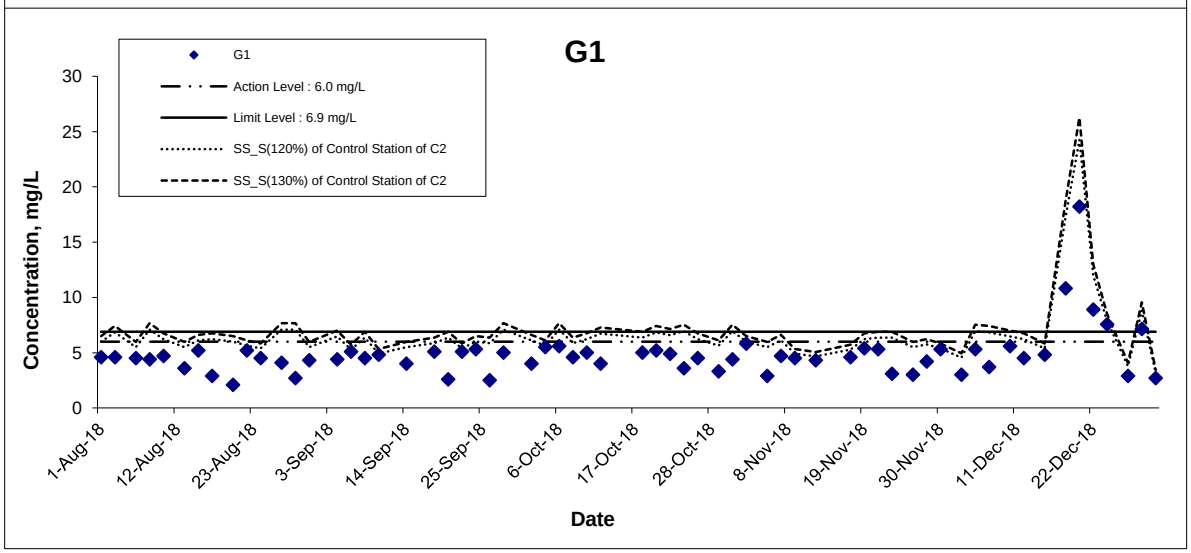
Suspended Solids (Surface) at Mid-Ebb Tide







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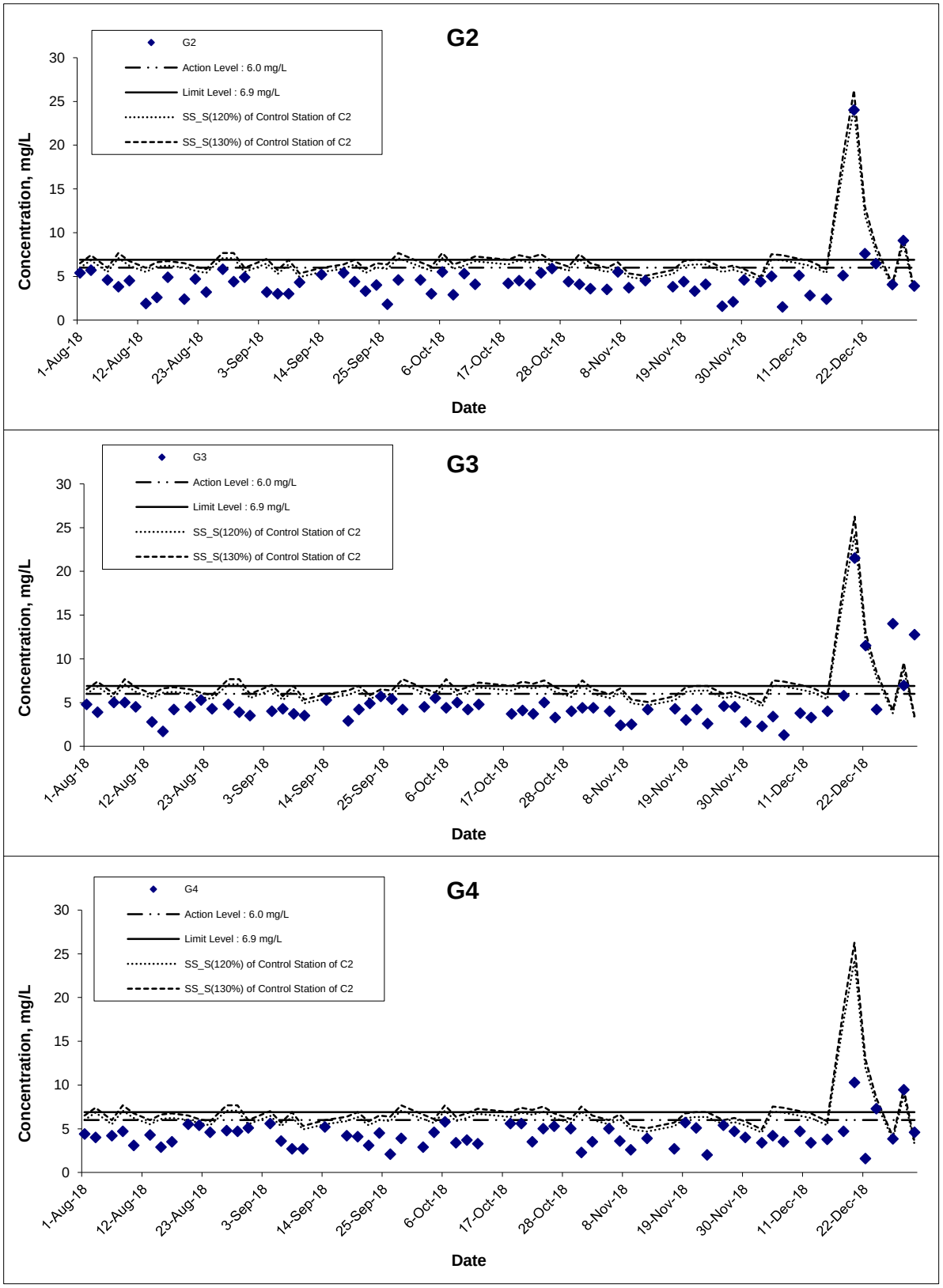
Suspended Solids (Surface) at Mid-Ebb Tide



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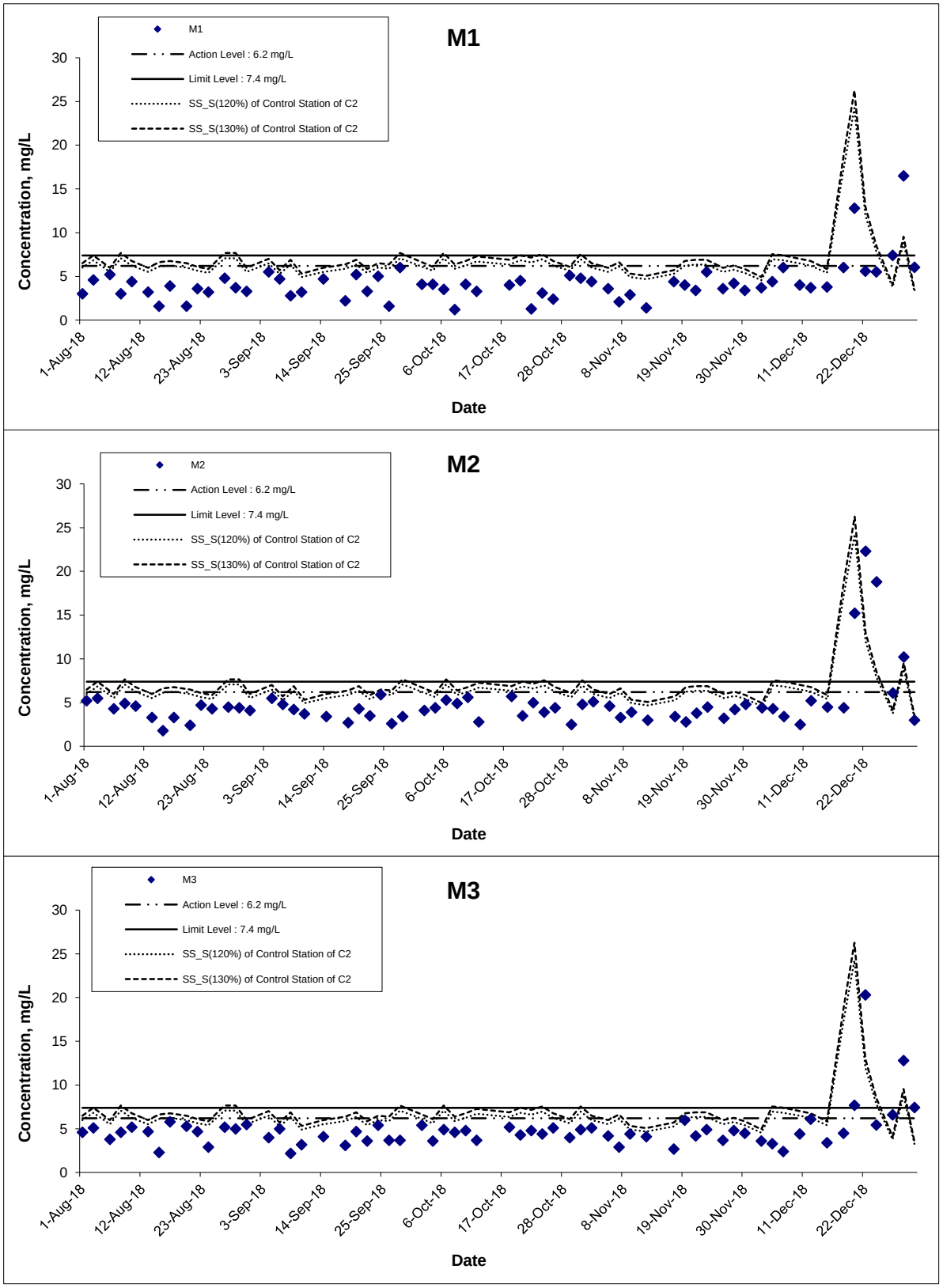
Suspended Solids (Surface) at Mid-Ebb Tide



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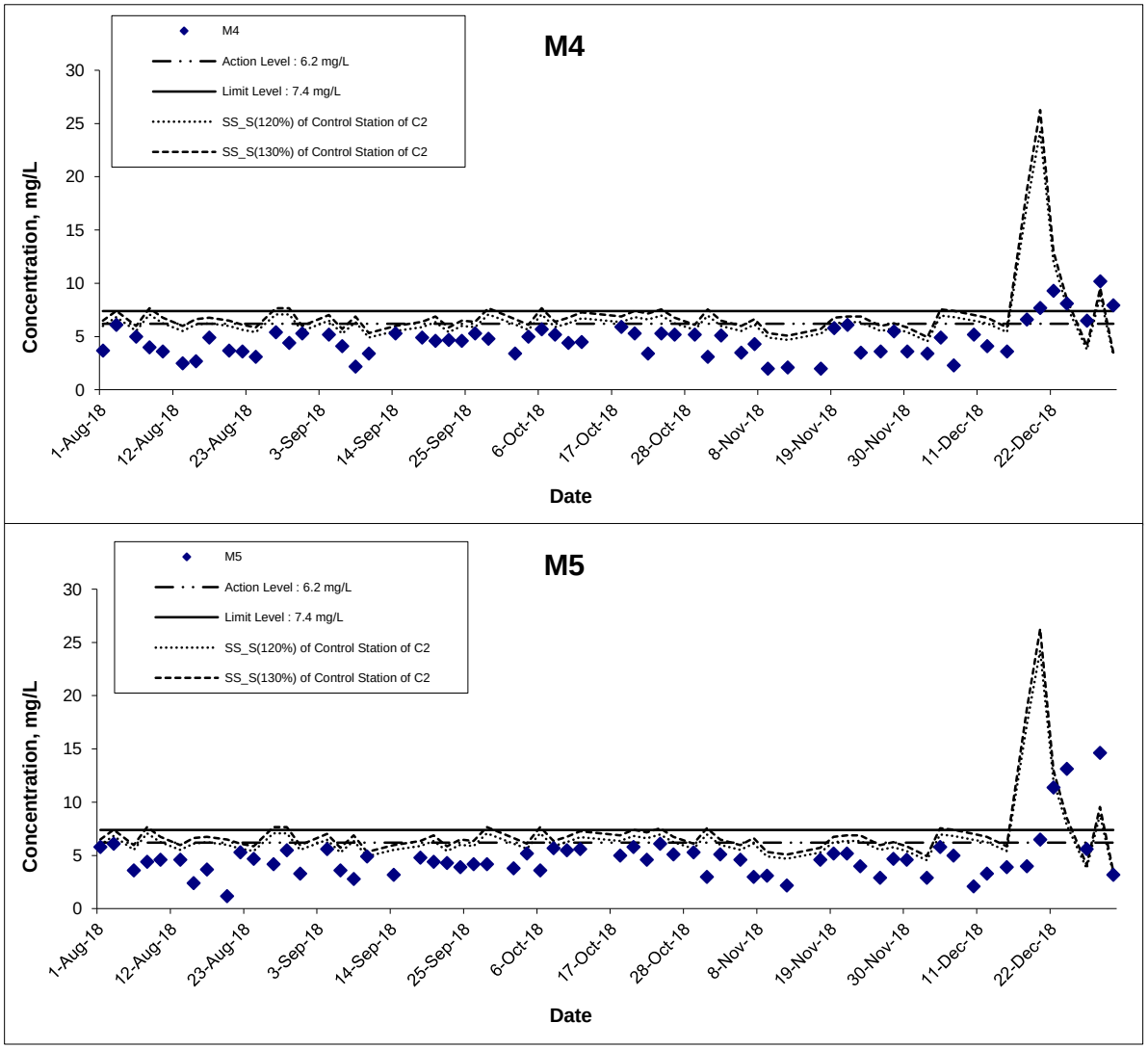
Suspended Solids (Surface) at Mid-Ebb Tide



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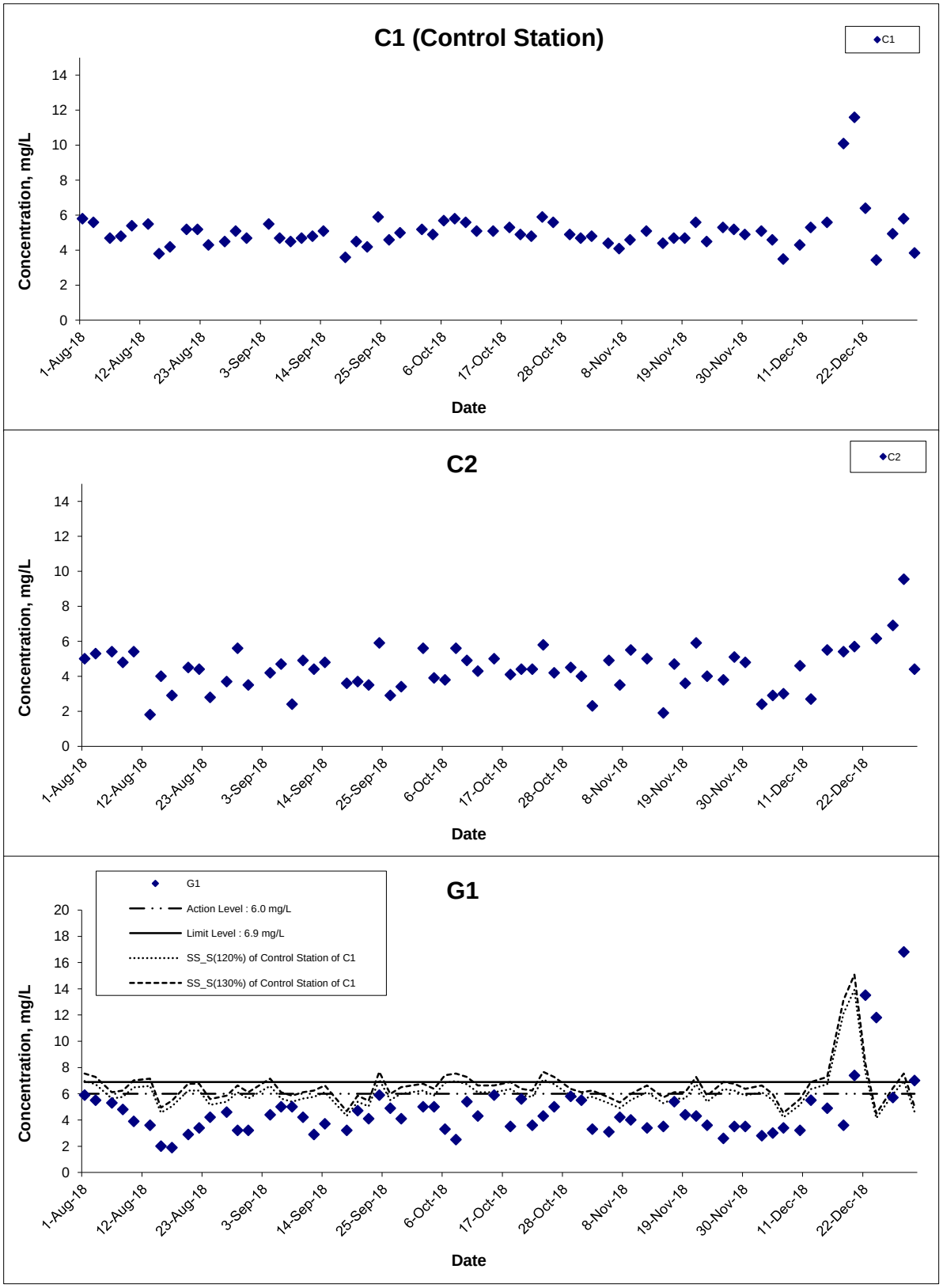
Suspended Solids (Surface) at Mid-Flood Tide



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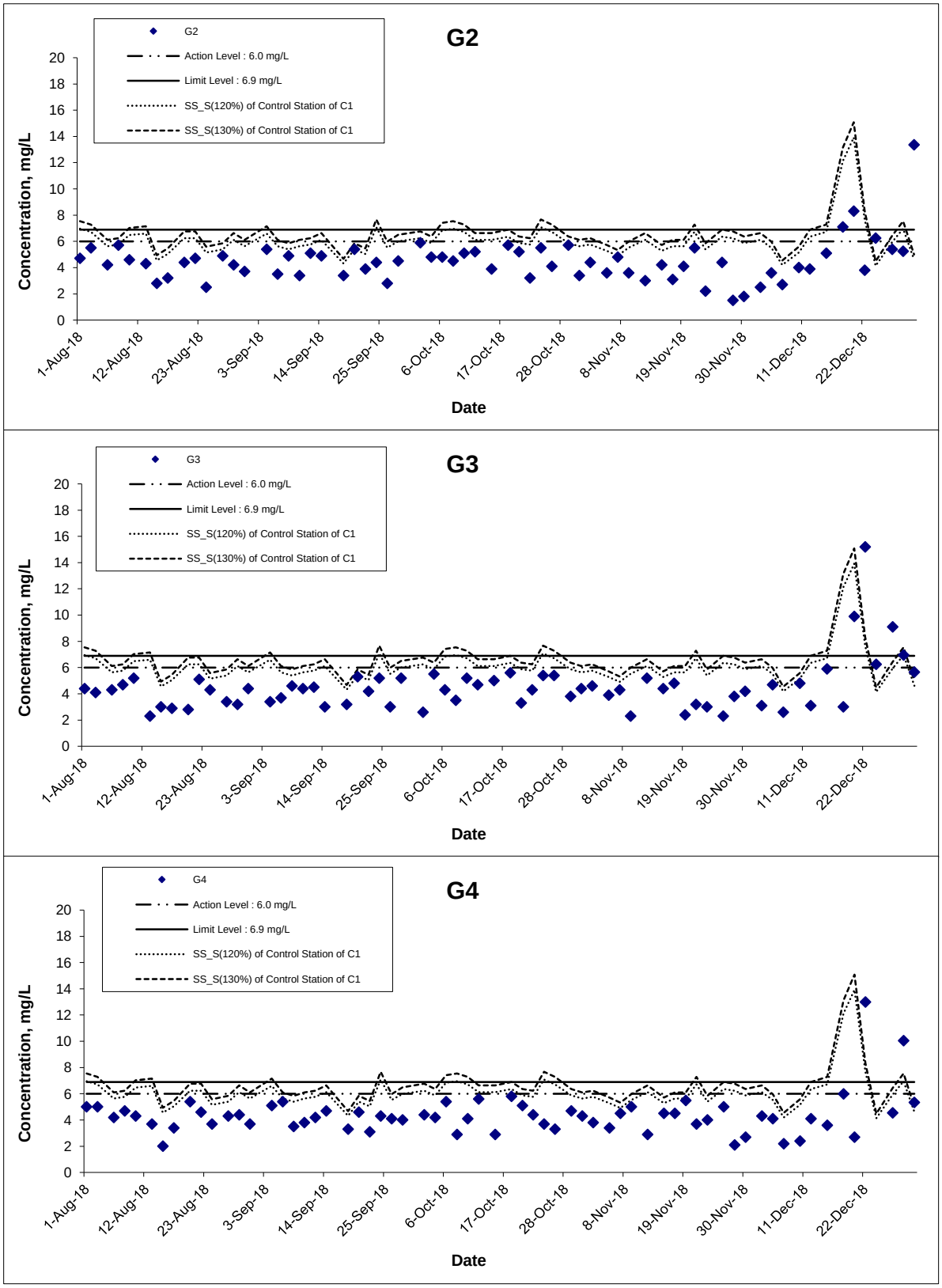
Suspended Solids (Surface) at Mid-Flood Tide



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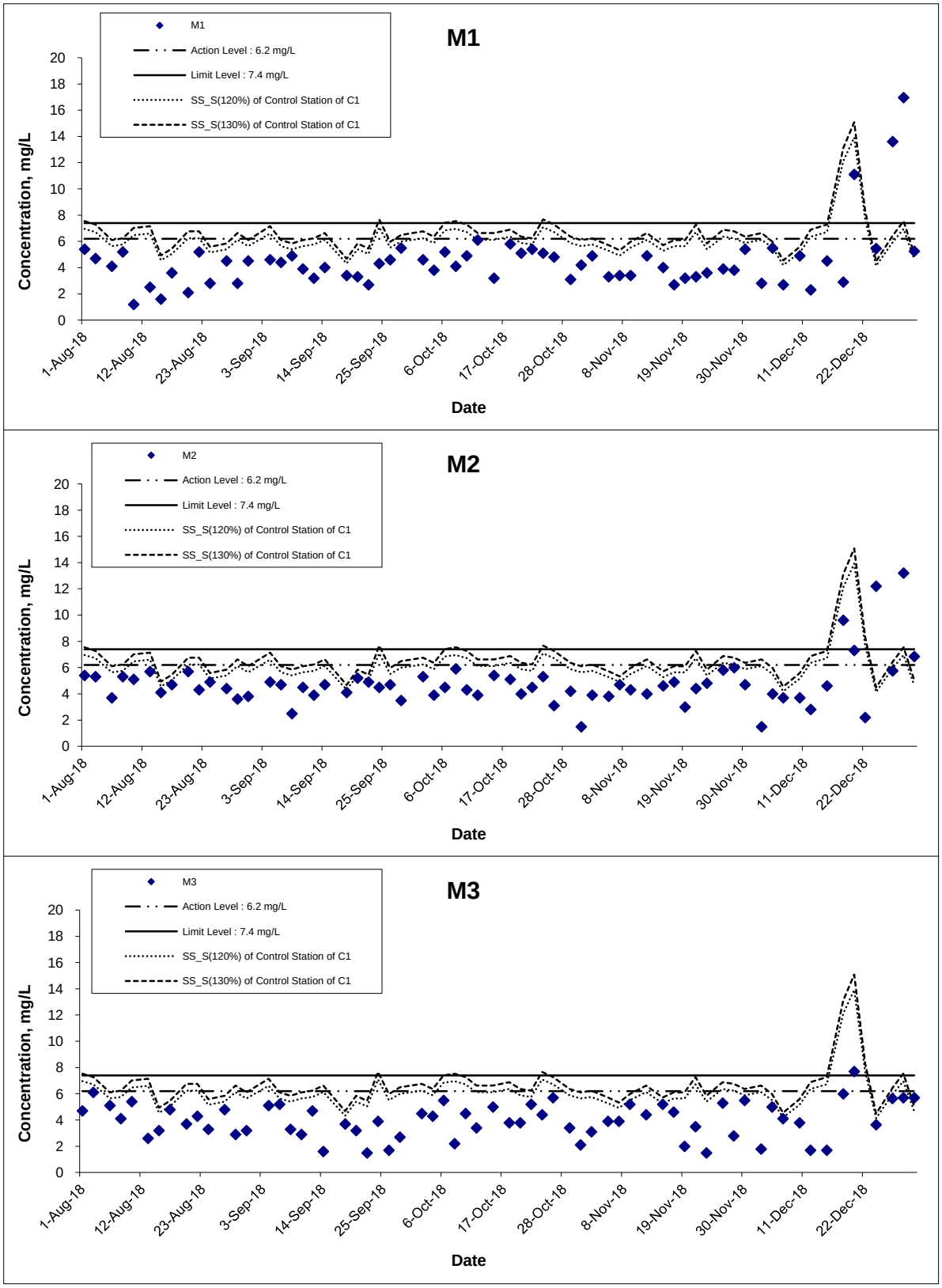

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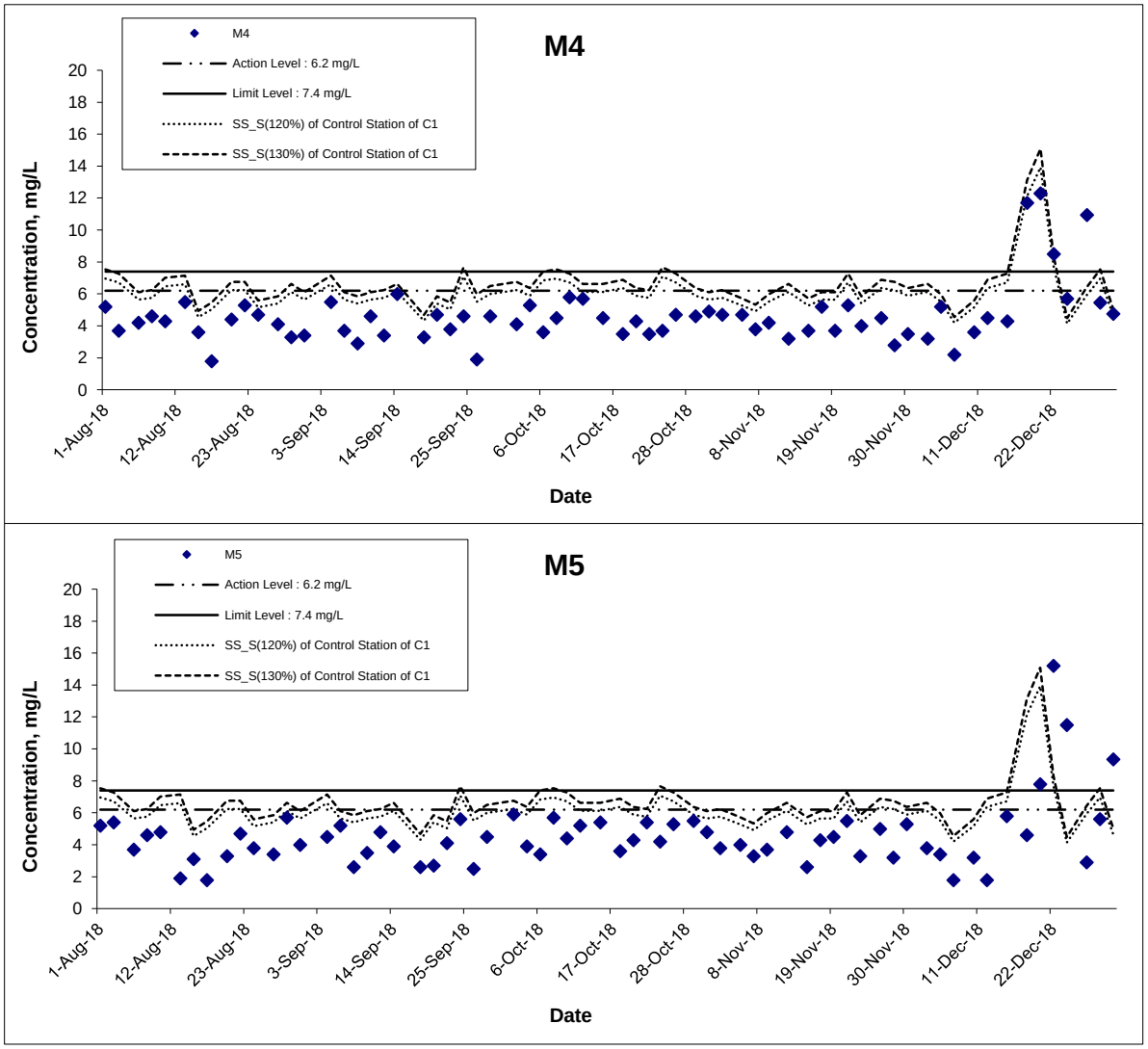

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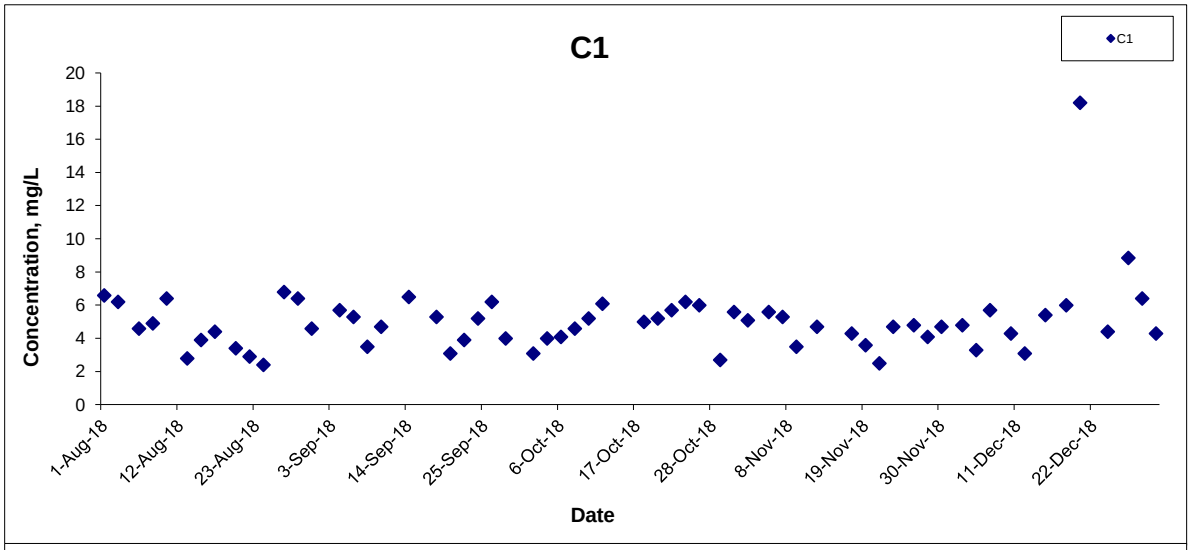
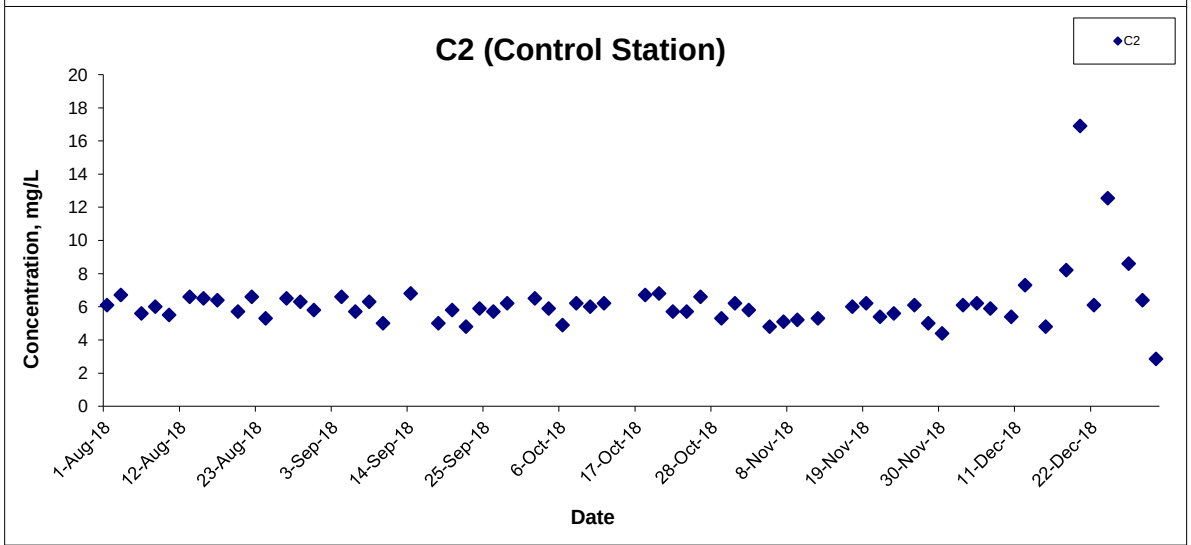
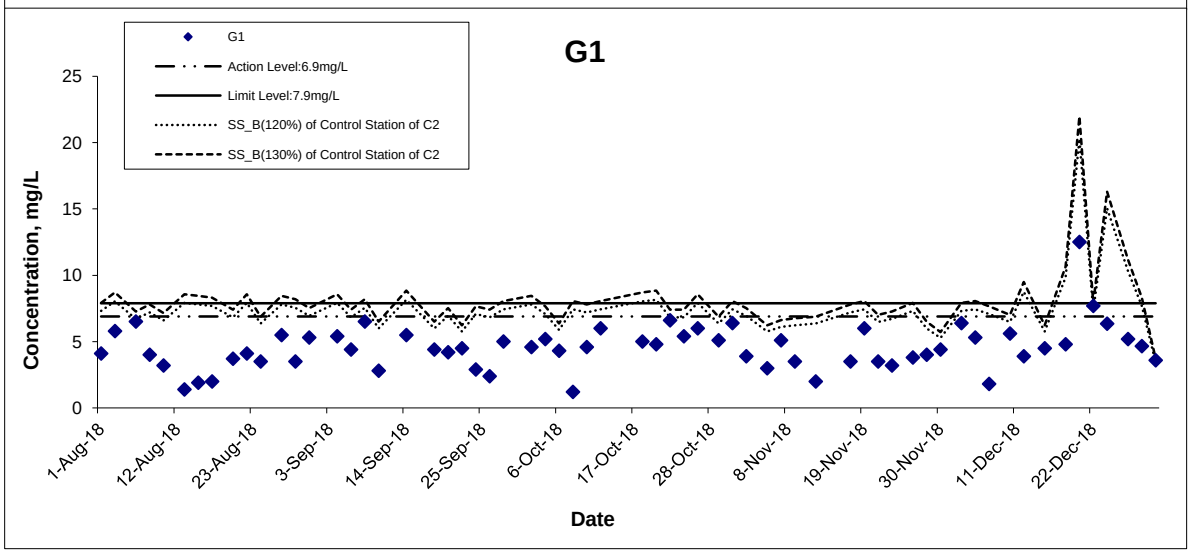
Suspended Solids (Bottom) at Mid-Ebb Tide







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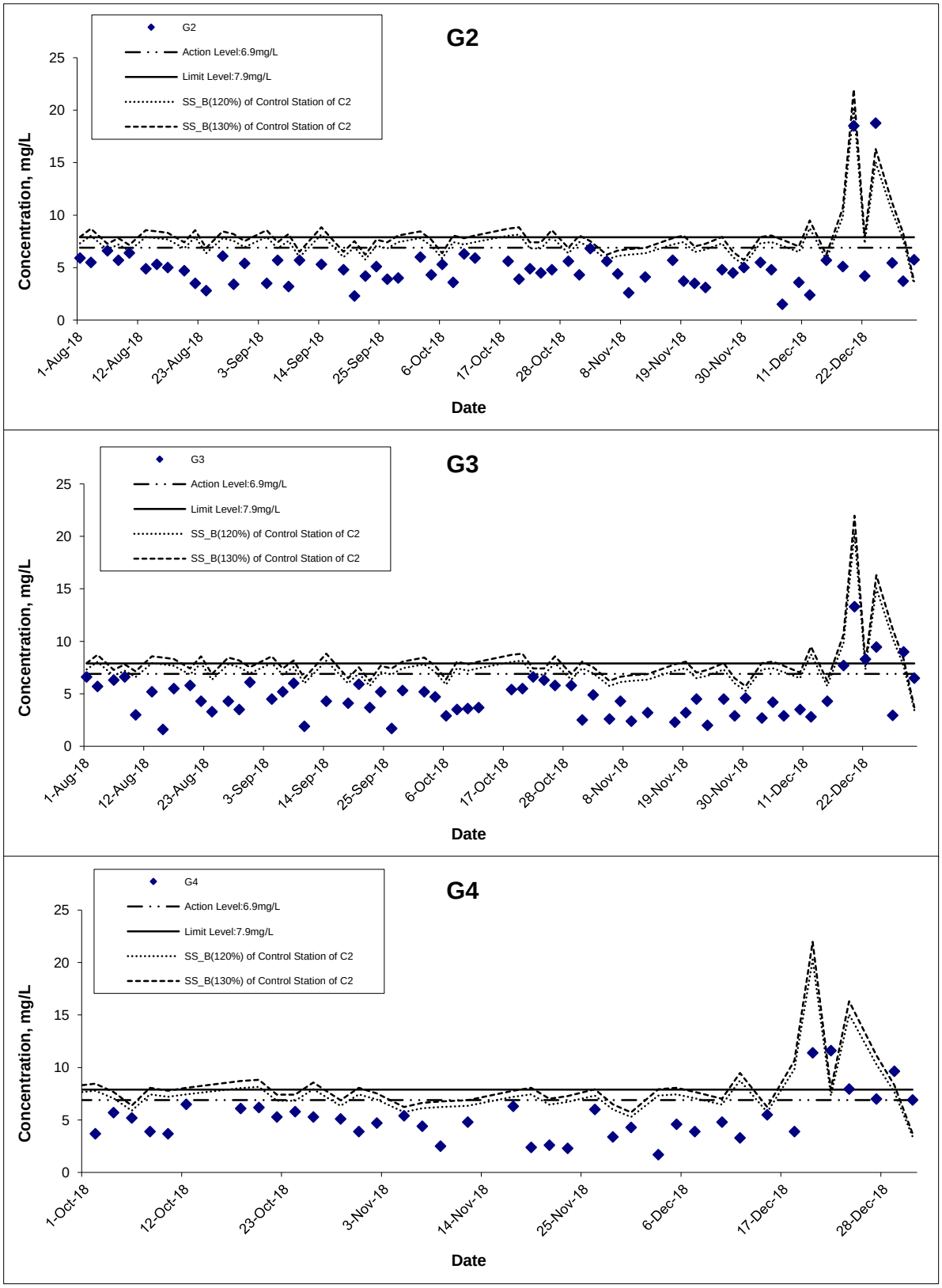
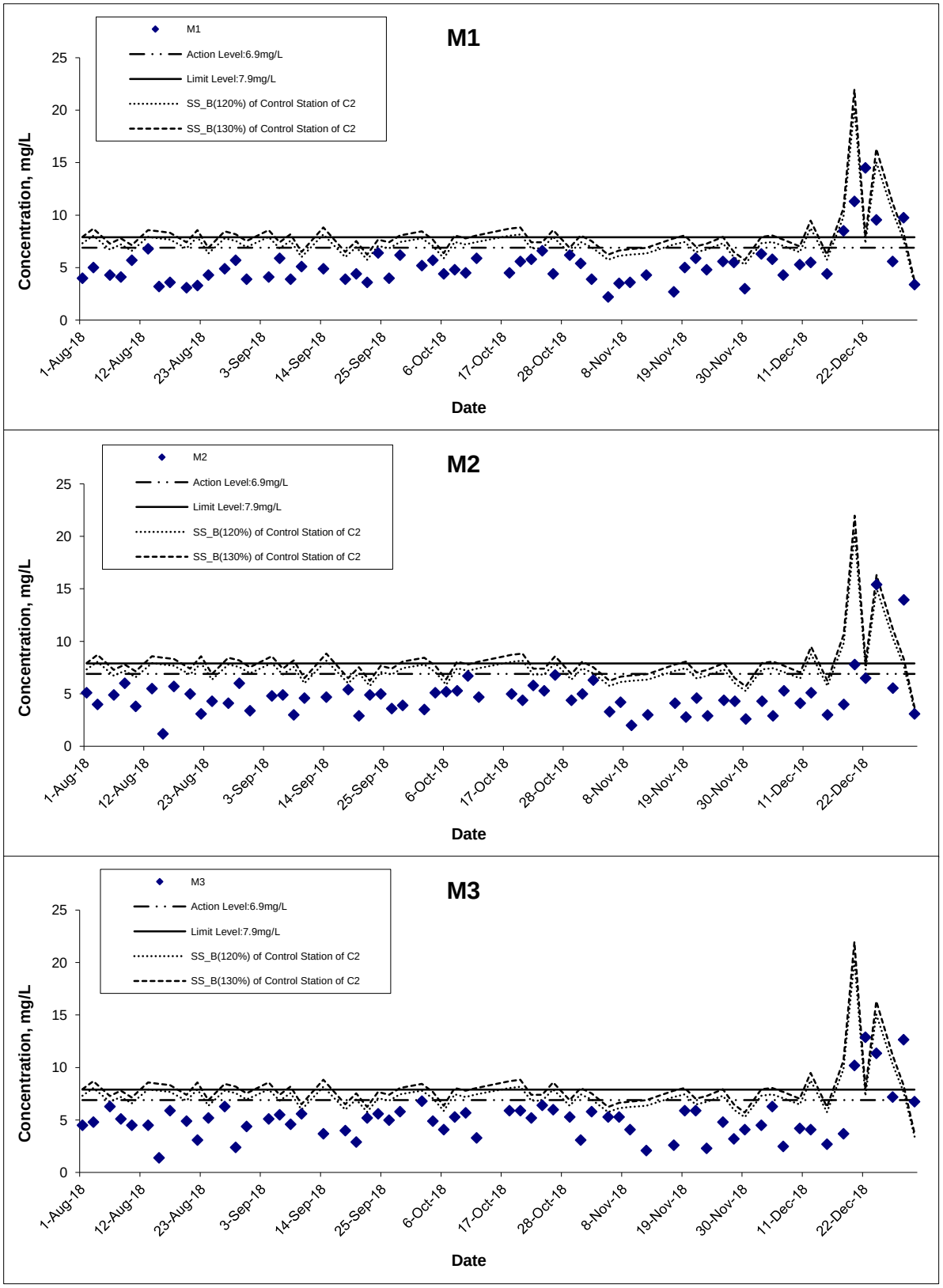
Suspended Solids (Bottom) at Mid-Ebb Tide



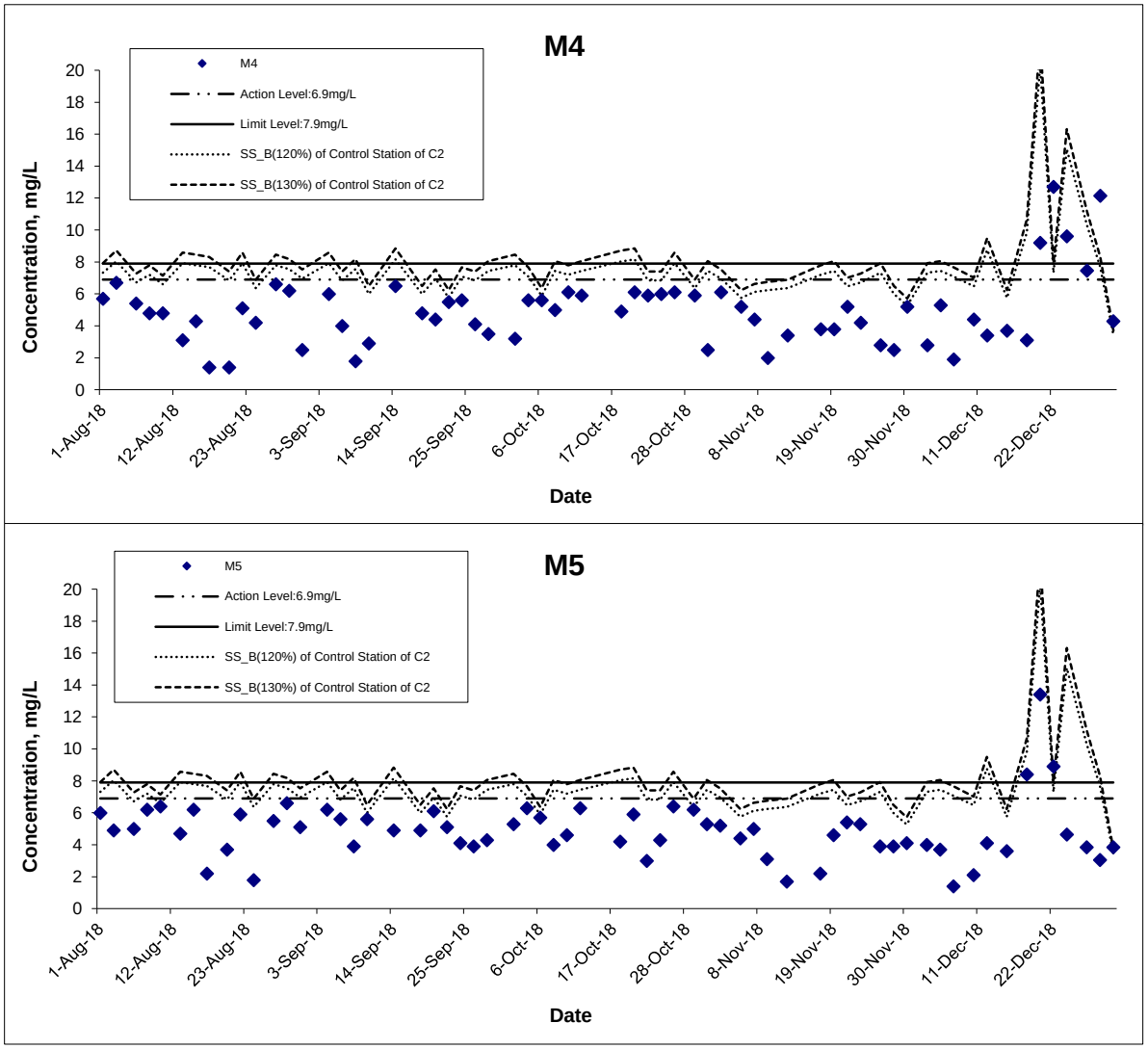
Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec 18	Appendix: I	

Suspended Solids (Bottom) at Mid-Ebb Tide



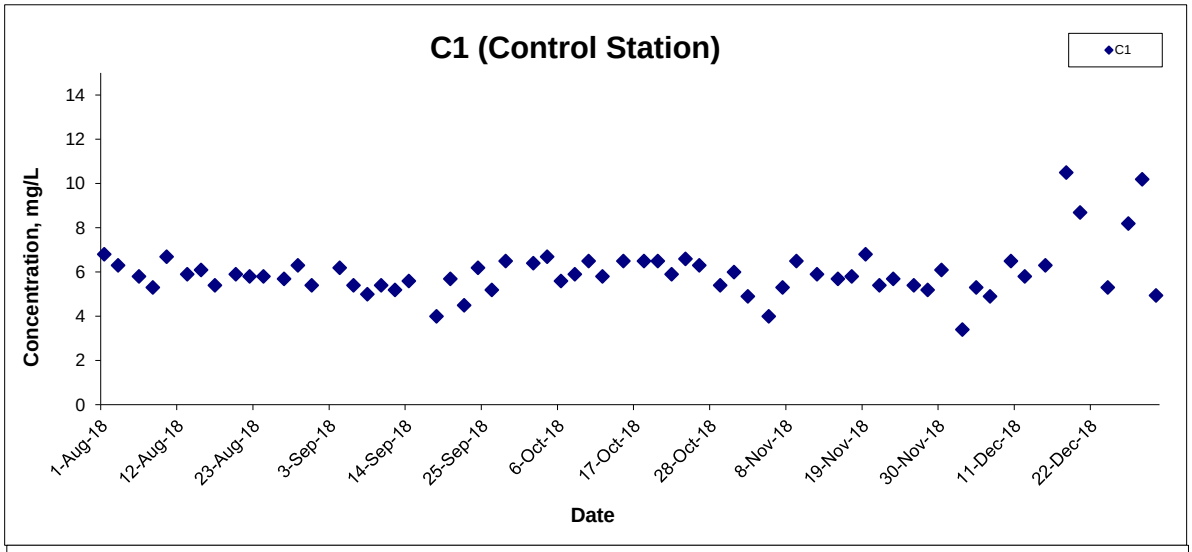
Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S Date Dec 18	Project No. MA16034 Appendix I	CINOTECH

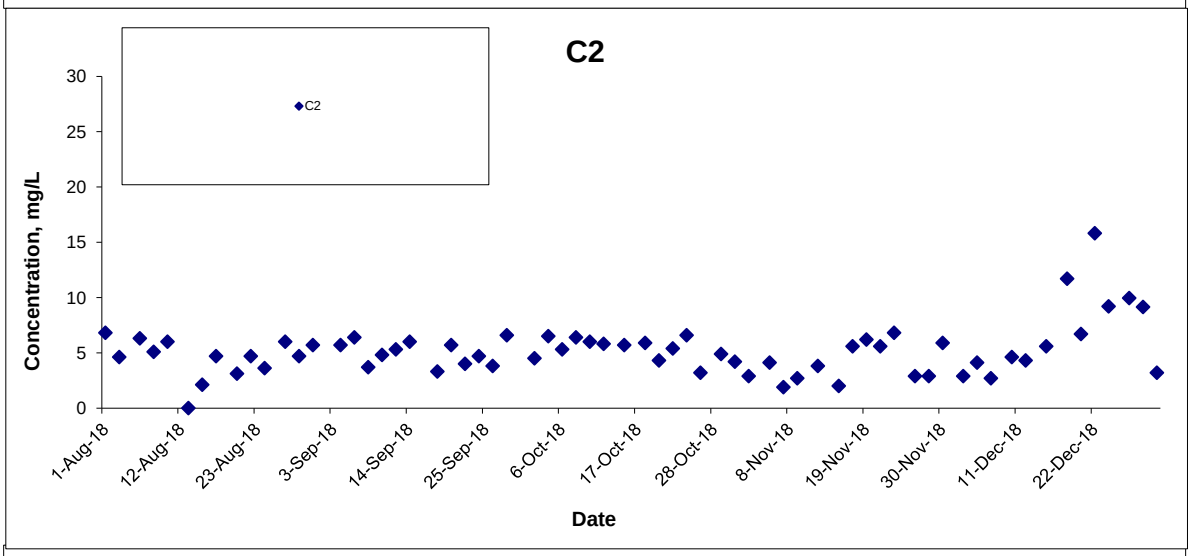
Suspended Solids (Bottom) at Mid-Ebb Tide

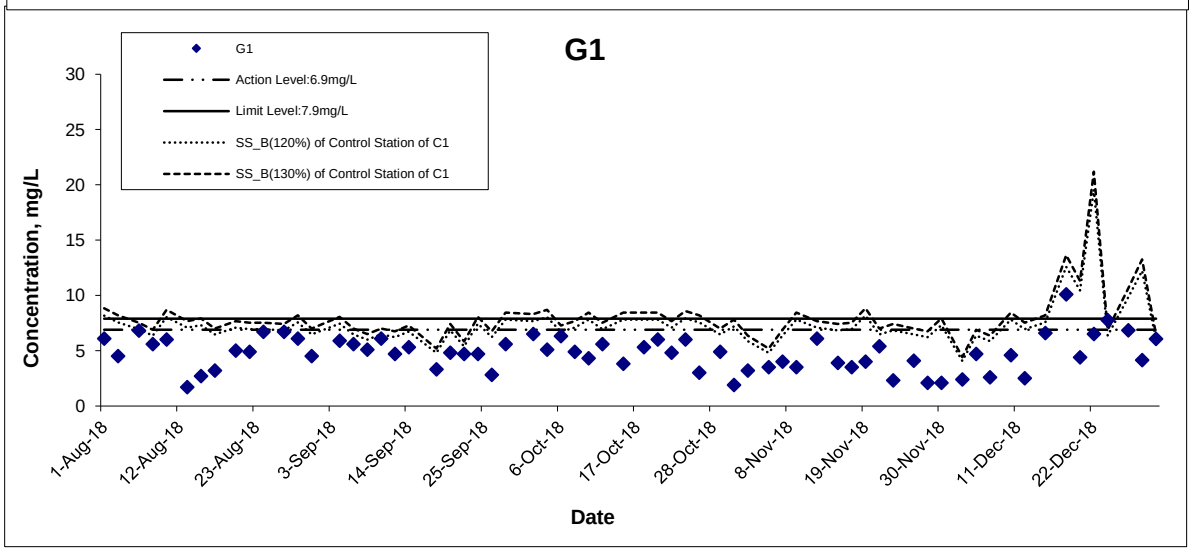


Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec 18	Appendix: I	

Suspended Solids (Bottom) at Mid-Flood Tide



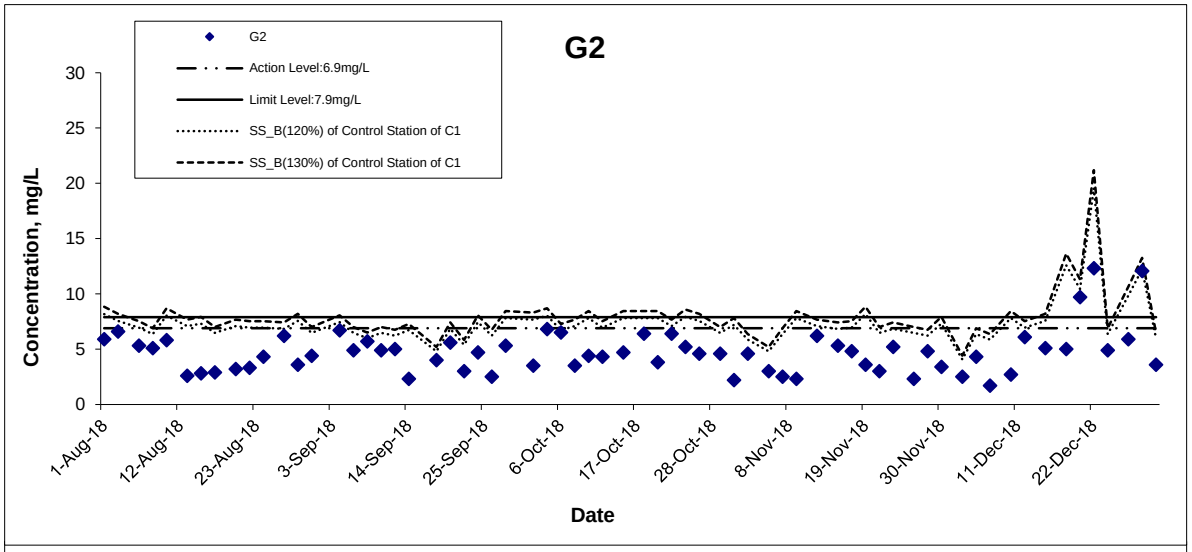


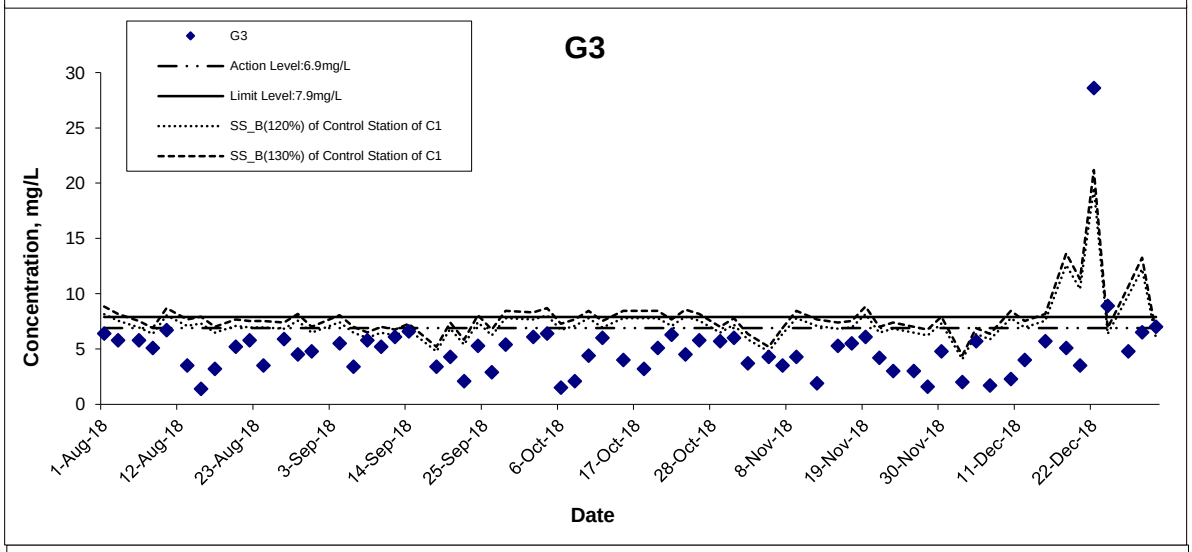


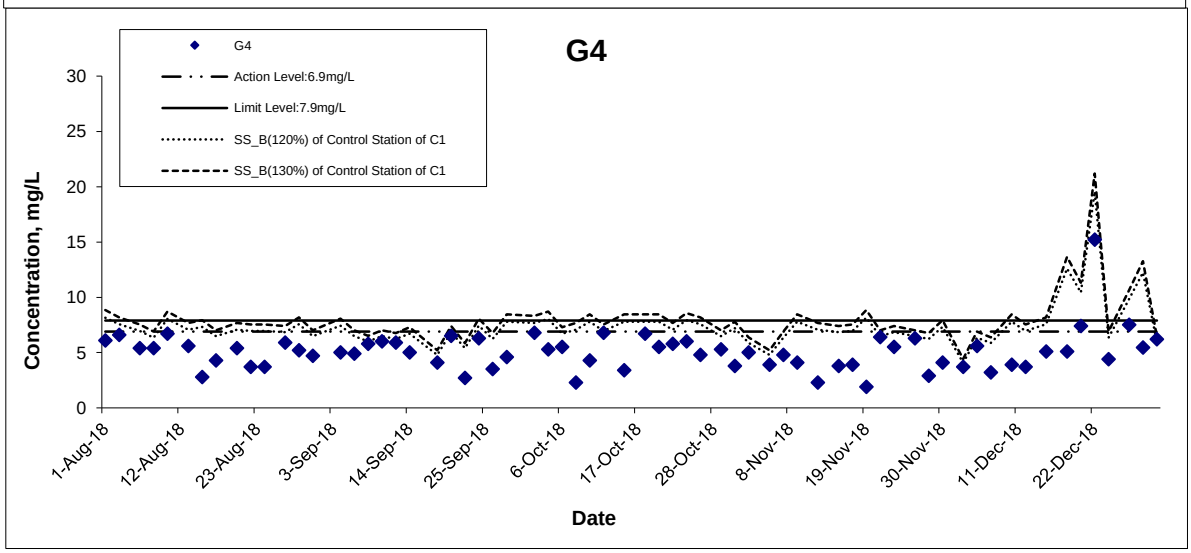
Title	Scale	Project No.
Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	N.T.S	MA16034
	Date: Dec 18	Appendix: I

CINOTECH

Suspended Solids (Bottom) at Mid-Flood Tide



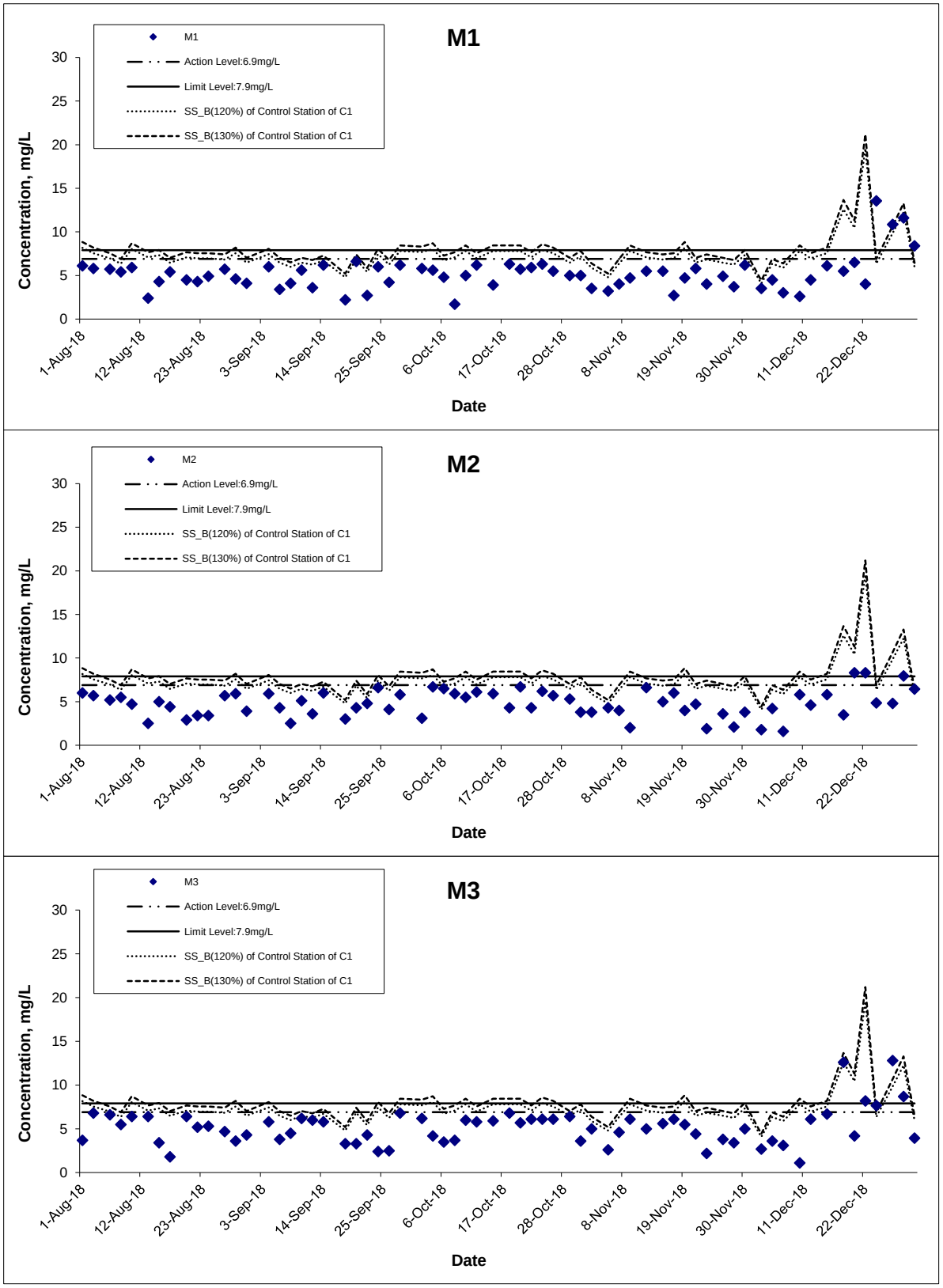




Title	Scale	Project No.
Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	N.T.S	MA16034
	Date: Dec 18	Appendix: I

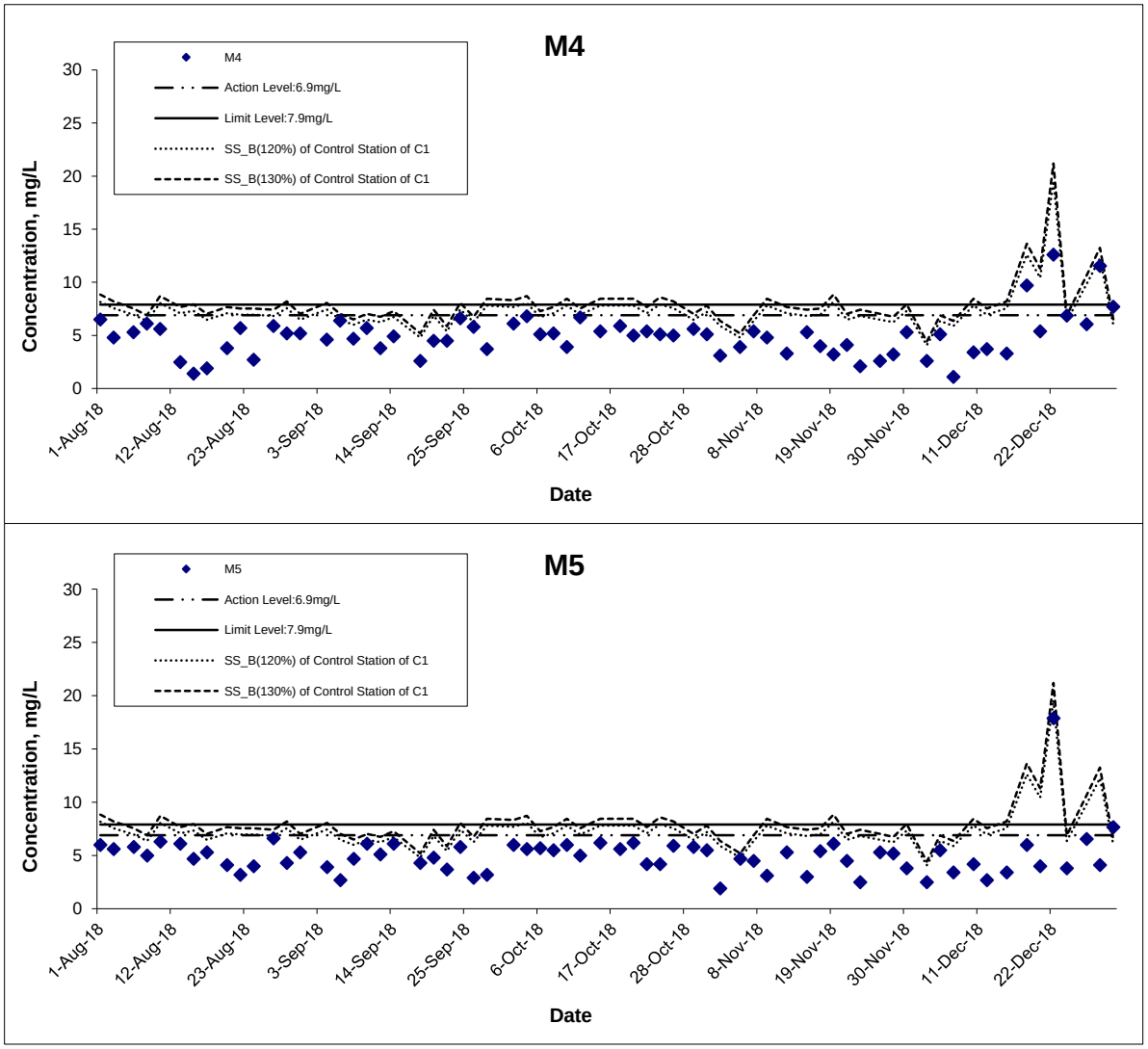
CINOTECH

Suspended Solids (Bottom) at Mid-Flood Tide



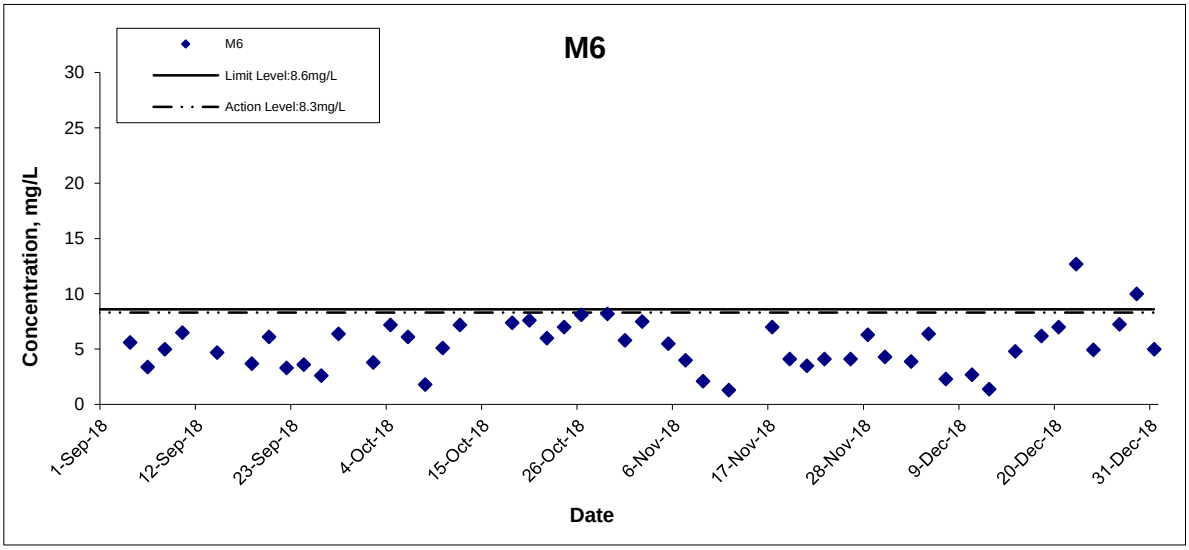
Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec 18	Appendix: I	

Suspended Solids (Bottom) at Mid-Flood Tide



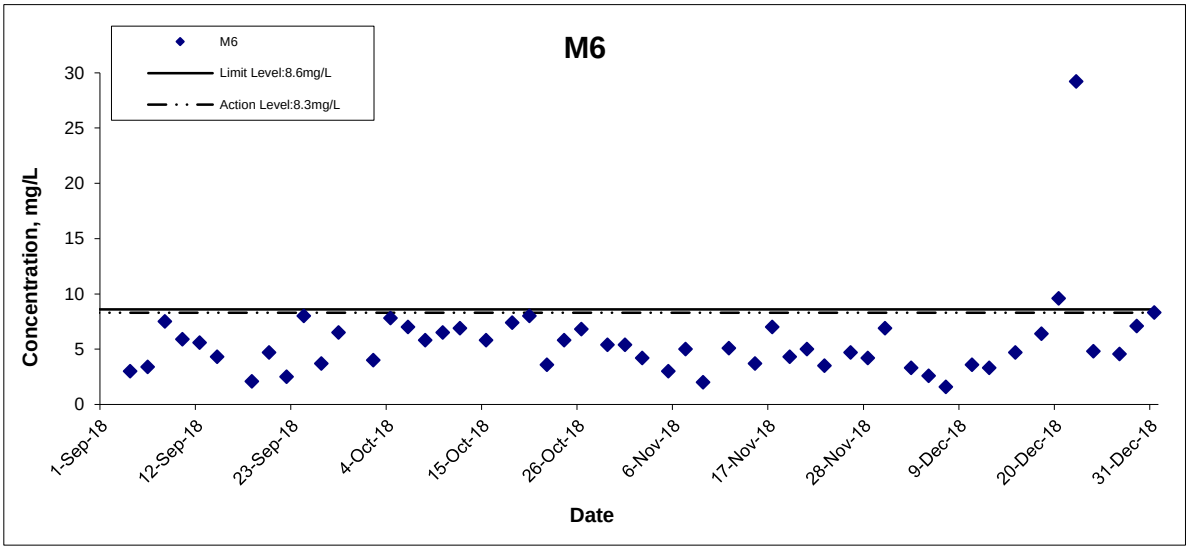
Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec 18	Appendix: I	

Suspended Solids (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S Date Dec 18	Project No. MA16034 Appendix I	CINOTECH

Suspended Solids (Intake Level of WSD Salt Water Intake) at Mid-Flood Tide



Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Dec 18	Project No.: MA16034 Appendix: I	CINOTECH

Water Quality Monitoring Results at W1 - Mid-Ebb Tide

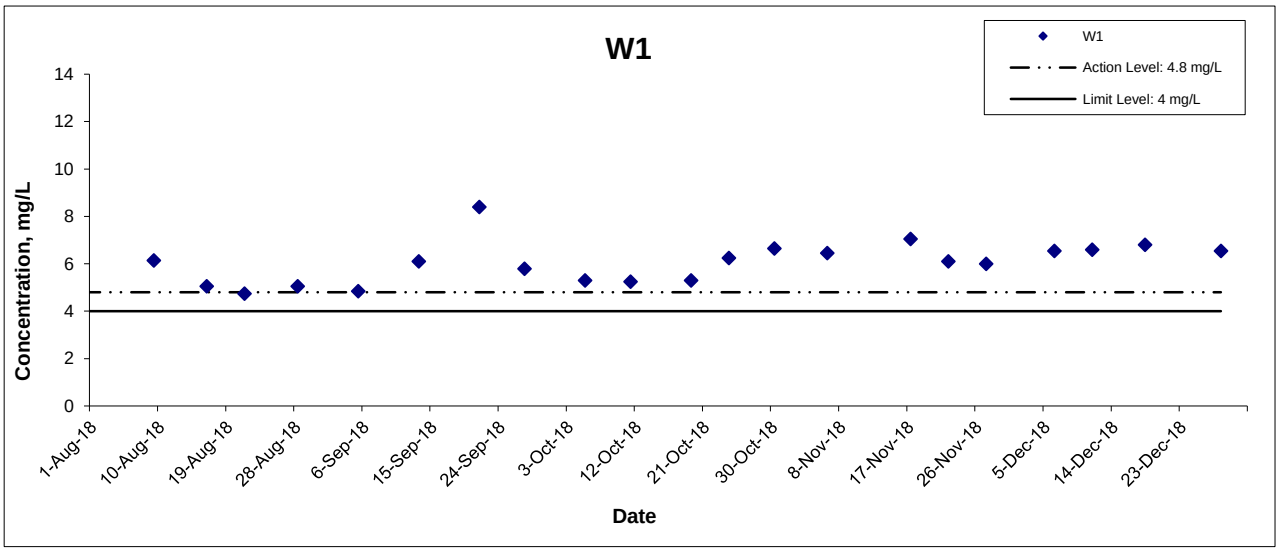
Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*
6-Dec-18	Cloudy	Calm	10:50	Surface	1	23.3 23.2	23.3	8.0 8.0	8.0	31.7 31.7	31.7	92.4 92.3	92.4	6.6 6.6	6.6	6.6
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-	
				Bottom	2.6	23.2 23.3	23.3	8.0 8.0	8.0	31.8 31.8	31.8	91.6 91.7	91.7	6.5 6.5	6.5	6.5
11-Dec-18	Sunny	Calm	15:34	Surface	1	22.2 22.3	22.3	8.2 8.2	8.2	32.1 32.0	32.1	94.6 89.7	92.2	6.8 6.5	6.7	6.7
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-	
				Bottom	3.3	22.3 22.3	22.3	8.2 8.2	8.2	32.0 32.0	32.0	90.3 89.5	89.9	6.5 6.5	6.5	6.5
18-Nov-18	Sunny	Moderate	10:02	Surface	1	21.0 21.0	21.0	8.1 8.2	8.2	32.0 32.0	32.0	92.8 91.4	92.1	6.9 6.8	6.9	6.9
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-	
				Bottom	2.8	21.0 21.0	21.0	8.2 8.2	8.2	32.0 32.0	32.0	91.0 91.2	91.1	6.7 6.7	6.7	6.7
28-Dec-18	Fine	Calm	17:21	Surface	1	21.1 21.1	21.1	8.0 8.1	8.1	32.4 32.4	32.4	89.4 89.5	89.5	6.6 6.6	6.6	6.6
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-	
				Bottom	3.2	21.1 21.1	21.1	8.0 8.1	8.1	32.4 32.4	32.4	88.4 88.7	88.6	6.5 6.5	6.5	6.5

Water Quality Monitoring Results at W1 - Mid-Flood Tide

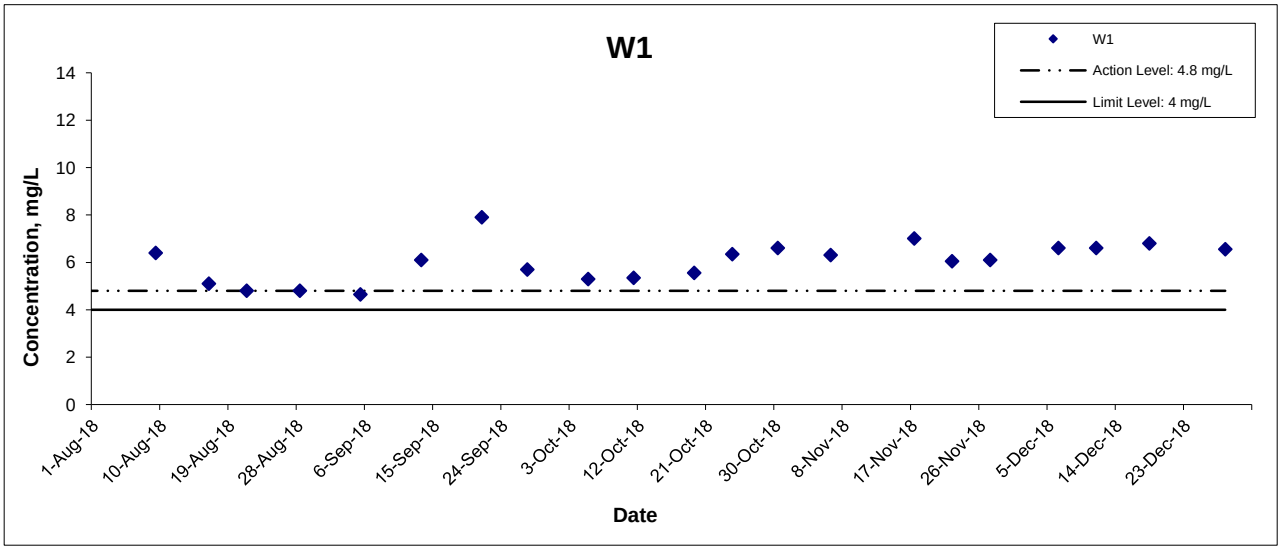
Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*
6-Dec-18	Cloudy	Calm	16:20	Surface	1	23.2 23.3	23.3	8.0 8.0	8.0	31.8 31.8	31.8	92.7 92.7	92.7	6.6 6.6	6.6	6.6
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-	
				Bottom	2.6	23.2 23.2	23.2	8.0 8.0	8.0	31.8 31.8	31.8	92.0 92.1	92.1	6.5 6.6	6.6	6.6
11-Dec-18	Sunny	Calm	10:42	Surface	1	22.3 22.3	22.3	8.2 8.2	8.2	32.0 32.0	32.0	93.9 89.7	91.8	6.8 6.5	6.7	6.7
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-	
				Bottom	3.4	22.3 22.3	22.3	8.2 8.2	8.2	32.0 32.0	32.0	89.9 89.5	89.7	6.5 6.5	6.5	6.5
18-Nov-18	Sunny	Moderate	15:05	Surface	1	21.0 21.0	21.0	8.2 8.2	8.2	32.0 32.0	32.0	91.5 91.2	91.4	6.8 6.7	6.8	6.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-	
				Bottom	2.8	21.0 21.0	21.0	8.2 8.2	8.2	32.0 32.0	32.0	91.3 91.7	91.5	6.8 6.8	6.8	6.8
28-Dec-18	Fine	Calm	10:39	Surface	1	21.1 21.1	21.1	8.0 8.0	8.0	32.4 32.4	32.4	90.0 89.6	89.8	6.6 6.6	6.6	6.6
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-	
				Bottom	3.3	21.0 21.1	21.1	8.0 8.0	8.0	32.4 32.4	32.4	88.7 88.4	88.6	6.5 6.5	6.5	6.5

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Dissolved Oxygen (Depth-Averaged) at Mid-Ebb Tide

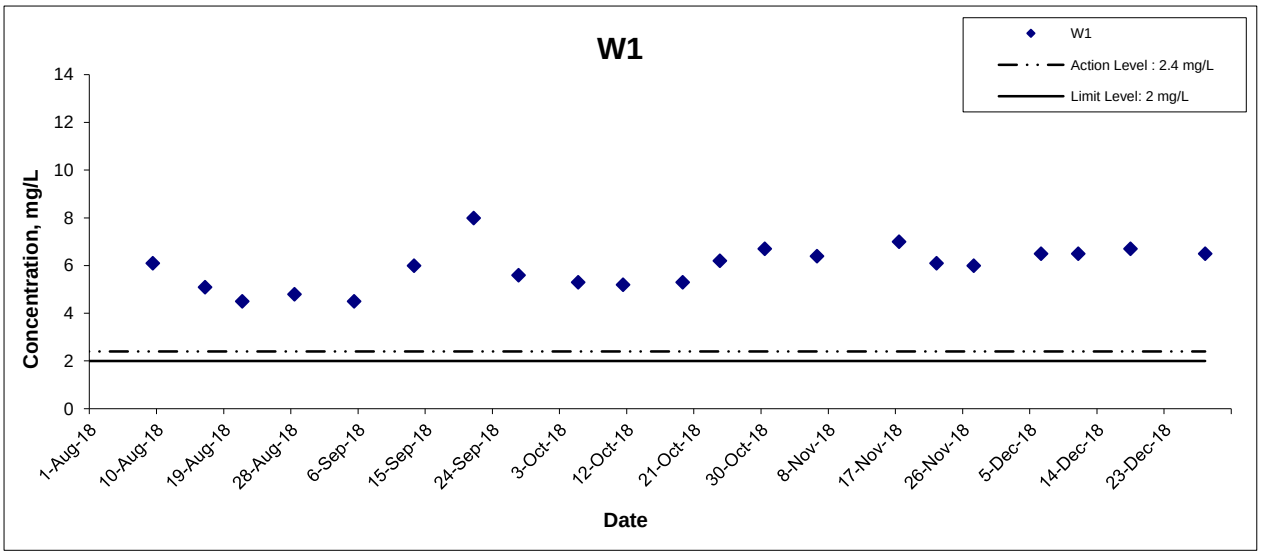


Dissolved Oxygen (Depth-Averaged) at Mid-Flood Tide

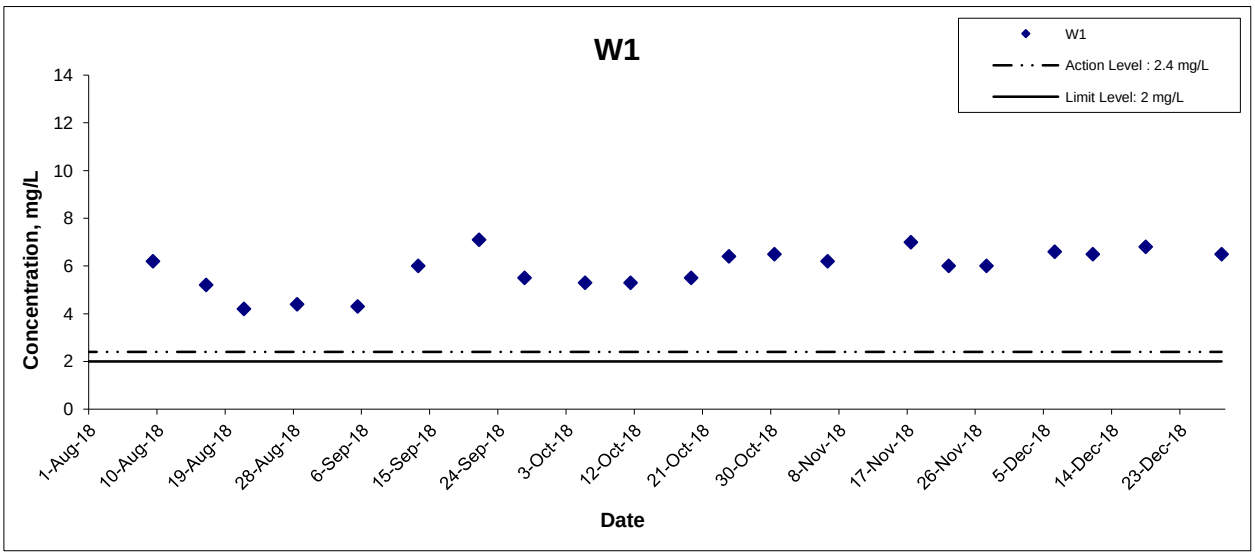


Title	Scale	Project No.	
Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Additional Water Quality Monitoring Results	N.T.S	MA16034	CINOTECH
	Date: Nov 18	Appendix: I	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



Dissolved Oxygen (Bottom) at Mid-Flood Tide



Title		Scale	Project No.	
	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction	N.T.S	MA16034	CINOTECH
	Graphical Presentation of AdditionalWater Quality Monitoring Results	Date: Nov 18	Appendix: I	

APPENDIX J
QUALITY CONTROL REPORTS FOR LABORATORY ANALYSIS

WELLAB LIMITED
Rms 1502, 1516, 1701-1702 & 1715-1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Report No.:	QC30372
Date of Issue:	2018-12-17
Date Received:	2018-12-06
Date Tested:	2018-12-06
Date Completed:	2018-12-17

ATTN: **Ms. Mei Ling Tang**
QC report:

Method Blank

Parameter	MB 1	Acceptance
Suspended Solids (SS) (mg/L)	<0.5	<0.5
Biochemical Oxygen Demand	N/A	N/A
Total Organic Carbon (mg-TOC/L)	<0.2	<0.2
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (mg NH_3-N/L)	<0.01	<0.01
Total Phosphorus (mg-P/L)	<0.01	<0.01

Method QC

Parameter	MQC1	Acceptance
Suspended Solids (SS) (%)	100	80-120
Biochemical Oxygen Demand (mg O_2/L)	192	170-220
Total Organic Carbon (%)	96	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	96	80-120
Total Phosphorus (%)	95	80-120

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 30372.

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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WELLAB LIMITED
Rms 1502, 1516, 1701-1702 & 1715-1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Report No.:	QC30372
Date of Issue:	2018-12-17
Date Received:	2018-12-06
Date Tested:	2018-12-06
Date Completed:	2018-12-17

QC report:

Sample Duplicate

Parameter	30372-3 chk	Acceptance
Suspended Solids (SS) (%)	2	RPD≤20%
Biochemical Oxygen Demand (%)	N/A	RPD≤20%
Total Organic Carbon (%)	3	RPD≤20%
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	N/A	RPD≤20%
Total Phosphorus (%)	N/A	RPD≤20%

Sample Spike

Parameter	30372-3 spk	Acceptance
Suspended Solids (SS) (%)	N/A	N/A
Biochemical Oxygen Demand (%)	N/A	N/A
Total Organic Carbon (%)	98	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	103	80-120
Total Phosphorus (%)	103	80-120

Remarks: 1) < = less than

2) N/A = Not applicable

3) This report is the summary of quality control data for report number 30372.

**********END OF REPORT**********

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WELLAB LIMITED
Rms 1502, 1516, 1701-1702 & 1715-1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Report No.:	QC30448
Date of Issue:	2018-12-31
Date Received:	2018-12-18
Date Tested:	2018-12-18
Date Completed:	2018-12-31

ATTN: **Ms. Mei Ling Tang**
QC report:

Method Blank

Parameter	MB 1	Acceptance
Suspended Solids (SS) (mg/L)	<0.5	<0.5
Biochemical Oxygen Demand	N/A	N/A
Total Organic Carbon (mg-TOC/L)	<0.2	<0.2
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (mg NH_3-N/L)	<0.01	<0.01
Total Phosphorus (mg-P/L)	<0.01	<0.01

Method QC

Parameter	MQC1	Acceptance
Suspended Solids (SS) (%)	101	80-120
Biochemical Oxygen Demand (mg O_2/L)	192	170-220
Total Organic Carbon (%)	98	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	101	80-120
Total Phosphorus (%)	93	80-120

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 30448.

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Report No.:	QC30448
Date of Issue:	2018-12-31
Date Received:	2018-12-18
Date Tested:	2018-12-18
Date Completed:	2018-12-31

QC report:

Sample Duplicate

Parameter	30448-3 chk	Acceptance
Suspended Solids (SS) (%)	3	RPD≤20%
Biochemical Oxygen Demand (%)	N/A	RPD≤20%
Total Organic Carbon (%)	3	RPD≤20%
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	N/A	RPD≤20%
Total Phosphorus (%)	4	RPD≤20%

Sample Spike

Parameter	30448-3 spk	Acceptance
Suspended Solids (SS) (%)	N/A	N/A
Biochemical Oxygen Demand (%)	N/A	N/A
Total Organic Carbon (%)	99	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	102	80-120
Total Phosphorus (%)	93	80-120

Remarks: 1) < = less than

2) N/A = Not applicable

3) This report is the summary of quality control data for report number 30448.

**********END OF REPORT**********

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APPENDIX K
SUMMARY OF EXCEEDANCE

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction

Appendix K – Summary of Exceedance

Reporting Period: December 2018

(A) Exceedance Report for Air Quality
(NIL in the reporting month)

(B) Exceedance Report for Construction Noise

Action Level for Construction Noise
(Nine (9) Action Level exceedances were recorded due to the documented complaints received in this reporting month.)

Limit Level for Construction Noise
(Twelve (12) Limit Level exceedances for nighttime construction noise monitoring were recorded in the reporting month. The limit level exceedances at nighttime were considered non-Project related. One (1) Limit Level exceedance for daytime construction noise monitoring was recorded in the reporting month. The field staff identified rock breaking at Portion II and Portion IVC as the major noise source. The limit level exceedance was considered Project related. Further investigation has been started.)

Exceedance recorded during night-time

Date	Monitoring Location	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Limit Level
07 December 2018	CM1	68.1	60.5 (54.4 – 69.8)	***67.3***	55
14 December 2018		68.3		***67.5***	
21 December 2018		68.5		***67.8***	
28 December 2018		67.9		***67.0***	
07 December 2018	CM2	66.0	58.0 (50.8 – 66.8)	***65.3***	
14 December 2018		65.1		***64.2***	
21 December 2018		64.3		***63.1***	
28 December 2018		64.8		***63.8***	
08 December 2018	CM3	63.7	60.2 (53.0 – 67.4)	***61.1***	
14 December 2018		64.6		***62.6***	
22 December 2018		63.0		***59.8***	
28 December 2018		64.4		***62.3***	

Exceedance recorded during daytime

Date	Monitoring Location	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Limit Level
28 December 2018	CM3	77.1	68.2	***65.6***	75
		77.3		***77.0***	

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction

Appendix K – Summary of Exceedance

(C) Exceedance Report for Water Quality
(Twenty-three (23) Action Level and one hundred and seventy (170) Limit Level exceedance in marine water quality monitoring. Refer to next page for details. The reasons are under investigation).

(Three (3) action level and four (4) Limit Level exceedances in groundwater quality monitoring as follows. The exceedances are considered not project-related as detailed in relevant notification of exceedance below.)

Date	Monitoring Location	Monitoring Parameter	Monitoring Results	Action Level	Limit Level
2018/12/18	Stream 3	**SS**	***8***	7.6	12.1
2018/12/18	Stream 2	Total Nitrogen	***2.3***	2	2.1
	Stream 3		***2.3***	2	2.1
2018/12/6	Stream 1	Total Phosphorus	***0.14***	0.05	0.05
	Stream 2		***0.14***	0.05	0.05
2018/12/18	Stream 2	Total Phosphorus	***0.11***	0.05	0.05
	Stream 3		***0.11***	0.05	0.05

Note: ***Bold Italic*** **means Action Level exceedance**
Bold Italic with underline means Limit Level exceedance**.**

(D) Exceedance Report for Ecology
(NIL in the reporting month)

(E) Exceedance Report for Cultural Heritage
(NIL in the reporting month)

(F) Exceedance Report for Landfill Gas
(NIL in the reporting month)

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel
- Notification of Exceedances

NOE No. 181207_noise (CM1-CM3) **Exceedance Level:** Limit

Time of Measurement: 23:00-00:40

Date of Noise Monitoring: 7 December 2018 – 8 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	23:00-23:15	68.1	60.5 (54.4 – 69.8)	***67.3***	When one documented complaint is received.	**55.0**	Limit
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	23:30-23:45	66.0	58.0 (50.8 – 66.8)	***65.3***			
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	00:25-00:40	63.7	60.2 (53.0 – 67.4)	***61.1***			

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM1, CM2 & CM3 exceeded the construction noise (night time) limit level.

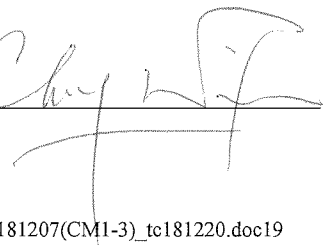
(b) Cause of exceedance(s)

The exceedance was not considered related to the Project works:

- According to our field observation, road traffic noise was identified as the dominant noise source. No noticeable noise from blasting / associated works was identified.
- No major construction activity was observed in Lam Tin Interchange during monitoring.

Part B – Conclusion: The exceedances of night time noise limit level were not due to the Project. Only blasting associated works inside the tunnel were being conducted with blast door closed, thus, noise generated within the tunnel should not be associated with the exceedance.

Part C – Recommendation: No further action is required.

ETL Signature:  Date: 20 December, 2018

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel
- Notification of Exceedances

NOE No. 181214_noise (CM1-CM3) **Exceedance Level**: Limit

Time of Measurement: 23:00-00:10

Date of Noise Monitoring: 14 December 2018 – 15 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	23:00-23:15	68.3	60.5 (54.4 – 69.8)	***67.5***	When one documented complaint is received.	**55.0**	Limit
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	23:25-23:40	65.1	58.0 (50.8 – 66.8)	***64.2***			
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	23:55-00:10	64.6	60.2 (53.0 – 67.4)	***62.6***			

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM1, CM2 & CM3 exceeded the construction noise (night time) limit level.

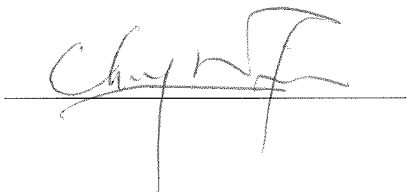
(b) Cause of exceedance(s)

The exceedance was not considered related to the Project works:

- According to our field observation, road traffic noise was identified as the dominant noise source. No noticeable noise from blasting / associated works was identified.
- No major construction activity was observed in Lam Tin Interchange during monitoring.

Part B – Conclusion: The exceedances of night time noise limit level were not due to the Project. Only blasting associated works inside the tunnel were being conducted with blast door closed, thus, noise generated within the tunnel should not be associated with the exceedance.

Part C – Recommendation: No further action is required.

ETL Signature:  Date: 20 December, 2018

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel
- Notification of Exceedances

NOE No. 181221_noise (CM1-CM3) **Exceedance Level**: Limit

Time of Measurement: 23:00-00:40

Date of Noise Monitoring: 21 December 2018 – 22 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	23:00-23:15	68.5	60.5 (54.4 – 69.8)	***67.8***	When one documented complaint is received.	**55.0**	Limit
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	23:25-23:40	64.3	58.0 (50.8 – 66.8)	***63.1***			
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	00:25-00:40	63.0	60.2 (53.0 – 67.4)	***59.8***			

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM1, CM2 & CM3 exceeded the construction noise (night time) limit level.

(b) Cause of exceedance(s)

The exceedance was not considered related to the Project works:

- According to our field observation, road traffic noise was identified as the dominant noise source. No noticeable noise from blasting / associated works was identified.
- No major construction activity was observed in Lam Tin Interchange during monitoring.

Part B – Conclusion: The exceedances of night time noise limit level were not due to the Project. Only blasting associated works inside the tunnel were being conducted with blast door closed, thus, noise generated within the tunnel should not be associated with the exceedance.

Part C – Recommendation: No further action is required.

ETL Signature: _____ Date: 31 December, 2018

Agreement No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction
- Notification of Environmental Quality Limit Exceedances

Date of Noise Monitoring: 28 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	16:10	77.1	68.2	***76.8***	When one documented complaint is received	**75**	Limit
		16:45	77.3		***77.0***			

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel
- Notification of Exceedances

NOE No. 181228_noise (CM1-CM3) **Exceedance Level:** Limit

Time of Measurement: 23:00-00:15

Date of Noise Monitoring: 28 December 2018 – 29 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	23:00-23:15	67.9	60.5 (54.4 – 69.8)	***67.0***	When one documented complaint is received.	**55.0**	Limit
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	23:30-23:45	64.8	58.0 (50.8 – 66.8)	***63.8***			
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	00:00-00:15	64.4	60.2 (53.0 – 67.4)	***62.3***			

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM1, CM2 & CM3 exceeded the construction noise (night time) limit level.

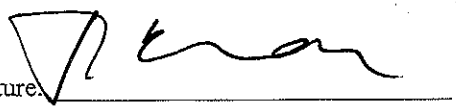
(b) Cause of exceedance(s)

The exceedance was not considered related to the Project works:

- According to our field observation, road traffic noise was identified as the dominant noise source. No noticeable noise from blasting / associated works was identified.
- No major construction activity was observed in Lam Tin Interchange during monitoring.

Part B – Conclusion: The exceedances of night time noise limit level were not due to the Project. Only blasting associated works inside the tunnel were being conducted with blast door closed, thus, noise generated within the tunnel should not be associated with the exceedance.

Part C – Recommendation: No further action is required.

ETL Signature: 

Date: 4 January, 2019

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 18 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	Surface	14.4	G1	09:12	6.0	6.9	17.3	18.7	***10.8***
				M4	08:57	6.2	7.4			***6.6***
		Bottom	8.2	G3	09:17	6.9	7.9	9.8	10.7	***7.7***
				M1	09:08					***8.5***
				M5	09:31					***8.4***
Mid-Flood	C1	Surface	10.1	G2	15:06	6.0	6.9	12.1	13.1	***7.1***
				M2	15:01	6.2	7.4			***9.6***
				M4	14:54					***11.7***
		Bottom	10.5	G1	15:15	6.9	7.9	12.6	13.7	***10.1***
				M3	15:21					***12.6***
				M4	14:54					***9.7***

Note: ***Bold Italic*** means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 20 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	Surface	20.2	G1	10:59	6.0	6.9	24.2	26.3	***18.2***
				G2	10:50					***24.0***
				G3	11:04					***21.5***
				G4	11:15					***10.3***
				M1	10:54	6.2	7.4			***12.8***
				M2	10:44					***15.2***
				M3	11:10					***7.7***
				M4	10:37					***7.7***
				M5	11:31					***6.5***
		Bottom	16.9	G1	10:59	6.9	7.9	20.3	22.0	***12.5***
				G2	10:50					***18.5***
				G3	11:04					***13.3***
				G4	11:15					***11.4***
				M1	10:54					***11.3***
				M2	10:44					***7.8***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	***Measured Value (mg/L)***
Mid-Ebb	C2	Bottom	16.9	M3	11:10	6.9	7.9	20.3	22.0	***<u>10.2</u>***
				M4	10:37					***<u>9.2</u>***
				M5	11:31					***<u>13.4</u>***
Mid-Flood	C1	Surface	11.6	G1	15:55	6.0	6.9	13.9	15.1	***<u>7.4</u>***
				G2	15:46					***<u>8.3</u>***
				G3	15:59					***<u>9.9</u>***
				M1	15:50	6.2	7.4			***<u>11.1</u>***
				M2	15:39					***7.3***
				M3	16:04					***<u>7.7</u>***
				M4	15:33					***<u>12.3</u>***
				M5	16:21					***<u>7.8</u>***
		Intake Level	n.a.	M6	16:15	8.3	8.6	n.a.	n.a.	***<u>9.6</u>***
		Bottom	8.7	G2	15:46	6.9	7.9	10.4	11.3	***<u>9.7</u>***
				G4	16:09					***7.4***
				M2	15:39					***<u>8.3</u>***

Note: ***Bold Italic*** means Action Level exceedance
<u>Bold Italic with underline</u> means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 22 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	Surface	10.0	G1	12:17	6.0	6.9	12.0	13.0	***8.9***
				G2	12:08					***7.6***
				G3	12:21					***11.5***
				M2	12:03	6.2	7.4			***22.3***
				M3	12:25					***20.3***
				M4	11:58					***9.3***
				M5	12:40					***11.4***
		Intake Level	n.a.	M6	12:36	8.3	8.6	n.a.	n.a.	***12.7***
		Bottom	6.1	G1	12:17	6.9	7.9	7.3	7.9	***7.7***
				G3	12:21					***8.3***
				G4	12:31					***11.6***
				M1	12:13					***14.5***
				M3	12:25					***12.9***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	***Measured Value (mg/L)***
Mid-Ebb	C2	Bottom	6.1	M4	11:58	6.9	7.9	7.3	7.9	***12.7***
				M5	12:40					***8.9***
Mid-Flood	C1	Surface	6.4	G1	16:41	6.0	6.9	7.7	8.3	***13.5***
				G3	16:37					***15.2***
				G4	16:29					***13.0***
				M1	16:47	6.2	7.4			***22.9***
				M3	16:33					***20.9***
				M4	17:01					***8.5***
				M5	16:21					***15.2***
		Intake Level	n.a.	M6	16:27	8.3	8.6	n.a.	n.a.	***29.2***
		Bottom	16.3	G2	16:51	6.9	7.9	20.0	21.2	***12.3***
				G3	16:37					***28.6***
				G4	16:29					***15.2***
				M2	16:56					***8.3***
				M3	16:33					***8.2***
				M4	17:01					***12.6***
				M5	16:21					***17.9***

Note: ***Bold Italic*** means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 24 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) /~~ Turbidity (TURB) ~~/ Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-Ebb	C2	1.7	G1	13:33	2.0	2.2	***2.1***
						G2	13:23			***6.2***
						M1	13:28			***3.8***
						M2	13:19			***2.5***
						M4	13:08			***2.8***
						M5	14:18			***2.9***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Table II: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	Surface	6.6	G1	13:33	6.0	6.9	7.9	8.5	***7.6***
				G2	13:23					***6.5***
				G4	14:09					***7.3***
				M2	13:19	6.2	7.4			***18.8***
				M4	13:08					***8.1***
				M5	14:18					***13.2***
		Bottom	12.6	G2	13:23	6.9	7.9	15.1	16.3	***18.8***
				G3	13:38					***9.5***
				G4	14:09					***8.0***
				M1	13:28					***9.6***
				M2	13:19					***15.4***
				M3	13:41					***11.4***
				M4	13:08					***9.6***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	***Measured Value (mg/L)***
Mid-Flood	C1	Surface	3.5	G1	08:27	6.0	6.9	4.1	4.5	***<u>11.8</u>***
				G2	08:15					***<u>6.3</u>***
				G3	08:32					***<u>6.3</u>***
				G4	09:13					***<u>26.3</u>***
				M1	08:21	6.2	7.4			***<u>5.5</u>***
				M2	08:10					***<u>12.2</u>***
				M4	08:03					***<u>5.7</u>***
				M5	09:23					***<u>11.5</u>***
		Bottom	5.3	G1	08:27	6.9	7.9	6.4	6.9	***<u>7.8</u>***
				G3	08:32					***<u>8.9</u>***
				M1	08:21					***<u>13.6</u>***
				M3	08:36					***<u>7.7</u>***
				M4	08:03					***6.9***

Note: ***Bold Italic*** means Action Level exceedance
<u>Bold Italic with underline</u> means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 27 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) /~~ Turbidity (TURB) ~~/ Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-flood	C1	2.0	G1	09:54	2.4	2.6	***2.9***
						M1	09:50			***2.7***
						M3	09:59			***2.6***
						M5	10:22			***2.8***

Table II: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	***Measured Value (mg/L)***
Mid-Flood	C1	Surface	5.0	G3	09:57	6.0	6.9	5.9	6.4	***9.1***
				M1	09:50	6.2	7.4			***13.6***
				M4	09:39					***11.0***
		Bottom	8.2	G4	10:16	6.9	7.9	9.8	10.7	***7.5***
				M1	09:50					***10.9***
				M3	09:59					***12.8***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	Surface	3.2	G2	15:02	6.0	6.9	3.8	4.1	***4.1***
				G3	15:14					***14.0***
				G4	15:32					***3.9***
				M1	15:08	6.2	7.4			***7.4***
				M2	14:59					***6.1***
				M3	15:16					***6.6***
				M4	14:55					***6.5***
				M5	15:39					***5.6***
		Bottom	8.6	G4	15:32	6.9	7.9	10.3	11.2	***7.0***
				M3	15:16					***7.2***
				M4	14:55					***7.5***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 29 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) /~~ Turbidity (TURB) ~~/ Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-ebb	C2	2.5	G1	17:45	3.0	3.2	***3.4***
						G3	17:49			***3.5***
						G4	18:19			***3.2***
						M1	17:40			***4.2***
			Mid-flood	C1	2.3	G3	12:50	2.8	3.0	***3.1***
						M3	12:54			***3.1***
						M4	12:15			***2.9***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Table II: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	Surface	7.4	G1	17:45	6.0	6.9	8.8	9.6	***7.2***
				G2	17:35					***9.1***
				G3	17:49					***7.0***
				G4	18:19					***9.5***
				M1	17:40	6.2	7.4			***16.5***
				M2	17:30					***10.2***
				M3	17:52					***12.8***
				M4	17:25					***10.2***
				M5	18:28					***14.7***
		Intake	n.a.	M6	18:23	8.3	8.6	n.a.	n.a.	***10.0***
		Bottom	6.4	G3	17:49	6.9	7.9	7.7	8.3	***9.0***
				G4	18:19					***9.7***
				M1	17:40					***9.8***
				M2	17:30					***14.0***
				M3	17:52					***12.7***
				M4	17:25					***12.2***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	***Measured Value (mg/L)***
Mid-Flood	C1	Surface	5.8	G1	12:47	6.0	6.9	7.0	7.5	***<u>16.8</u>***
				G3	12:50					***<u>7.0</u>***
				G4	13:16					***<u>10.1</u>***
				M1	12:43	6.2	7.4			***<u>17.0</u>***
				M2	12:19					***<u>13.2</u>***
		Bottom	10.2	G2	12:24	6.9	7.9	12.2	13.3	***<u>12.1</u>***
				M1	12:43					***<u>11.6</u>***
				M2	12:19					***<u>8.0</u>***
				M3	12:54					***<u>8.7</u>***
				M4	12:15					***<u>11.6</u>***

Note: ***Bold Italic*** means Action Level exceedance
<u>Bold Italic with underline</u> means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 31 December 2018

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) /~~ Turbidity (TURB) ~~/ Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-ebb	C2	1.8	G1	08:21	2.1	2.3	***3.2***
						G3	08:24			***3.3***
						G4	08:33			***2.5***
						M2	08:09			***2.9***
						M3	08:28			***2.6***
						M4	08:05			***2.8***
						M5	09:05			***2.2***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Table II: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	Surface	2.7	G2	08:13	6.0	6.9	3.2	3.4	***3.9***
				G3	08:24					***12.8***
				G4	08:33					***4.6***
				M1	08:17	6.2	7.4			***6.1***
				M3	08:28					***7.5***
				M4	08:05					***8.0***
		Bottom	2.9	G1	08:21	6.9	7.9	3.4	3.7	***3.6***
				G2	08:13					***5.8***
				G3	08:24					***6.5***
				G4	08:33					***6.9***
				M3	08:28					***6.8***
				M4	08:05					***4.3***
				M5	09:05					***3.9***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	***Measured Value (mg/L)***
Mid-Flood	C1	Surface	3.9	G1	13:40	6.0	6.9	4.6	5.0	***<u>7.0</u>***
				G2	13:30					***<u>13.4</u>***
				G3	13:44					***<u>5.7</u>***
				G4	13:54					***<u>5.4</u>***
				M1	13:35	6.2	7.4			***<u>5.3</u>***
				M2	13:26					***<u>6.9</u>***
				M3	13:48					***<u>5.7</u>***
				M4	13:22					***4.8***
				M5	14:28					***<u>9.4</u>***
		Bottom	5.0	G1	13:40	6.9	7.9	5.9	6.4	***6.1***
				G3	13:44					***<u>7.0</u>***
				G4	13:54					***6.2***
				M1	13:35					***<u>8.4</u>***
				M2	13:26					***<u>6.5</u>***
				M4	13:22					***<u>7.7</u>***
				M5	14:28					***<u>7.7</u>***

Note: ***Bold Italic*** means Action Level exceedance
<u>Bold Italic with underline</u> means Limit Level exceedance

Agreement No. CE 59/2015 (EP)
ET for Tseung Kwan O – Lam Tin Tunnel
Design and Construction

- Notification and Investigation Report for Environmental Quality Action & Limit Exceedances

Monitoring Parameter: Groundwater Quality

Date of Monitoring: 18 December 2018

Part A – Summary of Exceedance Records

Date	Monitoring Parameter	Monitoring Location	Monitoring Results	Action Level	Limit Level	Justification*	Exceedance due to the Project
06 December 2018	Total Phosphorus (mg-P/L)	Stream 1	***0.14***	0.05	0.05	(1)	No
06 December 2018	Total Phosphorus (mg-P/L)	Stream 2	***0.14***	0.05	0.05	(2)	No
18 December 2018	Total Phosphorus (mg-P/L)	Stream 2	***0.11***	0.05	0.05	(2)	No
18 December 2018	Total Phosphorus (mg-P/L)	Stream 3	***0.11***	0.05	0.05	(2)	No
18 December 2018	SS (mg/L)	Stream 3	***8***	7.6	12.1	(2)	No

Note: **Bold Italic** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks
(1) –Stream 1 is at a higher ground level than the construction site, therefore construction runoff cannot reach Stream 1.
(2) –The distance between the tunnel construction activities and monitoring stations of stream 2 and 3 are about 1000 meters.

Part B – Conclusions:

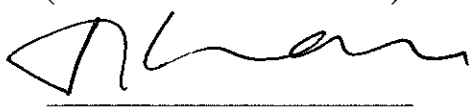
1. Based on the justifications in the above table, there is no direct evidence showing that the exceedances were due to Project. The exceedances are considered properly due to non-project related factor, such as, the degradation of naturally occurring organic matter, manmade sources or domestic sewage (as observed and reported in the EIA report).
2. No increase in monitoring frequency for groundwater quality monitoring and no further action are required.

Part C – Recommendations

The monitoring of stream water is considered not representative to monitor the potential impacts on groundwater due to the Project after consideration of the location & elevation of the stream(s) and the non-project related factors (e.g. human activities etc.).

Therefore, ET recommends to suspend the water quality monitoring for the streams in accordance with the EM&A Manual, Section 4. For the details, please refer to the separate proposal for suspension of stream water monitoring.

Reviewed by: Dr. HF Chan (Environmental Team Leader) Date: 2 January, 2019

Signature: 

APPENDIX L
SITE AUDIT SUMMARY

Appendix L - Site Audit Summary (December 2018)

Contract No. NE/2015/01
Tseung Kwan O - Lam Tin Tunnel - Main Tunnel and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
The Contractor is reminded to connect the discharge outlet of the washing machine to the wastewater treatment facility.	05 December 2018	✓	Improved/rectified on 12 December 2018.
The Contractor is reminded to repair the damaged silt curtain and set it to the sea bottom.	05 December 2018	✓	Improved/rectified on 12 December 2018.
Noise			
Contractor was reminded to replace / repair the damaged noise barrier at LTI to reduce noise nuisance from breaking works.	05 December 2018	✓	Improved/rectified on 12 December 2018.
Damaged noise barrier was observed at LTI. Contractor should repair /replace the noise barrier to increase the effectiveness if noise reduction	12 December 2018	✕	Item remarked on 19 & 27 December 2018.
Sufficient noise barriers should be provided and used properly for noisy PMEs as practically at LTI according to CNMP.	19 December 2018	✕	Item remarked on 27 December 2018.
Landscape and Visual			
--	--	--	--
Air Quality			
The Contractor is reminded to apply water spray during excavation works.	05 December 2018	✓	Improved/rectified on 12 December 2018.
Dust emission was observed at LTI. Contractor should provide watering for dusty activities to prevent dust generation.	12 December 2018	✓	Improved/rectified on 19 December 2018.
Dusty stockpile was observed at LTI. Contractor should cover properly to prevent dust generation.	12 December 2018	✓	Improved/rectified on 19 December 2018.
Waste / Chemical Management			
The equipment should be stored in drip tray / designated area to avoid leakage of lubricant.	12 December 2018	✓	Improved/rectified on 19 December 2018.
Impact on Cultural Heritage			
--	--	--	--
Permits / Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month
∗ Non-compliance of mitigation measure
• Non-compliance but improved by the contractor

Appendix L - Site Audit Summary (December 2018)

Contract No. NE/2015/02

Tseung Kwan O - Lam Tin Tunnel - Road P2 and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Noise			
Noise barrier for sheet piling should be facing towards Ocean shores. Contractor will rectify the situation on the same day.	05 December 2018	✓	Improved/rectified on 12 December 2018.
Landscape and Visual			
--	--	--	--
Air Quality			
Dark smoke emission was observed from derrick barge (信達 21). Contractor should ensure the water filter is installed and functioning properly to avoid any dark smoke emission in Portion IX.	05 December 2018	✓	Improved/rectified on 12 December 2018.
Waste / Chemical Management			
Floating refuse was found in between cofferdam and silt curtain.	12 December 2018	✕	Item was not rectified and remarked on 19 December 2018
Floating rubbish was found in between cofferdam and silt curtain.	19 December 2018	✓	Improved/rectified on 27 December 2018.
Floating oil grease was found in the water gate.	19 December 2018	✓	Improved/rectified on 27 December 2018.
Impact on Cultural Heritage			
--	--	--	--
Permits / Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit

✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit

\# Follow up action will be reported in next reporting month

∗ Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

Appendix L - Site Audit Summary (December 2018)

Contract No. NE/2015/03
Tseung Kwan O - Lam Tin Tunnel - Northern Footbridge

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
--	--	--	--
Waste / Chemical Management			
General refuse should be cleared and disposed regularly.	12 December 2018	✓	Improved/rectified on 19 December 2018.
Impact on Cultural Heritage			
--	--	--	--
Permits / Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month

∗ Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor

Appendix L - Site Audit Summary (December 2018)

Contract No. NE/2017/01
Tseung Kwan O - Lam Tin Tunnel – Tsueng Kwan O Interchange and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
--	--	--	--
Waste / Chemical Management			
Equipment and materials were observed stored in the drip tray. Contractor should remove the equipemnt and material to increase the capacity of drip tray for chemical leakage.	04 December 2018	✓	Improved/rectified on 11 December 2018.
Dripping oil from bored piling machine on Wai Lung should be cleared.	27 December 2018	#	Follow up action will be reported in the next reporting month.
Impact on Cultural Heritage			
--	--	--	--
Permits / Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month

∗ Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor

Appendix L - Site Audit Summary (December 2018)

Contract No. NE/2017/02
Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
Gully should be covered with impervious material to avoid direct discharge.	28 November 2018	✓	Improved/rectified on 5 December 2018.
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
Stockpile should be covered with impervious material to avoid dust resuspension.	28 November 2018	✓	Improved/rectified on 5 December 2018.
Waste / Chemical Management			
--	--	--	--
Impact on Cultural Heritage			
--	--	--	--
Permits / Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month

∗ Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor

APPENDIX M
EVENT AND ACTION PLANS

Event and Action Plan for Air Quality (Dust)

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action level being exceeded by one sampling	1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER;	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
	8. If exceedance stops, cease additional monitoring.			
Limit level being exceeded by one sampling	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor ,IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit level being exceeded by two or more consecutive sampling	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily;	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals;

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
	5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	3. Supervise the implementation of remedial measures.	4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Construction Noise

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

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.			

Event and Action Plan for Marine Water Quality

Event	Action			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action level being exceeded by one sampling day at water sensitive receiver(s)	• Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; • If exceedance is found to be caused by the reclamation activities, repeat *in-situ* measurement to confirm findings; • Inform IEC and contractor; • Check monitoring data, all plant, equipment and Contractor's working methods; • If exceedance occurs at WSD salt water intake, inform WSD; • Discuss mitigation measures with IEC and Contractor; • Repeat measurement on next day of exceedance.	• Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; • Assess the effectiveness of the implemented mitigation measures.	• Discuss with IEC on the proposed mitigation measures; • Make agreement on the mitigation proposal.	• Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice; • Check all plant and equipment; • Amend working methods if appropriate; • Discuss with ET and IEC and propose mitigation measures to IEC and ER; • Implement the agree mitigation measures.
Action level being exceeded by two or more consecutive	• Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate;	• Discuss with ET and Contractor on the mitigation measures;	• Discuss with IEC on the proposed mitigation measures; • Make agreement on the mitigation proposal;	• Inform the Engineer and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	**IEC**	**ER**	**CONTRACTOR**
sampling days at water sensitive receiver(s)	• If exceedance is found to be caused by the reclamation activities, repeat in-situ measurement to confirm findings; • Inform IEC and contractor; • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IEC and Contractor; • Ensure mitigation measures are implemented; • Prepare to increase the monitoring frequency to daily; • If exceedance occurs at WSD salt water intake, inform WSD; • Repeat measurement on next day of exceedance.	• Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; • Assess the effectiveness of the implemented mitigation measures.	• Assess the effectiveness of the implemented mitigation measures.	• Check all plant and equipment and consider changes of working methods; • Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; • Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day at water sensitive receiver(s)	• Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate;	• Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly;	• Discuss with IEC, ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods;	• Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	**IEC**	**ER**	**CONTRACTOR**
	• If exceedance is found to be caused by the reclamation activities, repeat *in-situ* measurement to confirm findings; • Inform IEC, contractor, AFCD and EPD • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IEC, ER and Contractor; • Ensure mitigation measures are implemented; • Increase the monitoring frequency to daily until no exceedance of Limit level; • If exceedance occurs at WSD salt water intake, inform WSD.	• Assess the effectiveness of the implemented mitigation measures.	• Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures.	• Check all plant and equipment and consider changes of working methods; • Discuss with ET, IEC and ER and submit proposal of mitigation measures to IEC and ER within 3 working days of notification; • Implement the agreed mitigation measures.
Limit level being exceeded by two or more consecutive sampling days at	• Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate;	• Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly;	• Discuss with IC(E), ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods;	• Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	**IEC**	**ER**	**CONTRACTOR**
water sensitive receiver(s)	• If exceedance is found to be caused by the reclamation activities, repeat in-situ measurement to confirm findings; • Inform IC(E), AFCD, contractor and EPD; • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IC(E), ER and Contractor; • Ensure mitigation measures are implemented; • Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days; • If exceedance occurs at WSD salt water intake, inform WSD.	• Assess the effectiveness of the implemented mitigation measures.	• Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures; • Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level.	• Check all plant and equipment and consider changes of working methods; • Discuss with ET, IC(E) and ER and submit proposal of mitigation measures to IC(E) and ER within 3 working days of notification; • Implement the agreed mitigation measures; • As directed by the Engineer, to slow down or to stop all or part of the construction activities.

Limit Levels and Action Plan for Landfill Gas

Parameter	Limit Level	Action
Oxygen	<19%	• Ventilate to restore oxygen to >19%
	<18%	• Stop works • Evacuate personnel/prohibit entry • Increase ventilation to restore oxygen to >19%
Methane	>10% LEL (i.e. > 0.5% by volume)	• Prohibit hot works • Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. > 1% by volume)	• Stop works • Evacuate personnel / prohibit entry • Increase ventilation to restore methane to <10% LEL
Carbon Dioxide	>0.5%	• Ventilate to restore carbon dioxide to < 0.5%
	>1.5%	• Stop works • Evacuate personnel / prohibit entry • Increase ventilation to restore carbon dioxide to < 0.5%

Event and Action Plan for Coral Post-Translocation Monitoring

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action Level Exceedance	1. Check monitoring data; 2. Inform the IEC, ER and Contractor of the findings; 3. Increase the monitoring to at least once a month to confirm findings; 4. Propose mitigation measures for consideration	1.Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional Monitoring and any other measures submitted by the Contractor and advise the ER accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER; 3. Implement the agreed measures.
Limit Level Exceedance	Undertake Steps 1-4 as in the Action Level Exceedance. If further exceedance of Limit Level, suspend construction works until an effective solution is identified.	1.Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional Monitoring and any other measures submitted by the Contractor and advise the ER accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER; 3. Implement the agreed measures.

Mitigation Measures for Vibration Monitoring

Level	Contingency Action
Alert Level	● The Engineer shall be informed immediately. ● The Contractor shall submit an investigation report to describe works being undertaken. To review the instrument responses and to study the cause of undue response. ● The Contractor shall review and increase the instrumentation monitoring and reporting frequency, if applicable. ● The Contractor shall submit a detailed plan of action describing the measures to be taken should the concerned instrument reach the action level to the Engineer for approval.
Alarm Level	● The Engineer shall be informed immediately. ● The active construction works may require to be suspended subject to the Engineer's review of monitoring data. ● The Contractor shall immediately implement the measures as defined in the detailed plan of action to prevent further ground movement and groundwater drawdown etc. ● The Contractor shall prepare a detailed investigation report to study the cause of the exceedance ● The Contractor shall propose a contingency plan for the Engineer's approval in the event that alarm value is reached or exceeded ● The Contractor shall develop an emergency plan for the Engineer's approval in the event the applied contingency measures cannot control the situation. ● The Contractor shall meet the Engineer to discuss the instrument response and review the effectiveness of the implemented measures. ● The Contractor shall carry out design review of the works

Action Level	● Consideration shall be given to suspend all active construction works and the Engineer shall be informed immediately ● The Contractor shall immediately implement the measures defined in the contingency plan ● The Contractor shall implement the measures defined in the emergency plan in the event that the applied contingency measures are found inadequate ● The Contractor shall provide a complete report to examine the construction method and review the response of the instruments with full history of the monitoring data and construction activities and necessary design update ● To resume the suspended activities, the Contractor shall demonstrate to the Engineer's satisfaction that it is safe to do so with approval from the Engineer.

APPENDIX N
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract:NE/2015/01

Key:
^ Mitigation measure was fully implemented.
* Observation/reminder was made during site audit but improved/rectified by the contractor.
# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
N/A Not Applicable

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	To minimize the dust impact	Contractor	All Active Work Sites	Construction phase	APCO	^
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall / mixing area in Work Area A, provision of water spraying and flexible dust curtains	To minimize the dust impact	Contractor	Barging Points	Construction phase	APCO	^
S3.8.7	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs. - Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage,	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	^ * (1) ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	watering shall be applied to aggregate fines.						
	- Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.						* (2)
	- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.						^
	- Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.						^
	- Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.						^
	- Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.						^
	- Imposition of speed controls for vehicles on site haul roads.						^
	- Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs						^
	- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.						^
	- Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if						

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	dusty conditions arise.						
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
/	Valid No-road Mobile Machinery (NRMM) labels should be provided to regulated machines	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^
Noise Impact (Construction Phase)							
S4.8	- Use of quiet PME. Use of movable noise barriers for Excavator, Lorry, Dump Truck, Mobile Crane, Compactor, Concrete Mixer Truck, Concrete Lorry Mixer, Breaker, Mobile Crusher, Backhoe, Vibratory Poker, Saw, Asphalt Paver, Vibratory Roller, Vibrolance, Hydraulic Vibratory Lance and Piling (Vibration Hammer). Use of full enclosure for Air Compressor, Compressor, Bar Bender, Generator, Drilling Rig, Chisel, Large Diameter Bore Piling, Grout Mixer & Pump and Concrete Pump.	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, SilentUp and etc.) or Full Enclosure for PME according to the approved Noise Mitigation Plan	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	*(3) / # (4)
S4.9	Good Site Practice - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program - Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. - Mobile plant, if any, should be sited as far away from NSRs as possible. - Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. - Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^ ^ ^ ^ ^
S4.9	Scheduling of Construction Works during School Examination Period	To minimize construction noise impact arising from the	Contractor	Work site near school	Construction phase	EIAO-TM, NCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		Project at the affected NSRs					
Water Quality Impact (Construction Phase)							
S5.6.24	The dry density of filling material for the TKO-LT Tunnel reclamation should be 1,900kg/m^3, with fine content of 25% or less	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
S5.8.1	Non-dredged method by constructing steel cellular caisson structure with stone column shall be adopted for construction of seawall foundation. During the stone column installation (also including the installation of steel cellular caisson), silt curtain shall be employed around the active stone column installation points.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
S5.8.2	Formation of seawall enclosing the reclamation for Road P2 (notwithstanding an opening of about 50m for marine access) shall be completed prior to the filling activities. The seawall opening of about 50m wide for marine access shall be selected at a location as indicatively shown in Appendix 5.10. No more than 3 filling barge trips per day shall be made with a maximum daily rate of 3,000m^3 (i.e. 1,000 m^3 per trip) for the filling operation at the reclamation area for Road P2. All filling works shall be carried out behind the seawall with the use of single silt curtain at the marine access.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
Silt Curtain Deployment Plan	- Silt curtains should be deployed properly to surround the works area. - Maintenance of silt curtain should be provided. - Sufficient stock of silt curtain should be provided on site.	Control potential impacts from marine woroks	Contractor	NE/2015/01	Construction stage	EIAO	*(5)

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.3	Other good site practices should be undertaken during filling operations include: - all marine works should adopt the environmental friendly construction methods as far as practically possible including the use of cofferdams to cover the construction area to separate the construction works from the sea; - floating single silt curtain shall be employed for all marine works; - all vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; - all hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; - excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved; - adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; - loading of barges and hoppers should be controlled to prevent splashing of filling material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation; - any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; - construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)	^ ^ ^ ^ ^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	grounds; and - before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain.						
S5.8.4	Site specific mitigation plan for reclamation areas using public fill materials should be submitted for EPD agreement before commencement of construction phase with due consideration of good site practices.	Control potential impacts from filling activities and marine based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
ERR S5.6.1	To minimize water quality impact arising from the dredging and filling works for Reclamation for Road P2, the following mitigation measures shall be implemented: - Before carrying out any dredging and underwater filling works, a temporary barrier shall first be constructed to a height above the high water mark to completely enclose the works site (without any opening at the barrier wall) - The temporary barrier fully enclosing the dredging and underwater filling works site shall not be removed before completion of all dredging and underwater filling works. - Water quality sampling and testing shall be carried out to demonstrate that the water quality inside the enclosed barrier is comparable to the ambient or baseline levels prior to the removal of the fully enclosed barrier. - Silt curtains shall be deployed for the installation and removal of the temporary	Control potential impacts from dredging and filling works for Reclamation for Road P2	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A N/A N/A N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	barrier and at the double water gates marine access opening during its operation.						
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	* (6)

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	discharged into the corresponding WCZ under the TM-DSS.						
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^ N/A ^
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.10	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.11	Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.12	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.13	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		based construction					
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.17	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.18	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and washwater should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheelwash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.19	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.20	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There shall be no direct discharge of effluent from the site into the sea.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.21	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	^
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		based construction					
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and re-active to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance	N/A
S5.8.28	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phas	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.29 - S5.8.31	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be kept to a minimum. To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an online standby pump of adequate capacity and with automatic alternating devices. Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.32	All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.33	Bentonite slurries used in diaphragm wall and borepile construction should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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S5.8.34	If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.35	Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.36	Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.37	Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		based construction					
S5.8.38	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.39	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.40	Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste)	Control potential impacts from accidental	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	(General) Regulation should be observed and complied with for control of chemical wastes.	spillage of chemicals					
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	^
S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; - chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and - storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^ ^ *(7)
S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Control potential impacts from floating refuse and debris	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecological Impact							
S6.8.4	***Measures to Minimize Disturbance*** - Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible. - Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers; - Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A	^ ^ ^
S6.8.5	***Standard Good Site Practice*** - Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. - Construction activities should be restricted to works areas that should be clearly demarcated. The works areas should be reinstated after completion of the works. - Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner. - General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. - Open burning on works sites is illegal, and should be strictly prohibited. - Measures should also be put into place so that litter, fuel and solvents do not enter	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	^ ^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	the nearby watercourses.						
S6.8.6	***Measure to Minimize Groundwater Inflow*** - The drained tunnel construction method with groundwater inflow control measures would generally be adopted. - During the tunnel excavation, pre-excavation grouting could be adopted to reduce the groundwater inflow and ensure that the tunnel would meet the long term water tightness requirements.	Minimize groundwater inflow	Contractor	Tunnel	Construction Phase	N/A	N/A N/A
S6.8.8	***Measure to Minimize Impact on Corals*** <u>Coral translocation</u> - It is recommended to translocate the affected coral colonies, except the locally common *Oulastrea crispata*, within the reclamation area and bridge footprint to the other suitable locations as far as practicable. - The coral translocation should be conducted during the winter months (November-March) in order to avoid disturbance during their spawning period (i.e. July to October). - A detailed coral translocation plan with a description on the methodology for pretranslocation coral survey, translocation methodology, identification/proposal of coral recipient site, monitoring methodology for posttranslocation should be prepared during the detailed design stage. - The coral translocation plan should be subject to approval by relevant authorities (e.g. EPD and AFCD) before commencement of the coral translocation. All the translocation exercises should be conducted by experienced marine ecologist(s)	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	who is/are approved by AFCD prior to commencement of coral translocation. <u>Post translocation Monitoring</u> - A coral monitoring programme is recommended to assess any adverse and unacceptable impacts to the translocated coral communities - Information gathered during each posttranslocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey.						^ ^
S6.8.9 S6.8.10	***Measure to Control Water Quality Impact*** - Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area. - Diverting of the site runoff to silt trap facilities before discharging into storm drain; - Proper waste and dumping management; and - Standard good-site practice for land-based construction.	Control water quality impact, especially on suspended solid level; minimize the contamination of wastewater discharge, accidental chemical spillage and construction site runoff to the	Design Team, contractor	Marine and landbased works area	Construction phase	WQO	N/A ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		receiving water bodies					
S6.8.11	***Compensation for Vegetation Loss*** - Felling of mature trees should be compensated by planting of standard or heavy standard trees within or in vicinity of the affected area as far as practicable. Such compensatory planting for trees should be provided with at least a 1:1 ratio. In addition, vegetation at the temporarily affected area should be reinstated with species similar to the existing condition.	Compensate for the vegetation loss	Design Team, contractor	Land-based works area	Construction phase	N/A	^
Fisheries Impact							
S7.7.3	***Measure to Control Water Quality Impact*** - Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area.	Control water quality impact, especially on suspended solid level	Design Team / Contractor	Marine work area	Construction phase	WQO	^
Waste Management (Construction Phase)							
S8.6.3	***Good Site Practices and Waste Reduction Measures*** - Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354)	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Training of site personnel in site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste; - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.					Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^
S8.6.4	***Good Site Practices and Waste Reduction Measures (con't)*** - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^
S8.6.5	***Good Site Practices and Waste Reduction Measures (con't)*** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor.						
S8.6.6	***Good Site Practices and Waste Reduction Measures (con't)*** - C&D materials would be reused in the project and other local concurrent projects as far as possible.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^
S8.6.7	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and - Different locations should be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	-	^ ^ ^ ^
S8.6.8/	***Storage, Collection and Transportation of Waste (con't)***	To minimize	Contractor	All work	Construction		

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Waste Management Plan	- Remove waste in timely manner; - Waste collectors should only collect wastes prescribed by their permits; - Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers; - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); - Waste should be disposed of at licensed waste disposal facilities/ alternative disposal ground approved by RE and DEP; and - Maintain records of quantities of waste generated, recycled and disposed.	potential adverse environmental impacts arising from waste collection and disposal		sites	Phase		^ ^ ^ ^ ^ ^
S8.6.9/ Waste Management Plan	***Storage, Collection and Transportation of Waste (con't)*** - Implementation of trip ticket system with reference to DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials, to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) should be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^
S8.6.11 - S8.6.13/ Waste	***Sorting of C&D Materials*** - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site.	To minimize potential adverse	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Management Plan	- Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills	environmental				ETWB TCW No. 33/2002 ETWB TCW No. 19/2005	^ ^
S8.6.17 – S8.6.20	***Sediments (con't)*** - Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during boring, excavation, transportation and disposal of sediments or cement stabilization of sediment. - A treatment area should be confined for carrying out the cement stabilization mixing and temporary stockpile. The area should be designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during boring, excavation and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges/trucks. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - In order to minimise the exposure to contaminated materials, workers should,	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase		^ ^ ^ N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.						
S8.6.24 - S8.6.28/ Waste Management Plan	***Sediments (con't)*** - The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The excaveted sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. - Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during boring and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges. Loading of the excavated sediment to the barge should be controlled to	To ensure handling of sediments are in accordance to statutory requirements	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	avoid splashing and overflowing of the sediment slurry to the surrounding water. - The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. - In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. - Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal.						^ N/A N/A
S8.6.26/ Waste Management	***Chemical Wastes.*** - If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Plan	Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.					Chemical Wastes Waste Disposal (Chemical Waste) (General) Regulation	
S8.6.27/ Waste Management Plan	***General Refuse*** - General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	To ensure proper management of general refuse	Contractor	All works sites	Construction Phase	Public Health and Municipal Services Ordinance (Cap. 132)	^
Impact on Cultural Heritage (Construction Phase)							
S9.6.4	Dust and visual impacts - Temporarily fenced off buffer zone with allowance for public access (minimum 1 m) should be provided; - The open yard in front of the temple should be kept as usual for annual Tin Hau festival; - Monitoring of vibration impacts should be conducted when the construction	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	works are less than 100m from the temple.						
S9.6.4	Indirect vibration impact - Vibration level is suggest to be controlled within a peak particle velocity (ppv) limit of 5mm/s measured inside the historical buildings; - Monitoring of vibration should be carried out during construction phase. - Tilting and settlement monitoring should will be applied on the Cha Kwo Ling Tin Hau Temple as well. - A proposal with details for the mitigation measures and monitoring of impacts on built heritage shall be submitted to AMO for comments before commencement of work.	To prevent indirect vibration impact	Contractors	Work areas	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.	^ ^ ^ ^
Built Heritage Mitigation Plan	- Established Alert, Alarm and Action Level for the monitoring parameters. - To increase the instrumentation monitoring and reporting frequency. - To propose detailed action plan or contingency plan for the Engineer's approval when AAA Level is reached or exceeded.	To prevent vibration impacts	NE/2015/01	Tin Hau Temple	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.	^ ^ ^
Landscape and Visual Impact (Construction Phase)							
Table 10.8.1/ Landscape Mitigation Plan	CM1 - Construction area and contractor's temporary works areas to be minimised to avoid impacts on adjacent landscape.	Avoid impact on adjacent landscape areas	CEDD (via Contractor)	General	Construction planning and during construction period	N/A	^

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Table 10.8.1/ Landscape Mitigation Plan	CM2 - Reduction of construction period to practical minimum.	Minimise duration of impact	CEDD (via Contractor)	N/A	Construction planning	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical, to be stripped and stored for re-use in the construction of the soft landscape works. The Contract Specification shall include storage and reuse of topsoil as appropriate.	To allow re-use of topsoil	CEDD (via Contractor)	General	Site clearance	As per the Particular Specification	^
Table 10.8.1/ Landscape Mitigation Plan	CM4 - Existing trees at boundary of site and retained trees within site boundary to be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification, under which the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	To minimize tree loss	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance and throughout construction period	ETWB TC 3/2006 and as per tree protection measures in Particular Specification	^
Table 10.8.1/ Landsca	CM5 - Trees unavoidably affected by the works shall be transplanted where practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries. A detailed tree transplanting	To maximize preservation of existing trees	CEDD (via Contractor)	As per approved Tree	Site clearance	ETWB TC 3/2006 and as per tree protection	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
pe Mitigation Plan	specification shall be provided in the Contract Specification and sufficient time for preparation shall be allowed in the construction programme.			Removal Application(s)		measures in Particular Specification	
Table 10.8.1/ Landscape Mitigation Plan	CM6 - Advance screen planting of fast growing tree and shrub species to noise barriers and hoardings. Trees shall be capable of reaching a height >10m within 10 years.	To maximize screening of the works	CEDD (via Contractor)	At Lam Tin Interchange and edge of Road P2 landscape deck, TKO	Beginning of construction period	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM7 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	As per Particular Specification	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM8 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	N/A	^
Table	CM9 - Screening of works areas with hoardings with appropriate colours compatible	Reduction of	CEDD (via	Project site	Excretion of	N/A	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
10.8.1/ Landscape Mitigation Plan	with the surrounding area	visual intrusion	Contractor)	Boundary	site hoarding		
Table 10.8.1/ Landscape Mitigation Plan	CM10 - Avoidance of excessive height and bulk of site buildings and structure	Reduction of visual intrusion and integration with environment	CEDD (via Contractor)	Built structures	Design and construction stage	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM11 - Limitation of run-off into freshwater streams, ponds and sea areas	Avoidance of contamination of water courses and water bodie	CEDD (via Contractor)	TKO reclamation, TKO tunnel portal, Cha Kwo Ling roadworks	Throughout construction period	N/A	^
Table 10.8.1	CM12 - Minimise area of reclamation and design the edges sensitively to tie in with adjacent coastline characte	Minimise loss of Junk Bay and integration with existing coastlin	CEDD (via Contractor)	Temporary reclamation for barging points at	Construction planning and reclamation stages	N/A	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
				TKO and Lam Tin and permanent reclamation for TKO Interchange slip roads and Road P2			
Landfill Gas Hazard (Design and Construction Phase)							
S11.5.9	A Safety Officer, trained in the use of gas detection equipment and landfill gas-related hazards, should be present on site throughout the groundworks phase. The Safety Officer should be provided with an intrinsically safe portable instrument, which is appropriately calibrated and able to measure the following gases in the ranges indicated below: Methane 0-100% LEL and 0100% v/v Carbon dioxide 0-100% Oxygen 0-21%	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note	^
S11.5.10 S11.5.25	***Safety Measures*** - For staff who work in, or have responsibility for "at risk" area, such as all excavation workers, supervisors and engineers working within the Consultation	Protect the workers from landfill gas	Contractor	Project sites within the Sai Tso Wan	Construction phase	EPD's Landfill Gas Hazard Assessment	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	Zone, should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards. - An excavation procedure or code of practice to minimize landfill gas related risk should be devised and carried out. - No worker should be allowed to work alone at any time in or near to any excavation. At least one other worker should be available to assist with a rescue if needed. - Smoking, naked flames and all other sources of ignition should be prohibited within 15m of any excavation or ground-level confined space. "No smoking" and "No naked flame" notices should be posted prominently on the construction site and, if necessary, special areas should be designed for smoking. - Welding, flame-cutting or other hot works should be confined to open areas at least 15m from any trench or excavation. - Welding, flame-cutting or other hot works may only be carried out in trenches or confined spaces when controlled by a "permit to work" procedure, properly authorized by the Safety Officer (or, in the case of small developments, other appropriately qualified person). - The permit to work procedure should set down clearly the requirements for continuous monitoring for methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure should also require the presence of an appropriately qualified person, in attendance outside	hazards		Landfill Consultation Zone		Guidance Note Labour Department's Code of Practice for Safety and Health at Work in Confined Space	^ ^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	the 'confined area', who should be responsible for reviewing the gas measurements as they are made, and who should have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise should be permitted to carry out hot works in confined areas. - Where there are any temporary site offices, or any other buildings located within the Sai Tso Wan Landfill Consultation Zone which have enclosed spaces with the capacity to accumulate landfill gas, then they should either be located in an area which has been proven to be free of landfill gas (by survey using portable gas detectors); or be raised clear of the ground by a minimum of 500mm. This aims to create a clear void under the structure which is ventilated by natural air movement such that emission of gas from the ground are mixed and diluted by air. - Any electrical equipment, such as motors and extension cords, should be intrinsically safe. During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be closed to prevent the migration of gases through the pipeline/conduit. All piping /conduiting should be capped at the end of each working day. - During construction, adequate fire extinguishing equipment, fire-resistant clothing and breathing apparatus (BA) sets should be made available on site.						^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Fire drills should be organized at not less than six monthly intervals. - The contractor should formulate a health and safety policy, standards and instructions for site personnel to follow. - All personnel who work on the site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of excavations. Safety notices (in Chinese and English) should be posted at prominent position around the site warning danger of the potential hazards. - Service runs within the Consultation Zone should be designated as "special routes"; utilities companies should be informed of this and precautionary measures should be implemented. Precautionary measures should include ensuring that staff members are aware of the potential hazards of working in confined spaces such as manholes and service chambers, and that appropriate monitoring procedures are in place to prevent hazards due to asphyxiating atmospheres in confined spaces. Detailed guidance on entry into confined spaces is given in Code of Practice on Safety and Health at Work in Confined Spaces (Labour Department, Hong Kong). - Periodically during ground-works construction within the 250m Consultation Zone, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring frequency and areas to be monitored should be set down prior to commencement of ground-works either by the Safety Officer or an approved and appropriately qualified person.						^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.5.26 - S11.5.31	***Monitoring*** ● Routine monitoring should be carried out in all excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces that may have been created. All measurements in excavations should be made with the extended monitoring tube located not more than 10 mm from the exposed ground surface. Monitoring should be performed properly to make sure that the area is free of landfill gas before any man enters into the area. ● For excavations **deeper than 1m**, measurements should be carried out: - at the ground surface before excavation commences;- - immediately before any worker enters the excavation; - at the beginning of each working day for the entire period the excavation remains open; and - periodically throughout the working day whilst workers are in the excavation. ● For excavations **between 300mm and 1m deep**, measurements should be carried out: - directly after the excavation has been completed; and - periodically whilst the excavation remains open. ● For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person. ● Depending on the results of the measurements, actions required will vary and should be set down by the Safety Officer or other appropriately qualified person.	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note	^ ^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	● The exact frequency of monitoring should be determined prior to the commencement of works, but should be at least once per day, and be carried out by a suitably qualified or qualified person before starting the work of the day. Measurements shall be recorded and kept as a record of safe working conditions with copies of the site diary and submitted to the Engineer for approval. The Contractor may elect to carry out monitoring via an automated monitoring system.						
S11.5.32	The hazards from landfill gas during the construction stage within the Sai Tso Wan Landfill Consultation Zone should be minimized by suitable precautionary measures recommended in Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note.	construction stage within the Sai Tso Wan Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note	N/A

Table II - Observations/reminders/non-compliance made during Site Audit

Key: * Observation/reminder was made during site audit but improved/rectified by the contractor.

\# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.

X Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Noise Impact (Construction Phase)					
* (1)	S3.8.7	Use of frequent watering for particularly dusty construction areas and areas close to ASRs.	NE/2015/01	Construction of Lam Tin Interchange	• The Contractor is reminded to apply water spray during excavation works. • Dust emission was observed at LTI. Contractor should provide watering for dusty activities to prevent dust generation.
* (2)	S3.8.7	Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.	NE/2015/01	Construction of Lam Tin Interchange	• Dusty stockpile was observed at LTI. Contractor should cover properly to prevent dust generation.
*(3) / # (4)	Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, Silent Up, and etc) or Full Enclosure for PME according to the approved Noise Mitigation Plan	NE/2015/01	Construction of Lam Tin Interchange	• Contractor was reminded to replace / repair the damaged noise barrier at LTI to reduce noise nuisance from breaking works. • Sufficient noise barriers should be provided and used properly for noisy PMEs as practically at LTI according to CNMP.

Water Quality Impact (Construction Phase)					
*(5)	Silt curtain deployment Plan	- Silt curtains should be deployed properly to surround the works area. - Maintenance of silt curtain should be provided.	NE/2015/01	Construction of TKO Portal	• The Contractor is reminded to repair the damaged silt curtain and set it to the sea bottom.
*(6)	S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the corresponding WCZ under the TM-DSS.	NE/2015/01	Construction of TKO Portal	• The Contractor is reminded to connect the discharge outlet of the washing machine to the wastewater treatment facility.
Waste/ Chemical Management					
*(7)	S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	NE/2015/01	Construction of TKO Portal	• The equipment should be stored in drip tray / designated area to avoid leakage of lubricant.

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract: NE/2015/02

Key:
- ^ Mitigation measure was fully implemented.
- * Observation/reminder was made during site audit but improved/rectified by the contractor.
- # Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
- X Non-compliance of mitigation measure
- • Non-compliance but rectified by the contractor
- N/A Not Applicable

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Air Quality Impact							
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	To minimize the dust impact	Contractor	All Active Work Sites	Construction phase	APCO	^
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall / mixing area in Work Area A, provision of water spraying and flexible dust curtains	To minimize the dust impact	Contractor	Barging Points	Construction phase	APCO	^
S3.8.7	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs. - Side enclosure and covering of any aggregate or dusty material storage piles to	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.						
	- Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.						^
	- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.						^
	- Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.						^
	- Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.						^
	- Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.						^
	- Imposition of speed controls for vehicles on site haul roads.						^
	- Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs						^
	- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.						^
	- Instigation of an environmental monitoring and auditing program to monitor the						^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	construction process in order to enforce controls and modify method of work if dusty conditions arise.						
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ * (1) ^
/	Valid No-road Mobile Machinery (NRMM) labels should be provided to regulated machines	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^
Sediment Management Plan	- Tarpaulin sheets will be provided to cover dredged materials during transportation offsite. - Water Sprinklers will be installed along outer steel frame. Dusty materials will be dampened by spraying water to suppress dust generation during mixing operation - Subject to the odour intensity and instruction by the *Supervisor*, odour suppressant will be applied over the marine sediments via water blaster to minimize the impact.	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, APCO	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- The unloading / loading areas of the marine sediments will be barricaded with minimum 3.5m high barrier facing the nearest resident to minimize the dust impact. The mixing area and curing area will be enclosed with 3-sides and roof to minimize the dust impact. - The mixing area will be established with retractable roof on top and with corrugated steel sheet at side enclosure by 5.4m high concrete block walls to prevent spread of dust during the mixing process with cement. - Handling and mixing of cement will follow the Air Pollution Control (Construction Dust) Regulation to avoid fugitive dust emissions. - The discharge of cement from silo hopper to the concrete mixer truck will be 4-side enclosed by Tarpaulin to minimize the dust emission. - The mixing of cement and water will be confined in the concrete mixer truck until the pre-mixing completed. The hydrated cement will then be unloaded to the mixing area to mix with the sediment. - Treated marine sediments in the stockpiling area shall be covered by tarpaulin sheets or similar material except the operating earthwork front. - The soil filled platform is covered by a layer of sand fill material, and frequent water spray will be carried out on the sand surface for dust control. - Any excessive air emissions will be inspected and recorded. - Sediment height of treated marine sediment being kept 0.9 m below the top level of concrete block wall during rainy season.						^ ^ ^ ^ ^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Noise Impact (Construction Phase)							
S4.8	- Use of quiet PME. Use of movable noise barriers for Excavator, Lorry, Dump Truck, Mobile Crane, Compactor, Concrete Mixer Truck, Concrete Lorry Mixer, Breaker, Mobile Crusher, Backhoe, Vibratory Poker, Saw, Asphalt Paver, Vibratory Roller, Vibrolance, Hydraulic Vibratory Lance and Piling (Vibration Hammer). Use of full enclosure for Air Compressor, Compressor, Bar Bender, Generator, Drilling Rig, Chisel, Large Diameter Bore Piling, Grout Mixer & Pump and Concrete Pump.	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	^
Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, SilentUp and etc.) or Full Enclosure for PME according to the approved Noise Mitigation Plan	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	* (2)
S4.9	Good Site Practice - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program - Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. - Mobile plant, if any, should be sited as far away from NSRs as possible. - Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. - Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.						^ ^
S4.9	Scheduling of Construction Works during School Examination Period	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work site near school	Construction phase	EIAO-TM, NCO	N/A
Water Quality Impact (Construction Phase)							
S5.6.24	The dry density of filling material for the TKO-LT Tunnel reclamation should be 1,900kg/m^3, with fine content of 25% or less	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
S5.8.1	Non-dredged method by constructing steel cellular caisson structure with stone column shall be adopted for construction of seawall foundation. During the stone column installation (also including the installation of steel cellular caisson), silt curtain shall be employed around the active stone column installation points.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
S5.8.2	Formation of seawall enclosing the reclamation for Road P2 (notwithstanding an opening of about 50m for marine access) shall be completed prior to the filling activities. The seawall opening of about 50m wide for marine access shall be selected at a location as indicatively shown in Appendix 5.10. No more than 3 filling	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	barge trips per day shall be made with a maximum daily rate of 3,000m^3 (i.e. 1,000 m^3 per trip) for the filling operation at the reclamation area for Road P2. All filling works shall be carried out behind the seawall with the use of single silt curtain at the marine access.						
Silt Curtain Deployment Plan	- Silt curtains should be deployed properly to surround the works area. - Maintenance of silt curtain should be provided. - Sufficient stock of silt curtain should be provided on site.	Control potential impacts from marine woroks	Contractor	NE/2015/02	Construction stage	EIAO	*(2)
Sediment Management Plan	- Loading of barges and hoppers will be controlled to prevent splashing of dredged materials into the surrounding water. Barges or hoppers will not be filled to a level that will cause the overflow of materials or pollute water during loading or transportation. - Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. - Monitoring of the barge loading shall be conducted to ensure that loss of material does not take during transportation. - Transport barges or vessels shall be equipped with automatic self-monitoring devices. - Vehicles containing any untreated / treated marine sediments will be suitably covered to limit potential dust emissions or potential contaminated wastewater	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, WPCO	^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	run-off, and truck bodies and tailgates will be sealed to prevent any discharge during transport or wet conditions. - The leachate from the untreated marine sediment will be collected and treated in the mixing pool for cement s/s treatment. - A 300mm diameter U-channel will be constructed along the perimeter of the cement s/s treatment facility to collect the run-off, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). Cleaning for the u-channel and desilting pits shall be conducted on weekly basic. - The stockpile area of treated marine sediment will be surrounded by the perimeter concrete block walls with geotextile membranes installed at the inner face of the concrete block walls. The types of perimeter wall can be used interchangeably. The Structural Feasibility of the perimeter wall for the changes of height of the stockpile had been checked and certified by ICE. - The mixing areas will be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater and will be confined by partition concrete block walls for carrying out the mixing and temporary stockpile of treated sediment.						^ ^ ^ ^
S5.8.3	Other good site practices should be undertaken during filling operations include: - all marine works should adopt the environmental friendly construction methods as far as practically possible including the use of cofferdams to cover the construction area to separate the construction works from the sea; - floating single silt curtain shall be employed for all marine works;	Control potential impacts from filling activities and marine-based	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)	^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- all vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; - all hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; - excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved; - adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; - loading of barges and hoppers should be controlled to prevent splashing of filling material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation; - any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; - construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; and - before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain.	construction					^ ^ ^ ^ ^ ^ ^ * (4) N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.4	Site specific mitigation plan for reclamation areas using public fill materials should be submitted for EPD agreement before commencement of construction phase with due consideration of good site practices.	Control potential impacts from filling activities and marine based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
ERR S5.6.1	To minimize water quality impact arising from the dredging and filling works for Reclamation for Road P2, the following mitigation measures shall be implemented: - Before carrying out any dredging and underwater filling works, a temporary barrier shall first be constructed to a height above the high water mark to completely enclose the works site (without any opening at the barrier wall) - The temporary barrier fully enclosing the dredging and underwater filling works site shall not be removed before completion of all dredging and underwater filling works. - Water quality sampling and testing shall be carried out to demonstrate that the water quality inside the enclosed barrier is comparable to the ambient or baseline levels prior to the removal of the fully enclosed barrier. - Silt curtains shall be deployed for the installation and removal of the temporary barrier and at the double water gates marine access opening during its operation.	Control potential impacts from dredging and filling works for Reclamation for Road P2	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^ ^ N/A ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the corresponding WCZ under the TM-DSS.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^ N/A ^
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.10	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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S5.8.11	Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.12	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.13	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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		based construction					
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.17	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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S5.8.18	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and washwater should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheelwash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.19	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.20	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There shall be no direct discharge of effluent from the site into the sea.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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S5.8.21	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	^
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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		based construction					
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and re-active to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance	N/A
S5.8.28	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phas	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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S5.8.29 - S5.8.31	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be kept to a minimum. To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an online standby pump of adequate capacity and with automatic alternating devices. Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.32	All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.33	Bentonite slurries used in diaphragm wall and borepile construction should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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S5.8.34	If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.35	Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.36	Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.37	Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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		based construction					
S5.8.38	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.39	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.40	Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste)	Control potential impacts from accidental	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^

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	(General) Regulation should be observed and complied with for control of chemical wastes.	spillage of chemicals					
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	^
S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; - chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and - storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^ ^ ^
S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Control potential impacts from floating refuse and debris	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,	* (4)

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Ecological Impact							
S6.8.4	***Measures to Minimize Disturbance*** - Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible. - Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers; - Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A	^ ^ ^
S6.8.5	***Standard Good Site Practice*** - Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. - Construction activities should be restricted to works areas that should be clearly demarcated. The works areas should be reinstated after completion of the works. - Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner. - General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. - Open burning on works sites is illegal, and should be strictly prohibited. - Measures should also be put into place so that litter, fuel and solvents do not enter	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	^ ^ ^ ^ ^ ^

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	the nearby watercourses.						
S6.8.6	***Measure to Minimize Groundwater Inflow*** - The drained tunnel construction method with groundwater inflow control measures would generally be adopted. - During the tunnel excavation, pre-excavation grouting could be adopted to reduce the groundwater inflow and ensure that the tunnel would meet the long term water tightness requirements.	Minimize groundwater inflow	Contractor	Tunnel	Construction Phase	N/A	N/A N/A
S6.8.8	***Measure to Minimize Impact on Corals*** <u>Coral translocation</u> - It is recommended to translocate the affected coral colonies, except the locally common *Oulastrea crispata*, within the reclamation area and bridge footprint to the other suitable locations as far as practicable. - The coral translocation should be conducted during the winter months (November-March) in order to avoid disturbance during their spawning period (i.e. July to October). - A detailed coral translocation plan with a description on the methodology for pretranslocation coral survey, translocation methodology, identification/proposal of coral recipient site, monitoring methodology for posttranslocation should be prepared during the detailed design stage.	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	^ ^ ^ ^

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	- The coral translocation plan should be subject to approval by relevant authorities (e.g. EPD and AFCD) before commencement of the coral translocation. All the translocation exercises should be conducted by experienced marine ecologist(s) who is/are approved by AFCD prior to commencement of coral translocation. <u>Post translocation Monitoring</u> - A coral monitoring programme is recommended to assess any adverse and unacceptable impacts to the translocated coral communities - Information gathered during each posttranslocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey.						^ ^
S6.8.9 S6.8.10	***Measure to Control Water Quality Impact*** - Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area. - Diverting of the site runoff to silt trap facilities before discharging into storm drain; - Proper waste and dumping management; and - Standard good-site practice for land-based construction.	Control water quality impact, especially on suspended solid level; minimize the contamination of wastewater discharge, accidental chemical	Design Team, contractor	Marine and landbased works area	Construction phase	WQO	N/A ^ ^ ^

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		spillage and construction site runoff to the receiving water bodies					
S6.8.11	***Compensation for Vegetation Loss*** - Felling of mature trees should be compensated by planting of standard or heavy standard trees within or in vicinity of the affected area as far as practicable. Such compensatory planting for trees should be provided with at least a 1:1 ratio. In addition, vegetation at the temporarily affected area should be reinstated with species similar to the existing condition.	Compensate for the vegetation loss	Design Team, contractor	Land-based works area	Construction phase	N/A	^
Fisheries Impact							
S7.7.3	***Measure to Control Water Quality Impact*** - Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area.	Control water quality impact, especially on suspended solid level	Design Team / Contractor	Marine work area	Construction phase	WQO	^
Waste Management (Construction Phase)							
S8.6.3	***Good Site Practices and Waste Reduction Measures*** - Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354)	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Training of site personnel in site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste; - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.					Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^
S8.6.4	***Good Site Practices and Waste Reduction Measures (con't)*** - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^
S8.6.5	***Good Site Practices and Waste Reduction Measures (con't)*** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^

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	avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor.						
S8.6.6	***Good Site Practices and Waste Reduction Measures (con't)*** - C&D materials would be reused in the project and other local concurrent projects as far as possible.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^
S8.6.7	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and - Different locations should be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	-	^ ^ ^ ^
S8.6.8/	***Storage, Collection and Transportation of Waste (con't)***	To minimize	Contractor	All work	Construction		

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Waste Management Plan	- Remove waste in timely manner; - Waste collectors should only collect wastes prescribed by their permits; - Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers; - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); - Waste should be disposed of at licensed waste disposal facilities/ alternative disposal ground approved by RE and DEP; and - Maintain records of quantities of waste generated, recycled and disposed.	potential adverse environmental impacts arising from waste collection and disposal		sites	Phase		^ ^ ^ ^ ^ ^
S8.6.9/ Waste Management Plan	***Storage, Collection and Transportation of Waste (con't)*** - Implementation of trip ticket system with reference to DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials, to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) should be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^
S8.6.11 - S8.6.13/	***Sorting of C&D Materials*** - Sorting to be performed to recover the inert materials, reusable and recyclable	To minimize potential	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Waste Management Plan	materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills	adverse environmental				ETWB TCW No. 33/2002 ETWB TCW No. 19/2005	^ ^
S8.6.15 – S8.6.16/ Waste Management Plan	***Sediments*** - Sediment encountered may be reused as filling material on-site after cement stabilization. Cement-stabilization process is undertaken by mixing sediment and cement and will convert sediment to earth filling material. The treated sediment has to comply with Risk-Based Remediation Goals (RBRGs) before being reused in order not to raise any land contamination issue. The adoption of RBRGs to assess stabilized sediment has been proposed in the current C&DMMP. MFC has no adverse comment on the current C&DMMP. The sediment quality indicates that all sediments comply with most stringent RBRGs except for one sediment sample (TKO-EBH501 3-3.95m) with lead exceeding the RBRG. Except for the sediment sample (TKO-EBH501 3-3.95m), the chemical screening results do not indicate sediment as contaminated soil. It is anticipated that reuse of sediment except sediment sample (TKO-EBH501 3-3.95m) will not lead to land contamination.	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02	All works areas with sediments concern	Construction Phase	RBRG	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Despite exceedance of RBRG, onsite reuse of sediment under sample (TKO-EBH501 33.95m) as filling material after cement stabilization is also a suitable treatment. Sediment quality indicates the sediment sample (TKO-EBH501 3-3.95m) exceed RBRG for lead. While cement stabilization will immobilize metal contaminants, it is capable to treat the exceedance on lead. The stabilized material should comply with UTS of Lead and UCS. If the treated material do not comply with UTS or UCS, re-stabilization have to be undertaken to meet compliance of UTS and UCS before reusing the treated sediment as filling material. However, further agreement on final disposal/treatment on sediment under sample (TKO-EBH501 3-3.95m) has to be sought from DEP						N/A
S8.6.17 – S8.6.20	***Sediments (con't)*** - Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during boring, excavation, transportation and disposal of sediments or cement stabilization of sediment. - A treatment area should be confined for carrying out the cement stabilization mixing and temporary stockpile. The area should be designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during boring, excavation and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges/trucks. Loading of the excavated sediment to the barge	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase		^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.						N/A
S8.6.21/ Waste Management Plan	***Sediments (con't)*** - Alternatively, excavated sediment can be treated with marine disposal. The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is responsible for the provision and management of disposal capacity and facilities for the excavated sediment, while the permit of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the DEP.	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A
S8.6.23	***Sediments (con't)*** - For allocation of sediment disposal sites and application of marine dumping permit, separate SSTP has to be submitted to EPD for agreement under DASO. Additional site investigation, based on the SSTP, maybe carried out in order to confirm the disposal arrangements for the proposed sediments removal. A Sediment Quality Report (SQR) shall then be required for EPD agreement under DASO prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal.	To determine the best handling and disposal option of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S8.6.24 - S8.6.28/ Waste Management Plan	***Sediments (con't)*** - The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The excaveted sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. - Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during boring and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a	To ensure handling of sediments are in accordance to statutory requirements	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. - In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. - Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal.						N/A N/A
S8.6.26/ Waste Management Plan	***Chemical Wastes.*** - If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes Waste Disposal	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.					(Chemical Waste) (General) Regulation	
S8.6.27/ Waste Management Plan	***General Refuse*** - General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	To ensure proper management of general refuse	Contractor	All works sites	Construction Phase	Public Health and Municipal Services Ordinance (Cap. 132)	^
Impact on Cultural Heritage (Construction Phase)							
S9.6.4	Dust and visual impacts - Temporarily fenced off buffer zone with allowance for public access (minimum 1 m) should be provided; - The open yard in front of the temple should be kept as usual for annual Tin Hau festival; - Monitoring of vibration impacts should be conducted when the construction works are less than 100m from the temple.	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO	^ ^ ^
S9.6.4	Indirect vibration impact - Vibration level is suggest to be controlled within a peak particle velocity (ppv)	To prevent indirect vibration	Contractors	Work areas	Construction Phase	Vibration Limits on Heritage Buildings	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	limit of 5mm/s measured inside the historical buildings; - Monitoring of vibration should be carried out during construction phase. - Tilting and settlement monitoring should will be applied on the Cha Kwo Ling Tin Hau Temple as well. - A proposal with details for the mitigation measures and monitoring of impacts on built heritage shall be submitted to AMO for comments before commencement of work.	impact				by CEDD; GCHIA; AMO.	^ ^ ^
Landscape and Visual Impact (Construction Phase)							
Table 10.8.1/ Landscape Mitigation Plan	CM1 - Construction area and contractor's temporary works areas to be minimised to avoid impacts on adjacent landscape.	Avoid impact on adjacent landscape areas	CEDD (via Contractor)	General	Construction planning and during construction period	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM2 - Reduction of construction period to practical minimum.	Minimise duration of impact	CEDD (via Contractor)	N/A	Construction planning	N/A	^
Table 10.8.1/	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical, to be stripped and stored for re-use in the construction of the soft landscape works.	To allow re-use of topsoil	CEDD (via Contractor)	General	Site clearance	As per the Particular	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Landscape Mitigation Plan	The Contract Specification shall include storage and reuse of topsoil as appropriate.					Specification	
Table 10.8.1/ Landscape Mitigation Plan	CM4 - Existing trees at boundary of site and retained trees within site boundary to be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification, under which the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	To minimize tree loss	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance and throughout construction period	ETWB TC 3/2006 and as per tree protection measures in Particular Specification	^
Table 10.8.1/ Landscape Mitigation Plan	CM5 - Trees unavoidably affected by the works shall be transplanted where practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries. A detailed tree transplanting specification shall be provided in the Contract Specification and sufficient time for preparation shall be allowed in the construction programme.	To maximize preservation of existing trees	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance	ETWB TC 3/2006 and as per tree protection measures in Particular Specification	^
Table 10.8.1/ Landscape Mitigation	CM6 - Advance screen planting of fast growing tree and shrub species to noise barriers and hoardings. Trees shall be capable of reaching a height >10m within 10 years.	To maximize screening of the works	CEDD (via Contractor)	At Lam Tin Interchange and edge of Road P2 landscape	Beginning of construction period	N/A	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Plan				deck, TKO			
Table 10.8.1/ Landscape Mitigation Plan	CM7 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	As per Particular Specification	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM8 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM9 - Screening of works areas with hoardings with appropriate colours compatible with the surrounding area	Reduction of visual intrusion	CEDD (via Contractor)	Project site Boundary	Excretion of site hoarding	N/A	^
Table 10.8.1/ Landsca	CM10 - Avoidance of excessive height and bulk of site buildings and structure	Reduction of visual intrusion and integration	CEDD (via Contractor)	Built structures	Design and construction stage	N/A	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
pe Mitigation Plan		with environment					
Table 10.8.1/ Landscape Mitigation Plan	CM11 - Limitation of run-off into freshwater streams, ponds and sea areas	Avoidance of contamination of water courses and water bodie	CEDD (via Contractor)	TKO reclamation, TKO tunnel portal, Cha Kwo Ling roadworks	Throughout construction period	N/A	^
Table 10.8.1	CM12 - Minimise area of reclamation and design the edges sensitively to tie in with adjacent coastline characte	Minimise loss of Junk Bay and integration with existing coastlin	CEDD (via Contractor)	Temporary reclamation for barging points at TKO and permanent reclamation for TKO Interchange slip roads and Road P2.	Construction planning and reclamation stages	N/A	N/A

Table II - Observations/reminders/non-compliance made during Site Audit

Key: * Observation/reminder was made during site audit but improved/rectified by the contractor.

\# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.

X Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Air Quality Impact (Construction Phase)					
* (1)	/	Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.	NE/2015/02	Construction of Road P2	• Dark smoke emission was observed from derrick barge(信達 21). Contractor should ensure the water filter is installed and functioning properly to avoid any avoid dark smoke emission in Portion IX.
Noise Impact (Construction Phase)					
* (2)	Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, Silent Up, and etc) or Full Enclosure for PME according to the approved Noise Mitigation Plan	NE/2015/02	Construction of Road P2	• Noise barrier for sheet piling should be facing towards Ocean shores. Contractor will rectify the situation on the same day.
Water Quality Impact (Construction Phase)					
* (3)	5.8.3	construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds	NE/2015/02	Construction of Road P2	• Floating oil grease was found in the water gate.
* (4)	S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	NE/2015/02	Construction of Road P2	• Floating rubbish was found in between cofferdam and silt curtain.

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract: NE/2017/02

Key:
^ Mitigation measure was fully implemented.
* Observation/reminder was made during site audit but improved/rectified by the contractor.
# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
N/A Not Applicable

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	To minimize the dust impact	Contractor	All Active Work Sites	Construction phase	APCO	^
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall / mixing area in Work Area A, provision of water spraying and flexible dust curtains	To minimize the dust impact	Contractor	Barging Points	Construction phase	APCO	^
S3.8.7	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs. - Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage,	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	watering shall be applied to aggregate fines.						
	- Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.						^
	- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.						^
	- Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.						^
	- Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.						^
	- Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.						^
	- Imposition of speed controls for vehicles on site haul roads.						^
	- Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs						^
	- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.						^
	- Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if						^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	dusty conditions arise.						
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
/	Valid No-road Mobile Machinery (NRMM) labels should be provided to regulated machines	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^
Sediment Management Plan	- Tarpaulin sheets will be provided to cover dredged materials during transportation offsite. - Water Sprinklers will be installed along outer steel frame. Dusty materials will be dampened by spraying water to suppress dust generation during mixing operation - Subject to the odour intensity and instruction by the *Supervisor*, odour suppressant will be applied over the marine sediments via water blaster to minimize the impact.	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, APCO	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- The unloading / loading areas of the marine sediments will be barricaded with minimum 3.5m high barrier facing the nearest resident to minimize the dust impact. The mixing area and curing area will be enclosed with 3-sides and roof to minimize the dust impact. - The mixing area will be established with retractable roof on top and with corrugated steel sheet at side enclosure by 5.4m high concrete block walls to prevent spread of dust during the mixing process with cement. - Handling and mixing of cement will follow the Air Pollution Control (Construction Dust) Regulation to avoid fugitive dust emissions. - The discharge of cement from silo hopper to the concrete mixer truck will be 4-side enclosed by Tarpaulin to minimize the dust emission. - The mixing of cement and water will be confined in the concrete mixer truck until the pre-mixing completed. The hydrated cement will then be unloaded to the mixing area to mix with the sediment. - Treated marine sediments in the stockpiling area shall be covered by tarpaulin sheets or similar material except the operating earthwork front. - The soil filled platform is covered by a layer of sand fill material, and frequent water spray will be carried out on the sand surface for dust control. - Any excessive air emissions will be inspected and recorded. - Sediment height of treated marine sediment being kept 0.9 m below the top level of concrete block wall during rainy season.						^ ^ ^ ^ ^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Noise Impact (Construction Phase)							
S4.8	- Use of quiet PME. Use of movable noise barriers for Excavator, Lorry, Dump Truck, Mobile Crane, Compactor, Concrete Mixer Truck, Concrete Lorry Mixer, Breaker, Mobile Crusher, Backhoe, Vibratory Poker, Saw, Asphalt Paver, Vibratory Roller, Vibrolance, Hydraulic Vibratory Lance and Piling (Vibration Hammer). Use of full enclosure for Air Compressor, Compressor, Bar Bender, Generator, Drilling Rig, Chisel, Large Diameter Bore Piling, Grout Mixer & Pump and Concrete Pump.	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	^
Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, SilentUp and etc.) or Full Enclosure for PME according to the approved Noise Mitigation Plan	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	^
S4.9	Good Site Practice - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program - Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. - Mobile plant, if any, should be sited as far away from NSRs as possible. - Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. - Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.						^ ^
S4.9	Scheduling of Construction Works during School Examination Period	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work site near school	Construction phase	EIAO-TM, NCO	^
Water Quality Impact (Construction Phase)							
S5.6.24	The dry density of filling material for the TKO-LT Tunnel reclamation should be 1,900kg/m^3, with fine content of 25% or less	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
S5.8.1	Non-dredged method by constructing steel cellular caisson structure with stone column shall be adopted for construction of seawall foundation. During the stone column installation (also including the installation of steel cellular caisson), silt curtain shall be employed around the active stone column installation points.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
S5.8.2	Formation of seawall enclosing the reclamation for Road P2 (notwithstanding an opening of about 50m for marine access) shall be completed prior to the filling activities. The seawall opening of about 50m wide for marine access shall be selected at a location as indicatively shown in Appendix 5.10. No more than 3 filling	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	barge trips per day shall be made with a maximum daily rate of 3,000m^3 (i.e. 1,000 m^3 per trip) for the filling operation at the reclamation area for Road P2. All filling works shall be carried out behind the seawall with the use of single silt curtain at the marine access.						
S5.8.4	Site specific mitigation plan for reclamation areas using public fill materials should be submitted for EPD agreement before commencement of construction phase with due consideration of good site practices.	Control potential impacts from filling activities and marine based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the corresponding WCZ under the TM-DSS.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^ N/A ^
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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S5.8.10	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.11	Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.12	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.13	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations	Control potential impacts from construction site	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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	should be discharged into storm drains via silt removal facilities.	runoff and land-based construction				S5	
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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S5.8.17	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.18	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and washwater should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheelwash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.19	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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S5.8.20	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There shall be no direct discharge of effluent from the site into the sea.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.21	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	^

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		based construction					
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and re-active to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance	N/A

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S5.8.28	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phas	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.29 - S5.8.31	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be kept to a minimum. To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an online standby pump of adequate capacity and with automatic alternating devices. Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.32	All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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S5.8.33	Bentonite slurries used in diaphragm wall and borepile construction should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.34	If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.35	Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.36	Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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		based construction					
S5.8.37	Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.38	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.39	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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S5.8.40	Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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	contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	based construction					
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	^
S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; - chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^ ^

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	- storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.						^
S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Control potential impacts from floating refuse and debris	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,	^
Ecological Impact							
S6.8.4	***Measures to Minimize Disturbance*** - Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible. - Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers; - Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A	^ ^ ^
S6.8.5	***Standard Good Site Practice*** - Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. - Construction activities should be restricted to works areas that should be clearly demarcated. The works areas should be reinstated after completion of the works.	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	^ ^

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	- Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner. - General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. - Open burning on works sites is illegal, and should be strictly prohibited. - Measures should also be put into place so that litter, fuel and solvents do not enter the nearby watercourses.						^ ^ ^ ^
S6.8.6	***Measure to Minimize Groundwater Inflow*** - The drained tunnel construction method with groundwater inflow control measures would generally be adopted. - During the tunnel excavation, pre-excavation grouting could be adopted to reduce the groundwater inflow and ensure that the tunnel would meet the long term water tightness requirements.	Minimize groundwater inflow	Contractor	Tunnel	Construction Phase	N/A	N/A N/A
S6.8.8	***Measure to Minimize Impact on Corals*** <u>Coral translocation</u> - It is recommended to translocate the affected coral colonies, except the locally common *Oulastrea crispata*, within the reclamation area and bridge footprint to the other suitable locations as far as practicable. - The coral translocation should be conducted during the winter months (November-March) in order to avoid disturbance during their spawning period (i.e. July to October). - A detailed coral translocation plan with a description on the methodology for	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	^ ^ ^

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	pretranslocation coral survey, translocation methodology, identification/proposal of coral recipient site, monitoring methodology for posttranslocation should be prepared during the detailed design stage. - The coral translocation plan should be subject to approval by relevant authorities (e.g. EPD and AFCD) before commencement of the coral translocation. All the translocation exercises should be conducted by experienced marine ecologist(s) who is/are approved by AFCD prior to commencement of coral translocation. <u>Post translocation Monitoring</u> - A coral monitoring programme is recommended to assess any adverse and unacceptable impacts to the translocated coral communities - Information gathered during each posttranslocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey.						^ ^ ^
S6.8.9 S6.8.10	***Measure to Control Water Quality Impact*** - Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area. - Diverting of the site runoff to silt trap facilities before discharging into storm drain; - Proper waste and dumping management; and - Standard good-site practice for land-based construction.	Control water quality impact, especially on suspended solid level; minimize the contamination of wastewater	Design Team, contractor	Marine and landbased works area	Construction phase	WQO	N/A ^ ^ ^

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		discharge, accidental chemical spillage and construction site runoff to the receiving water bodies					
S6.8.11	***Compensation for Vegetation Loss*** - Felling of mature trees should be compensated by planting of standard or heavy standard trees within or in vicinity of the affected area as far as practicable. Such compensatory planting for trees should be provided with at least a 1:1 ratio. In addition, vegetation at the temporarily affected area should be reinstated with species similar to the existing condition.	Compensate for the vegetation loss	Design Team, contractor	Land-based works area	Construction phase	N/A	^
Fisheries Impact							
S7.7.3	***Measure to Control Water Quality Impact*** - Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area.	Control water quality impact, especially on suspended solid level	Design Team / Contractor	Marine work area	Construction phase	WQO	^
Waste Management (Construction Phase)							
S8.6.3	***Good Site Practices and Waste Reduction Measures***	To reduce waste	Contractor	All work	Construction	Waste Disposal	

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; - Training of site personnel in site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste; - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	management impacts		sites	Phase	Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^ ^
S8.6.4	***Good Site Practices and Waste Reduction Measures (con't)*** - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S8.6.5	***Good Site Practices and Waste Reduction Measures (con't)*** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^
S8.6.6	***Good Site Practices and Waste Reduction Measures (con't)*** - C&D materials would be reused in the project and other local concurrent projects as far as possible.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^
S8.6.7	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	-	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Different locations should be designated to stockpile each material to enhance reuse.						^
S8.6.8/ Waste Management Plan	***Storage, Collection and Transportation of Waste (con't)*** - Remove waste in timely manner; - Waste collectors should only collect wastes prescribed by their permits; - Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers; - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); - Waste should be disposed of at licensed waste disposal facilities/ alternative disposal ground approved by RE and DEP; and - Maintain records of quantities of waste generated, recycled and disposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase		^ ^ ^ ^ ^ ^
S8.6.9/ Waste Management Plan	***Storage, Collection and Transportation of Waste (con't)*** - Implementation of trip ticket system with reference to DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials, to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) should be proposed.	To minimize potential adverse environmental impacts arising from waste collection and	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		disposal					
S8.6.11 - S8.6.13/ Waste Management Plan	***Sorting of C&D Materials*** - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010 ETWB TCW No. 33/2002 ETWB TCW No. 19/2005	^ ^ ^
S8.6.15 – S8.6.16/ Waste Management Plan	***Sediments*** - Sediment encountered may be reused as filling material on-site after cement stabilization. Cement-stabilization process is undertaken by mixing sediment and cement and will convert sediment to earth filling material. The treated sediment has to comply with Risk-Based Remediation Goals (RBRGs) before being reused in order not to raise any land contamination issue. The adoption of RBRGs to assess stabilized sediment has been proposed in the current C&DMMP. MFC has no adverse comment on the current C&DMMP. The sediment quality indicates that all sediments comply with most stringent RBRGs except for one sediment sample (TKO-EBH501 3-3.95m) with lead exceeding the RBRG. Except for the sediment sample (TKO-EBH501 3-3.95m), the chemical screening	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02, NE/2017/01	All works areas with sediments concern	Construction Phase	RBRG	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	results do not indicate sediment as contaminated soil. It is anticipated that reuse of sediment except sediment sample (TKO-EBH501 3-3.95m) will not lead to land contamination. - Despite exceedance of RBRG, onsite reuse of sediment under sample (TKO-EBH501 33.95m) as filling material after cement stabilization is also a suitable treatment. Sediment quality indicates the sediment sample (TKO-EBH501 3-3.95m) exceed RBRG for lead. While cement stabilization will immobilize metal contaminants, it is capable to treat the exceedance on lead. The stabilized material should comply with UTS of Lead and UCS. If the treated material do not comply with UTS or UCS, re-stabilization have to be undertaken to meet compliance of UTS and UCS before reusing the treated sediment as filling material. However, further agreement on final disposal/treatment on sediment under sample (TKO-EBH501 3-3.95m) has to be sought from DEP						N/A
S8.6.17 – S8.6.20	***Sediments (con't)*** - Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during boring, excavation, transportation and disposal of sediments or cement stabilization of sediment. - A treatment area should be confined for carrying out the cement stabilization mixing and temporary stockpile. The area should be designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during boring,	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase		^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	excavation and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges/trucks. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.						N/A
S8.6.21/ Waste Management Plan	***Sediments (con't)*** - Alternatively, excavated sediment can be treated with marine disposal. The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is responsible for the provision and management of disposal capacity and facilities for the excavated sediment, while the permit of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the DEP.	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02, NE/2017/01	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A
S8.6.23	***Sediments (con't)*** - For allocation of sediment disposal sites and application of marine dumping permit, separate SSTP has to be submitted to EPD for agreement under DASO. Additional site investigation, based on the SSTP, maybe carried out in order to confirm the disposal arrangements for the proposed sediments removal. A Sediment Quality Report (SQR) shall then be required for EPD agreement under	To determine the best handling and disposal option of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	DASO prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal.						
S8.6.24 - S8.6.28/ Waste Management Plan	***Sediments (con't)*** - The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The excaveted sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. - Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during boring and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges. Loading of the excavated sediment to the barge should be controlled to	To ensure handling of sediments are in accordance to statutory requirements	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	avoid splashing and overflowing of the sediment slurry to the surrounding water. - The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. - In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. - Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal.						^ N/A N/A
S8.6.26/ Waste Management	***Chemical Wastes.*** - If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Plan	Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.					Chemical Wastes Waste Disposal (Chemical Waste) (General) Regulation	
S8.6.27/ Waste Management Plan	***General Refuse*** - General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	To ensure proper management of general refuse	Contractor	All works sites	Construction Phase	Public Health and Municipal Services Ordinance (Cap. 132)	^
Landscape and Visual Impact (Construction Phase)							
Table 10.8.1/ Landscape Mitigation Plan	CM1 - Construction area and contractor's temporary works areas to be minimised to avoid impacts on adjacent landscape.	Avoid impact on adjacent landscape areas	CEDD (via Contractor)	General	Construction planning and during construction period	N/A	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Table 10.8.1/ Landscape Mitigation Plan	CM2 - Reduction of construction period to practical minimum.	Minimise duration of impact	CEDD (via Contractor)	N/A	Construction planning	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical, to be stripped and stored for re-use in the construction of the soft landscape works. The Contract Specification shall include storage and reuse of topsoil as appropriate.	To allow re-use of topsoil	CEDD (via Contractor)	General	Site clearance	As per the Particular Specification	^
Table 10.8.1/ Landscape Mitigation Plan	CM4 - Existing trees at boundary of site and retained trees within site boundary to be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification, under which the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	To minimize tree loss	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance and throughout construction period	ETWB TC 3/2006 and as per tree protection measures in Particular Specification	^
Table 10.8.1/ Landsca	CM5 - Trees unavoidably affected by the works shall be transplanted where practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries. A detailed tree transplanting	To maximize preservation of existing trees	CEDD (via Contractor)	As per approved Tree	Site clearance	ETWB TC 3/2006 and as per tree protection	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
pe Mitigation Plan	specification shall be provided in the Contract Specification and sufficient time for preparation shall be allowed in the construction programme.			Removal Application(s)		measures in Particular Specification	
Table 10.8.1/ Landscape Mitigation Plan	CM6 - Advance screen planting of fast growing tree and shrub species to noise barriers and hoardings. Trees shall be capable of reaching a height >10m within 10 years.	To maximize screening of the works	CEDD (via Contractor)	At Lam Tin Interchange and edge of Road P2 landscape deck, TKO	Beginning of construction period	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM7 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	As per Particular Specification	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM8 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	N/A	^
Table	CM9 - Screening of works areas with hoardings with appropriate colours compatible	Reduction of	CEDD (via	Project site	Excretion of	N/A	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
10.8.1/ Landscape Mitigation Plan	with the surrounding area	visual intrusion	Contractor)	Boundary	site hoarding		
Table 10.8.1/ Landscape Mitigation Plan	CM10 - Avoidance of excessive height and bulk of site buildings and structure	Reduction of visual intrusion and integration with environment	CEDD (via Contractor)	Built structures	Design and construction stage	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM11 - Limitation of run-off into freshwater streams, ponds and sea areas	Avoidance of contamination of water courses and water bodie	CEDD (via Contractor)	TKO reclamation, TKO tunnel portal, Cha Kwo Ling roadworks	Throughout construction period	N/A	^
Table 10.8.1	CM12 - Minimise area of reclamation and design the edges sensitively to tie in with adjacent coastline characte	Minimise loss of Junk Bay and integration with existing coastlin	CEDD (via Contractor)	Temporary reclamation for barging points at	Construction planning and reclamation stages	N/A	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
				TKO and Lam Tin and permanent reclamation for TKO Interchange slip roads and Road P2			

Table II - Observations/reminders/non-compliance made during Site Audit

Key:
- * Observation/reminder was made during site audit but improved/rectified by the contractor.
- # Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
- X Non-compliance of mitigation measure
- • Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Water Quality Impact (Construction Phase)					
N/A	N/A	N/A	N/A	N/A	N/A

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract: NE/2015/03

Key:
^ Mitigation measure was fully implemented.
* Observation/reminder was made during site audit but improved/rectified by the contractor.
\# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
N/A Not Applicable

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	To minimize the dust impact	Contractor	All Active Work Sites	Construction phase	APCO	^
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall / mixing area in Work Area A, provision of water spraying and flexible dust curtains	To minimize the dust impact	Contractor	Barging Points	Construction phase	APCO	^
S3.8.7	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs. - Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage,	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	watering shall be applied to aggregate fines.						
	- Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.						^
	- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.						^
	- Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.						N/A
	- Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.						^
	- Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.						^
	- Imposition of speed controls for vehicles on site haul roads.						^
	- Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs						^
	- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.						^
	- Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if						^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	dusty conditions arise.						
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
/	Valid No-road Mobile Machinery (NRMM) labels should be provided to regulated machines	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^
Noise Impact (Construction Phase)							
S4.8	- Use of quiet PME. Use of movable noise barriers for Excavator, Lorry, Dump Truck, Mobile Crane, Compactor, Concrete Mixer Truck, Concrete Lorry Mixer, Breaker, Mobile Crusher, Backhoe, Vibratory Poker, Saw, Asphalt Paver, Vibratory Roller, Vibrolance, Hydraulic Vibratory Lance and Piling (Vibration Hammer). Use of full enclosure for Air Compressor, Compressor, Bar Bender, Generator, Drilling Rig, Chisel, Large Diameter Bore Piling, Grout Mixer & Pump and Concrete Pump.	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, SilentUp and etc.) or Full Enclosure for PME according to the approved Noise Mitigation Plan	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	^
S4.9	Good Site Practice - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program - Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. - Mobile plant, if any, should be sited as far away from NSRs as possible. - Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. - Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^ ^ ^ ^ ^
S4.9	Scheduling of Construction Works during School Examination Period	To minimize construction noise impact arising from the	Contractor	Work site near school	Construction phase	EIAO-TM, NCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		Project at the affected NSRs					
Water Quality Impact (Construction Phase)							
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	discharged into the corresponding WCZ under the TM-DSS.						
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^ N/A ^
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.10	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.11	Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.12	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.13	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		based construction					
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.17	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.18	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and washwater should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheelwash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.19	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.20	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There shall be no direct discharge of effluent from the site into the sea.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.21	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	^
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		based construction					
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and re-active to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance	N/A
S5.8.28	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phas	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.29 - S5.8.31	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be kept to a minimum. To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an online standby pump of adequate capacity and with automatic alternating devices. Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.32	All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.33	Bentonite slurries used in diaphragm wall and borepile construction should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.34	If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.35	Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.36	Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.37	Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		based construction					
S5.8.38	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.39	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.40	Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste)	Control potential impacts from accidental	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	(General) Regulation should be observed and complied with for control of chemical wastes.	spillage of chemicals					
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	^
S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; - chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and - storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	*(1) ^ *(1)
S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Control potential impacts from floating refuse and debris	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecological Impact							
S6.8.4	***Measures to Minimize Disturbance*** - Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible. - Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers; - Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A	^ ^ ^
S6.8.5	***Standard Good Site Practice*** - Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. - Construction activities should be restricted to works areas that should be clearly demarcated. The works areas should be reinstated after completion of the works. - Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner. - General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. - Open burning on works sites is illegal, and should be strictly prohibited. - Measures should also be put into place so that litter, fuel and solvents do not enter	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	^ ^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	the nearby watercourses.						
S6.8.8	-						
S6.8.9 S6.8.10	***Measure to Control Water Quality Impact*** - Proper waste and dumping management; and - Standard good-site practice for land-based construction.	Control water quality impact, especially on suspended solid level; minimize the contamination of wastewater discharge, accidental chemical spillage and construction site runoff to the receiving water bodies	Design Team, contractor	Marine and landbased works area	Construction phase	WQO	^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S6.8.11	***Compensation for Vegetation Loss*** - Felling of mature trees should be compensated by planting of standard or heavy standard trees within or in vicinity of the affected area as far as practicable. Such compensatory planting for trees should be provided with at least a 1:1 ratio. In addition, vegetation at the temporarily affected area should be reinstated with species similar to the existing condition.	Compensate for the vegetation loss	Design Team, contractor	Land-based works area	Construction phase	N/A	^
Waste Management (Construction Phase)							
S8.6.3	***Good Site Practices and Waste Reduction Measures*** - Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; - Training of site personnel in site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste; - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^ ^
S8.6.4	***Good Site Practices and Waste Reduction Measures (con't)*** - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354)	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	disposal; - Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.					Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^
S8.6.5	***Good Site Practices and Waste Reduction Measures (con't)*** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^
S8.6.6	***Good Site Practices and Waste Reduction Measures (con't)*** - C&D materials would be reused in the project and other local concurrent projects as far as possible.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S8.6.7	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and - Different locations should be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	-	^ ^ ^ ^
S8.6.8/ Waste Management Plan	***Storage, Collection and Transportation of Waste (con't)*** - Remove waste in timely manner; - Waste collectors should only collect wastes prescribed by their permits; - Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers; - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); - Waste should be disposed of at licensed waste disposal facilities/ alternative disposal ground approved by RE and DEP; and - Maintain records of quantities of waste generated, recycled and disposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase		^ ^ ^ ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S8.6.9/ Waste Management Plan	***Storage, Collection and Transportation of Waste (con't)*** - Implementation of trip ticket system with reference to DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials, to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) should be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^
S8.6.11 - S8.6.13/ Waste Management Plan	***Sorting of C&D Materials*** - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010 ETWB TCW No. 33/2002 ETWB TCW No. 19/2005	^ ^ ^
	-						
S8.6.17 – S8.6.20	***Sediments (con't)*** - Requirements of the Air Pollution Control (Construction Dust) Regulation, where	To determine the best handling	Contractor	All works areas with	Construction Phase		^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	relevant, shall be adhered to during boring, excavation, transportation and disposal of sediments or cement stabilization of sediment. - A treatment area should be confined for carrying out the cement stabilization mixing and temporary stockpile. The area should be designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during boring, excavation and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges/trucks. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.	and treatment of sediment		sediments concern			^ ^ N/A
	-						
	-						
S8.6.26/ Waste Management	***Chemical Wastes.*** - If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Plan	Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.					Chemical Wastes Waste Disposal (Chemical Waste) (General) Regulation	
S8.6.27/ Waste Management Plan	***General Refuse*** - General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	To ensure proper management of general refuse	Contractor	All works sites	Construction Phase	Public Health and Municipal Services Ordinance (Cap. 132)	* (1)
Impact on Cultural Heritage (Construction Phase)							
S9.6.4	Dust and visual impacts - Temporarily fenced off buffer zone with allowance for public access (minimum 1 m) should be provided; - The open yard in front of the temple should be kept as usual for annual Tin Hau festival; - Monitoring of vibration impacts should be conducted when the construction	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	works are less than 100m from the temple.						
Landscape and Visual Impact (Construction Phase)							
Table 10.8.1/ Landscape Mitigation Plan	CM1 - Construction area and contractor's temporary works areas to be minimised to avoid impacts on adjacent landscape.	Avoid impact on adjacent landscape areas	CEDD (via Contractor)	General	Construction planning and during construction period	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM2 - Reduction of construction period to practical minimum.	Minimise duration of impact	CEDD (via Contractor)	N/A	Construction planning	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical, to be stripped and stored for re-use in the construction of the soft landscape works. The Contract Specification shall include storage and reuse of topsoil as appropriate.	To allow re-use of topsoil	CEDD (via Contractor)	General	Site clearance	As per the Particular Specification	^
Table 10.8.1/	CM4 - Existing trees at boundary of site and retained trees within site boundary to be carefully protected during construction. Detailed Tree Protection Specification shall be	To minimize tree loss	CEDD (via Contractor)	As per approved	Site clearance and	ETWB TC 3/2006 and as per tree	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Landscape Mitigation Plan	provided in the Contract Specification, under which the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).			Tree Removal Application(s)	throughout construction period	protection measures in Particular Specification	
Table 10.8.1/ Landscape Mitigation Plan	CM5 - Trees unavoidably affected by the works shall be transplanted where practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries. A detailed tree transplanting specification shall be provided in the Contract Specification and sufficient time for preparation shall be allowed in the construction programme.	To maximize preservation of existing trees	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance	ETWB TC 3/2006 and as per tree protection measures in Particular Specification	^
Table 10.8.1/ Landscape Mitigation Plan	CM6 - Advance screen planting of fast growing tree and shrub species to noise barriers and hoardings. Trees shall be capable of reaching a height >10m within 10 years.	To maximize screening of the works	CEDD (via Contractor)	At Lam Tin Interchange and edge of Road P2 landscape deck, TKO	Beginning of construction period	N/A	^
Table 10.8.1/ Landscape Mitigation	CM7 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	As per Particular Specification	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Plan							
Table 10.8.1/ Landscape Mitigation Plan	CM8 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM9 - Screening of works areas with hoardings with appropriate colours compatible with the surrounding area	Reduction of visual intrusion	CEDD (via Contractor)	Project site Boundary	Excretion of site hoarding	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM10 - Avoidance of excessive height and bulk of site buildings and structure	Reduction of visual intrusion and integration with environment	CEDD (via Contractor)	Built structures	Design and construction stage	N/A	^
Table 10.8.1/ Landsca	CM11 - Limitation of run-off into freshwater streams, ponds and sea areas	Avoidance of contamination of water courses	CEDD (via Contractor)	TKO reclamation, TKO	Throughout construction period	N/A	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
pe Mitigation Plan		and water bodie		tunnel portal, Cha Kwo Ling roadworks			
Table 10.8.1	CM12 - Minimise area of reclamation and design the edges sensitively to tie in with adjacent coastline characte	Minimise loss of Junk Bay and integration with existing coastlin	CEDD (via Contractor)	Temporary reclamation for barging points at TKO and Lam Tin and permanent reclamation for TKO Interchange slip roads and Road P2	Construction planning and reclamation stages	N/A	N/A

Table II - Observations/reminders/non-compliance made during Site Audit

Key:
* Observation/reminder was made during site audit but improved/rectified by the contractor.
# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Waste / Chemical Management (Construction Phase)					
*(1)	S8.6.27 / Waste Management Plan	- General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	NE/2015/03	Construction of Northern Footbridge	General refuse should be cleared and disposed regularly.

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract: NE/2017/01

Key:
^ Mitigation measure was fully implemented.
* Observation/reminder was made during site audit but improved/rectified by the contractor.
# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
N/A Not Applicable

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Air Quality Impact (Construction Phase)							
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	To minimize the dust impact	Contractor	All Active Work Sites	Construction phase	APCO	N/A
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall / mixing area in Work Area A, provision of water spraying and flexible dust curtains	To minimize the dust impact	Contractor	Barging Points	Construction phase	APCO	N/A
S3.8.7	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs.	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	N/A N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.						N/A
	- Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.						N/A
	- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.						N/A
	- Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.						N/A
	- Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.						N/A
	- Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.						N/A
	- Imposition of speed controls for vehicles on site haul roads.						N/A
	- Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs						^
	- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.						N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.						N/A
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	N/A ^ ^
/	Valid No-road Mobile Machinery (NRMM) labels should be provided to regulated machines	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^
Sediment Management Plan	- Tarpaulin sheets will be provided to cover dredged materials during transportation offsite. - Water Sprinklers will be installed along outer steel frame. Dusty materials will be dampened by spraying water to suppress dust generation during mixing operation	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, APCO	N/A N/A N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Subject to the odour intensity and instruction by the *Supervisor*, odour suppressant will be applied over the marine sediments via water blaster to minimize the impact.						N/A
	- The unloading / loading areas of the marine sediments will be barricaded with minimum 3.5m high barrier facing the nearest resident to minimize the dust impact. The mixing area and curing area will be enclosed with 3-sides and roof to minimize the dust impact.						N/A
	- The mixing area will be established with retractable roof on top and with corrugated steel sheet at side enclosure by 5.4m high concrete block walls to prevent spread of dust during the mixing process with cement.						N/A
	- Handling and mixing of cement will follow the Air Pollution Control (Construction Dust) Regulation to avoid fugitive dust emissions.						N/A
	- The discharge of cement from silo hopper to the concrete mixer truck will be 4-side enclosed by Tarpaulin to minimize the dust emission.						N/A
	- The mixing of cement and water will be confined in the concrete mixer truck until the pre-mixing completed. The hydrated cement will then be unloaded to the mixing area to mix with the sediment.						N/A
	- Treated marine sediments in the stockpiling area shall be covered by tarpaulin sheets or similar material except the operating earthwork front.						N/A
	- The soil filled platform is covered by a layer of sand fill material, and frequent water spray will be carried out on the sand surface for dust control.						N/A
	- Any excessive air emissions will be inspected and recorded.						

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Sediment height of treated marine sediment being kept 0.9 m below the top level of concrete block wall during rainy season.						
Noise Impact (Construction Phase)							
S4.8	- Use of quiet PME. Use of movable noise barriers for Excavator, Lorry, Dump Truck, Mobile Crane, Compactor, Concrete Mixer Truck, Concrete Lorry Mixer, Breaker, Mobile Crusher, Backhoe, Vibratory Poker, Saw, Asphalt Paver, Vibratory Roller, Vibrolance, Hydraulic Vibratory Lance and Piling (Vibration Hammer). Use of full enclosure for Air Compressor, Compressor, Bar Bender, Generator, Drilling Rig, Chisel, Large Diameter Bore Piling, Grout Mixer & Pump and Concrete Pump.	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	^
Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, SilentUp and etc.) or Full Enclosure for PME according to the approved Noise Mitigation Plan	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO	^
S4.9	Good Site Practice - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program - Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.	To minimize construction noise impact arising from the Project at the	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Mobile plant, if any, should be sited as far away from NSRs as possible. - Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. - Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	affected NSRs					^ ^ ^ ^
S4.9	Scheduling of Construction Works during School Examination Period	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work site near school	Construction phase	EIAO-TM, NCO	N/A
Water Quality Impact (Construction Phase)							
S5.6.24	The dry density of filling material for the TKO-LT Tunnel reclamation should be 1,900kg/m^3, with fine content of 25% or less	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
S5.8.1	Non-dredged method by constructing steel cellular caisson structure with stone column shall be adopted for construction of seawall foundation. During the stone column installation (also including the installation of steel cellular caisson), silt curtain shall be employed around the active stone column installation points.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.2	Formation of seawall enclosing the reclamation for Road P2 (notwithstanding an opening of about 50m for marine access) shall be completed prior to the filling activities. The seawall opening of about 50m wide for marine access shall be selected at a location as indicatively shown in Appendix 5.10. No more than 3 filling barge trips per day shall be made with a maximum daily rate of 3,000m^3 (i.e. 1,000 m^3 per trip) for the filling operation at the reclamation area for Road P2. All filling works shall be carried out behind the seawall with the use of single silt curtain at the marine access.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
Silt Curtain Deployment Plan	- Silt curtains should be deployed properly to surround the works area. - Maintenance of silt curtain should be provided. - Sufficient stock of silt curtain should be provided on site.	Control potential impacts from marine woroks	Contractor	NE/2015/01, NE/2015/02, NE/2017/01	Construction stage	EIAO	# (1)
Sediment Management Plan	- Loading of barges and hoppers will be controlled to prevent splashing of dredged materials into the surrounding water. Barges or hoppers will not be filled to a level that will cause the overflow of materials or pollute water during loading or transportation. - Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. - Monitoring of the barge loading shall be conducted to ensure that loss of material does not take during transportation.	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, WPCO	N/A ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Transport barges or vessels shall be equipped with automatic self-monitoring devices.						^
	- Vehicles containing any untreated / treated marine sediments will be suitably covered to limit potential dust emissions or potential contaminated wastewater run-off, and truck bodies and tailgates will be sealed to prevent any discharge during transport or wet conditions.						N/A
	- The leachate from the untreated marine sediment will be collected and treated in the mixing pool for cement s/s treatment.						N/A
	- A 300mm diameter U-channel will be constructed along the perimeter of the cement s/s treatment facility to collect the run-off, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). Cleaning for the u-channel and desilting pits shall be conducted on weekly basic.						N/A
	- The stockpile area of treated marine sediment will be surrounded by the perimeter concrete block walls with geotextile membranes installed at the inner face of the concrete block walls. The types of perimeter wall can be used interchangeably. The Structural Feasibility of the perimeter wall for the changes of height of the stockpile had been checked and certified by ICE.						N/A
	- The mixing areas will be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater and will be confined by partition concrete block walls for carrying out the mixing and temporary stockpile of treated sediment.						N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.3	Other good site practices should be undertaken during filling operations include: - all marine works should adopt the environmental friendly construction methods as far as practically possible including the use of cofferdams to cover the construction area to separate the construction works from the sea; - floating single silt curtain shall be employed for all marine works; - all vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; - all hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; - excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved; - adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; - loading of barges and hoppers should be controlled to prevent splashing of filling material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation; - any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; - construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)	^ ^ ^ ^ ^ ^ N/A ^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	grounds; and - before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain.						N/A
S5.8.4	Site specific mitigation plan for reclamation areas using public fill materials should be submitted for EPD agreement before commencement of construction phase with due consideration of good site practices.	Control potential impacts from filling activities and marine based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
ERR S5.6.1	To minimize water quality impact arising from the dredging and filling works for Reclamation for Road P2, the following mitigation measures shall be implemented: - Before carrying out any dredging and underwater filling works, a temporary barrier shall first be constructed to a height above the high water mark to completely enclose the works site (without any opening at the barrier wall) - The temporary barrier fully enclosing the dredging and underwater filling works site shall not be removed before completion of all dredging and underwater filling works. - Water quality sampling and testing shall be carried out to demonstrate that the water quality inside the enclosed barrier is comparable to the ambient or baseline levels prior to the removal of the fully enclosed barrier. - Silt curtains shall be deployed for the installation and removal of the temporary	Control potential impacts from dredging and filling works for Reclamation for Road P2	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A N/A N/A N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	barrier and at the double water gates marine access opening during its operation.						
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	N/A
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	discharged into the corresponding WCZ under the TM-DSS.						
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A N/A N/A
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.10	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.11	Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	N/A
S5.8.12	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	N/A ^
S5.8.13	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	N/A
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		based construction					
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.17	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.18	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and washwater should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheelwash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.19	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.20	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There shall be no direct discharge of effluent from the site into the sea.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S5.8.21	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	N/A
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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		based construction					
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and re-active to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance	N/A
S5.8.28	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phas	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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S5.8.29 - S5.8.31	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be kept to a minimum. To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an online standby pump of adequate capacity and with automatic alternating devices. Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.32	All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.33	Bentonite slurries used in diaphragm wall and borepile construction should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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S5.8.34	If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.35	Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.36	Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.37	Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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		based construction					
S5.8.38	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.39	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.40	Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste)	Control potential impacts from accidental	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^

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	(General) Regulation should be observed and complied with for control of chemical wastes.	spillage of chemicals					
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	^
S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; - chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and - storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^ ^ * (2)
S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Control potential impacts from floating refuse and debris	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,	^

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Ecological Impact							
S6.8.4	***Measures to Minimize Disturbance*** - Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible. - Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers; - Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A	^ N/A N/A
S6.8.5	***Standard Good Site Practice*** - Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. - Construction activities should be restricted to works areas that should be clearly demarcated. The works areas should be reinstated after completion of the works. - Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner. - General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. - Open burning on works sites is illegal, and should be strictly prohibited. - Measures should also be put into place so that litter, fuel and solvents do not enter	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	N/A ^ ^ N/A ^ ^

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	the nearby watercourses.						
S6.8.6	***Measure to Minimize Groundwater Inflow*** - The drained tunnel construction method with groundwater inflow control measures would generally be adopted. - During the tunnel excavation, pre-excavation grouting could be adopted to reduce the groundwater inflow and ensure that the tunnel would meet the long term water tightness requirements.	Minimize groundwater inflow	Contractor	Tunnel	Construction Phase	N/A	N/A N/A
S6.8.8	***Measure to Minimize Impact on Corals*** <u>Coral translocation</u> - It is recommended to translocate the affected coral colonies, except the locally common *Oulastrea crispata*, within the reclamation area and bridge footprint to the other suitable locations as far as practicable. - The coral translocation should be conducted during the winter months (November-March) in order to avoid disturbance during their spawning period (i.e. July to October). - A detailed coral translocation plan with a description on the methodology for pretranslocation coral survey, translocation methodology, identification/proposal of coral recipient site, monitoring methodology for posttranslocation should be prepared during the detailed design stage. - The coral translocation plan should be subject to approval by relevant authorities (e.g. EPD and AFCD) before commencement of the coral translocation. All the translocation exercises should be conducted by experienced marine ecologist(s)	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	N/A N/A N/A N/A

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	who is/are approved by AFCD prior to commencement of coral translocation. <u>Post translocation Monitoring</u> - A coral monitoring programme is recommended to assess any adverse and unacceptable impacts to the translocated coral communities - Information gathered during each posttranslocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey.						N/A N/A
S6.8.9 S6.8.10	***Measure to Control Water Quality Impact*** - Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area. - Diverting of the site runoff to silt trap facilities before discharging into storm drain; - Proper waste and dumping management; and - Standard good-site practice for land-based construction.	Control water quality impact, especially on suspended solid level; minimize the contamination of wastewater discharge, accidental chemical spillage and construction site runoff to the	Design Team, contractor	Marine and land based works area	Construction phase	WQO	N/A ^ ^ N/A

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		receiving water bodies					
S6.8.11	***Compensation for Vegetation Loss*** - Felling of mature trees should be compensated by planting of standard or heavy standard trees within or in vicinity of the affected area as far as practicable. Such compensatory planting for trees should be provided with at least a 1:1 ratio. In addition, vegetation at the temporarily affected area should be reinstated with species similar to the existing condition.	Compensate for the vegetation loss	Design Team, contractor	Land-based works area	Construction phase	N/A	N/A
Fisheries Impact							
S7.7.3	***Measure to Control Water Quality Impact*** - Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area.	Control water quality impact, especially on suspended solid level	Design Team / Contractor	Marine work area	Construction phase	WQO	^
Waste Management (Construction Phase)							
S8.6.3	***Good Site Practices and Waste Reduction Measures*** - Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; - Training of site personnel in site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste;	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions)	^ ^ ^

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	- Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.					Ordinance (Cap. 28)	^ N/A
S8.6.4	***Good Site Practices and Waste Reduction Measures (con't)*** - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ N/A ^ ^
S8.6.5	***Good Site Practices and Waste Reduction Measures (con't)*** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^

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	areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor.						
S8.6.6	***Good Site Practices and Waste Reduction Measures (con't)*** - C&D materials would be reused in the project and other local concurrent projects as far as possible.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	N/A
S8.6.7	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and - Different locations should be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	-	^ ^ N/A ^
S8.6.8/ Waste Management	***Storage, Collection and Transportation of Waste (con't)*** - Remove waste in timely manner; - Waste collectors should only collect wastes prescribed by their permits; - Impacts during transportation, such as dust and odour, should be mitigated by	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase		^ ^ ^

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Plan	the use of covered trucks or in enclosed containers; - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); - Waste should be disposed of at licensed waste disposal facilities/ alternative disposal ground approved by RE and DEP; and - Maintain records of quantities of waste generated, recycled and disposed.	impacts arising from waste collection and disposal					^ ^ ^
S8.6.9/ Waste Management Plan	***Storage, Collection and Transportation of Waste (con't)*** - Implementation of trip ticket system with reference to DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials, to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) should be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^
S8.6.11 - S8.6.13/ Waste Management Plan	***Sorting of C&D Materials*** - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials should at least be segregated into inert and non-inert	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010 ETWB TCW No. 33/2002	^ ^ ^

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	materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills					ETWB TCW No. 19/2005	
S8.6.15 – S8.6.16/ Waste Management Plan	***Sediments*** - Sediment encountered may be reused as filling material on-site after cement stabilization. Cement-stabilization process is undertaken by mixing sediment and cement and will convert sediment to earth filling material. The treated sediment has to comply with Risk-Based Remediation Goals (RBRGs) before being reused in order not to raise any land contamination issue. The adoption of RBRGs to assess stabilized sediment has been proposed in the current C&DMMP. MFC has no adverse comment on the current C&DMMP. The sediment quality indicates that all sediments comply with most stringent RBRGs except for one sediment sample (TKO-EBH501 3-3.95m) with lead exceeding the RBRG. Except for the sediment sample (TKO-EBH501 3-3.95m), the chemical screening results do not indicate sediment as contaminated soil. It is anticipated that reuse of sediment except sediment sample (TKO-EBH501 3-3.95m) will not lead to land contamination. - Despite exceedance of RBRG, onsite reuse of sediment under sample (TKO-EBH501 33.95m) as filling material after cement stabilization is also a suitable treatment. Sediment quality indicates the sediment sample (TKO-EBH501 3-3.95m) exceed RBRG for lead. While cement stabilization will immobilize metal	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02, NE/2017/01	All works areas with sediments concern	Construction Phase	RBRG	N/A N/A

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	contaminants, it is capable to treat the exceedance on lead. The stabilized material should comply with UTS of Lead and UCS. If the treated material do not comply with UTS or UCS, re-stabilization have to be undertaken to meet compliance of UTS and UCS before reusing the treated sediment as filling material. However, further agreement on final disposal/treatment on sediment under sample (TKO-EBH501 3-3.95m) has to be sought from DEP						
S8.6.17 – S8.6.20	***Sediments (con't)*** - Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during boring, excavation, transportation and disposal of sediments or cement stabilization of sediment. - A treatment area should be confined for carrying out the cement stabilization mixing and temporary stockpile. The area should be designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during boring, excavation and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges/trucks. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase		^ ^ ^ N/A

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	handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.						
S8.6.21/ Waste Management Plan	***Sediments (con't)*** - Alternatively, excavated sediment can be treated with marine disposal. The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is responsible for the provision and management of disposal capacity and facilities for the excavated sediment, while the permit of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the DEP.	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02, NE/2017/01	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^
S8.6.23	***Sediments (con't)*** - For allocation of sediment disposal sites and application of marine dumping permit, separate SSTP has to be submitted to EPD for agreement under DASO. Additional site investigation, based on the SSTP, maybe carried out in order to confirm the disposal arrangements for the proposed sediments removal. A Sediment Quality Report (SQR) shall then be required for EPD agreement under DASO prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal.	To determine the best handling and disposal option of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^
S8.6.24 - S8.6.28/ Waste	***Sediments (con't)*** - The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The	To ensure handling of sediments are in	Contractor	All works areas with sediments	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Management Plan	excaveted sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. - Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during boring and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport	accordance to statutory requirements		concern		Ordinance	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. - In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. - Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal.						N/A N/A
S8.6.26/ Waste Management Plan	***Chemical Wastes.*** - If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes Waste Disposal (Chemical Waste) (General) Regulation	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.						
S8.6.27/ Waste Management Plan	***General Refuse*** - General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	To ensure proper management of general refuse	Contractor	All works sites	Construction Phase	Public Health and Municipal Services Ordinance (Cap. 132)	^
Impact on Cultural Heritage (Construction Phase)							
S9.6.4	Dust and visual impacts - Temporarily fenced off buffer zone with allowance for public access (minimum 1 m) should be provided; - The open yard in front of the temple should be kept as usual for annual Tin Hau festival; - Monitoring of vibration impacts should be conducted when the construction works are less than 100m from the temple.	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO	N/A N/A N/A
S9.6.4	Indirect vibration impact - Vibration level is suggest to be controlled within a peak particle velocity (ppv) limit of 5mm/s measured inside the historical buildings; - Monitoring of vibration should be carried out during construction phase. - Tilting and settlement monitoring should will be applied on the Cha Kwo Ling Tin	To prevent indirect vibration impact	Contractors	Work areas	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.	N/A N/A N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	Hau Temple as well. - A proposal with details for the mitigation measures and monitoring of impacts on built heritage shall be submitted to AMO for comments before commencement of work.						N/A
Built Heritage Mitigation Plan	- Established Alert, Alarm and Action Level for the monitoring parameters. - To increase the instrumentation monitoring and reporting frequency. - To propose detailed action plan or contingency plan for the Engineer's approval when AAA Level is reached or exceeded.	To prevent vibration impacts	NE/2015/01	Tin Hau Temple	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.	N/A N/A N/A
Landscape and Visual Impact (Construction Phase)							
Table 10.8.1/ Landscape Mitigation Plan	CM1 - Construction area and contractor's temporary works areas to be minimised to avoid impacts on adjacent landscape.	Avoid impact on adjacent landscape areas	CEDD (via Contractor)	General	Construction planning and during construction period	N/A	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM2 - Reduction of construction period to practical minimum.	Minimise duration of impact	CEDD (via Contractor)	N/A	Construction planning	N/A	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Table 10.8.1/ Landscape Mitigation Plan	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical, to be stripped and stored for re-use in the construction of the soft landscape works. The Contract Specification shall include storage and reuse of topsoil as appropriate.	To allow re-use of topsoil	CEDD (via Contractor)	General	Site clearance	As per the Particular Specification	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM4 - Existing trees at boundary of site and retained trees within site boundary to be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification, under which the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	To minimize tree loss	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance and throughout construction period	ETWB TC 3/2006 and as per tree protection measures in Particular Specification	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM5 - Trees unavoidably affected by the works shall be transplanted where practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries. A detailed tree transplanting specification shall be provided in the Contract Specification and sufficient time for preparation shall be allowed in the construction programme.	To maximize preservation of existing trees	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance	ETWB TC 3/2006 and as per tree protection measures in Particular Specification	N/A
Table 10.8.1/ Landsca	CM6 - Advance screen planting of fast growing tree and shrub species to noise barriers and hoardings. Trees shall be capable of reaching a height >10m within 10 years.	To maximize screening of the works	CEDD (via Contractor)	At Lam Tin Interchange and edge of	Beginning of construction period	N/A	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
pe Mitigation Plan				Road P2 landscape deck, TKO			
Table 10.8.1/ Landscape Mitigation Plan	CM7 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	As per Particular Specification	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM8 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	N/A	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM9 - Screening of works areas with hoardings with appropriate colours compatible with the surrounding area	Reduction of visual intrusion	CEDD (via Contractor)	Project site Boundary	Excretion of site hoarding	N/A	N/A
Table	CM10 - Avoidance of excessive height and bulk of site buildings and structure	Reduction of	CEDD (via	Built	Design and	N/A	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
10.8.1/ Landscape Mitigation Plan		visual intrusion and integration with environment	Contractor)	structures	construction stage		
Table 10.8.1/ Landscape Mitigation Plan	CM11 - Limitation of run-off into freshwater streams, ponds and sea areas	Avoidance of contamination of water courses and water bodie	CEDD (via Contractor)	TKO reclamation, TKO tunnel portal, Cha Kwo Ling roadworks	Throughout construction period	N/A	N/A
Table 10.8.1	CM12 - Minimise area of reclamation and design the edges sensitively to tie in with adjacent coastline characte	Minimise loss of Junk Bay and integration with existing coastlin	CEDD (via Contractor)	Temporary reclamation for barging points at TKO and Lam Tin and permanent reclamation for TKO Interchange	Construction planning and reclamation stages	N/A	N/A

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
				slip roads and Road P2			

Table II - Observations/reminders/non-compliance made during Site Audit

Key: * Observation/reminder was made during site audit but improved/rectified by the contractor.

Observation/reminder was made during site audit but not yet improved/rectified by the contractor.

X Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Water Quality (Construction Phase)					
#(1)	Silt Curtain Deployment Plan	- Maintenance of silt curtain should be provided.	NE/2017/01	Construction of TKO Portal	• Broken silt curtain at 1K should be repaired.
Waste Management (Construction Phase)					
*(2)	S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; - chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and - storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	NE/2017/01	Construction of TKO Portal	• Equipment and materials were observed stored in the drip tray. Contractor should remove the equipmnt and material to increase the capacity of drip tray for chemical leakage. • Dripping oil from bored piling machine on Wai Lung should be cleared.

APPENDIX O
SUMMARIES OF ENVIRONMENTAL COMPLAINT, WARNING, SUMMON AND NOTIFICATION OF SUCCESSFUL PROSECUTION

Appendix O - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log for Tseung Kwan O - Lam Tin Tunnel

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
262	30th December 2018	26th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complained about the construction noise from tunnel works of Lam Tin Interchange.	Y	Under Investigation	On-going
261	26th December 2018	26th December 2018/ Construction of Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Complained about the construction noise from tunnel works of Lam Tin Interchange.	Y	Under Investigation	On-going
260	26th December 2018	26th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise of Lam Tin Interchange.	Y	Under Investigation	On-going
259	26th December 2018	26th December 2018/ Construction of Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Complained about the construction noise of Lam Tin Interchange.	Y	Under Investigation	On-going
258	18th December 2018	18th December 2018/ Construction of Lam Tin Interchange	Engineering Section of Ocean Shore	Noise	Complained about the construction noise from the marine works.	Y	Under Investigation	On-going
257	18th December 2018	18th December 2018/ Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from the marine works.	Y	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
256	17th December 2018	15th December 2018/ Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking and piling activities	Y	Under Investigation	On-going
254	16th December 2018	16th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	Under Investigation	On-going
253	15th December 2018	15th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	Under Investigation	On-going
252	30th November 2018	30th November 2018/ Construction of Road D4	Resident of Park Central	Noise & Air	Complained about the construction noise and dust resuspension in Road D4.	Y	Under Investigation	On-going
251	28th November 2018	27th November 2018/ Construction of TKO portal	Public	Noise	Complained about the construction noise from the marine works.	Y	Under Investigation	On-going
250	26th November 2018	26th November 2018/ Public sea in TKO	Resident of Ocean Shore	Noise	Complained about the noise nuisance from the operation of derrick barge on Sunday.	Y	Under Investigation	On-going
249	25th November 2018	20th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from the Excavators in LTI on Sunday morning.	Y	Under Investigation	On-going
248	20th November 2018	20th November 2018/ Lam Tin	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance during transfer of material in evening time at LTI	Y	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
		Interchange						
247	20th November 2018	19th November 2018/ Lam Tin Interchange	Public	Noise	Complained about the noise nuisance from rock dropping during evening time	Y	Under Investigation	On-going
246	19th November 2018	19th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from dump truck in evening time	Y	Under Investigation	On-going
245	8th November 2018	8th November 2018/ Lam Tin Interchange	Public	Noise	Complained about construction noise during night time from LTI	Y	Under Investigation	On-going
243	8th November 2018	8th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the construction noise during evening time from LTI.	Y	Under Investigation	On-going
242	7th November 2018	7th November 2018/ Lam Tin Interchange	Public	Noise	Complained about the construction noise and dust nuisance.	Y	Under Investigation	On-going
241	6th November 2018	6th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from LTI during evening time	Y	Under Investigation	On-going
240	6th November 2018	6th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from LTI during evening time	Y	Under Investigation	On-going
239	25th October 2018	25th October 2018/ Construction of Road P2	Resident of Ocean Shore	Noise	Complained about daytime construction noise near Ocean Shore.	Y	No exceedance was recorded in the noise monitoring result. The number of PME operated in LTI was consistent with the proposed Construction Noise mitigation Plan (CNMP) **Additional mitigation measures adopted by Contractor upon receipt of complaint:** ➢ A more effective acoustic barrier was erected that covered	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							the direct line of sight from the entire Ocean Shore during piling works. **Existing Mitigation Measures adopted by Contractor** ➢ Silent up barrier was provided for drill rig/vibration hammer. Acoustic barriers was erected along site boundary); ➢ Maintenance for acoustic barriers along the site boundary to ensure the integrity effectiveness of sound barrier; ➢ Metal chain attached on the vibration hammer was wrapped with rubbery material to reduce the excessive noise produced during piling works.	
238	23rd October 2018	23rd October 2018/ Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the noise created by an excavator during morning	Y	See Investigation / Mitigation Measures for Complaint No. 239	Closed
237	18th October 2018	18th October 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about construction noise at LTI	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed
236	18th October 2018	18th October 2018/ Lam Tin Interchange	Resident of Cha Kwo Ling Village	Noise	Complained about the vibration and noise near	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed
235	18th October 2018	18th October 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from LTI and Portion 4C	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed
234	18th October 2018	18th October 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the Excavator in LTI was not properly wrapped and produce noise nuisance from LTI.	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed
233	15th October 2018	15th October 2018/ Lam Tin Interchange	DC member	Noise	Complained about the noise and dust nuisance from LTI	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
232	14th October 2018	14th October 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from LTI during night time	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed
231	12th October 2018	12th October 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from LTI	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed
230	11th October 2018	11th October 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise from rocks unloading in LTI	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed
229	9th October 2018	9th October 2018/ Lam Tin Interchange	Resident of Bik Lai House, Yau Lai Estate	Noise	Complained about the noise nuisance from LTI, and lack of effective noise barrier.	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed
228	9th October 2018	9th October 2018/ Lam Tin Interchange	Public	Noise	Complained about the noise nuisance from LTI	Y	See Investigation / Mitigation Measures for Complaint No. 227	Closed
227	3rd October 2018	3rd October 2018/ Lam Tin Interchange	Resident of Yung Lai House, Yau Lai Estate	Noise	Complained about the noise nuisance from LTI during night time	Y	No exceedance was recorded in the noise monitoring result. The number of PME operated in LTI was consistent with the proposed Construction Noise mitigation Plan (CNMP) and approved Construction Noise Permit (CNP). **Mitigation Measures adopted by Contractor** <u>Noise:</u> ➢ Noise barriers were repaired to reduce noise nuisance at Portion 4C; ➢ Noise barriers were erected between the PMEs and NSR to reduce noise nuisance at Portion 4C; ➢ Powered mechanical equipment (PME) for breaker was equipped with noise barriers at Portion 4C.	Closed
226	28th September 2018	28th September 2018/ Construction	Resident of Ocean Shores	Noise	Complained about noise nuisance from portion IV	Y	See Investigation / Mitigation Measures for Complaint No. 222	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
		of Road P2						
225	26th September 2018	26th September 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise from rocks unloading in LTI	Y	See Investigation / Mitigation Measures for Complaint No. 218	Closed
224	18th September 2018	18th September 2018/ Construction of Road P2	Public	Noise	Complained about noise nuisance from derrick barge	Y	See Investigation / Mitigation Measures for Complaint No. 219	Closed
223	13th September 2018	9th September 2018/Construction of Portion VII on TKO side	Resident of Ocean Shores	Noise	Complained about noise nuisance from derrick barges	Y	See Investigation / Mitigation Measures for Complaint No. 218	Closed
222	12th September 2018	12th September 2018/ Construction of Road P2	Resident of Ocean Shores	Noise	Complained about the noise nuisance from piling works	Y	**Mitigation Measures adopted by the Contractor** ➢ Acoustics barriers were provided to the vibration hammer for piling works. ➢ Maintenance for acoustic barriers on the PME and along the site boundary to ensure the integrity and effectiveness of sound barriers. ➢ Regular site checking would be performed to ensure the type and quantity of powered mechanical equipment are in order with the updated Construction Noise Assessment. ➢ Acoustics mats were provided to cover the noise source from vibration hammer. ➢ The metal chain on vibration hammer was wrapped with rubbery material to minimize sound impact. ➢ The schedule for piling works was set with a 5 minutes interval to reduce the accumulated noise level.	Closed
221	11th September 2018	9th September 2018/ Construction of Portion VII	Public	Noise	Complained about the noise from broadcasting at barging point	Y	The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows:	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
		on TKO side					Noise: ➢ Walkie-talkie was used instead of broadcasting to reduce the noise nuisance.	
220	11th September 2018	26th September 2018/ Lam Tin Interchange	Public	Noise	Complained about the construction noise	Y	See Investigation / Mitigation Measures for Complaint No. 218	Closed
219	7th September 2018	7th September 2018/ Construction of Road P2	Resident of Ocean Shores	Noise	Complained about the noise from sheet piling	Y	**Mitigation Measures adopted by the Contractor** ➢ Silent up barrier was provided for piling works in between vibration hammer and Ocean Shores. Acoustic barriers was erected along site boundary ➢ Noise barrier surround the engine of the derrick barge ➢ Acoustic material wrapped on vibration hammer for sheet piling works	Closed
218	6th September 2018	6th September 2018/ Construction in LTI	Public	Noise	Complained about noise nuisance in LTI	Y	The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: Noise: ➢ Noise barriers were erected between the PMEs and NSR to reduce noise nuisance at Portion 4C; ➢ Powered mechanical equipment (PME) for breaker was equipped with noise barriers at Portion 4C.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
217	5th September 2018	5th September 2018/ Construction of Road P2	Public	Air Quality	Complained about dark smoke emission from derrick barges.	N	The Contractors has adopted the following environmental mitigation measures to reduce dark smoke nuisance from construction barges since June for dark smoke complaints: ➢ Smoke filtering tanks were adopted on deck level of derrick barges to reduce emission of dark smoke and exhaust smell; ➢ New engine has been installed on derrick barge to reduce the dark smoke emission.	Closed
216	5th September 2018	5th September 2018/ Construction of Road P2	Public	Air Quality	Complained about dark smoke emission from derrick barges.	N	See Investigation / Mitigation Measures for Complaint No. 217	Closed
215	5th September 2018	5th September 2018/ Construction of Road P2	Public	Water Quality	Complained about the oil leakage within the cofferdam	N	The Contractors had taken measures to clean up and prevent any further oil spillage for marine works in the future: ➢ Oil was absorbed and cleared with sorbents ➢ Wire was applied with suitable amount of oil to prevent further oil spill ➢ Training was provided for frontline staff on applying lubricant oil on wire rope of derrick barge. The Contractor had implemented environmental measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as below: ➢ Construction activities should not cause foam, oil, grease, scum, little or other objectionable matter to be present on the water within the site. ➢ Standard good-site practice is adopted to prevent any fuels and solvent entering the nearby watercourses.	Closed
214	4th September 2018	4th September 2018/ Construction of Road P2	Ocean Shores Management Office	Air Quality	Follow up complaint on 21 and 22 August, regarding dark smoke emission from derrick	N	See Investigation / Mitigation Measures for Complaint No. 217	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
					barges.			
213	31st August 2018	31st August 2018/ Construction of Lam Tin Interchange	Public	Air Quality	The complainant complained about the dust nuisance at LTI.	N	See Investigation / Mitigation Measures for Complaint No. 207	Closed
212	27th August 2018	27th August 2018/ Construction of Road P2	Resident of Yau Lai Estate	Noise	The complainant complained about the noise nuisance from breaker and excavator in LTI.	Y	See Investigation / Mitigation Measures for Complaint No. 203	Closed
211	22nd August 2018	22nd August 2018/ Construction of Road P2	Public	Air Quality	The complainant complained about the dark smoke emitted from derrick barge outside Ocean Shores.	N	See Investigation / Mitigation Measures for Complaint No. 209	Closed
210	21st August 2018	21st August 2018/ Construction of Road P2	Public	Air Quality	The complainant complained about the dark smoke emitted from derrick barge outside Ocean Shores.	N	See Investigation / Mitigation Measures for Complaint No. 209	Closed
209	21st August 2018	20th & 21st August 2018/ Construction of Road P2	DC Member	Air Quality	The complainant complained about the dark smoke emitted from derrick barge outside Ocean Shores on 20 and 21 of August.	N	The Contractors had implemented environmental mitigation measures to reduce dark smoke nuisance from construction barges to the nearby sensitive receivers as follows: ➢ Additional water filter tank was adopted on deck level of derrick barges to reduce emission of dark smoke and exhaust smell ➢ There were five derrick barges operating on 20 & 22 of August and four of them had water filter installed. The one without water filter was demobilized away from the site on 22 August.	Closed
208	20th August 2018	17th August/ Construction of Road P2	DC Member	Water Quality	The complainant complained that muddy water was discharged from the construction site.	N	Based on the information gathered in the investigation. As the location of muddy discharge was appeared adjoining the Tseung Kwan O DSD Desilting Compound, a high volume of upstream discharge collected from rain events is a possible cause of such muddy discharge event. There are no direct evidence that the	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							muddy discharge near the outfall of DSD Desilting Compound was due to the Project. Measure Taken by the Contractor The Contractors had taken initiatives to ensure the quality of wastewater discharge from land-based works and to enhance mitigation measure to prevent silt from marine works from entering surrounding waters: ➢ Additional geotextile was installed between steel tanks to prevent migration of filling materials outside the cofferdam ➢ Cofferdams in form of steel tanks filled with aggregated material were covered with geotextile to prevent spillage of silty materials into nearby waters	
207	18th August 2018	18th August 2018/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Air Quality	The complainant complained about dust nuisance from surface blasting.	N	According to the EM&A Manual of this Project, regular air quality monitoring has been carried out at following Stations. AM2 – Sai Tso Wan Recreation Ground; AM3 Yau Lai Estate, Bik Lai House. No exceedance was recorded in the above station during August. Mitigation Measures and Follow up Actions by Contractor The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: Air Quality: ➢ Blasting cage were surrounded with impervious material during surface blasting ➢ Water spraying was provided at the blasting cage and stone crusher to enhance dust suppression	Closed
206	13th August 2018	13th August 2018/ Construction of Lam Tin	Resident of Yau Lai Estate	Noise	The complainant complained about the noise nuisance from the breaker at LTI and	Y	See Investigation / Mitigation Measures for Complaint No. 203	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
		Interchange			complained lack of noise barrier.			
205	10th August 2018	10th August 2018/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained about the noise nuisance of construction work starting from 7 am and lack of noise barrier.	Y	See Investigation / Mitigation Measures for Complaint No. 203	Closed
204	9th August 2018	9th August 2018/ Construction of Lam Tin Interchange	Resident of Tak Tin Estate	Noise	The complainant complained about noise nuisance and vibration from blasting activity	Y	According to the EM&A Manual of this Project, weekly noise monitoring in Cha Kwo Ling and Lam Tin during s been carried out at the following Stations. CM1 – Nga Lai House, Yau Lai Estate Phase 1, Yau Tong, Station; CM2 – Bik Lai House, Yau Lai Estate Phase 1, Yau Tong; CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong. There was no exceedance recorded in the above station during daytime in August.	Closed
203	9th August 2018	9th August 2018/ Construction of Lam Tin Interchange	Property Management of Tak Tin Estate	Noise	The complainant complained about the noise nuisance during 8pm	Y	Mitigation Measures and Follow up Actions by Contractor The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: Noise: ➢ Noise barriers were erected between the PMEs and NSR to reduce noise nuisance at Portion 4C ➢ Powered mechanical equipment (PME) for rock breaking were equipped with noise barriers at Portion 4C According to the EM&A Manual of this Project, weekly noise monitoring in Cha Kwo Ling and Lam Tin during s been carried out at the following Stations. CM1 – Nga Lai House, Yau Lai Estate Phase 1, Yau Tong, Station; CM2 – Bik Lai House, Yau Lai Estate Phase 1, Yau Tong; CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							There was no exceedance recorded in the above station during daytime in August.	
202	1st August 2018	1st August 2018/ Construction of Lam Tin Interchange	Resident of Yeung Mei House	Noise	The complainant complained about the construction noise during night-time.	Y	A valid Construction Noise Permit (CNP) (No. GW-RE0421-18) was granted to the Contractor for the construction site at Lam Tin Interchange The number of excavators that were used on 01 August was covered by the CNP. The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: ➢ Noise barriers were erected between the PMEs and NSR to reduce noise nuisance ➢ Powered mechanical equipment (PME) for rock breaking were equipped with TMD and SilentMat	Closed
201	26th July 2018	26th July 2018 / Construction of P2/D4	Public	Water quality	The complainant complained about the polluted effluent at the nearby surface drain near the construction of elevator.	N	The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: ➢ Sandbags barrier was placed along the working area to prevent direct discharge	Closed
200	26th July 2018	26th July 2018 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Follow up on 24th July 2018, the situation has yet been addressed.	Y	See Investigation / Mitigation Measures for Complaint No. 197	Closed
	24th July 2018	23rd July 2018 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained about a yellow breaker working without noise barrier.	Y	See Investigation / Mitigation Measures for Complaint No. 197	Closed
199	25th July 2018	25th July 2018 / Construction	SKDC member	Noise	The complainant complained about the	Y	See Investigation / Mitigation Measures for Complaint No. 198	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
		of Road P2			noise from piling works at Portion IV.			
198	21st July 2018	21st July 2018 / Construction of Road P2	SKDC member	Noise	The complainant complained about the noise from metal occasionally in the marine works area.	Y	Based on the noise monitoring results in July 2018, no Limit Level Exceedance was recorded at Station CM6(A) and CM7(A). It is considered that no adverse construction noise impact was brought to the nearby sensitive receivers during the construction. The Contractors had implemented environmental mitigation measures to reduce construction nuisance from construction activities to the nearby sensitive receivers as follows: <u>Noise:</u> ➢ Acoustic box was utilized for breaking works to minimize noise nuisance ➢ Acoustic barriers were provided for pre-boring works ➢ Regular site checking would be performed to ensure the type and quantity of PME are in order with the updated Construction Noise Assessment. ➢ Additional acoustic materials were wrapped around the vibration hammer ➢ Quieter plant, i.e. quality powered mechanical equipment was used as far as practicable to minimize noise impact from PME	Closed
197	21st July 2018	21st July 2018 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained about the noise nuisance from breaker.	Y	According to the EM&A Manual of this Project, additional weekly noise monitoring in Cha Kwo Ling and Lam Tin during night-time has been carried out at Station CM1 – Nga Lai House, Yau Lai Estate Phase 1, Yau Tong, Station CM2 – Bik Lai House, Yau Lai Estate Phase 1, Yau Tong, CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong. no Limit Level Exceedance was recorded at Station CM1, CM2 and CM3. The summary of daytime and evening time noise monitoring results which conducted by ET in July and early August 2018 at Station CM1, CM2 and CM3	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: ➢ Noise barriers were erected between the PMEs and NSR to reduce noise nuisance ➢ Powered mechanical equipment (PME) for rock breaking were equipped with TMD and SilentMat	
196	20th July 2018	Not specified / Construction of Lam Tin Interchange	Property Management Office of Hong Pak Court	Air Quality	The complainant complained about the dust problem after blasting work in the afternoon.	N	The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: ➢ Blasting cage were surrounded with impervious material during surface blasting ➢ Water spraying was provided at the blasting cage to enhance dust suppression	Closed
195	17th July 2018	16th July 2018 / Construction of Road P2	SKDC member	Noise	The complainant complained the noise from works area near Ocean Shores	Y	See Investigation / Mitigation Measures for Complaint No. 198	Closed
194	12th July 2018	12th July 2018/ Construction of Road P2/ D4 and Northern Footbridge	Residents of Metrotown	Air Quality	The complainant complained the dusty problem next to Chui Ling Road Substation.	N	The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: ➢ Water spraying was provided at least 8 times a day. ➢ Access road was paved to minimize dust emission from truck traffic.	Closed
193	12th July 2018	12th July 2018 / Construction of Road P2	Residents of Metrotown	Air Quality	The complainant complained the dust problem from the partially covered	N	According to the information provided and confirmed by the Engineer, loading and unloading of treated sediment was conducted in Work Area A.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
					stockpile in Work Area A.		According to the EM&A Manual of this Project, regular air quality monitoring has been carried out at Station AM5(A) – Tseung Kwan O DSD Desilting Compound and AM6(A) – Park Central, L1/F Open Space Area. no Action or Limit Level Exceedance was recorded at Station AM5(A) and AM6(A) from 3 to 12 July 2018. It is considered that no adverse air quality impact was brought to the nearby sensitive receivers during the construction period The Contractors had implemented environmental mitigation measures to reduce dust nuisance from construction activities to the nearby sensitive receivers as follows: ➢ Covered the stockpile of treated marine sediment with tarpaulin sheets	
192	23rd July 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Follow up on the complaint on 27th June, 2nd and 3rd July 2018, the complainant complained that the situation has not yet been addressed.	Y	The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: ➢ Replaced and fixed the uneven metal plate on Lei Yue Mun Road near ambulance depot	Closed
	3rd July 2018	3rd July 2018/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Follow up on the complaint on 27th June, 2nd July 2018, the complainant complained that the situation has not yet been addressed.	Y		Closed
	2nd July 2018	2nd July 2018/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Follow up on the complaint on 27th June 2018, the complainant complained that the situation has not yet been addressed.	Y		Closed
	27th June 2018	26th and 27th June 2018/ Construction of Lam Tin	Resident of Yau Lai Estate	Noise	The complainant complained the construction noise at Lam Tin Interchange	Y		Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
		Interchange			during night-time.			
191	25th June 2018	23rd June 2018/ Construction of Road P2	Public	Air Quality	The complainant complained the dark smoke emission from construction barge and the smell from welding works.	N	According to the information provided and confirmed by the Engineer, dredging and welding works are conducted on 23 June 2018 during the time of complaint. The Contractors had implemented environmental mitigation measures to reduce odour nuisance from construction activities to the nearby sensitive receivers as follows: ➢ Air blowers were provided at the location where welding works to be carried out to dilute the smell ➢ Additional water filter tank was adopted on deck level of derrick barges to reduce emission of dark smoke and exhaust smell	Closed
190	22nd June 2018	Not Specific/ Construction of Lam Tin Interchange	Public	Waste Management	The complainant complaint about the housekeeping of the construction site.	N	From the Daily Record Summary provided by the Contractor and confirmation by the RE, there was no irregularity, and together with the site inspection conducted by the environmental team in June, construction waste on pavement was not observed. Despite, the Contractor was reminded to follow the relevant mitigation measures related to waste management: ➢ Ensure trucks have enclosed the containers before leaving the site to reduce the impact during transportation (Photo 3); ➢ Training of site personnel in proper waste management and chemical handling procedures to ensure proper disposal of construction waste; ➢ Proper storage and site practices to minimize the potential for damage or contamination of construction materials	Closed
189	20th June	28th May	SKDC	Air Quality	The complainant	N	See Investigation / Mitigation Measures for Complaint No. 181.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
	2018	2018/ Construction of Road P2	member		complained the dark smoke emission from the same construction vessel.			
188	20th June 2018	20th June 2018/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained about construction noise starting from 6 am.	Y	The construction activities in Lam Tin Interchange (Work site No.101) on 20th of June possessed of 6 no. of excavators between 7-8 am, 6 no. of breakers, excavator mounted between 8-10 am. The quantity of excavators and breakers were consistent with the Construction Noise Mitigation Plan (Construction Activity Group 1.1) The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: ➢ Powered mechanical equipment (PME) for rock breaking were equipped with TMD and SilentMat	Closed
187	7th June 2018	7th June 2018/ Construction of Road P2	Resident of Ocean Shores	Air Quality	The complainant complained about the smell of machinery exhaust affecting the podium of Ocean Shores (swimming pool). The complainant suspected the exhaust was originated from the nearby barges.	N	According to the information provided and confirmed by the Engineer, dredging works and placing rock fill were conducted during the time of complaint. Dredger, derrick barge, tug boat and hopper barge were being operated for the mentioned works. According to the site inspections conducted by ET and IEC in May and June 2018, no exhausted smell from construction vessel was identified in Portion IV, VII and IX. The Contractors had implemented environmental mitigation measures to minimize the air nuisance to the nearby sensitive receivers as follows: *Odour Emission from Exhausted Gas:* ➢ Additional water filter tank was adopted on the deck level of derrick barges to reduce emission of dark smoke and exhaust smell	Closed
186	6th June	6th June 2018/	Resident of	Noise	The complainant	Y	A valid Construction Noise Permit (CNP) (No. GW-RE0278-18)	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
	2018	Construction of Lam Tin Interchange	Chung Pak House, Hong Pak Court		complained about the construction noise at Lam Tin Interchange.		was granted to the Contractor for the construction site at Lam Tin Interchange. The number of excavator and dump trucks that were used on 6 June were covered by the CNP.	
185	6th June 2018	30th May and 30th September 2017/ Construction of Road P2	SKDC member	Noise	The complainant complained about the noise affecting nearby resident in early morning near Ocean Shores.	Y	See Investigation / Mitigation Measures for Complaint No. 50 and 81.	Closed
184	6th June 2018	Not specified / Construction of Road P2	SKDC member	Landscape	The complainant complained about excessive tree felling near Ocean Shores.	N	According to the information provided and confirmed by the Engineer, tree removal application for the concerned area has granted approval from District Lands Office (DLO) on 1 August 2017 and 18 April 2018 together with the tree compensatory plans. The felling of a total of 85 trees at the concerned area were in accordance with the approved tree removal application by the DLO. None of them are registered Old and Valuable Tree and neither of them are rare nor endangered species. The number of retained trees at the concerned location complies with the latest tree removal application. The Contractor had taken initiatives to minimize nuisance from construction works to the nearby sensitive receivers as follows: ➢ Tree protection zones were established and surrounded by fences to protect retained trees adjacent to the construction area. ➢ Tree protection zone were free of machinery and material that are likely to be injurious to the tree. ➢ Regular tree assessments were conducted by qualified Arborist to monitor the condition of retained trees.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
183	4th June 2018	4th June 2018/ Construction of Lam Tin Interchange	Resident of Hong Pak Court	N/A	The complainant complained about the blasting works during night-time.	N	The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" ➢ Ensured blasting doors were closed while blasting associated works was undertaken in the tunnel ➢ Installed steel-type blasting door mounted with sound absorptive lining to absorb construction noise in the tunnel	Closed
182	1st June 2018	Not specified/ Construction of Lam Tin Interchange	Sin Fat Road Tennis Court	Air Quality	The complainant complained about the dust	N	The Contractor had taken initiatives to minimize nuisance from construction works to the nearby sensitive receivers as follows: ➢ Frequent water spraying along the slope area at LTI. ➢ Tarpaulin sheets were provided along the slope adjacent to the tennis court during preparation of surface blasting.	Closed
181	29th May 2018	Not specified/ Construction of Road P2	Public	Air Quality	The complainant complained about the black smoke emission from the construction vessel.	N	According to the information provided and confirmed by the Engineer, dredging and placing rock fill material were conducted during the time of complaint. The Contractors had implemented environmental mitigation measures to reduce construction nuisance from construction activities to the nearby sensitive receivers as follows: <u>Air Quality:</u> As confirmed by the Engineer, the concerned barge was off site for further maintenance; Additional water filter tank was adopted to reduce of dark smoke and exhaust. The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
180	25th May 2018	24th May 2018/ Construction of Road P2	SKDC member Mr. Cheung Chin Pang	Odour	The complainant complained about smell of exhaust gas affecting high level residents (60/F and above) of Metrotown Tower 10.	N	According to the information provided and confirmed by the Engineer, modification of temporary marine platform and welding works were conducted during the time of complaint. The Contractors had implemented environmental mitigation measures to reduce construction nuisance from construction activities to the nearby sensitive receivers as follows: Air Quality: Additional water filter tank was adopted to reduce of dark smoke and exhaust. The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents.	Closed
179	24th May 2018	24th May 2018/ Construction of Northern footbridge , Road P2/D4 and Road P2	Public	Air Quality	The complainant complained construction dust generated from the CEDD construction works site between Tong Yin Street and Tiu Keng Leng Sport Centre (Po Yap Road) as a result of insufficient dust suppression measures	N	According to the information provided and confirmed by the Engineer, construction works including steel bar fixing, scaffolding, trimming formation level, compaction, removal of road marking and handling of treated sediment were conducted during the time of complaint. As shown in the Air Quality Monitoring Results**,** no Action/ Limit Level Exceedance was recorded at Station AM5(A) and AM6(A) in May 2018. It is considered that no adverse construction dust impact was brought to the nearby sensitive receivers during the construction period of this Project The Contractors had implemented environmental mitigation measures to reduce construction nuisance from construction activities to the nearby sensitive receivers as follows: raying was provided at least 8 times a day; ear public access was hard paved; e in Work Area A was covered except the operating area	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents.	
178	23rd May 2018	22nd May 2018/ Construction of TKO Portal	Public	N/A	The complainant complained construction works was carried out on 22 May (which was a public holiday) around 1500 hour at the sea area near Ocean shore Block 2.	N	According to the information provided and confirmed by the Engineer, modification of temporary marine platform and welding works were conducted during the time of complaint. One valid Construction Nosie Permit (CNP) (No. GE-RE0309-18) was granted to the Contractor (Leighton – China State Joint Venture) (Contract No. NE/2015/01) for the marine construction site near Ocean Shores. According to the CNP, Group O to T of the PME listed in condition 3.a. are allowed to operate during general holiday (including Sunday) from 0900 – 2300 hours. As confirmed by the Engineer, only a group of PME (listed in Group Q) was operated during the time of complaint. No welding machine was operated in Zone A. No derrick barge and flat top barge were operated beyond Zone C. The Contractors had implemented environmental mitigation measures to reduce construction nuisance from construction activities to the nearby sensitive receivers as follows: <u>Noise:</u> Preinstalled speaker was used on derrick barge to e the noise disturbance from on-site communication. The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
177	22nd May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Air Quality & Noise	The complainant complained about the dust nuisance and construction noise at Lam Tin Interchange	Y	According to the Engineer's Site Diaries, the major construction activities performed in May 2018 included rock breaking, drilling and excavation at Lam Tin Interchange. Construction works for night-time included blasting and excavation. According to the EM&A Manual of this Project, regular air quality monitoring has been carried out at Station AM2 – Sai Tso Wan Recreation Ground and AM3 – Yau Lai Estate, Bik Lai House. Based on the Air Quality Monitoring Results which conducted by ET**,** no Action or Limit Level Exceedance was recorded at Station AM2 and AM3. It is considered that no adverse air quality impact was brought to the nearby sensitive receivers during the time of complaint. The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: <u>Air Quality:</u> water spraying on unpaved area and haul roads at Lam Tin nge Noise: ➢ Ensured blasting doors were closed while blasting associated works was undertaken in the tunnel ➢ Installed steel-type blasting door mounted with sound absorptive lining to absorb construction noise in the tunnel ➢ Erected movable cantilever noise barriers and the breaker head was wrapped with Silent Mat and TMD; ➢ Powered mechanical equipment (PME) for rock breaking were equipped with TMD and SilentMat ➢ Drill rig was covered with Silent Mat and TMR The environmental conditions of the site and the control of works	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							will be continuously reviewed and monitored by the Engineer and the Environmental Team.	
176	21st May 2018	21st May 2018/ Construction of Road P2	Public	Air Quality	The complainant complained about dust/dirt being brought onto Tong Yin Street by the vehicles travelling to and from TKO-LTT construction site, causing dust problem and air nuisance.	N	According to the information confirmed by the Engineer, all dump trucks were covered and wheel washed before leaving the works site on 21 May 2018. As shown in the Air Quality Monitoring Results**,** no Action/ Limit Level Exceedance was recorded at Station AM5(A) and AM6(A) in May 2018. It is considered that no adverse construction dust impact was brought to the nearby sensitive receivers during the construction period of this Project The Contractors had implemented environmental mitigation measures to minimize the noise nuisance to the nearby noise sensitive receivers as follows: raying was provided at least 8 times a day. ashing truck would be provided once a week to clean the dust on c street. al notice would be set up to remind the truck driver to perform ashing properly before leaving site. d staff at the access to check the dump trucks to ensure the dump properly covered and wheel-washed before leaving site. The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents.	Closed
175	19th May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	The complainant complained the noise nuisance due to the construction work at	Y	See Investigation / Mitigation Measures for Complaint No. 160.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
					Lam Tin Interchange during nighttime.			
174	19th May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	The complainant complained the noise nuisance due to the construction work at Lam Tin Interchange during nighttime.	Y	See Investigation / Mitigation Measures for Complaint No. 160.	Closed
173	16th May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Hong Nga Court,	Noise	The complainant complained the noise nuisance due to the construction work at Lam Tin Interchange during night-time.	Y	See Investigation / Mitigation Measures for Complaint No. 160.	Closed
172	15th May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	The complainant complained the noise nuisance during night time blasting works at the Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 165.	Closed
171	15th May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate, Bik Lai Estate	Noise	The complainant complained the noise nuisance during night time blasting works at the Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 165.	Closed
170	15th May 2018	Not specified/ Construction site near Cha Kwo Ling Tsuen	Anonymous	Noise	The complainant complained the noise nuisance due to the construction work near Cha Kwo Ling Tsuen during night-time.	Y	See Investigation / Mitigation Measures for Complaint No. 165.	Closed
169	14th May 2018	Not specified/ Construction of Lam Tin Interchange	Kowloon East District Council Member Mr. Tam Man Ho	Noise	The complainant complained the noise nuisance due to the construction work and night time blasting works at the Lam Tin Interchange.	Y	According to the latest CNMP of this Contract, the subgroups of work activities undertaken near noise sensitive receivers in the reporting period: The construction activities of Lam Tin Interchange (Work site No.101) on 14th of May 2018 possessed of 6 no. of breakers, excavator mounted which were consistent with the quantities of	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							breaker in the Construction Noise Mitigation Plan (Construction Activity Group1.1) Noise: Installed steel-type blasting door mounted with sound ve lining to absorb construction noise in the tunnel; Erected movable cantilever noise barriers and the head was wrapped with Silent Mat and TMD; Powered mechanical equipment (PME) for rock were equipped with TMD and SilentMat; As shown by the Noise Monitoring Results conducted by ET, no Limit Level Exceedance was recorded at Station CM1, CM2, CM3 and CM4. The summary of noise monitoring results which conducted by ETL in May 2018 at Station CM1, CM2, CM3 and CM4. The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.	
168	14th May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate, Yung Lai House	Noise	The complainant complained the noise nuisance due to the construction work at Lam Tin Interchange during night-time.	Y	See Investigation / Mitigation Measures for Complaint No. 165.	Closed
167	13th May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Hong Nga Court, Chung Pak House	Noise	The complainant complained the noise nuisance due to the construction work on Sunday morning and night time blasting works at the Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 165.	Closed
166	13th May 2018	Not specified/ Construction	Resident of Hong Pak	Noise	The complainant complained the noise	Y	See Investigation / Mitigation Measures for Complaint No. 165.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
		of Lam Tin Interchange	Court		nuisance due to the construction work at around 5:00 am and night time blasting works at the Lam Tin Interchange.			
165	13th May 2018	13th May 2018/ Construction of Lam Tin Interchange	Property Management Office of Hong Nga Court	Noise	The complainant complained the noise nuisance due to the construction work at Lam Tin Interchange on 13th May 2018 (Sunday morning).	Y	A valid Construction Noise Permit (CNP) (No. GW-RE0278-18) was granted to the Contractor for the construction site at Lam Tin Interchange (location of construction site is shown in Figure 1). According to the conditions in the CNP, only one group among Group A to R of the powered mechanical equipment is allowed to be operated during 0800-2300 hours on general holidays (including Sundays); and 1900-2300 hours on any day not being a general holiday. The number of excavators, dump trucks, craned lorry and breakers that were used on 13th, 14th, 15th & 22nd of May were covered by the CNP. Other good site practices recommended in the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual and the Noise Mitigation Plan of this Contract had been implemented by the Contractor, including the following: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • Mobile plant, if any, should be sited as far away from NSRs as possible; • Plants known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs As shown by the Noise Monitoring Results conducted by ET, no Limit Level Exceedance was recorded at Station CM1, CM2, CM3 and CM4. The summary of noise monitoring results which conducted by ETL in May 2018 at Station CM1, CM2, CM3 and	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							CM4.	
164	12th May 2018	12th May 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	The complainant complained the noise nuisance during night time blasting works at the Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 160.	Closed
163	12th May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained the noise nuisance due to the construction work at Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 160.	Closed
162	11th May 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Lung Pak House	Noise	The complainant complained the noise nuisance during night time blasting works at the Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 160.	Closed
161	9th May 2018	9th May 2018 / Construction of Road P2	Resident of Ocean Shore	Air Quality	The complainant complained about dark smoke emission from a barge working at the sea area under TKO-LTT project near Block 2 of Ocean Shore.	N	According to the information provided and confirmed by the Engineer, loading and unloading of marine sediment was conducted during the time of complaint The Contractors had implemented environmental mitigation measures to reduce construction nuisance from construction activities to the nearby sensitive receivers as follows: ➢ Additional water filter tank was adopted to reduce emission of dark smoke and exhaust smell. The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
160	4th May 2018	Not specified/ Construction of Lam Tin Interchange	Public	Noise	The complainant complained the noise nuisance during night time blasting works at the Lam Tin Interchange.	Y	According to the Engineer's Site Diaries, the major construction activities performed in May 2018 included rock breaking, drilling and excavation at Lam Tin Interchange. Construction works for night-time included blasting and excavation. A valid Construction Noise Permit (CNP) (No. GW-RE0278-18) was granted to the Contractor for the construction site at Lam Tin Interchange. According to the conditions in the CNP, only one group among Group A to R of the powered mechanical equipment is allowed to be operated during 0800-2300 hours on general holidays (including Sundays); and 1900-2300 hours on any day not being a general holiday. The number of excavators, dump trucks, craned lorry and breaker that were used during the day of complaint was covered by the CNP. In addition, Group T to X of the powered mechanical equipment is allowed to be operated during 2300-0700 hours on any day. The operation of charging unit during the time of complaint was covered by the CNP. Therefore, no violation of CNP (No. GW-RE0278-18) conditions was observed during the time of complaint. The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: Air Quality: Frequent water spraying on unpaved area and haul roads 'in; Noise: Ensured blasting doors were closed while blasting d works was undertaken in the tunnel; Installed steel-type blasting door mounted with sound e lining to absorb construction noise in the tunnel; Erected movable cantilever noise barriers and the	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							ıead was wrapped with Silent Mat and TMD; Powered mechanical equipment (PME) for rock were equipped with TMD and SilentMat; Drill rig was covered with Silent Mat and TMR. As shown by the Noise Monitoring Results conducted by ET, no Limit Level Exceedance was recorded at Station CM1, CM2, CM3 and CM4. The summary of noise monitoring results which conducted by ETL in May 2018 at Station CM1, CM2, CM3 and CM4. With the implementation of environmental mitigation measures by Contractors on site, it is considered that air quality and noise nuisance by the works has been brought to a minimum level and no adverse impact was brought to the nearby sensitive receivers during the construction of Lam Tin Interchange under this Project. The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.	
159	3rd May 2018	2nd and 3rd May 2018 / Construction of Road P2	Public	Odour	The complainant complained the odour nuisance from the construction vessel.	N	According to the information provided and confirmed by the Engineer, major construction activity including dredging, loading and unloading of marine sediment was conducted during the time of complaint The use of dredger and derrick barge conformed to the proposed quantity and type of PME stated in the updated Construction Noise Assessment of CNMP. Based on the noise monitoring results in April and May 2018, no Limit Level Exceedance was recorded at Station CM6(A) and CM7(A). It is considered that no adverse construction noise impact was brought to the nearby sensitive receivers during the construction.	Closed
	30th April 2018	Not specified / Construction of Road P2	Public	Noise & Odour	The complainant complained the construction noise and odour nuisance from the construction vessel.	Y		

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							The Contractors had implemented environmental mitigation measures to reduce construction nuisance from construction activities to the nearby sensitive receivers as follows: <u>Noise:</u> Noise source on the barge was covered with acoustic . Additional sound absorptive blankets were used to e nuisance from the engine of the barge. Nylon rope was used instead of wire rope to reduce ecure the barge in place. Maintenance of barge including lubrication of moving performed to minimized noise from worn or loose parts. <u>Air Quality:</u> Additional water filter tank was adopted to reduce of dark smoke and exhaust smell. The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents.	
158	30th April 2018	Not specified/ Construction of Lam Tin Interchange	Property Management Office of Kwong Tin Estate	Noise	The complainant complained the noise nuisance due to the breaking work at Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 145.	Closed
157	26th April 2018	26th April 2018 / Construction of TKO portal	Resident of Laguna City	Light	The complainant complained that two spotlights were used during daytime and nighttime causing light nuisance to the residents.	N	According to the information provided and confirmed by the Engineer, no major construction activity was conducted at the location of complaint on 26 April 2018. Upon the receipt of the complaint, as confirmed by the Engineer,	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
					She requested to direct the strong lighting toward the sea.		the Contractor had taken initiatives to maintain the environmental conditions in the works area as shown below: ➢ The spotlights at the Cha Kwo Ling Public Cargo Working Administrative Office were switched off during daytime; and ➢ The illumination angle of spotlights was turned facing downwards to avoid light overspill The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents.	
156	25th April 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate, Yau Lai Estate	Noise	The complainant complained the noise nuisance due to the breaking work at Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 145.	Closed
155	23th April 2018	23th April 2018 / Construction of Road P2	Public	Noise	The complainant complained about noise from construction activities at the sea area near Ocean Shore Block 6 starting 8:30-8:45am on 23 April 2018. She suspected the noise is from drilling/breaking works.	Y	According to the information provided and confirmed by the Engineer, construction works including excavation and pre-boring works in Portion IV were conducted on 23 April 2018. One unit of excavator and two units of mini backhoe were in operation for excavation works while two units of drill rigs were in operation for the pre-boring works in Portion IV. As confirmed by the Engineer, no breaking works were carried out during the time of complaint in Portion IV. Therefore, pre-boring works at Portion IV is regarded the source of noise nuisance. The Contractor had implemented environmental mitigation measures to minimize the noise nuisance to the nearby noise sensitive receivers as follows: ➢ Acoustics barriers were provided to the drill rigs for pre-	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							boring works (see photo 1). ➢ Maintenance was provided to the rotary head of the drill rig to minimize noise nuisance from worn or loose parts. ➢ Regular site checking would be performed to ensure the type and quantity of powered mechanical equipment are in order with the updated Construction Noise Assessment. ➢ Acoustic box was utilized for breaking works to minimize noise nuisance The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents. The use of excavator did not conform the proposed quantity of powered mechanical equipment stated in the CNMP. Therefore, it is regarded as a non-compliance.	
154	23th April 2018	Not specified/ Construction of Lam Tin Interchange	Kwun Tong District Council Member Mr. Lai Shu Ho	Noise	The complainant complained the noise nuisance during night time blasting works at the Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 145.	Closed
153	23th April 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained the noisy breaking work from two breakers at Lam Tin Interchange. He requested the Contractor to review the noise mitigation measures on site.	Y	See Investigation / Mitigation Measures for Complaint No. 145.	Closed
152	20th April 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Nga Lai Estate, Yau Lai Estate	Noise	The complainant complained the noise nuisance during night time blasting works at	Y	See Investigation / Mitigation Measures for Complaint No. 145.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
					the Lam Tin Interchange.			
151	17th April 2018	Not specified/ Construction of Lam Tin Interchange	Property Management Office of Yau Lai Estate	Noise	The complainant complained the noise nuisance due to the construction work at Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 145.	Closed
150	17th April 2018	Not specified/ Construction of Lam Tin Interchange	Sham Shui Po District Council Member Mr. Ho Kai Ming	Noise	The complainant complained the noise nuisance during night time blasting works at the Lam Tin Interchange.	Y	See Investigation / Mitigation Measures for Complaint No. 145.	Closed
149	16th April 2018	Not specified / Construction of Road P2	Resident of Ocean Shore	Noise	The complaint is about the noise generated from a poorly maintained excavator.	Y	According to the information provided and confirmed by the Engineer, two units of excavators were in operation for excavation works in Portion VI on 16 and 18 April 2018. Excessive sound from movement of the poorly maintained excavator is considered source of noise nuisance. The Contractor had implemented environmental mitigation measures to minimize the noise nuisance to the nearby noise sensitive receivers as follows: ➢ As confirmed by the Engineer, the use of concerned excavator was stopped and it was replaced with a new excavator. ➢ Regular site checking would be performed to ensure the type and quantity of PME are in order with the updated Construction Noise Assessment The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents. The use of excavator did not conform the proposed quantity of powered mechanical equipment stated in the CNMP. Therefore, it is regarded as a non-compliance.	Closed
	18th April 2018	Not specified / Construction of Road P2	Resident of Ocean Shore	Noise	The complaint is about the noise generated from a poorly maintained excavator.	Y		Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
148	15th April 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained the noisy construction work at Lam Tin Interchange.	Y	According to the Engineer's Site Diary, the major construction activities performed in the reporting period included rock breaking and excavation at Lam Tin Interchange. According to the latest CNMP of this Contract, the subgroups of work activities undertaken near noise sensitive receivers in the reporting period are as follows: - Construction of Lam Tin Interchange (LTI); The construction activities of Lam Tin Interchange (Work site No.101) on 17th, 23rd & 25th of April possessed of 7 no. of breakers, which were consistent with the quantities of breakers in the Construction Noise Mitigation Plan (Group 1.1.8) A valid Construction Noise Permit (CNP) (No. GW-RE0084-18) was granted to the Contractor for the construction site at Lam Tin Interchange. According to the conditions in the CNP, only one group among Group A to N of the powered mechanical equipment is allowed to be operated during 08:00 - 23:00 hours on general holiday (including Sunday). The operations on 2nd & 15th of April involved 1 no. of excavator, 2 no. of dump trucks, which were covered by the CNP. Therefore, no violation of CNP (No. GW-RE0084-18) condition was identified during the time of complaints. The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows: ➢ Powered mechanical equipment (PME) for rock breaking were equipped with TMD and SilentMat at Slope H in Lam Tin Interchange; ➢ PMEs at Portion IVC were mounted and shielded with SilentMat; ➢ Noise barriers were placed next to the breaker at	Closed
147	15th April 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained the noisy construction work at Lam Tin Interchange on public holiday.	Y		
145	2nd April 2018	Public holiday/ Construction Works near Eastern Harbour Crossing tunnel portal	Resident of Yau Lai Estate	Noise	The complainant complained the noise nuisance due to the construction work near Eastern Harbour Crossing tunnel portal on public holiday. (started from 9:00 am)	Y		

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							Slope H in Lam Tin Interchange to reduce the noise nuisance to nearby NSRs; ➢ Cantilevered noise barriers were erected next to breakers wrapped with TMD and SilentMat at Portion IVC; ➢ Ensured blasting doors were closed while mucking out in the tunnel was undertaken; and ➢ Installed steel-type blasting door mounted with sound absorptive lining to absorb noise due to construction works in the tunnel The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to effectively minimize construction nuisance caused by the construction works to the nearby residents.	

Cumulative Complaint Log since commencement of Project

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
November 2016	0	0	0
December 2016	11	0	0
January 2017	15	0	0
February 2017	4	0	0
March 2017	6	0	0
April 2017	1	0	0
May 2017	10	0	0
June 2017	8	0	0
July 2017	3	0	0
August 2017	8	0	0
September 2017	14	0	0
October 2017	8	0	0
November 2017	12	0	0
December 2017	10	1	0
January 2018	11	0	0
February 2018	6	0	0
March 2018	17	0	0
April 2018	15	0	0
May 2018	22	0	0
June 2018	11	0	1
July 2018	9	0	0
August 2018	12	0	0
September 2018	11	0	0
October 2018	13	0	0
November 2018	12	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
December	9	0	0
Total	**261**	**1**	**1**

Cumulative Log for Notifications of Summons

Contract No.	Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
NE/2015/01	--	--	--	--	--	--
NE/2015/02	KTS2 4138/ 2017	25 June 2017/ Marine construction site at Junk Bay	Contrary to: Sections 6 (1) (b) and 6 (5), Noise Control Ordinance, Cap.400	The Summon was issued on 22 Dec 2017 First hearing on 29 Mar 2018	0	1
NE/2015/03	--	--	--	--	--	--
NE/2017/01	--	--	--	--	--	--
NE/2017/02	--	--	--	--	--	--

Cumulative Log for Successful Prosecutions

Contract No.	Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
NE/2015/01	--	--	--	--	--	--
NE/2015/02	KTS2 4138/ 2017	25 June 2017/ Marine construction site at Junk Bay	Contrary to: Sections 6 (1) (b) and 6 (5), Noise Control Ordinance, Cap.400	Successful prosecution to the subcontractor on 27 June 2018	1	1
NE/2015/03	--	--	--	--	--	--
NE/2017/01	--	--	--	--	--	--
NE/2017/02	--	--	--	--	--	--

APPENDIX P
WASTE GENERATION IN THE REPORTING MONTH

Name of Department: Civil Engineering Development Department

Contract No.: NE/2015/01

LEIGHTON 禮頓·中建聯營 Leighton - China State Joint Venture

Monthly Summary Waste Flow Table for 2018

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	a.Total Quantity Generated (see Note 8)	b. Hard Rock and Large Broken Concrete	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill (see Note 10)	f. Imported Fill	g. Metals (see Note 5)	h. Paper / Cardboard Packaging (see Note 5)	i. Plastics (see Note 3) (see Note 5)	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
January	118.887	44.216	25.727	60.437	32.723	0.000	0.000	0.308	0.000	1.200	0.094
February	76.419	34.880	8.626	54.212	13.581	0.000	0.000	0.000	0.000	0.800	0.046
March	140.974	31.352	57.578	49.166	34.230	0.000	0.000	0.020	0.000	0.000	0.052
April	123.925	30.310	57.340	42.266	24.319	0.000	0.000	0.368	0.000	1.200	0.058
May	113.094	32.375	0.000	70.782	42.312	0.000	0.000	0.294	0.000	1.000	0.034
June	134.902	48.193	0.000	117.435	17.467	0.000	0.000	0.437	0.000	1.322	0.096
Sub-total	708.201	221.326	149.271	394.298	164.632	0.000	0.000	1.427	0.000	5.522	0.380
July	117.365	54.326	0.000	112.069	5.296	0.000	0.000	0.000	0.000	0.000	0.083
August	114.745	56.904	2.877	105.498	6.370	0.000	0.000	0.525	0.000	0.960	0.073
September	101.494	46.489	0.000	88.147	13.347	0.000	0.000	0.336	0.000	0.000	0.050
October	127.193	65.746	0.000	99.942	27.251	0.000	0.000	0.000	0.000	2.080	0.112
November	139.235	65.264	0.000	98.859	40.376	0.000	0.000	0.000	0.000	2.150	0.089
December	128.653	72.416	0.000	100.735	27.918	0.000	0.000	0.000	0.000	1.280	0.116
Total	1436.886	582.471	152.148	999.548	285.190	0.000	0.000	2.288	0.000	11.992	0.904

Total inert C&D waste generated = c+d+e

Total inert C&D waste recycled = c+d

% of recycled inert C&D waste = Total C&D waste recycled / Total C&D waste generated

Notes:
(1) The performance target are given in PS Clause 6(14)
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
(4) The Contractor shall also submit the latest forecast of the amount of C&D materials expected to be generated from the Works, together with a break down of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m3. (PS Clause 1.105(4) refers)
(5) All recyclable materials, including metals, paper / cardboard packaging, plastics, etc. will be collected by registered collector for recycling.
(6) Conversion factors for reporting purpose:
in-situ: rock = 2.5 tonnes/m^3; soil = 2.0 tonnes/m^3
(7) excavated: rock = 2.0 tonnes/m^3; soil = 1.8 tonnes/m^3; broken concrete and bitumen = 2.4 tonnes/m^3, soil and rock = 1.9 tonnes/m^3
(8) C&D Waste = 0.9 tonnes/m^3; bentonite slurry = 2.8 tonnes/m^3
Diesel density: 0.8kg/l
Numbers are rounded off to the nearest three decimal places
The "Total Quantity Generated" equals to the sum of "Reuse in the Contract", "Reuse in Other Projects" and "Disposed as Public Fill"

Contract No.: NE/2015/02

Monthly Summary Waste Flow Table for 2018 Year

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 Borken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (See note 3)	Chemical Waste	Other, e.g. general refuse
	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
Jan	0.30510	0.00000	0.11060	0.00000	0.00850	0.18600	0.00000	0.00000	0.00000	0.00000	0.07544
Feb	1.12247	0.00000	0.01080	0.00000	1.08367	0.02800	32.04000	0.00000	0.00000	0.00000	0.05240
Mar	6.50826	0.00000	0.04500	0.00000	6.46326	0.00000	23.74000	0.00000	0.00000	0.00000	0.04520
Apr	3.86834	0.00000	0.04144	0.00000	3.82690	0.00000	26.37000	0.00000	0.00000	0.00000	0.03010
May	12.03954	0.00000	9.30945	0.00000	2.64644	0.08365	24.18000	0.00000	0.00000	0.00000	0.06998
June	2.50750	0.00000	0.00000	0.00000	1.58194	0.92556	11.32000	0.00000	0.00000	0.00000	0.06814
SUB-TOTAL	26.35121	0.00000	9.51729	0.00000	15.61071	1.22321	117.65000	0.00000	0.00000	0.00000	0.34126
Jul	6.86021	0.00000	5.62591	0.00000	1.00141	0.23290	6.81000	0.00000	0.00000	0.00000	0.06658
Aug	5.71242	0.00000	3.14738	0.00000	2.48573	0.07931	0.00000	0.00000	0.00000	0.00000	0.06072
Sep	1.96545	0.00000	0.00000	0.00000	1.82856	0.13689	0.00000	0.00000	0.00000	0.00000	0.28750
Oct	1.68189	0.00000	0.00000	0.00000	1.53159	0.15030	7.68000	0.00000	0.00000	0.00000	0.07586
Nov	7.20871	0.00000	5.27248	0.0000	1.77993	0.15630	106.75000	0.00000	0.00000	0.12900	0.09596
Dec	4.57952	0.00000	2.91499	0.0112	0.80290	0.85040	42.10000	0.00000	0.00000	0.00000	0.05616
TOTAL	54.35940	0.00000	26.47805	0.01123	25.04082	2.82931	280.99000	0.00000	0.00000	0.12900	0.98404

Note: Conversion to 1000m^3 for general refuse is weight in 1000kg multiply by 0.002

Conversion to 1000m^3 for Inert C&D is weight in 1000kg multiply by 0.0005

Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material

Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material

Name of Department : CEDD Contract No. : NE/2015/03

Monthly Summary Waste Flow Table for 2018 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 m^3)
Accumulated From 2017	0.84697	0	0.175365	0.290915	0.350135	0.03056	0	0	0	0	0.03079
Jan	0.2397525	0	0	0.0642025	0.17555	0	0	0	0	0	0.00614
Feb	0.0722875	0	0	0.0722875	0	0	0	0	0	0	0
Mar	0.05853	0	0	0	0.05853	0	0	0	0	0	0
Apr	0.007575	0	0	0	0.007575	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0.001258
June	0	0	0	0	0	0	0	0	0	0	0
Sub-total											
July	0	0	0	0	0	0	0	0	0	0	0
Aug	0.00145	0	0	0	0	0	0	0	0	0	0
Sept	0.00168	0	0	0	0	0	0	0	0	0	0
Oct	0.00232	0	0	0	0.00232	0	0	0	0	0	0
Nov	0.00241	0	0	0	0.00241	0	0	0	0	0	0
Dec	0.00141	0	0	0	0.00141	0	0	0	0	0	0
Total	1.234385	0	0.175365	0.427405	0.59793	0.03056	0	0	0	0	0.038188

Notes:
(1) The performance targets are given in PS Clause 6.14.
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
(4) The *Contractor* shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the *works*, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the *works* is equal to or exceeding 50,000 m^3.

Tseung Kwan O - Lam Tin Tunnel - Tseung Kwan O Interchange and Associated Works
(NE/2017/01)

俊和－上隧－中冶聯營
CW - STEC - CMGC JV

Monthly Summary Waste Flow Table for 2018

Name of Department: Civil Engineering and Development Department

Contract No.: NE/2017/01

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	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Feb	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mar	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Apr	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
May	0.0222	0.0060	0.0000	0.0000	0.0162	0.0000	0.0000	0.0000	0.0000	0.0000	0.0024
Jun	0.0078	0.0000	0.0000	0.0000	0.0078	0.0000	0.0000	0.0000	0.0000	0.0000	0.0055
Sub-total	0.0300	0.0060	0.0000	0.0000	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0079
Jul	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0091
Aug	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027
Sep	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0044
Oct	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0037
Nov	0.0761	0.0000	0.0000	0.0400	0.0361	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007
Dec	0.0400	0.0000	0.0000	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1461	0.0060	0.0000	0.0800	0.0601	0.0000	0.0000	0.0000	0.0000	0.0000	0.0285

Notes:

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 the density of mixed rock and soil is 1.9 ton/m^3.
4. Assume the density of slurry and bentonite is 2.8 ton/m^3.
5. The slurry and bentonite are disposed at Tseung Kwan O Area 137 Fill Bank.
6. Assume the density of C&D waste is 0.9 ton/m^3.
7. The non-inert C&D wastes are disposed at NENT.

Monthly Summary of Waste Flow Table for 2018

Name of Person completing the Record: Ricky Hon

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete *(see Note 1)*	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics *(see Note 2)*	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000m^3)
Jan	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0.1430
Mar	0	0	0	0	0	0	0	0	0	0
Apr	0	0.0390	0	0	0	0	0	0	0	0.0585
May	0	0	0	0	0	0	0	0	0	0.0325
Jun	0	0.1519	0	0	1.3675	0	0	0	0	0.0455
Jul	0	0.2265	0	0	2.0387	0	0	0	0	0.0065
Aug	0	0.209625	0	0	1.886625	0	0	0	0	0.0325
Sept	0	0.0544375	0	0	0.4899375	0	0	0	0	0.169
Oct	0	0.0469625	0	0	0.4226625	0	0	0	0	0.026
Nov	0	0.1253	0	0	1.1277	0	0	0	0	0.026
Sub-total	0	0.8538	0	0	7.3331	0	0	0	0	0.5395
Dec	0	0.08726	0	0	0.78534	0	0	0	0	0.0065
Total	0	0.9411	0	0	8.1185	0	0	0	0	0.5460

Notes:

(1) Broken concrete for recycling into aggregates.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

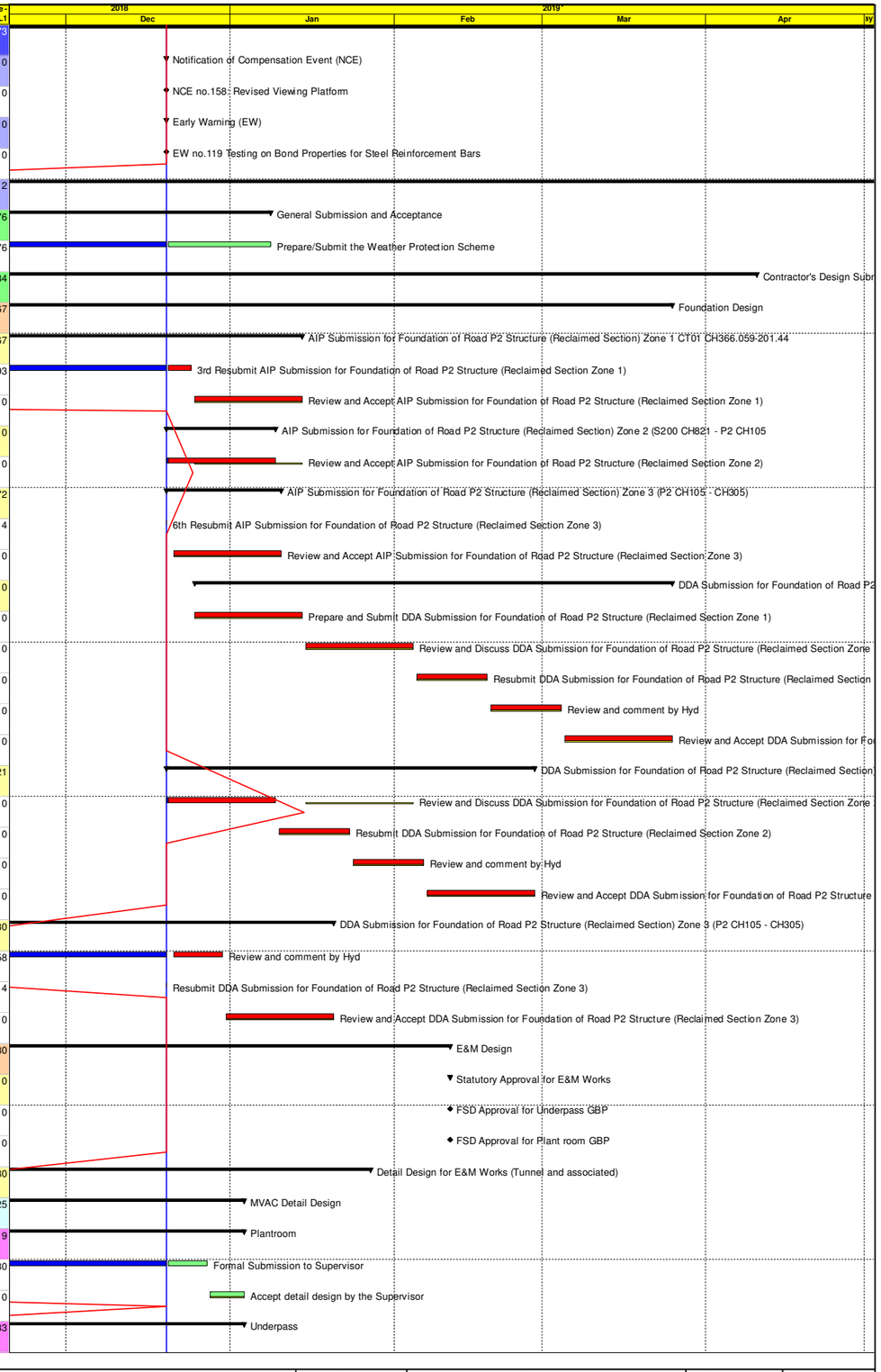
(3) Use the conversion factor: 1 full load of 24t / 30t dumping truck being equivalent to 6.5m3 / 8.125 m3 by volume.

APPENDIX Q
TENTATIVE CONSTRUCTION PROGRAMME

High Level 3 Months Look Ahead Programme

Activities	Jan-19	Feb-19	Mar-19
Lam Tin Interchange			
EHC2 U-Trough			
Site Formation - Area 1G1 & 1G2 &5			
Site Formation - Area 2			
Site Formation - Area 3			
Site Formation - Area 4			
Main Tunnel			
MT Excavation			
MT Lining Works			
TKO Interchange			
Haul Road Construction, Site Formation & Slope Works			
Steel Platform for Bridge Construction			
Cavern Excavation			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-18)			1563	929	12-Jan-17 A	05-Jul-21	365			-73
Notification of Compensation Event (NCE)		P2-Cal.A	0	0	20-Dec-18 A	20-Dec-18 A				0
B22110	NCE no.158: Revised Viewing Platform	P2-Cal.A	0	0	20-Dec-18 A			100%		0
Early Warning (EW)		P2-Cal.A	0	0	20-Dec-18 A	20-Dec-18 A				0
B31590	EW no.119 Testing on Bond Properties for Steel Reinforcement Bars	P2-Cal.A	0	0	20-Dec-18 A			100%		0
Preliminaries, Submission, Contractor's Design Submission and Approval		P2-Cal.A	1015	428	20-Jan-17 A	20-Feb-20	245			-112
General Submission and Acceptance		P2-Cal.A	30	20	21-Aug-17 A	08-Jan-19	653			-476
S10240	Prepare/Submit the Weather Protection Scheme	P2-Cal.A	30	20	21-Aug-17 A	08-Jan-19	653	33.33%		-476
Contractor's Design Submission and Acceptance		P2-Cal.A	681	112	07-Mar-17 A	10-Apr-19	67			-84
Foundation Design		P2-Cal.A	665	96	01-Jun-18 A	25-Mar-19	-114			367
AIP Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 1 CT01 CH366.059-201.44		P2-Cal.A	595	26	01-Jun-18 A	14-Jan-19	-114			367
S11260-03	3rd Resubmit AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	14	5	01-Jun-18 A	24-Dec-18	-114	64.29%		-193
S11260-04	Review and Accept AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	21	21	25-Dec-18	14-Jan-19	-114	0%		0
AIP Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 2 (S200 CH821 - P2 CH105		P2-Cal.A	21	21	20-Dec-18 A	09-Jan-19	-88			0
S11270-04	Review and Accept AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 2)	P2-Cal.A	21	21	20-Dec-18 A	09-Jan-19	-88	0%		0
AIP Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 3 (P2 CH105 - CH305)		P2-Cal.A	94	21	20-Dec-18 A	10-Jan-19	-50			72
S11279-07	6th Resubmit AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 3)	P2-Cal.A	14	0	20-Dec-18 A	20-Dec-18 A		100%		14
S11279-08	Review and Accept AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 3)	P2-Cal.A	21	21	21-Dec-18	10-Jan-19	-50	0%		0
DDA Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 1 CT01 CH366.059-201.44		P2-Cal.A	91	91	25-Dec-18	25-Mar-19	-114			0
S11360	Prepare and Submit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	21	21	25-Dec-18	14-Jan-19	-114	0%		0
S11380	Review and Discuss DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	21	21	15-Jan-19	04-Feb-19	-114	0%		0
S11400	Resubmit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	14	14	05-Feb-19	18-Feb-19	-114	0%		0
S11410	Review and comment by Hyd	P2-Cal.A	14	14	19-Feb-19	04-Mar-19	-114	0%		0
S11420	Review and Accept DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	21	21	05-Mar-19	25-Mar-19	-114	0%		0
DDA Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 2 (S200 CH821 - P2 CH105		P2-Cal.A	49	70	20-Dec-18 A	27-Feb-19	-88			-21
S11424	Review and Discuss DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 2)	P2-Cal.A	21	21	20-Dec-18 A	09-Jan-19	-88	0%		0
S11426	Resubmit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 2)	P2-Cal.A	14	14	10-Jan-19	23-Jan-19	-88	0%		0
S11428	Review and comment by Hyd	P2-Cal.A	14	14	24-Jan-19	06-Feb-19	-88	0%		0
S11430	Review and Accept DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 2)	P2-Cal.A	21	21	07-Feb-19	27-Feb-19	-88	0%		0
DDA Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 3 (P2 CH105 - CH305)		P2-Cal.A	123	31	20-Oct-18 A	20-Jan-19	-50			30
S11438	Review and comment by Hyd	P2-Cal.A	14	10	20-Oct-18 A	30-Dec-18	-50	28.57%		-58
S11439-01	Resubmit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 3)	P2-Cal.A	14	0	20-Dec-18 A	20-Dec-18 A		100%		14
S11439-02	Review and Accept DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 3)	P2-Cal.A	21	21	31-Dec-18	20-Jan-19	-50	0%		0
E&M Design		P2-Cal.A	527	54	07-Mar-17 A	11-Feb-19	32			-180
Statutory Approval for E&M Works		P2-Cal.A	0	0	11-Feb-19	11-Feb-19	32			0
S11570-11	FSD Approval for Underpass GBP	P2-Cal.A	0	0		11-Feb-19	32	0%		0
S11570-12	FSD Approval for Plant room GBP	P2-Cal.A	0	0		11-Feb-19	32	0%		0
Detail Design for E&M Works (Tunnel and associated)		P2-Cal.A	512	39	07-Mar-17 A	27-Jan-19	47			-180
MVAC Detail Design		P2-Cal.A	226	15	28-Apr-18 A	03-Jan-19	71			-25
Plantroom		P2-Cal.A	226	15	04-May-18 A	03-Jan-19	71			-19
S11577	Formal Submission to Supervisor	P2-Cal.A	8	8	04-May-18 A	27-Dec-18	71	0%		-230
S11578	Accept detail design by the Supervisor	P2-Cal.A	7	7	28-Dec-18	03-Jan-19	71	0%		0
Underpass		P2-Cal.A	218	15	28-Apr-18 A	03-Jan-19	71			-33



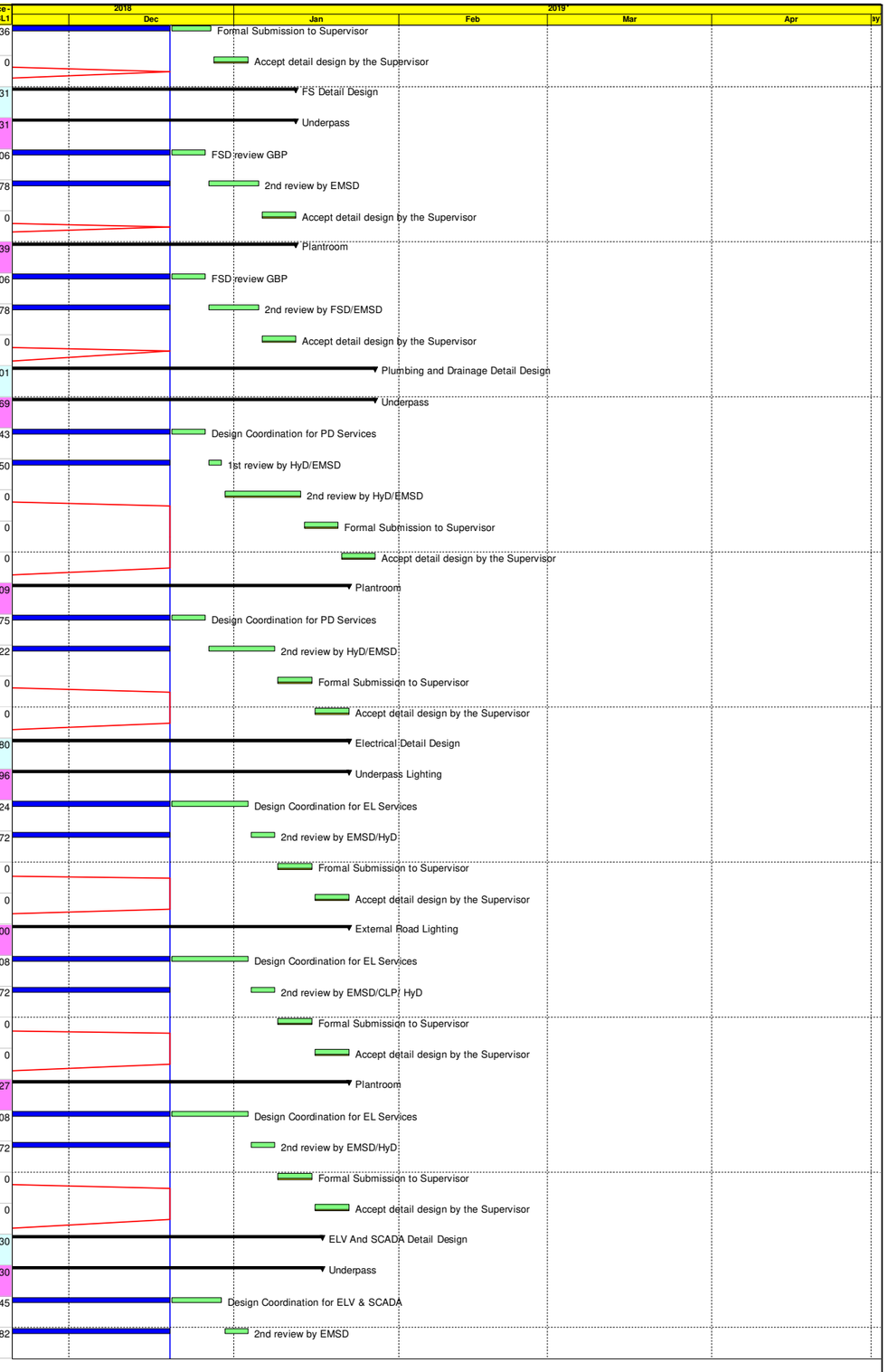
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-18)

3 Monthly Rolling Programme
(Data Date : 20-Dec-2018)

Date	Revision	Checked	Approved
20-Dec-18			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
S11630	Formal Submission to Supervisor	P2-Cal.A	8	8	28-Apr-18 A	27-Dec-18	71	0%		-236
S11640	Accept detail design by the Supervisor	P2-Cal.A	7	7	28-Dec-18	03-Jan-19	71	0%		0
FS Detail Design		P2-Cal.A	482	24	19-Oct-17 A	12-Jan-19	32			31
Underpass		P2-Cal.A	482	24	19-Oct-17 A	12-Jan-19	32			31
S11649	FSD review GBP	P2-Cal.A	28	7	19-Oct-17 A	26-Dec-18	32	75%		-406
S11650-01	2nd review by EMSD	P2-Cal.A	15	10	19-Mar-18 A	05-Jan-19	32	33.33%		-278
S11651	Accept detail design by the Supervisor	P2-Cal.A	7	7	06-Jan-19	12-Jan-19	32	0%		0
Plantroom		P2-Cal.A	412	24	19-Oct-17 A	12-Jan-19	32			-39
S11652-10	FSD review GBP	P2-Cal.A	28	7	19-Oct-17 A	26-Dec-18	32	75%		-406
S11652-21	2nd review by FSD/EMSD	P2-Cal.A	15	10	19-Mar-18 A	05-Jan-19	32	33.33%		-278
S11652-23	Accept detail design by the Supervisor	P2-Cal.A	7	7	06-Jan-19	12-Jan-19	32	0%		0
Plumbing and Drainage Detail Design		P2-Cal.A	366	39	01-Apr-17 A	27-Jan-19	47			-301
Underpass		P2-Cal.A	366	39	03-May-17 A	27-Jan-19	47			-269
S11656	Design Coordination for PD Services	P2-Cal.A	60	7	03-May-17 A	26-Dec-18	47	88.33%		-543
S11657	1st review by HyD/EMSD	P2-Cal.A	15	3	09-Apr-18 A	29-Dec-18	47	80%		-250
S11657-01	2nd review by HyD/EMSD	P2-Cal.A	15	15	30-Dec-18	13-Jan-19	47	0%		0
S11658	Formal Submission to Supervisor	P2-Cal.A	7	7	14-Jan-19	20-Jan-19	47	0%		0
S11659	Accept detail design by the Supervisor	P2-Cal.A	7	7	21-Jan-19	27-Jan-19	47	0%		0
Plantroom		P2-Cal.A	353	34	01-Apr-17 A	22-Jan-19	52			-309
S11660-07	Design Coordination for PD Services	P2-Cal.A	60	7	01-Apr-17 A	26-Dec-18	52	88.33%		-575
S11660-09	2nd review by HyD/EMSD	P2-Cal.A	15	13	17-May-18 A	08-Jan-19	52	13.33%		-222
S11660-10	Formal Submission to Supervisor	P2-Cal.A	7	7	09-Jan-19	15-Jan-19	52	0%		0
S11660-11	Accept detail design by the Supervisor	P2-Cal.A	7	7	16-Jan-19	22-Jan-19	52	0%		0
Electrical Detail Design		P2-Cal.A	507	34	07-Mar-17 A	22-Jan-19	52			-180
Underpass Lighting		P2-Cal.A	507	34	30-May-17 A	22-Jan-19	52			-96
S11660-15	Design Coordination for EL Services	P2-Cal.A	60	15	30-May-17 A	03-Jan-19	52	75%		-524
S11660-17	2nd review by EMSD/HyD	P2-Cal.A	15	5	06-Jul-18 A	08-Jan-19	52	66.67%		-172
S11660-19	Fromal Submission to Supervisor	P2-Cal.A	7	7	09-Jan-19	15-Jan-19	52	0%		0
S11660-20	Accept detail design by the Supervisor	P2-Cal.A	7	7	16-Jan-19	22-Jan-19	52	0%		0
External Road Lighting		P2-Cal.A	487	34	07-Mar-17 A	22-Jan-19	52			-200
S11660-23	Design Coordination for EL Services	P2-Cal.A	60	15	07-Mar-17 A	03-Jan-19	52	75%		-608
S11660-25	2nd review by EMSD/CLP/ HyD	P2-Cal.A	15	5	06-Jul-18 A	08-Jan-19	52	66.67%		-172
S11660-27	Formal Submission to Supervisor	P2-Cal.A	7	7	09-Jan-19	15-Jan-19	52	0%		0
S11660-28	Accept detail design by the Supervisor	P2-Cal.A	7	7	16-Jan-19	22-Jan-19	52	0%		0
Plantroom		P2-Cal.A	360	34	07-Mar-17 A	22-Jan-19	52			-327
S11664	Design Coordination for EL Services	P2-Cal.A	60	15	07-Mar-17 A	03-Jan-19	52	75%		-608
S11666	2nd review by EMSD/HyD	P2-Cal.A	15	5	06-Jul-18 A	08-Jan-19	52	66.67%		-172
S11667	Formal Submission to Supervisor	P2-Cal.A	7	7	09-Jan-19	15-Jan-19	52	0%		0
S11668	Accept detail design by the Supervisor	P2-Cal.A	7	7	16-Jan-19	22-Jan-19	52	0%		0
ELV And SCADA Detail Design		P2-Cal.A	394	29	12-Aug-17 A	17-Jan-19	57			-130
Underpass		P2-Cal.A	394	29	12-Aug-17 A	17-Jan-19	57			-130
S11669-10	Design Coordination for ELV & SCADA	P2-Cal.A	60	10	12-Aug-17 A	29-Dec-18	57	83.33%		-445
S11669-19	2nd review by EMSD	P2-Cal.A	15	5	21-Jun-18 A	03-Jan-19	57	66.67%		-182



Primary Baseline
Actual Work
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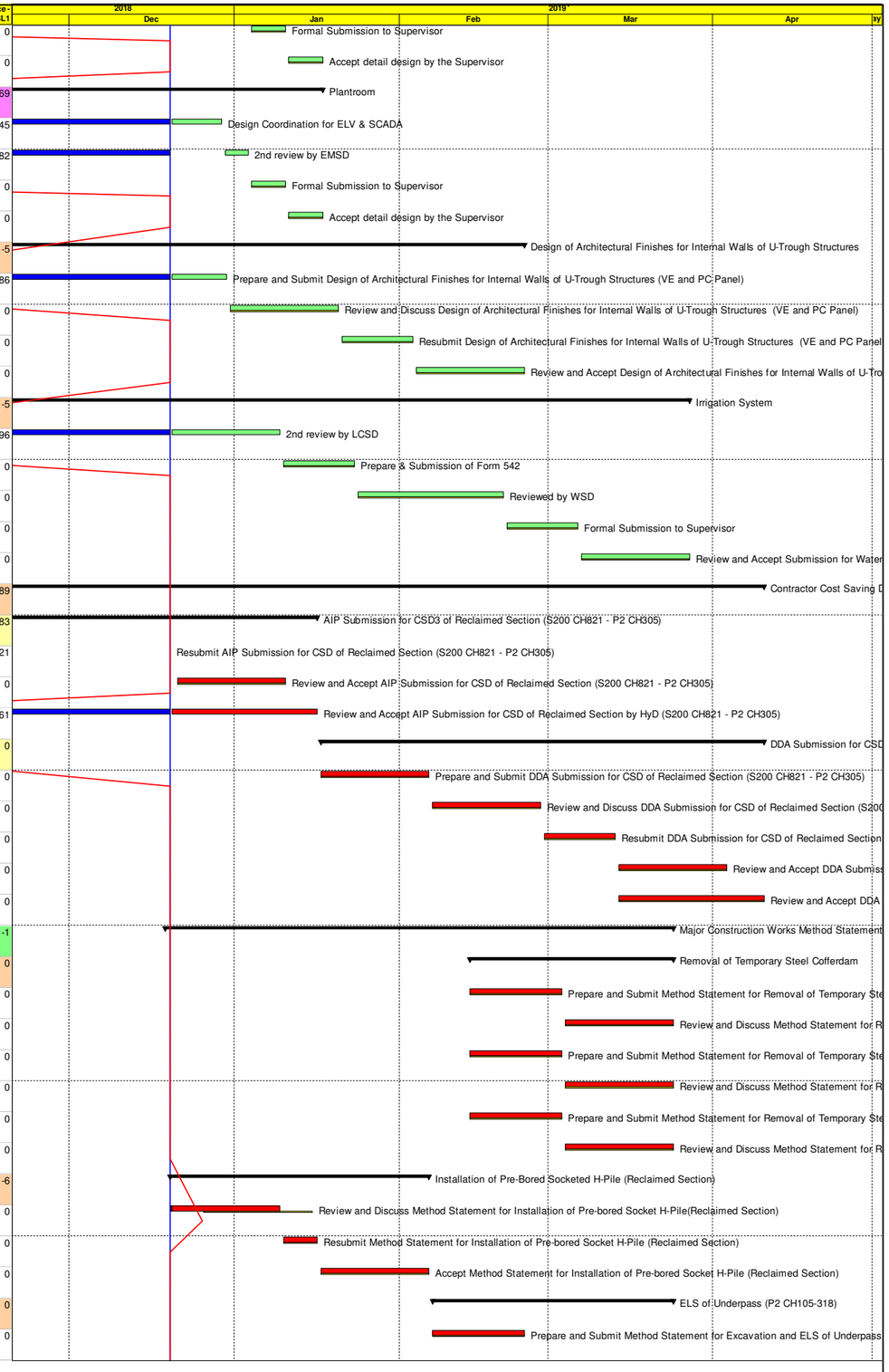
Milestone
Summary

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-18)

3 Monthly Rolling Programme
(Data Date : 20-Dec-2018)

Date	Revision	Checked	Approved
20-Dec-18			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
S11669-29	Formal Submission to Supervisor	P2-Cal.A	7	7	04-Jan-19	10-Jan-19	57	0%		0
S11669-30	Accept detail design by the Supervisor	P2-Cal.A	7	7	11-Jan-19	17-Jan-19	57	0%		0
Plantroom		P2-Cal.A	355	29	12-Aug-17 A	17-Jan-19	57			-169
S11670-10	Design Coordination for ELV & SCADA	P2-Cal.A	60	10	12-Aug-17 A	29-Dec-18	57	83.33%		-445
S11670-19	2nd review by EMSD	P2-Cal.A	15	5	21-Jun-18 A	03-Jan-19	57	66.67%		-182
S11670-29	Formal Submission to Supervisor	P2-Cal.A	7	7	04-Jan-19	10-Jan-19	57	0%		0
S11670-30	Accept detail design by the Supervisor	P2-Cal.A	7	7	11-Jan-19	17-Jan-19	57	0%		0
Design of Architectural Finishes for Internal Walls of U-Trough Structures		P2-Cal.A	158	67	15-Sep-18 A	24-Feb-19	112			-5
S11675	Prepare and Submit Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel)	P2-Cal.A	21	11	15-Sep-18 A	30-Dec-18	112	47.62%		-86
S11680	Review and Discuss Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel)	P2-Cal.A	21	21	31-Dec-18	20-Jan-19	112	0%		0
S11700	Resubmit Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel)	P2-Cal.A	14	14	21-Jan-19	03-Feb-19	112	0%		0
S11720	Review and Accept Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel)	P2-Cal.A	21	21	04-Feb-19	24-Feb-19	112	0%		0
Irrigation System		P2-Cal.A	189	98	15-Sep-18 A	27-Mar-19	25			-5
S11787-01	2nd review by LCSD	P2-Cal.A	21	21	15-Sep-18 A	09-Jan-19	25	0%		-96
S11788	Prepare & Submission of Form 542	P2-Cal.A	14	14	10-Jan-19	23-Jan-19	25	0%		0
S11789	Reviewed by WSD	P2-Cal.A	28	28	24-Jan-19	20-Feb-19	25	0%		0
S11790	Formal Submission to Supervisor	P2-Cal.A	14	14	21-Feb-19	06-Mar-19	25	0%		0
S11800	Review and Accept Submission for Waterpoints and associated elements	P2-Cal.A	21	21	07-Mar-19	27-Mar-19	25	0%		0
Contractor Cost Saving Design		P2-Cal.A	262	112	20-Oct-18 A	10-Apr-19	-22			89
AIP Submission for CSD3 of Reclaimed Section (S200 CH821 - P2 CH305)		P2-Cal.A	172	28	20-Oct-18 A	16-Jan-19	-22			83
S11973-01	Resubmit AIP Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	0	20-Dec-18 A	20-Dec-18 A		100%		21
S11973-02	Review and Accept AIP Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	21-Dec-18	10-Jan-19	-16	0%		0
S11974	Review and Accept AIP Submission for CSD of Reclaimed Section by HyD (S200 CH821 - P2 CH305)	P2-Cal.A	28	28	20-Oct-18 A	16-Jan-19	-22	0%		-61
DDA Submission for CSD3 of Reclaimed Section (S200 CH821 - P2 CH305)		P2-Cal.A	84	84	17-Jan-19	10-Apr-19	-22			0
S11975	Prepare and Submit DDA Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	17-Jan-19	06-Feb-19	-22	0%		0
S11976	Review and Discuss DDA Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	07-Feb-19	27-Feb-19	-22	0%		0
S11977	Resubmit DDA Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	14	14	28-Feb-19	13-Mar-19	-22	0%		0
S11978	Review and Accept DDA Submission for CSD of Reclaimed Section by CEDD (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	14-Mar-19	03-Apr-19	-15	0%		0
S11979	Review and Accept DDA Submission for CSD of Reclaimed Section by HyD (S200 CH821 - P2 CH305)	P2-Cal.A	28	28	14-Mar-19	10-Apr-19	-22	0%		0
Major Construction Works Method Statement		P2-Cal.A	95	95	19-Dec-18 A	24-Mar-19	-61			-1
Removal of Temporary Steel Cofferdam		P2-Cal.A	39	39	14-Feb-19	24-Mar-19	-66			0
S13810	Prepare and Submit Method Statement for Removal of Temporary Steel Cofferdam (type 1)	P2-Cal.A	18	18	14-Feb-19	03-Mar-19	-87	0%		0
S13811	Review and Discuss Method Statement for Removal of Temporary Steel Cofferdam (type 1)	P2-Cal.A	21	21	04-Mar-19	24-Mar-19	-87	0%		0
S13814	Prepare and Submit Method Statement for Removal of Temporary Steel Cofferdam (type 2)	P2-Cal.A	18	18	14-Feb-19	03-Mar-19	-87	0%		0
S13815	Review and Discuss Method Statement for Removal of Temporary Steel Cofferdam (type 2)	P2-Cal.A	21	21	04-Mar-19	24-Mar-19	-87	0%		0
S13818-1	Prepare and Submit Method Statement for Removal of Temporary Steel Cofferdam (type 3)	P2-Cal.A	18	18	14-Feb-19	03-Mar-19	-66	0%		0
S13818-2	Review and Discuss Method Statement for Removal of Temporary Steel Cofferdam (type 3)	P2-Cal.A	21	21	04-Mar-19	24-Mar-19	-66	0%		0
Installation of Pre-Bored Socketed H-Pile (Reclaimed Section)		P2-Cal.A	43	49	20-Dec-18 A	06-Feb-19	-61			-6
S13971	Review and Discuss Method Statement for Installation of Pre-bored Socket H-Pile(Reclaimed Section)	P2-Cal.A	21	21	20-Dec-18 A	09-Jan-19	-61	0%		0
S13972	Resubmit Method Statement for Installation of Pre-bored Socket H-Pile (Reclaimed Section)	P2-Cal.A	7	7	10-Jan-19	16-Jan-19	-61	0%		0
S13973	Accept Method Statement for Installation of Pre-bored Socket H-Pile (Reclaimed Section)	P2-Cal.A	21	21	17-Jan-19	06-Feb-19	-61	0%		0
ELS of Underpass (P2 CH105-318)		P2-Cal.A	46	46	07-Feb-19	24-Mar-19	-61			0
S14056	Prepare and Submit Method Statement for Excavation and ELS of Underpass (P2 CH105-318)	P2-Cal.A	18	18	07-Feb-19	24-Feb-19	-61	0%		0



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3 Monthly Rolling Programme
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S14057	1st Review and Discuss Method Statement for Excavation and ELS of Underpass (P2 CH105-318)	P2-Cal.A	21	21	25-Feb-19	17-Mar-19	-61	0%		0
S14058	Resubmit Method Statement for Excavation and ELS of Underpass (P2 CH105-318)	P2-Cal.A	7	7	18-Mar-19	24-Mar-19	-61	0%		0
Construction of U-Troughs structure (P2 CH318-363)		P2-Cal.A	74	74	19-Dec-18 A	03-Mar-19	-192			-1
S14122	Prepare and Submit Method Statement for Construction of U-Troughs Structure (P2 CH318-363)	P2-Cal.A	18	18	19-Dec-18 A	06-Jan-19	-192	0%		-1
S14124	Review and Discuss Method Statement for Construction of U-Troughs Structure (P2 CH318-363)	P2-Cal.A	21	21	07-Jan-19	27-Jan-19	-192	0%		0
S14126	Resubmit Method Statement for Construction of U-Troughs Structure (P2 CH318-363)	P2-Cal.A	14	14	28-Jan-19	10-Feb-19	-192	0%		0
S14128	Accept Method Statement for Construction of U-Troughs Structure (P2 CH318-363)	P2-Cal.A	21	21	11-Feb-19	03-Mar-19	-192	0%		0
Procurement of Major Material		P2-Cal.A	1015	428	20-Jan-17 A	20-Feb-20	138			-112
Civil/Structural		P2-Cal.A	1015	428	20-Jan-17 A	20-Feb-20	138			-112
S14981	Procurement and Delivery of Steel H-Pile	P2-Cal.A	800	204	31-Jan-17 A	11-Jul-19	-225	74.5%		-92
S14983	Procurement and Delivery of ELS Wailing & Struts Members	P2-Cal.A	1015	428	20-Jan-17 A	20-Feb-20	-208	57.83%		-112
S14997	Offsite Fabrication of Steel Works for the Sign Gantry	P2-Cal.A	60	60	23-Feb-19	23-Apr-19	441	0%		0
S14999	Offsite Fabrication of Traffic and directional signs	P2-Cal.A	60	60	16-Mar-19	14-May-19	420	0%		0
Subletting Package		P2-Cal.A	140	86	05-Oct-18 A	15-Mar-19	420			-22
Installation of Socketed H-Pile (Reclaimed Section)		P2-Cal.A	0	0	31-Dec-18	31-Dec-18	31			0
S16384	Installation of Pre-bored Socketed H-Pile (Reclaimed Section) Award	P2-Cal.A	0	0		31-Dec-18	31	0%		0
ELS Works (Reclaimed Section)		P2-Cal.A	78	24	05-Oct-18 A	12-Jan-19	237			-22
S16386	Invitation, Submission and Opening of Tender for Excavation and ELS Works (Reclaimed Section)	P2-Cal.A	14	3	05-Oct-18 A	22-Dec-18	237	78.57%		-65
S16387	Tender Interview and Recommendation to PM for Excavation and ELS Works (Reclaimed Section)	P2-Cal.A	21	21	23-Dec-18	12-Jan-19	237	0%		0
S16388	Excavation and ELS Works (Reclaimed Section) Award	P2-Cal.A	0	0		12-Jan-19	237	0%		0
Structural Works for Retaining Wall (Reclaimed Section)		P2-Cal.A	30	20	24-Oct-18 A	08-Jan-19	324			-47
S16391	Tender Interview and Recommendation to PM for Structural Works for Retaining Wall	P2-Cal.A	30	20	24-Oct-18 A	08-Jan-19	324	33.33%		-47
S16392	Structural Works for Retaining Wall Award	P2-Cal.A	0	0		08-Jan-19	324	0%		0
Structural Works for U-Trough, Underpass and Abutment		P2-Cal.A	30	20	24-Oct-18 A	08-Jan-19	327			-47
S16440	Tender Interview and Recommendation to PM for Structural Works for U-Trough, Underpass and Abutment	P2-Cal.A	30	20	24-Oct-18 A	08-Jan-19	327	33.33%		-47
S16460	Structural Works for U-Trough, Underpass and Abutment Award	P2-Cal.A	0	0		08-Jan-19	327	0%		0
Road Works		P2-Cal.A	42	42	15-Jan-19	25-Feb-19	176			0
S17200	Prepare Road Works Tender Document for PM Acceptance	P2-Cal.A	7	7	15-Jan-19	21-Jan-19	176	0%		0
S17220	Submission and Opening of Tender for Road Works	P2-Cal.A	14	14	22-Jan-19	04-Feb-19	176	0%		0
S17240	Tender Interview and Recommendation to PM for Road Works	P2-Cal.A	21	21	05-Feb-19	25-Feb-19	176	0%		0
S17260	Road Works Award	P2-Cal.A	0	0		25-Feb-19	176	0%		0
Traffic and Directional Signs		P2-Cal.A	42	42	02-Feb-19	15-Mar-19	420			0
S17440	Prepare Traffic and Directional Signs Tender Document for PM Acceptance	P2-Cal.A	7	7	02-Feb-19	08-Feb-19	420	0%		0
S17460	Submission and Opening of Tender for Traffic and Directional Signs	P2-Cal.A	14	14	09-Feb-19	22-Feb-19	420	0%		0
S17480	Tender Interview and Recommendation to PM for Traffic and Directional Signs	P2-Cal.A	21	21	23-Feb-19	15-Mar-19	420	0%		0
S17500	Traffic and Directional Signs Award	P2-Cal.A	0	0		15-Mar-19	420	0%		0
Section 2 of the Works (All Works Within Portion II)		P2-Cal.C	49	49	25-Jan-19	26-Mar-19	118			0
Roadworks		P2-Cal.C	49	49	25-Jan-19	26-Mar-19	118			0
LC11807	TTA application of road works after removal of treated sediment stockpile & partial removal of concrete blockwall	P2-Cal.C	35	35	25-Jan-19	09-Mar-19	118	0%		0
LC11808	TTA Implementation (Site Entrance)	P2-Cal.C	14	14	11-Mar-19	26-Mar-19	118	0%		0
Section 3 of the Works All Works within Portion IV, V, VI, VII,VIII, and IX			495	172	06-Jan-18 A	09-Jun-19	171			-25
Existing Land Section		P2-Cal.C	340	130	19-Mar-18 A	03-Jun-19	147			-16
Retaining Wall P2-A CH 500- 650		P2-Cal.C	328	130	26-Apr-18 A	03-Jun-19	147			1

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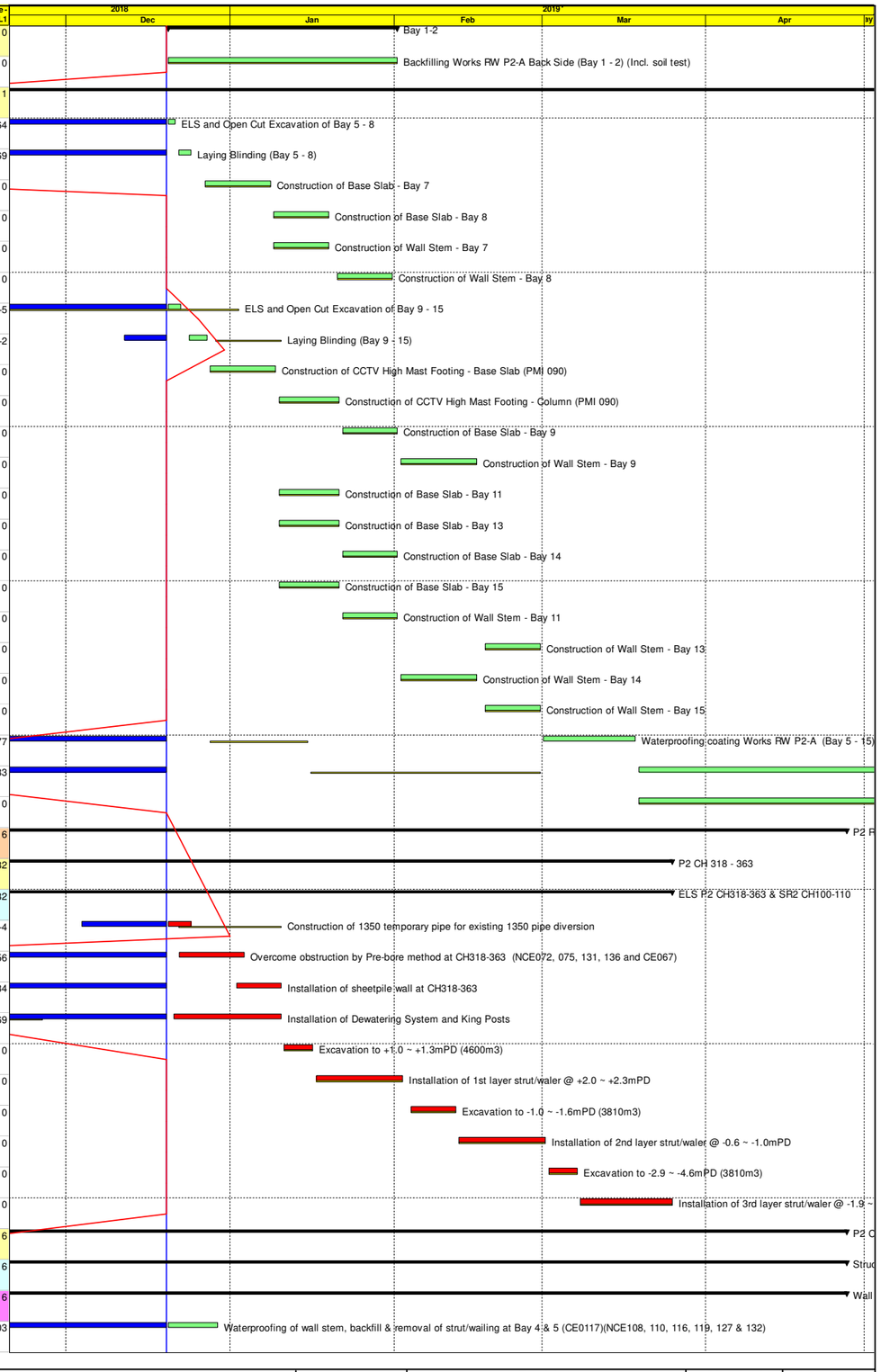
Bay 1-2		P2-Cal.C	35	35	20-Dec-18	01-Feb-19	242			0
LC11947	Backfilling Works RW P2-A Back Side (Bay 1 - 2) (Incl. soil test)	P2-Cal.C	35	35	20-Dec-18	01-Feb-19	242	0%	6	0
Bay 5-15		P2-Cal.C	328	130	26-Apr-18 A	03-Jun-19	87			1
LC11961	ELS and Open Cut Excavation of Bay 5 - 8	P2-Cal.C	35	2	26-Apr-18 A	21-Dec-18	98	94.29%		-164
LC11962	Laying Blinding (Bay 5 - 8)	P2-Cal.C	7	2	28-May-18 A	24-Dec-18	98	71.43%		-169
LC11965	Construction of Base Slab - Bay 7	P2-Cal.C	10	10	27-Dec-18	08-Jan-19	98	0%		0
LC11966	Construction of Base Slab - Bay 8	P2-Cal.C	10	10	09-Jan-19	19-Jan-19	98	0%		0
LC11969	Construction of Wall Stem - Bay 7	P2-Cal.C	10	10	09-Jan-19	19-Jan-19	118	0%		0
LC11970	Construction of Wall Stem - Bay 8	P2-Cal.C	10	10	21-Jan-19	31-Jan-19	108	0%		0
LC11971	ELS and Open Cut Excavation of Bay 9 - 15	P2-Cal.C	35	3	07-Nov-18 A	22-Dec-18	87	91.43%		-5
LC11972	Laying Blinding (Bay 9 - 15)	P2-Cal.C	10	2	12-Dec-18 A	27-Dec-18	87	80%		-2
LC11972-1	Construction of CCTV High Mast Footing - Base Slab (PMI 090)	P2-Cal.C	10	10	28-Dec-18	09-Jan-19	87	0%		0
LC11972-2	Construction of CCTV High Mast Footing - Column (PMI 090)	P2-Cal.C	10	10	10-Jan-19	21-Jan-19	97	0%		0
LC11973	Construction of Base Slab - Bay 9	P2-Cal.C	10	10	22-Jan-19	01-Feb-19	97	0%		0
LC11974	Construction of Wall Stem - Bay 9	P2-Cal.C	10	10	02-Feb-19	16-Feb-19	97	0%		0
LC11976	Construction of Base Slab - Bay 11	P2-Cal.C	10	10	10-Jan-19	21-Jan-19	97	0%		0
LC11978	Construction of Base Slab - Bay 13	P2-Cal.C	10	10	10-Jan-19	21-Jan-19	87	0%		0
LC11979	Construction of Base Slab - Bay 14	P2-Cal.C	10	10	22-Jan-19	01-Feb-19	87	0%		0
LC11980	Construction of Base Slab - Bay 15	P2-Cal.C	10	10	10-Jan-19	21-Jan-19	87	0%		0
LC11982	Construction of Wall Stem - Bay 11	P2-Cal.C	10	10	22-Jan-19	01-Feb-19	107	0%		0
LC11984	Construction of Wall Stem - Bay 13	P2-Cal.C	10	10	18-Feb-19	28-Feb-19	87	0%		0
LC11985	Construction of Wall Stem - Bay 14	P2-Cal.C	10	10	02-Feb-19	16-Feb-19	87	0%		0
LC11986	Construction of Wall Stem - Bay 15	P2-Cal.C	10	10	18-Feb-19	28-Feb-19	87	0%		0
LC11987	Waterproofing coating Works RW P2-A (Bay 5 - 15)	P2-Cal.C	15	15	27-Jul-18 A	18-Mar-19	87	0%		-177
LC11988	Backfilling Works RW P2-A Back Side (Bay 5 - 15) (Incl. Soil Test)	P2-Cal.C	35	35	07-Aug-18 A	03-May-19	112	0%	12	-183
LC11989	Excavation and Drainage Works (Bay 1 - 15)	P2-Cal.C	60	60	19-Mar-19	03-Jun-19	87	0%		0
P2 Road		P2-Cal.C	311	101	19-Mar-18 A	27-Apr-19	146			-16
P2 CH 318 - 363		P2-Cal.C	250	76	16-Apr-18 A	25-Mar-19	-189			-32
ELS P2 CH318-363 & SR2 CH100-110		P2-Cal.C	250	76	16-Apr-18 A	25-Mar-19	-189			-32
LC12950-01	Construction of 1350 temporary pipe for existing 1350 pipe diversion	P2-Cal.C	14	4	04-Dec-18 A	24-Dec-18	-189	71.43%		-4
LC12951	Overcome obstruction by Pre-bore method at CH318-363 (NCE072, 075, 131, 136 and CE067)	P2-Cal.C	60	8	16-Apr-18 A	03-Jan-19	-189	87%		-156
LC12952	Installation of sheetpile wall at CH318-363	P2-Cal.C	60	8	19-May-18 A	10-Jan-19	-189	86.67%		-134
LC12953	Installation of Dewatering System and King Posts	P2-Cal.C	20	15	22-Sep-18 A	10-Jan-19	-189	25%		-69
LC12956	Excavation to +1.0 ~ +1.3mPD (4600m3)	P2-Cal.C	5	5	11-Jan-19	16-Jan-19	-189	0%		0
LC12957	Installation of 1st layer strut/waler @ +2.0 ~ +2.3mPD	P2-Cal.C	15	15	17-Jan-19	02-Feb-19	-189	0%		0
LC12958	Excavation to -1.0 ~ -1.6mPD (3810m3)	P2-Cal.C	5	5	04-Feb-19	12-Feb-19	-189	0%		0
LC12959	Installation of 2nd layer strut/waler @ -0.6 ~ -1.0mPD	P2-Cal.C	15	15	13-Feb-19	01-Mar-19	-189	0%		0
LC12961	Excavation to -2.9 ~ -4.6mPD (3810m3)	P2-Cal.C	5	5	02-Mar-19	07-Mar-19	-189	0%		0
LC12962	Installation of 3rd layer strut/waler @ -1.9 ~ -3.6mPD	P2-Cal.C	15	15	08-Mar-19	25-Mar-19	-189	0%		0
P2 CH 411- 500		P2-Cal.C	311	101	19-Mar-18 A	27-Apr-19	146			-16
Structure P2 CH 411 - 500 (U Trough A)		P2-Cal.C	311	101	19-Mar-18 A	27-Apr-19	146			-16
Wall Stem		P2-Cal.C	311	101	19-Mar-18 A	27-Apr-19	146			-16
LC15120	Waterproofing of wall stem, backfill & removal of strut/wailing at Bay 4 & 5 (CE0117)(NCE108, 110, 116, 119, 127 & 132)	P2-Cal.C	30	7	19-Mar-18 A	29-Dec-18	146	76.67%		-203



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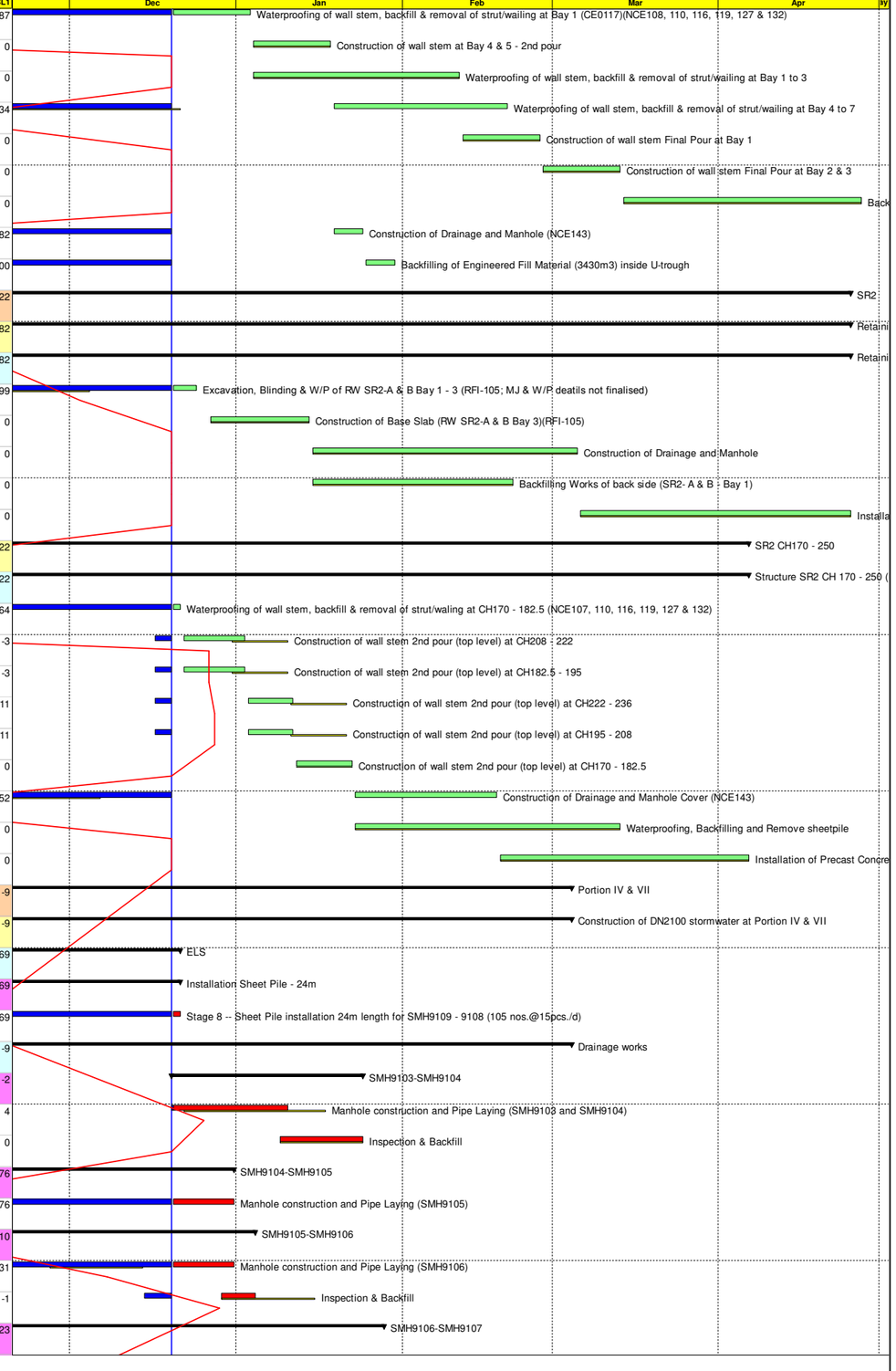
LC15140	Waterproofing of wall stem, backfill & removal of strut/wailing at Bay 1 (CE0117)(NCE108, 110, 116, 119, 127 & 132)	P2-Cal.C	30	10	14-Apr-18 A	03-Jan-19	146	66.67%		-187
LC15170	Construction of wall stem at Bay 4 & 5 - 2nd pour	P2-Cal.C	13	13	04-Jan-19	18-Jan-19	164	0%		0
LC15185	Waterproofing of wall stem, backfill & removal of strut/wailing at Bay 1 to 3	P2-Cal.C	30	30	04-Jan-19	11-Feb-19	146	0%		0
LC15190	Waterproofing of wall stem, backfill & removal of strut/wailing at Bay 4 to 7	P2-Cal.C	30	25	03-Aug-18 A	20-Feb-19	164	16.67%		-134
LC15230	Construction of wall stem Final Pour at Bay 1	P2-Cal.C	13	13	12-Feb-19	26-Feb-19	146	0%		0
LC15235	Construction of wall stem Final Pour at Bay 2 & 3	P2-Cal.C	13	13	27-Feb-19	13-Mar-19	146	0%		0
LC15240	Backfilling and Removal of Sheetpile at the edge	P2-Cal.C	35	35	14-Mar-19	27-Apr-19	146	0%		0
LC15250	Construction of Drainage and Manhole (NCE143)	P2-Cal.C	60	5	06-Apr-18 A	24-Jan-19	214	91.67%		-182
LC15260	Backfilling of Engineered Fill Material (3430m3) inside U-trough	P2-Cal.C	15	5	15-May-18 A	30-Jan-19	214	66.67%		-200
SR2		P2-Cal.C	249	99	28-May-18 A	25-Apr-19	178			-22
Retaining Wall SR2-A & B CH250 - 310		P2-Cal.C	133	99	03-Aug-18 A	25-Apr-19	178			-82
Retaining Wall SR2-B		P2-Cal.C	133	99	03-Aug-18 A	25-Apr-19	178			-82
LC16593	Excavation, Blinding & W/P of RW SR2-A & B Bay 1 - 3 (RFI-105; MJ & W/P deatils not finalised)	P2-Cal.C	21	4	03-Aug-18 A	24-Dec-18	178	80.95%		-99
LC16615	Construction of Base Slab (RW SR2-A & B Bay 3)(RFI-105)	P2-Cal.C	15	15	27-Dec-18	14-Jan-19	178	0%		0
LC16860	Construction of Drainage and Manhole	P2-Cal.C	40	40	15-Jan-19	05-Mar-19	178	0%	10	0
LC16865	Backfilling Works of back side (SR2- A & B - Bay 1)	P2-Cal.C	30	30	15-Jan-19	21-Feb-19	188	0%	10	0
LC16880	Installation of Precast Concrete Profile Barrier	P2-Cal.C	40	40	06-Mar-19	25-Apr-19	178	0%	10	0
SR2 CH170 - 250		P2-Cal.C	236	86	28-May-18 A	06-Apr-19	191			-22
Structure SR2 CH 170 - 250 (U Trough A)		P2-Cal.C	236	86	28-May-18 A	06-Apr-19	191			-22
LC17340	Waterproofing of wall stem, backfill & removal of strut/waling at CH170 - 182.5 (NCE107, 110, 116, 119, 127 & 132)	P2-Cal.C	10	2	28-May-18 A	21-Dec-18	191	80%		-164
LC17370	Construction of wall stem 2nd pour (top level) at CH208 - 222	P2-Cal.C	9	7	17-Dec-18 A	02-Jan-19	191	22.22%		-3
LC17375	Construction of wall stem 2nd pour (top level) at CH182.5 - 195	P2-Cal.C	9	7	17-Dec-18 A	02-Jan-19	191	22.22%		-3
LC17385	Construction of wall stem 2nd pour (top level) at CH222 - 236	P2-Cal.C	9	8	17-Dec-18 A	11-Jan-19	191	11.11%		-11
LC17390	Construction of wall stem 2nd pour (top level) at CH195 - 208	P2-Cal.C	9	8	17-Dec-18 A	11-Jan-19	200	11.11%		-11
LC17395	Construction of wall stem 2nd pour (top level) at CH170 - 182.5	P2-Cal.C	9	9	12-Jan-19	22-Jan-19	191	0%		0
LC17400	Construction of Drainage and Manhole Cover (NCE143)	P2-Cal.C	40	20	28-Jun-18 A	18-Feb-19	191	50%		-152
LC17510	Waterproofing, Backfilling and Remove sheetpile	P2-Cal.C	40	40	23-Jan-19	13-Mar-19	211	0%		0
LC17520	Installation of Precast Concrete Profile Barrier	P2-Cal.C	40	40	19-Feb-19	06-Apr-19	191	0%		0
Portion IV & VII		P2-Cal.C	179	58	18-Jul-18 A	04-Mar-19	-57			-9
Construction of DN2100 stormwater at Portion IV & VII		P2-Cal.C	179	58	18-Jul-18 A	04-Mar-19	-57			-9
ELS		P2-Cal.C	7	2	21-Sep-18 A	21-Dec-18	-57			-69
Installation Sheet Pile - 24m		P2-Cal.C	7	2	21-Sep-18 A	21-Dec-18	-57			-69
LC17687-01	Stage 8 -- Sheet Pile installation 24m length for SMH9109 - 9108 (105 nos.@15pcs./d)	P2-Cal.C	7	2	21-Sep-18 A	21-Dec-18	-57	71.43%		-69
Drainage works		P2-Cal.C	179	58	18-Jul-18 A	04-Mar-19	-57			-9
SMH9103-SMH9104		P2-Cal.C	26	28	20-Dec-18 A	24-Jan-19	-129			-2
LC17690-3	Manhole construction and Pipe Laying (SMH9103 and SMH9104)	P2-Cal.C	20	16	20-Dec-18 A	10-Jan-19	-189	20%		4
LC17690-5	Inspection & Backfill	P2-Cal.C	14	14	09-Jan-19	24-Jan-19	-129	0%		0
SMH9104-SMH9105		P2-Cal.C	16	8	10-Sep-18 A	31-Dec-18	-121			-76
LC17691-3	Manhole construction and Pipe Laying (SMH9105)	P2-Cal.C	16	8	10-Sep-18 A	31-Dec-18	-121	50%		-76
SMH9105-SMH9106		P2-Cal.C	40	11	05-Nov-18 A	04-Jan-19	-126			-10
LC17692-3	Manhole construction and Pipe Laying (SMH9106)	P2-Cal.C	16	8	05-Nov-18 A	31-Dec-18	-126	50%		-31
LC17692-5	Inspection & Backfill	P2-Cal.C	14	5	15-Dec-18 A	04-Jan-19	-126	64.29%		-1
SMH9106-SMH9107		P2-Cal.C	47	29	05-Nov-18 A	28-Jan-19	-44			-23



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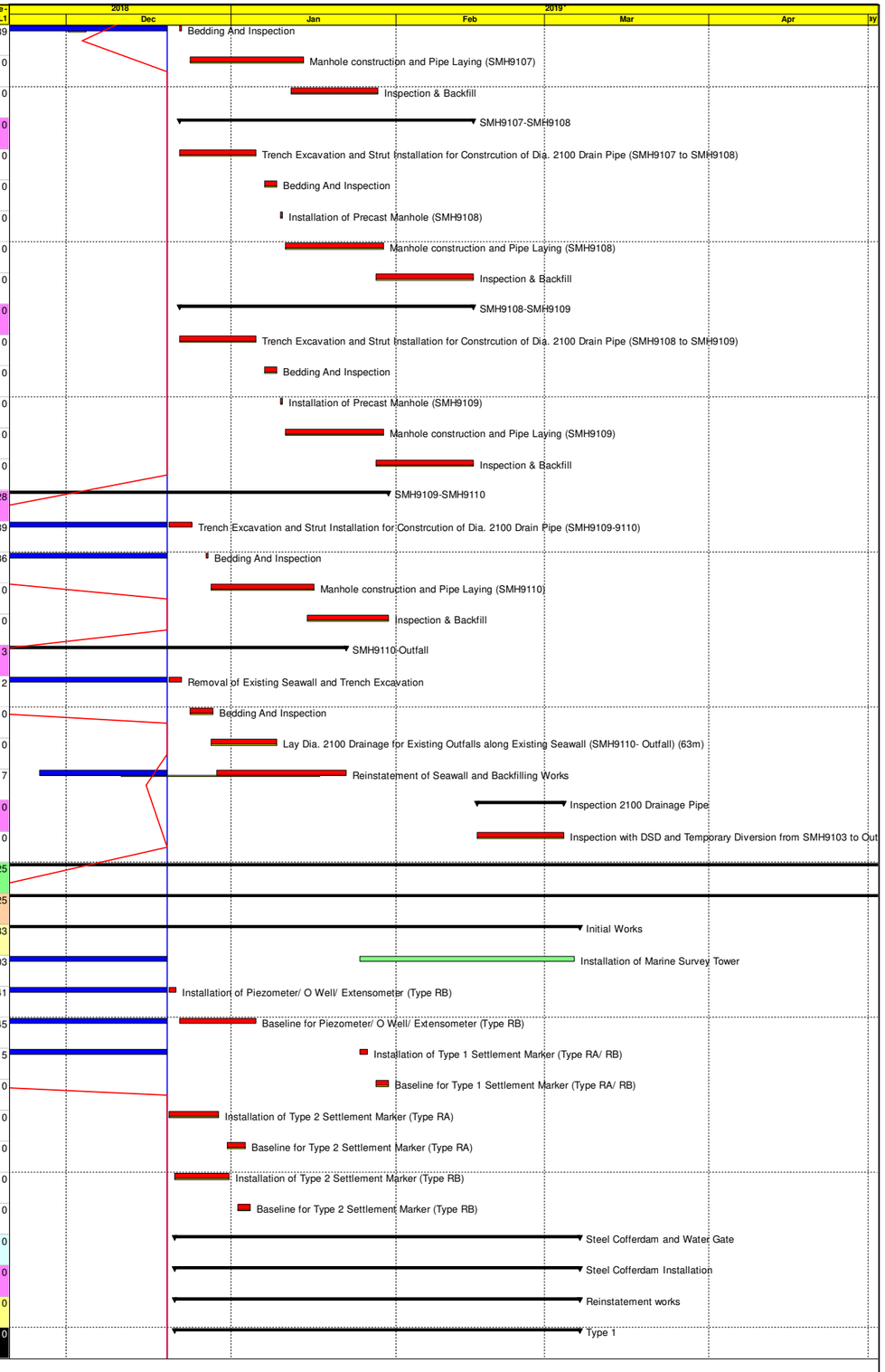
LC17693-2	Bedding And Inspection	P2-Cal.C	3	1	05-Nov-18 A	22-Dec-18	-44	66.67%		-39
LC17693-3	Manhole construction and Pipe Laying (SMH9107)	P2-Cal.C	16	16	24-Dec-18	14-Jan-19	-44	0%		0
LC17693-5	Inspection & Backfill	P2-Cal.C	14	14	12-Jan-19	28-Jan-19	-44	0%		0
SMH9107-SMH9108		P2-Cal.C	42	42	22-Dec-18	15-Feb-19	-57			0
LC17694	Trench Excavation and Strut Installation for Constrcution of Dia. 2100 Drain Pipe (SMH9107 to SMH9108)	P2-Cal.C	10	10	22-Dec-18	05-Jan-19	-57	0%		0
LC17695	Bedding And Inspection	P2-Cal.C	3	3	07-Jan-19	09-Jan-19	-57	0%		0
LC17695-01	Installation of Precast Manhole (SMH9108)	P2-Cal.C	1	1	10-Jan-19	10-Jan-19	-57	0%		0
LC17696	Manhole construction and Pipe Laying (SMH9108)	P2-Cal.C	16	16	11-Jan-19	29-Jan-19	-57	0%		0
LC17698	Inspection & Backfill	P2-Cal.C	14	14	28-Jan-19	15-Feb-19	-57	0%		0
SMH9108-SMH9109		P2-Cal.C	42	42	22-Dec-18	15-Feb-19	-57			0
LC17699	Trench Excavation and Strut Installation for Constrcution of Dia. 2100 Drain Pipe (SMH9108 to SMH9109)	P2-Cal.C	10	10	22-Dec-18	05-Jan-19	-57	0%		0
LC17701	Bedding And Inspection	P2-Cal.C	3	3	07-Jan-19	09-Jan-19	-57	0%		0
LC17701-01	Installation of Precast Manhole (SMH9109)	P2-Cal.C	1	1	10-Jan-19	10-Jan-19	-57	0%		0
LC17702	Manhole construction and Pipe Laying (SMH9109)	P2-Cal.C	16	16	11-Jan-19	29-Jan-19	-57	0%		0
LC17704	Inspection & Backfill	P2-Cal.C	14	14	28-Jan-19	15-Feb-19	-57	0%		0
SMH9109-SMH9110		P2-Cal.C	100	33	28-Aug-18 A	30-Jan-19	-46			-28
LC17705	Trench Excavation and Strut Installation for Constrcution of Dia. 2100 Drain Pipe (SMH9109-9110)	P2-Cal.C	10	4	28-Aug-18 A	24-Dec-18	-46	60%		-89
LC17707	Bedding And Inspection	P2-Cal.C	3	1	10-Sep-18 A	27-Dec-18	-46	66.67%		-86
LC17708	Manhole construction and Pipe Laying (SMH9110)	P2-Cal.C	16	16	28-Dec-18	16-Jan-19	-46	0%		0
LC17710	Inspection & Backfill	P2-Cal.C	14	14	15-Jan-19	30-Jan-19	-46	0%		0
SMH9110-Outfall		P2-Cal.C	143	26	18-Jul-18 A	22-Jan-19	-39			-13
LC17712	Removal of Existing Seawall and Trench Excavation	P2-Cal.C	21	3	18-Jul-18 A	22-Dec-18	-39	85.71%		-112
LC17713	Bedding And Inspection	P2-Cal.C	3	3	24-Dec-18	28-Dec-18	-39	0%		0
LC17715	Lay Dia. 2100 Drainage for Existing Outfalls along Existing Seawall (SMH9110- Outfall) (63m)	P2-Cal.C	10	10	28-Dec-18	09-Jan-19	-38	0%		0
LC17716	Reinstatement of Seawall and Backfilling Works	P2-Cal.C	30	20	26-Nov-18 A	22-Jan-19	-39	33.33%		-17
Inspection 2100 Drainage Pipe		P2-Cal.C	14	14	16-Feb-19	04-Mar-19	-57			0
LC17717	Inspection with DSD and Temporary Diversion from SMH9103 to Outfall	P2-Cal.C	14	14	16-Feb-19	04-Mar-19	-57	0%		0
New Reclaimed Section			495	172	06-Jan-18 A	09-Jun-19	96			-25
Marine Works			495	172	06-Jan-18 A	09-Jun-19	96			-25
Initial Works		P2-Cal.C	170	61	03-May-18 A	07-Mar-19	55			-83
MC10050	Installation of Marine Survey Tower	P2-Cal.C	42	32	08-Sep-18 A	06-Mar-19	56	23.81%		-103
MC10060	Installation of Piezometer/ O Well/ Extensometer (Type RB)	P2-Cal.C	7	2	28-Jun-18 A	21-Dec-18	-78	71.43%		-141
MC10070	Baseline for Piezometer/ O Well/ Extensometer (Type RB)	P2-Cal.C	10	10	03-Jul-18 A	05-Jan-19	-78	0%		-145
MC10080	Installation of Type 1 Settlement Marker (Type RA/ RB)	P2-Cal.C	7	2	03-May-18 A	26-Jan-19	-110	71.43%		-215
MC10120	Baseline for Type 1 Settlement Marker (Type RA/ RB)	P2-Cal.C	3	3	28-Jan-19	30-Jan-19	-110	0%		0
MC10156	Installation of Type 2 Settlement Marker (Type RA)	P2-Cal.C	7	7	20-Dec-18	29-Dec-18	-93	0%		0
MC10160	Baseline for Type 2 Settlement Marker (Type RA)	P2-Cal.C	3	3	31-Dec-18	03-Jan-19	-93	0%		0
MC10170	Installation of Type 2 Settlement Marker (Type RB)	P2-Cal.C	7	7	21-Dec-18	31-Dec-18	-7	0%		0
MC10175	Baseline for Type 2 Settlement Marker (Type RB)	P2-Cal.C	3	3	02-Jan-19	04-Jan-19	-7	0%		0
Steel Cofferdam and Water Gate		P2-Cal.C	60	60	21-Dec-18	07-Mar-19	-18			0
Steel Cofferdam Installation		P2-Cal.C	60	60	21-Dec-18	07-Mar-19	-18			0
Reinstatement works		P2-Cal.C	60	60	21-Dec-18	07-Mar-19	-18			0
Type 1		P2-Cal.C	60	60	21-Dec-18	07-Mar-19	-18			0



Primary Baseline
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Summary

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-18)

3 Monthly Rolling Programme
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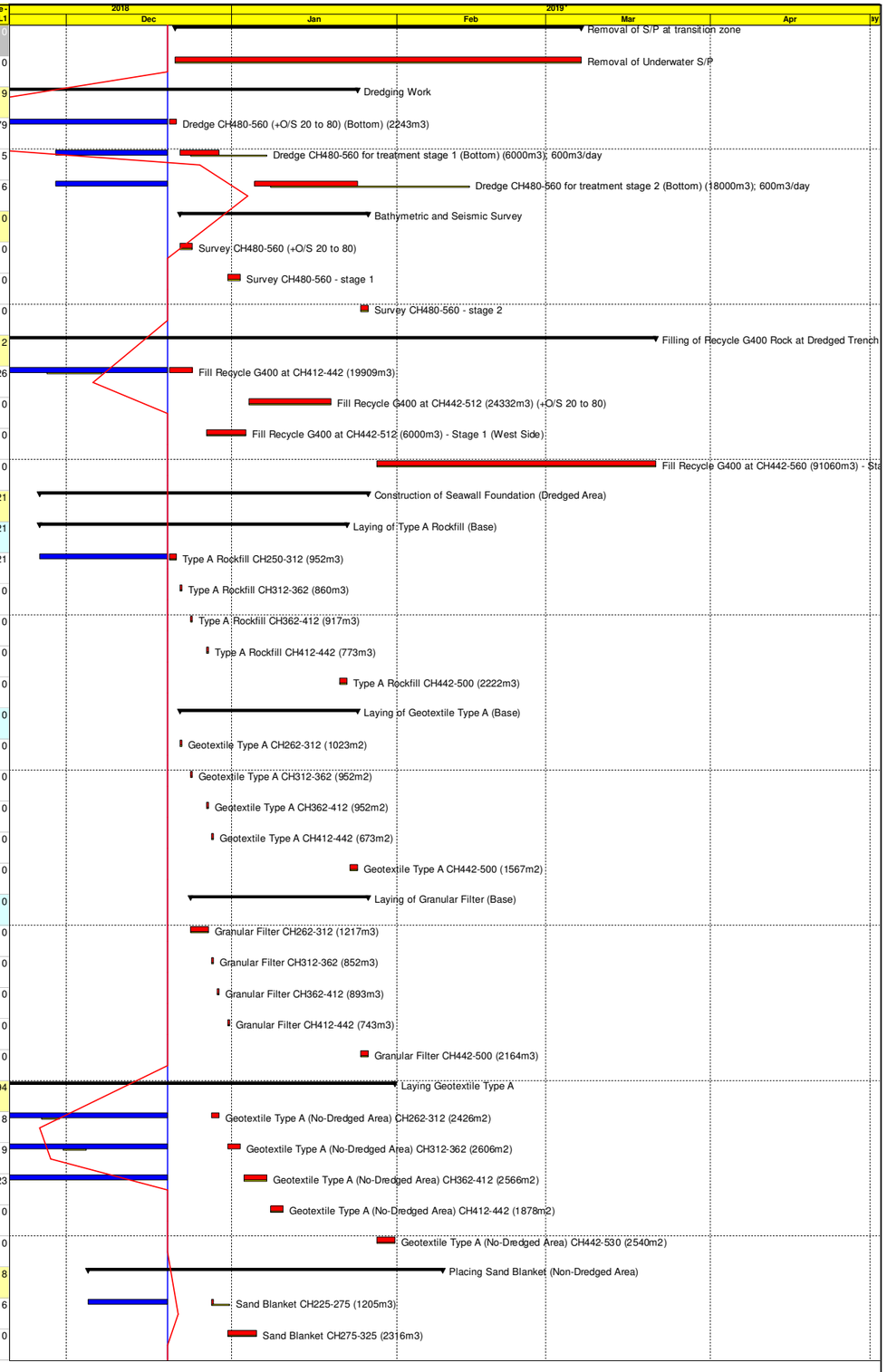
Date	Revision	Checked	Approved
20-Dec-18			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
Removal of S/P at transition zone		P2-Cal.C	60	60	21-Dec-18	07-Mar-19	-18			0
MC10304-02	Removal of Underwater S/P	P2-Cal.C	60	60	21-Dec-18	07-Mar-19	-18	0%		0
Dredging Work		P2-Cal.C	122	28	08-Sep-18 A	24-Jan-19	-94			9
MC10845	Dredge CH480-560 (+O/S 20 to 80) (Bottom) (2243m3)	P2-Cal.C	8	2	08-Sep-18 A	21-Dec-18	-116	75%		-79
MC10848	Dredge CH480-560 for treatment stage 1 (Bottom) (6000m3); 600m3/day	P2-Cal.C	10	5	29-Nov-18 A	29-Dec-18	-115	50%		-15
MC10855	Dredge CH480-560 for treatment stage 2 (Bottom) (18000m3); 600m3/day	P2-Cal.C	30	17	29-Nov-18 A	24-Jan-19	-94	43.33%		-16
Bathymetric and Seismic Survey		P2-Cal.C	28	28	22-Dec-18	26-Jan-19	-94			0
MC11018	Survey CH480-560 (+O/S 20 to 80)	P2-Cal.C	2	2	22-Dec-18	24-Dec-18	-116	0%	0	0
MC11025	Survey CH480-560 - stage 1	P2-Cal.C	2	2	31-Dec-18	02-Jan-19	-115	0%	0	0
MC11035	Survey CH480-560 - stage 2	P2-Cal.C	2	2	25-Jan-19	26-Jan-19	-94	0%	0	0
Filling of Recycle G400 Rock at Dredged Trench		P2-Cal.C	93	73	13-Nov-18 A	21-Mar-19	-94			-12
MC11205	Fill Recycle G400 at CH412-442 (19909m3)	P2-Cal.C	10	4	13-Nov-18 A	24-Dec-18	-116	60%	0	-26
MC11225	Fill Recycle G400 at CH442-512 (24332m3) (+O/S 20 to 80)	P2-Cal.C	14	14	04-Jan-19	19-Jan-19	-116	0%	0	0
MC11235	Fill Recycle G400 at CH442-512 (6000m3) - Stage 1 (West Side)	P2-Cal.C	6	6	27-Dec-18	03-Jan-19	-116	0%	0	0
MC11245	Fill Recycle G400 at CH442-560 (91060m3) - Stage 2 (East Side)	P2-Cal.C	43	43	28-Jan-19	21-Mar-19	-94	0%	0	0
Construction of Seawall Foundation (Dredged Area)		P2-Cal.C	30	30	26-Nov-18 A	26-Jan-19	-116			-21
Laying of Type A Rockfill (Base)		P2-Cal.C	26	26	26-Nov-18 A	22-Jan-19	-116			-21
MC11275	Type A Rockfill CH250-312 (952m3)	P2-Cal.C	2	2	26-Nov-18 A	21-Dec-18	-135	0%	0	-21
MC11285	Type A Rockfill CH312-362 (860m3)	P2-Cal.C	1	1	22-Dec-18	22-Dec-18	-132	0%	0	0
MC11295	Type A Rockfill CH362-412 (917m3)	P2-Cal.C	1	1	24-Dec-18	24-Dec-18	-118	0%	0	0
MC11305	Type A Rockfill CH412-442 (773m3)	P2-Cal.C	1	1	27-Dec-18	27-Dec-18	-111	0%	0	0
MC11315	Type A Rockfill CH442-500 (2222m3)	P2-Cal.C	2	2	21-Jan-19	22-Jan-19	-116	0%	0	0
Laying of Geotextile Type A (Base)		P2-Cal.C	26	26	22-Dec-18	24-Jan-19	-116			0
MC11365	Geotextile Type A CH262-312 (1023m2)	P2-Cal.C	1	1	22-Dec-18	22-Dec-18	-135	0%	0	0
MC11375	Geotextile Type A CH312-362 (952m2)	P2-Cal.C	1	1	24-Dec-18	24-Dec-18	-132	0%	0	0
MC11385	Geotextile Type A CH362-412 (952m2)	P2-Cal.C	1	1	27-Dec-18	27-Dec-18	-118	0%	0	0
MC11395	Geotextile Type A CH412-442 (673m2)	P2-Cal.C	1	1	28-Dec-18	28-Dec-18	-111	0%	0	0
MC11405	Geotextile Type A CH442-500 (1567m2)	P2-Cal.C	2	2	23-Jan-19	24-Jan-19	-116	0%	0	0
Laying of Granular Filter (Base)		P2-Cal.C	27	27	24-Dec-18	26-Jan-19	-116			0
MC11455	Granular Filter CH262-312 (1217m3)	P2-Cal.C	2	2	24-Dec-18	27-Dec-18	-135	0%	0	0
MC11465	Granular Filter CH312-362 (852m3)	P2-Cal.C	1	1	28-Dec-18	28-Dec-18	-133	0%	0	0
MC11475	Granular Filter CH362-412 (893m3)	P2-Cal.C	1	1	29-Dec-18	29-Dec-18	-119	0%	0	0
MC11485	Granular Filter CH412-442 (743m3)	P2-Cal.C	1	1	31-Dec-18	31-Dec-18	-112	0%	0	0
MC11495	Granular Filter CH442-500 (2164m3)	P2-Cal.C	2	2	25-Jan-19	26-Jan-19	-116	0%	0	0
Laying Geotextile Type A		P2-Cal.C	55	29	04-Aug-18 A	31-Jan-19	-116			-94
MC12045	Geotextile Type A (No-Dredged Area) CH262-312 (2426m2)	P2-Cal.C	4	2	04-Aug-18 A	29-Dec-18	-135	50%	0	-118
MC12055	Geotextile Type A (No-Dredged Area) CH312-362 (2606m2)	P2-Cal.C	4	2	06-Aug-18 A	02-Jan-19	-134	50%	0	-119
MC12065	Geotextile Type A (No-Dredged Area) CH362-412 (2566m2)	P2-Cal.C	4	4	06-Aug-18 A	07-Jan-19	-121	0%	0	-123
MC12075	Geotextile Type A (No-Dredged Area) CH412-442 (1878m2)	P2-Cal.C	3	3	08-Jan-19	10-Jan-19	-117	0%	0	0
MC12085	Geotextile Type A (No-Dredged Area) CH442-530 (2540m2)	P2-Cal.C	4	4	28-Jan-19	31-Jan-19	-116	0%	0	0
Placing Sand Blanket (Non-Dredged Area)		P2-Cal.C	34	34	05-Dec-18 A	09-Feb-19	-116			-18
MC12105	Sand Blanket CH225-275 (1205m3)	P2-Cal.C	3	1	05-Dec-18 A	28-Dec-18	-135	66.67%	0	-16
MC12115	Sand Blanket CH275-325 (2316m3)	P2-Cal.C	5	5	31-Dec-18	05-Jan-19	-134	0%	0	0



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NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-18)

3 Monthly Rolling Programme
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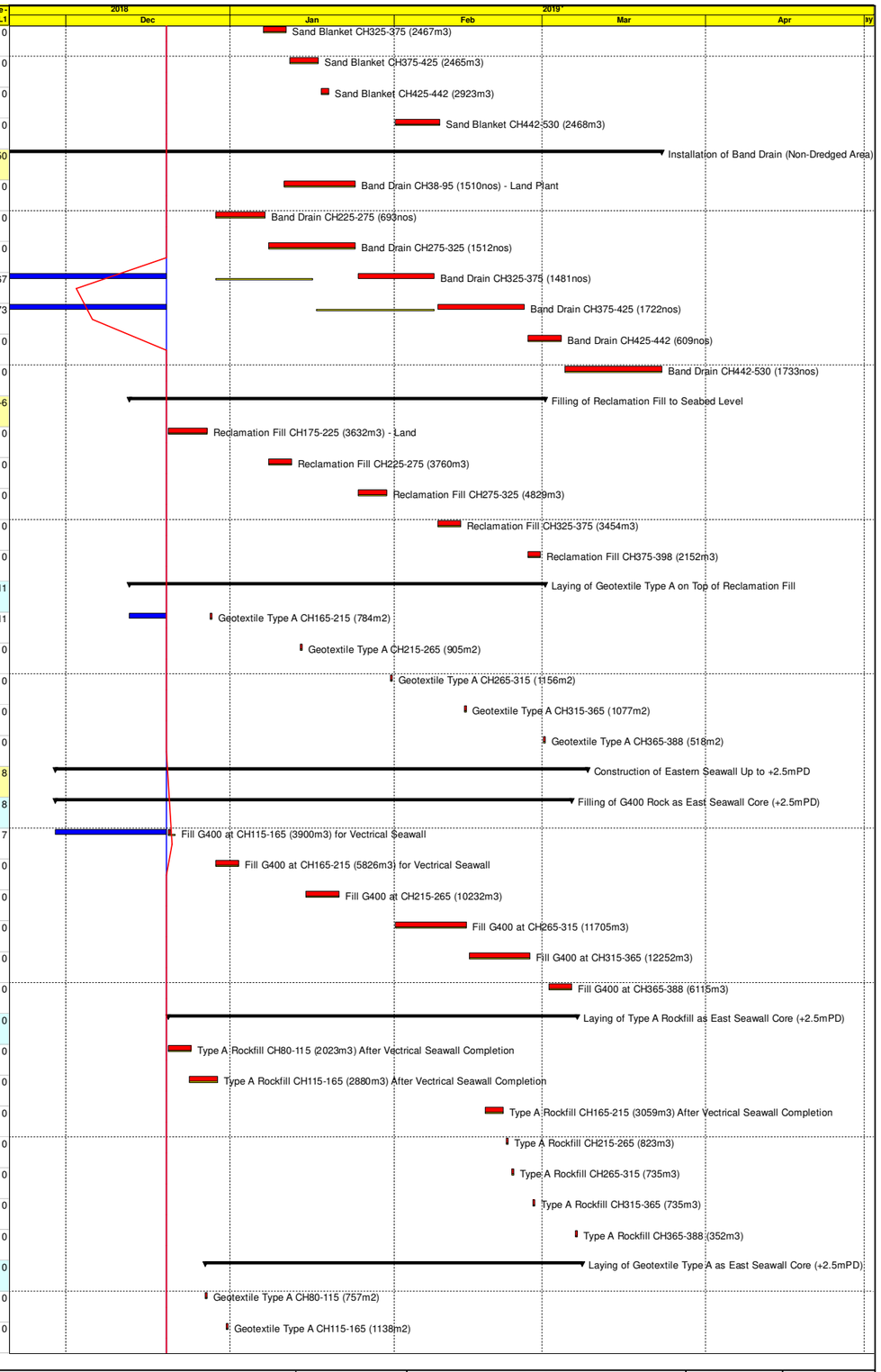
MC12125	Sand Blanket CH325-375 (2467m3)	P2-Cal.C	5	5	07-Jan-19	11-Jan-19	-124	0%	0	0
MC12135	Sand Blanket CH375-425 (2465m3)	P2-Cal.C	5	5	12-Jan-19	17-Jan-19	-119	0%	0	0
MC12145	Sand Blanket CH425-442 (2923m3)	P2-Cal.C	2	2	18-Jan-19	19-Jan-19	-107	0%	0	0
MC12155	Sand Blanket CH442-530 (2468m3)	P2-Cal.C	5	5	01-Feb-19	09-Feb-19	-116	0%	0	0
Installation of Band Drain (Non-Dredged Area)		P2-Cal.C	69	69	30-Oct-18 A	23-Mar-19	-135			-50
MC12163	Band Drain CH38-95 (1510nos) - Land Plant	P2-Cal.C	12	12	11-Jan-19	24-Jan-19	-141	0%	0	0
MC12175	Band Drain CH225-275 (693nos)	P2-Cal.C	7	7	29-Dec-18	07-Jan-19	-135	0%	0	0
MC12185	Band Drain CH275-325 (1512nos)	P2-Cal.C	15	15	08-Jan-19	24-Jan-19	-135	0%	0	0
MC12195	Band Drain CH325-375 (1481nos)	P2-Cal.C	15	10	30-Oct-18 A	08-Feb-19	-135	33.33%	0	-67
MC12205	Band Drain CH375-425 (1722nos)	P2-Cal.C	17	14	06-Nov-18 A	25-Feb-19	-135	17.65%	0	-73
MC12215	Band Drain CH425-442 (609nos)	P2-Cal.C	6	6	26-Feb-19	04-Mar-19	-135	0%	0	0
MC12225	Band Drain CH442-530 (1733nos)	P2-Cal.C	17	17	05-Mar-19	23-Mar-19	-135	0%	0	0
Filling of Reclamation Fill to Seabed Level		P2-Cal.C	56	56	13-Dec-18 A	01-Mar-19	-115			-6
MC12355	Reclamation Fill CH175-225 (3632m3) - Land	P2-Cal.C	5	5	20-Dec-18	27-Dec-18	-135	0%	0	0
MC12365	Reclamation Fill CH225-275 (3760m3)	P2-Cal.C	5	5	08-Jan-19	12-Jan-19	-105	0%	0	0
MC12375	Reclamation Fill CH275-325 (4829m3)	P2-Cal.C	5	5	25-Jan-19	30-Jan-19	-114	0%	0	0
MC12385	Reclamation Fill CH325-375 (3454m3)	P2-Cal.C	4	4	09-Feb-19	13-Feb-19	-114	0%	0	0
MC12395	Reclamation Fill CH375-398 (2152m3)	P2-Cal.C	3	3	26-Feb-19	28-Feb-19	-115	0%	0	0
Laying of Geotextile Type A on Top of Reclamation Fill		P2-Cal.C	51	51	13-Dec-18 A	01-Mar-19	-115			-11
MC12435	Geotextile Type A CH165-215 (784m2)	P2-Cal.C	1	1	13-Dec-18 A	28-Dec-18	-135	0%	0	-11
MC12445	Geotextile Type A CH215-265 (905m2)	P2-Cal.C	1	1	14-Jan-19	14-Jan-19	-105	0%	0	0
MC12455	Geotextile Type A CH265-315 (1156m2)	P2-Cal.C	1	1	31-Jan-19	31-Jan-19	-114	0%	0	0
MC12465	Geotextile Type A CH315-365 (1077m2)	P2-Cal.C	1	1	14-Feb-19	14-Feb-19	-114	0%	0	0
MC12475	Geotextile Type A CH365-388 (518m2)	P2-Cal.C	1	1	01-Mar-19	01-Mar-19	-115	0%	0	0
Construction of Eastern Seawall Up to +2.5mPD		P2-Cal.C	63	63	29-Nov-18 A	09-Mar-19	-115			-18
Filling of G400 Rock as East Seawall Core (+2.5mPD)		P2-Cal.C	60	60	29-Nov-18 A	06-Mar-19	-115			-18
MC11515	Fill G400 at CH115-165 (3900m3) for Vectrical Seawall	P2-Cal.C	2	1	29-Nov-18 A	20-Dec-18	-130	50%	0	-17
MC11525	Fill G400 at CH165-215 (5826m3) for Vectrical Seawall	P2-Cal.C	3	3	29-Dec-18	02-Jan-19	-135	0%	0	0
MC11535	Fill G400 at CH215-265 (10232m3)	P2-Cal.C	6	6	15-Jan-19	21-Jan-19	-105	0%	0	0
MC11545	Fill G400 at CH265-315 (11705m3)	P2-Cal.C	9	9	01-Feb-19	14-Feb-19	-114	0%	0	0
MC11555	Fill G400 at CH315-365 (12252m3)	P2-Cal.C	10	10	15-Feb-19	26-Feb-19	-114	0%	0	0
MC11565	Fill G400 at CH365-388 (6115m3)	P2-Cal.C	4	4	02-Mar-19	06-Mar-19	-115	0%	0	0
Laying of Type A Rockfill as East Seawall Core (+2.5mPD)		P2-Cal.C	61	61	20-Dec-18	07-Mar-19	-115			0
MC11605	Type A Rockfill CH80-115 (2023m3) After Vectrical Seawall Completion	P2-Cal.C	4	4	20-Dec-18	24-Dec-18	-141	0%	0	0
MC11615	Type A Rockfill CH115-165 (2880m3) After Vectrical Seawall Completion	P2-Cal.C	4	4	24-Dec-18	29-Dec-18	-141	0%	0	0
MC11625	Type A Rockfill CH165-215 (3059m3) After Vectrical Seawall Completion	P2-Cal.C	4	4	18-Feb-19	21-Feb-19	-135	0%	0	0
MC11635	Type A Rockfill CH215-265 (823m3)	P2-Cal.C	1	1	22-Feb-19	22-Feb-19	-121	0%	0	0
MC11645	Type A Rockfill CH265-315 (735m3)	P2-Cal.C	1	1	23-Feb-19	23-Feb-19	-118	0%	0	0
MC11655	Type A Rockfill CH315-365 (735m3)	P2-Cal.C	1	1	27-Feb-19	27-Feb-19	-114	0%	0	0
MC11665	Type A Rockfill CH365-388 (352m3)	P2-Cal.C	1	1	07-Mar-19	07-Mar-19	-115	0%	0	0
Laying of Geotextile Type A as East Seawall Core (+2.5mPD)		P2-Cal.C	58	58	27-Dec-18	08-Mar-19	-115			0
MC11705	Geotextile Type A CH80-115 (757m2)	P2-Cal.C	1	1	27-Dec-18	27-Dec-18	-140	0%	0	0
MC11715	Geotextile Type A CH115-165 (1138m2)	P2-Cal.C	1	1	31-Dec-18	31-Dec-18	-141	0%	0	0



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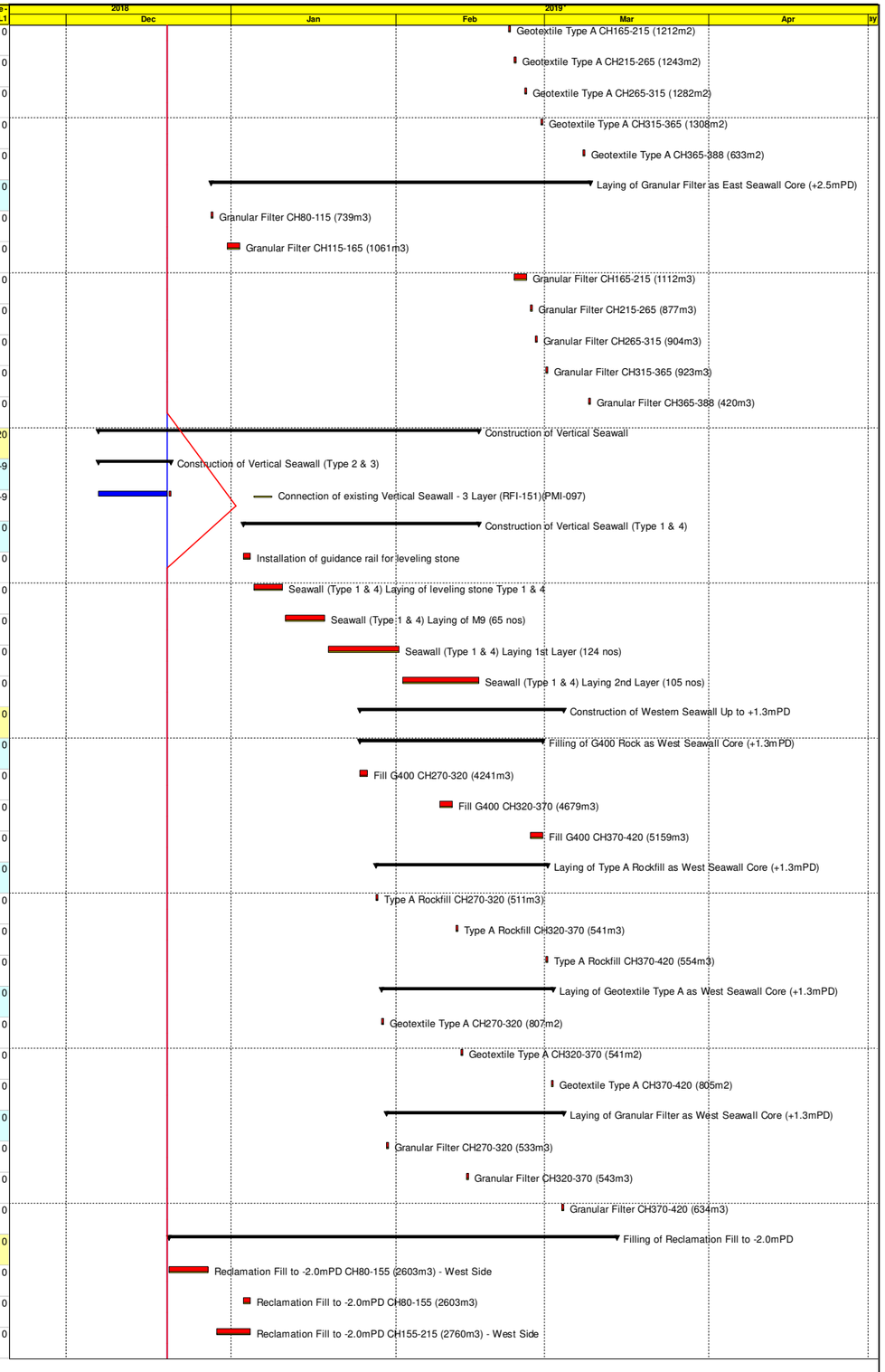
MC11725	Geotextile Type A CH165-215 (1212m2)	P2-Cal.C	1	1	22-Feb-19	22-Feb-19	-135	0%	0	0
MC11735	Geotextile Type A CH215-265 (1243m2)	P2-Cal.C	1	1	23-Feb-19	23-Feb-19	-121	0%	0	0
MC11745	Geotextile Type A CH265-315 (1282m2)	P2-Cal.C	1	1	25-Feb-19	25-Feb-19	-118	0%	0	0
MC11755	Geotextile Type A CH315-365 (1308m2)	P2-Cal.C	1	1	28-Feb-19	28-Feb-19	-114	0%	0	0
MC11765	Geotextile Type A CH365-388 (633m2)	P2-Cal.C	1	1	08-Mar-19	08-Mar-19	-115	0%	0	0
Laying of Granular Filter as East Seawall Core (+2.5mPD)		P2-Cal.C	58	58	28-Dec-18	09-Mar-19	-115			0
MC11805	Granular Filter CH80-115 (739m3)	P2-Cal.C	1	1	28-Dec-18	28-Dec-18	-140	0%	0	0
MC11815	Granular Filter CH115-165 (1061m3)	P2-Cal.C	2	2	31-Dec-18	02-Jan-19	-141	0%	0	0
MC11825	Granular Filter CH165-215 (1112m3)	P2-Cal.C	2	2	23-Feb-19	25-Feb-19	-135	0%	0	0
MC11835	Granular Filter CH215-265 (877m3)	P2-Cal.C	1	1	26-Feb-19	26-Feb-19	-122	0%	0	0
MC11845	Granular Filter CH265-315 (904m3)	P2-Cal.C	1	1	27-Feb-19	27-Feb-19	-119	0%	0	0
MC11855	Granular Filter CH315-365 (923m3)	P2-Cal.C	1	1	01-Mar-19	01-Mar-19	-114	0%	0	0
MC11865	Granular Filter CH365-388 (420m3)	P2-Cal.C	1	1	09-Mar-19	09-Mar-19	-115	0%	0	0
Construction of Vertical Seawall		P2-Cal.C	36	45	07-Dec-18 A	16-Feb-19	-135			-20
Construction of Vertical Seawall (Type 2 & 3)		P2-Cal.C	3	1	07-Dec-18 A	20-Dec-18	-141			-9
MC11950	Connection of existing Vertical Seawall - 3 Layer (RFI-151)(PMI-097)	P2-Cal.C	3	1	07-Dec-18 A	20-Dec-18	-141	66.67%	0	-9
Construction of Vertical Seawall (Type 1 & 4)		P2-Cal.C	36	36	03-Jan-19	16-Feb-19	-135			0
MC11955	Installation of guidance rail for leveling stone	P2-Cal.C	2	2	03-Jan-19	04-Jan-19	-135	0%	0	0
MC11965	Seawall (Type 1 & 4) Laying of leveling stone Type 1 & 4	P2-Cal.C	5	5	05-Jan-19	10-Jan-19	-135	0%	0	0
MC11975	Seawall (Type 1 & 4) Laying of M9 (65 nos)	P2-Cal.C	7	7	11-Jan-19	18-Jan-19	-135	0%	0	0
MC11985	Seawall (Type 1 & 4) Laying 1st Layer (124 nos)	P2-Cal.C	12	12	19-Jan-19	01-Feb-19	-135	0%	0	0
MC11995	Seawall (Type 1 & 4) Laying 2nd Layer (105 nos)	P2-Cal.C	10	10	02-Feb-19	16-Feb-19	-135	0%	0	0
Construction of Western Seawall Up to +1.3mPD		P2-Cal.C	30	30	25-Jan-19	04-Mar-19	-110			0
Filling of G400 Rock as West Seawall Core (+1.3mPD)		P2-Cal.C	27	27	25-Jan-19	28-Feb-19	-110			0
MC12495	Fill G400 CH270-320 (4241m3)	P2-Cal.C	2	2	25-Jan-19	26-Jan-19	-98	0%	0	0
MC12505	Fill G400 CH320-370 (4679m3)	P2-Cal.C	2	2	09-Feb-19	11-Feb-19	-101	0%	0	0
MC12515	Fill G400 CH370-420 (5159m3)	P2-Cal.C	3	3	26-Feb-19	28-Feb-19	-110	0%	0	0
Laying of Type A Rockfill as West Seawall Core (+1.3mPD)		P2-Cal.C	26	26	28-Jan-19	01-Mar-19	-110			0
MC12535	Type A Rockfill CH270-320 (511m3)	P2-Cal.C	1	1	28-Jan-19	28-Jan-19	-98	0%	0	0
MC12545	Type A Rockfill CH320-370 (541m3)	P2-Cal.C	1	1	12-Feb-19	12-Feb-19	-101	0%	0	0
MC12555	Type A Rockfill CH370-420 (554m3)	P2-Cal.C	1	1	01-Mar-19	01-Mar-19	-110	0%	0	0
Laying of Geotextile Type A as West Seawall Core (+1.3mPD)		P2-Cal.C	26	26	29-Jan-19	02-Mar-19	-110			0
MC12575	Geotextile Type A CH270-320 (807m2)	P2-Cal.C	1	1	29-Jan-19	29-Jan-19	-98	0%	0	0
MC12585	Geotextile Type A CH320-370 (541m2)	P2-Cal.C	1	1	13-Feb-19	13-Feb-19	-101	0%	0	0
MC12595	Geotextile Type A CH370-420 (805m2)	P2-Cal.C	1	1	02-Mar-19	02-Mar-19	-110	0%	0	0
Laying of Granular Filter as West Seawall Core (+1.3mPD)		P2-Cal.C	26	26	30-Jan-19	04-Mar-19	-110			0
MC12615	Granular Filter CH270-320 (533m3)	P2-Cal.C	1	1	30-Jan-19	30-Jan-19	-98	0%	0	0
MC12625	Granular Filter CH320-370 (543m3)	P2-Cal.C	1	1	14-Feb-19	14-Feb-19	-101	0%	0	0
MC12635	Granular Filter CH370-420 (634m3)	P2-Cal.C	1	1	04-Mar-19	04-Mar-19	-110	0%	0	0
Filling of Reclamation Fill to -2.0mPD		P2-Cal.C	67	67	20-Dec-18	14-Mar-19	-115			0
MC12655-05	Reclamation Fill to -2.0mPD CH80-155 (2603m3) - West Side	P2-Cal.C	5	5	20-Dec-18	27-Dec-18	-137	0%	0	0
MC12665	Reclamation Fill to -2.0mPD CH80-155 (2603m3)	P2-Cal.C	2	2	03-Jan-19	04-Jan-19	-141	0%	0	0
MC12665-01	Reclamation Fill to -2.0mPD CH155-215 (2760m3) - West Side	P2-Cal.C	5	5	29-Dec-18	04-Jan-19	-94	0%	0	0



Primary Baseline
Actual Work
Remaining Work
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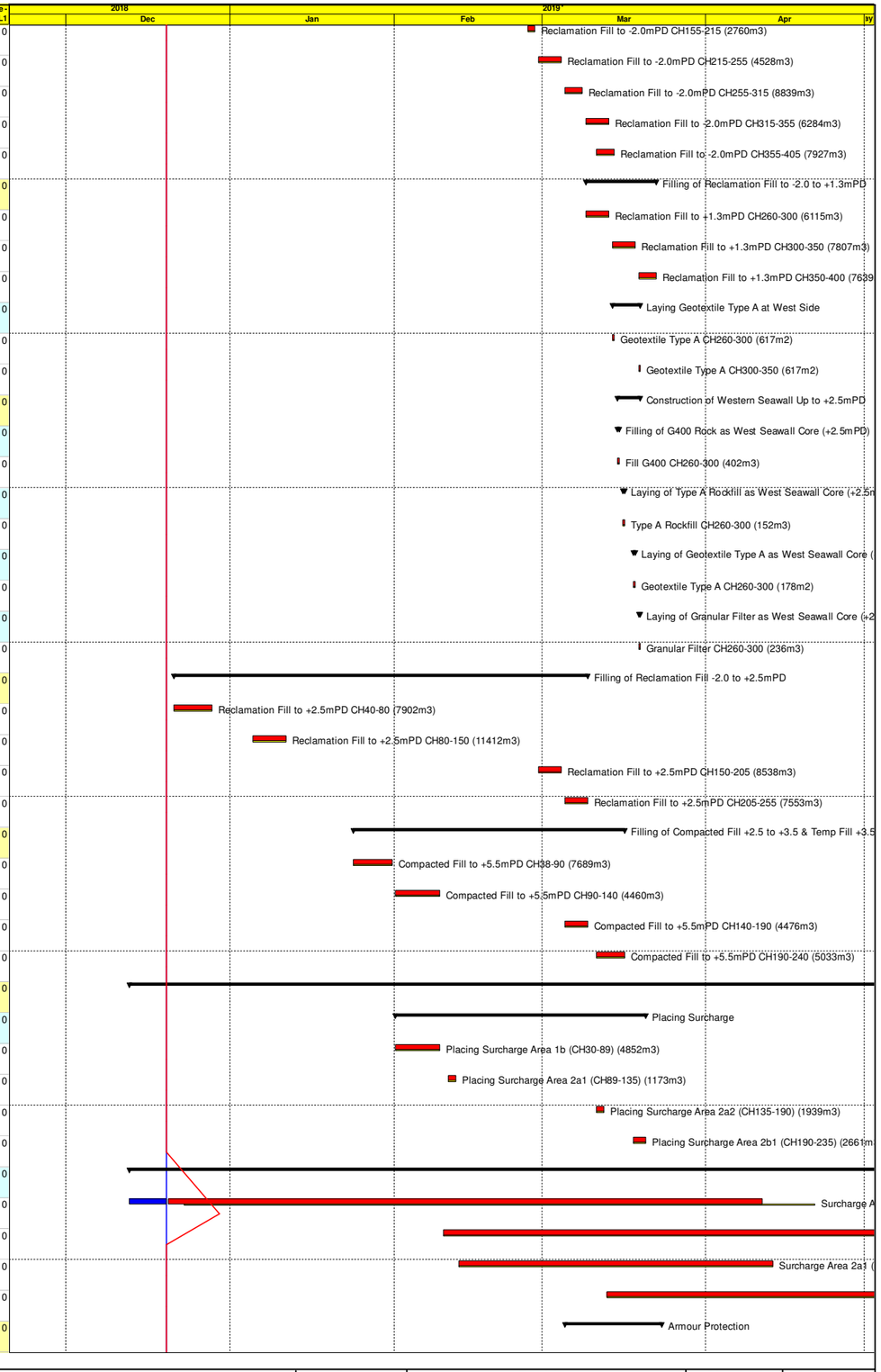
Summary

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-18)

3 Monthly Rolling Programme
(Data Date : 20-Dec-2018)

Date	Revision	Checked	Approved
20-Dec-18			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
MC12665-02	Reclamation Fill to -2.0mPD CH155-215 (2760m3)	P2-Cal.C	2	2	26-Feb-19	27-Feb-19	-135	0%	0	0
MC12675	Reclamation Fill to -2.0mPD CH215-255 (4528m3)	P2-Cal.C	4	4	28-Feb-19	04-Mar-19	-123	0%	0	0
MC12675-01	Reclamation Fill to -2.0mPD CH255-315 (8839m3)	P2-Cal.C	4	4	05-Mar-19	08-Mar-19	-123	0%	0	0
MC12685	Reclamation Fill to -2.0mPD CH315-355 (6284m3)	P2-Cal.C	4	4	09-Mar-19	13-Mar-19	-120	0%	0	0
MC12685-01	Reclamation Fill to -2.0mPD CH355-405 (7927m3)	P2-Cal.C	4	4	11-Mar-19	14-Mar-19	-115	0%	0	0
Filling of Reclamation Fill to -2.0 to +1.3mPD		P2-Cal.C	12	12	09-Mar-19	22-Mar-19	-118			0
MC12705	Reclamation Fill to +1.3mPD CH260-300 (6115m3)	P2-Cal.C	4	4	09-Mar-19	13-Mar-19	-123	0%	0	0
MC12705-01	Reclamation Fill to +1.3mPD CH300-350 (7807m3)	P2-Cal.C	4	4	14-Mar-19	18-Mar-19	-120	0%	0	0
MC12715	Reclamation Fill to +1.3mPD CH350-400 (7639m3)	P2-Cal.C	4	4	19-Mar-19	22-Mar-19	-118	0%	0	0
Laying Geotextile Type A at West Side		P2-Cal.C	5	5	14-Mar-19	19-Mar-19	-120			0
MC12735	Geotextile Type A CH260-300 (617m2)	P2-Cal.C	1	1	14-Mar-19	14-Mar-19	-123	0%	0	0
MC12735-01	Geotextile Type A CH300-350 (617m2)	P2-Cal.C	1	1	19-Mar-19	19-Mar-19	-120	0%	0	0
Construction of Western Seawall Up to +2.5mPD		P2-Cal.C	4	4	15-Mar-19	19-Mar-19	-123			0
Filling of G400 Rock as West Seawall Core (+2.5mPD)		P2-Cal.C	1	1	15-Mar-19	15-Mar-19	-123			0
MC12765	Fill G400 CH260-300 (402m3)	P2-Cal.C	1	1	15-Mar-19	15-Mar-19	-123	0%	0	0
Laying of Type A Rockfill as West Seawall Core (+2.5mPD)		P2-Cal.C	1	1	16-Mar-19	16-Mar-19	-123			0
MC12795	Type A Rockfill CH260-300 (152m3)	P2-Cal.C	1	1	16-Mar-19	16-Mar-19	-123	0%	0	0
Laying of Geotextile Type A as West Seawall Core (+2.5mPD)		P2-Cal.C	1	1	18-Mar-19	18-Mar-19	-123			0
MC12825	Geotextile Type A CH260-300 (178m2)	P2-Cal.C	1	1	18-Mar-19	18-Mar-19	-123	0%	0	0
Laying of Granular Filter as West Seawall Core (+2.5mPD)		P2-Cal.C	1	1	19-Mar-19	19-Mar-19	-123			0
MC12855	Granular Filter CH260-300 (236m3)	P2-Cal.C	1	1	19-Mar-19	19-Mar-19	-123	0%	0	0
Filling of Reclamation Fill -2.0 to +2.5mPD		P2-Cal.C	62	62	21-Dec-18	09-Mar-19	-118			0
MC12885	Reclamation Fill to +2.5mPD CH40-80 (7902m3)	P2-Cal.C	5	5	21-Dec-18	28-Dec-18	-133	0%	0	0
MC12895	Reclamation Fill to +2.5mPD CH80-150 (11412m3)	P2-Cal.C	6	6	05-Jan-19	11-Jan-19	-141	0%	0	0
MC12895-01	Reclamation Fill to +2.5mPD CH150-205 (8538m3)	P2-Cal.C	4	4	28-Feb-19	04-Mar-19	-135	0%	0	0
MC12905	Reclamation Fill to +2.5mPD CH205-255 (7553m3)	P2-Cal.C	5	5	05-Mar-19	09-Mar-19	-118	0%	0	0
Filling of Compacted Fill +2.5 to +3.5 & Temp Fill +3.5 to +5.5mPD		P2-Cal.C	42	42	24-Jan-19	16-Mar-19	-118			0
MC12955	Compacted Fill to +5.5mPD CH38-90 (7689m3)	P2-Cal.C	7	7	24-Jan-19	31-Jan-19	-141	0%	0	0
MC12965	Compacted Fill to +5.5mPD CH90-140 (4460m3)	P2-Cal.C	5	5	01-Feb-19	09-Feb-19	-116	0%	0	0
MC12965-01	Compacted Fill to +5.5mPD CH140-190 (4476m3)	P2-Cal.C	5	5	05-Mar-19	09-Mar-19	-135	0%	0	0
MC12975	Compacted Fill to +5.5mPD CH190-240 (5033m3)	P2-Cal.C	6	6	11-Mar-19	16-Mar-19	-118	0%	0	0
Surcharge			169	172	13-Dec-18 A	09-Jun-19	-175			-10
Placing Surcharge		P2-Cal.C	38	38	01-Feb-19	20-Mar-19	-112			0
MC13020	Placing Surcharge Area 1b (CH30-89) (4852m3)	P2-Cal.C	5	5	01-Feb-19	09-Feb-19	-141	0%		0
MC13035	Placing Surcharge Area 2a1 (CH89-135) (1173m3)	P2-Cal.C	2	2	11-Feb-19	12-Feb-19	-111	0%		0
MC13035-01	Placing Surcharge Area 2a2 (CH135-190) (1939m3)	P2-Cal.C	2	2	11-Mar-19	12-Mar-19	-135	0%		0
MC13055	Placing Surcharge Area 2b1 (CH190-235) (2661m3)	P2-Cal.C	3	3	18-Mar-19	20-Mar-19	-112	0%		0
Surcharging		P2-Cal.A	169	172	13-Dec-18 A	09-Jun-19	-175			-10
MC13155	Surcharge Area 1a (CH0-30) (2990m3)	P2-Cal.A	120	113	13-Dec-18 A	11-Apr-19	-164	5.83%		0
MC13160	Surcharge Area 1b (CH30-89) (4852m3)	P2-Cal.A	120	120	10-Feb-19	09-Jun-19	-175	0%		0
MC13175	Surcharge Area 2a1 (CH89-135) (1173m3)	P2-Cal.A	60	60	13-Feb-19	13-Apr-19	-118	0%		0
MC13175-01	Surcharge Area 2a2 (CH135-190) (1939m3)	P2-Cal.A	60	60	13-Mar-19	11-May-19	-146	0%		0
Armour Protection		P2-Cal.C	17	17	05-Mar-19	23-Mar-19	-72			0



Primary Baseline
Actual Work
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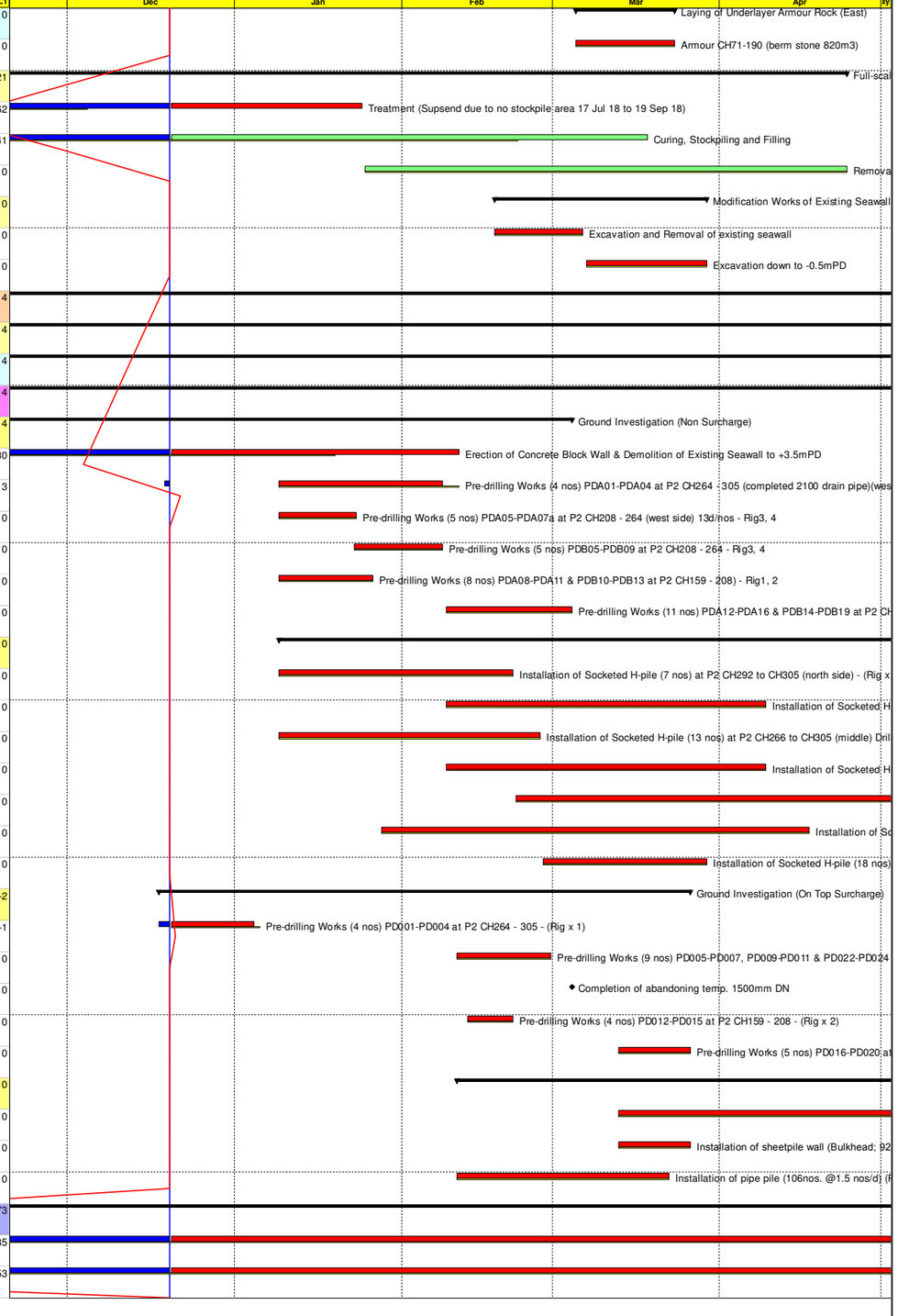
Summary

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-18)

3 Monthly Rolling Programme
(Data Date : 20-Dec-2018)

Date	Revision	Checked	Approved
20-Dec-18			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
Laying of Underlayer Armour Rock (East)		P2-Cal.C	17	17	05-Mar-19	23-Mar-19	-72			0
MC13775	Armour CH71-190 (berm stone 820m3)	P2-Cal.C	17	17	05-Mar-19	23-Mar-19	-72	0%		0
Full-scale Treatment of Cement S/S of Marine Sediment		P2-Cal.C	361	98	06-Jan-18 A	24-Apr-19	118			-21
MC14075	Treatment (Supsend due to no stockpile area 17 Jul 18 to 19 Sep 18)	P2-Cal.C	250	28	06-Jan-18 A	24-Jan-19	-137	88.8%		-62
MC14080	Curing, Stockpiling and Filling	P2-Cal.C	313	70	06-Jan-18 A	18-Mar-19	121	77.64%		-41
MC14085	Removal of Concrete Block Wall	P2-Cal.C	70	70	25-Jan-19	24-Apr-19	118	0%		0
Modification Works of Existing Seawall		P2-Cal.C	35	35	18-Feb-19	29-Mar-19	1			0
MC14145	Excavation and Removal of existing seawall	P2-Cal.C	15	15	18-Feb-19	06-Mar-19	1	0%		0
MC14165	Excavation down to -0.5mPD	P2-Cal.C	20	20	07-Mar-19	29-Mar-19	1	0%		0
Land Works		P2-Cal.C	136	110	03-Nov-18 A	09-May-19	-97			-14
Road P2 Underpass (CH105-CH318)		P2-Cal.C	136	110	03-Nov-18 A	09-May-19	-97			-14
Underpass		P2-Cal.C	136	110	03-Nov-18 A	09-May-19	-97			-14
Underpass P2 CH 105 - 318		P2-Cal.C	136	110	03-Nov-18 A	09-May-19	-97			-14
Ground Investigation (Non Surcharge)		P2-Cal.C	84	58	03-Nov-18 A	04-Mar-19	-45			-14
LC17761-01	Erection of Concrete Block Wall & Demolition of Existing Seawall to +3.5mPD	P2-Cal.C	50	40	03-Nov-18 A	11-Feb-19	-115	20%		-30
LC17762	Pre-drilling Works (4 nos) PDA01-PDA04 at P2 CH264 - 305 (completed 2100 drain pipe)(west side) 13d/nos - Rig1, 2	P2-Cal.C	26	24	19-Dec-18 A	08-Feb-19	-129	7.69%		-13
LC17764	Pre-drilling Works (5 nos) PDA05-PDA07a at P2 CH208 - 264 (west side) 13d/nos - Rig3, 4	P2-Cal.C	13	13	09-Jan-19	23-Jan-19	-128	0%		0
LC17765	Pre-drilling Works (5 nos) PDB05-PDB09 at P2 CH208 - 264 - Rig3, 4	P2-Cal.C	12	12	23-Jan-19	08-Feb-19	-128	0%		0
LC17766	Pre-drilling Works (8 nos) PDA08-PDA11 & PDB10-PDB13 at P2 CH159 - 208) - Rig1, 2	P2-Cal.C	16	16	09-Jan-19	26-Jan-19	-82	0%		0
LC17767	Pre-drilling Works (11 nos) PDA12-PDA16 & PDB14-PDB19 at P2 CH105 - 159) - Rig3, 4	P2-Cal.C	20	20	09-Feb-19	04-Mar-19	-45	0%		0
Foundation (Non Surcharge)		P2-Cal.C	95	95	09-Jan-19	08-May-19	-96			0
LC17768	Installation of Socketed H-pile (7 nos) at P2 CH292 to CH305 (north side) - (Rig x 1)	P2-Cal.C	35	35	09-Jan-19	21-Feb-19	-112	0%		0
LC17769	Installation of Socketed H-pile (10 nos) at P2 CH266 to CH305 (west side) - (Rig x 1)	P2-Cal.C	50	50	09-Feb-19	09-Apr-19	-75	0%		0
LC17770	Installation of Socketed H-pile (13 nos) at P2 CH266 to CH305 (middle) Drilling to RH - 3d/nos - (Rig x 1)	P2-Cal.C	39	39	09-Jan-19	26-Feb-19	-117	0%		0
LC17771	Installation of Socketed H-pile (10 nos) at P2 CH208 to CH266 (west side) - (Rig x 1)	P2-Cal.C	50	50	09-Feb-19	09-Apr-19	-128	0%		0
LC17772	Installation of Socketed H-pile (20 nos) at P2 CH208 to CH266 (middle) Drilling to RH - 3d/nos - (Rig x 1)	P2-Cal.C	60	60	22-Feb-19	08-May-19	-112	0%		0
LC17773	Installation of Socketed H-pile (13 nos) at P2 CH160 to CH208 (west side) - (Rig x 1)	P2-Cal.C	65	65	28-Jan-19	17-Apr-19	-82	0%		0
LC17774	Installation of Socketed H-pile (18 nos) at P2 CH160 to CH208 (middle) Drilling to RH - 3d/nos - (Rig x 2)	P2-Cal.C	27	27	27-Feb-19	29-Mar-19	-117	0%		0
Ground Investigation (On Top Surcharge)		P2-Cal.C	77	77	18-Dec-18 A	26-Mar-19	-72			-2
LC17780	Pre-drilling Works (4 nos) PD001-PD004 at P2 CH264 - 305 - (Rig x 1)	P2-Cal.C	12	11	18-Dec-18 A	04-Jan-19	-51	8.33%		-1
LC17782	Pre-drilling Works (9 nos) PD005-PD007, PD009-PD011 & PD022-PD024 at P2 CH208 - 264 - (Rig x 2)	P2-Cal.C	16	16	11-Feb-19	28-Feb-19	-90	0%		0
LC17783	Completion of abandoning temp. 1500mm DN	P2-Cal.C	0	0		04-Mar-19	-57	0%		0
LC17784	Pre-drilling Works (4 nos) PD012-PD015 at P2 CH159 - 208 - (Rig x 2)	P2-Cal.C	8	8	13-Feb-19	21-Feb-19	-44	0%		0
LC17789	Pre-drilling Works (5 nos) PD016-PD020 at P2 CH105 - 159 - (Rig x 2)	P2-Cal.C	12	12	13-Mar-19	26-Mar-19	-72	0%		0
ELS		P2-Cal.C	71	71	11-Feb-19	09-May-19	-135			0
LC17850	Pre-boring Works (97m; 180 hole)(east side) at P2 CH105 - 202 (Rig x 2)	P2-Cal.C	45	45	13-Mar-19	09-May-19	-135	0%		0
LC17860	Installation of sheetpile wall (Bulkhead; 92pcs) at P2 CH105 (Rig x 1)	P2-Cal.C	12	12	13-Mar-19	26-Mar-19	-135	0%		0
LC18005	Installation of pipe pile (106nos. @1.5 nos/d) (Rig x 2)	P2-Cal.C	35	35	11-Feb-19	22-Mar-19	-109	0%		0
Section 4 of the Works - Preservation and Protection of Existing Trees		P2-Cal.A	1563	929	12-Jan-17 A	05-Jul-21	-151			-73
LC25260	Preservation and Protection of Existing Trees	P2-Cal.A	1451	929	12-Jan-17 A	05-Jul-21	-151	35.98%		-185
LC25280	Nursery Transplanted Trees at the Contractor's holding nursery	P2-Cal.A	1177	929	28-Apr-17 A	05-Jul-21	-151	21.07%		-353



Primary Baseline
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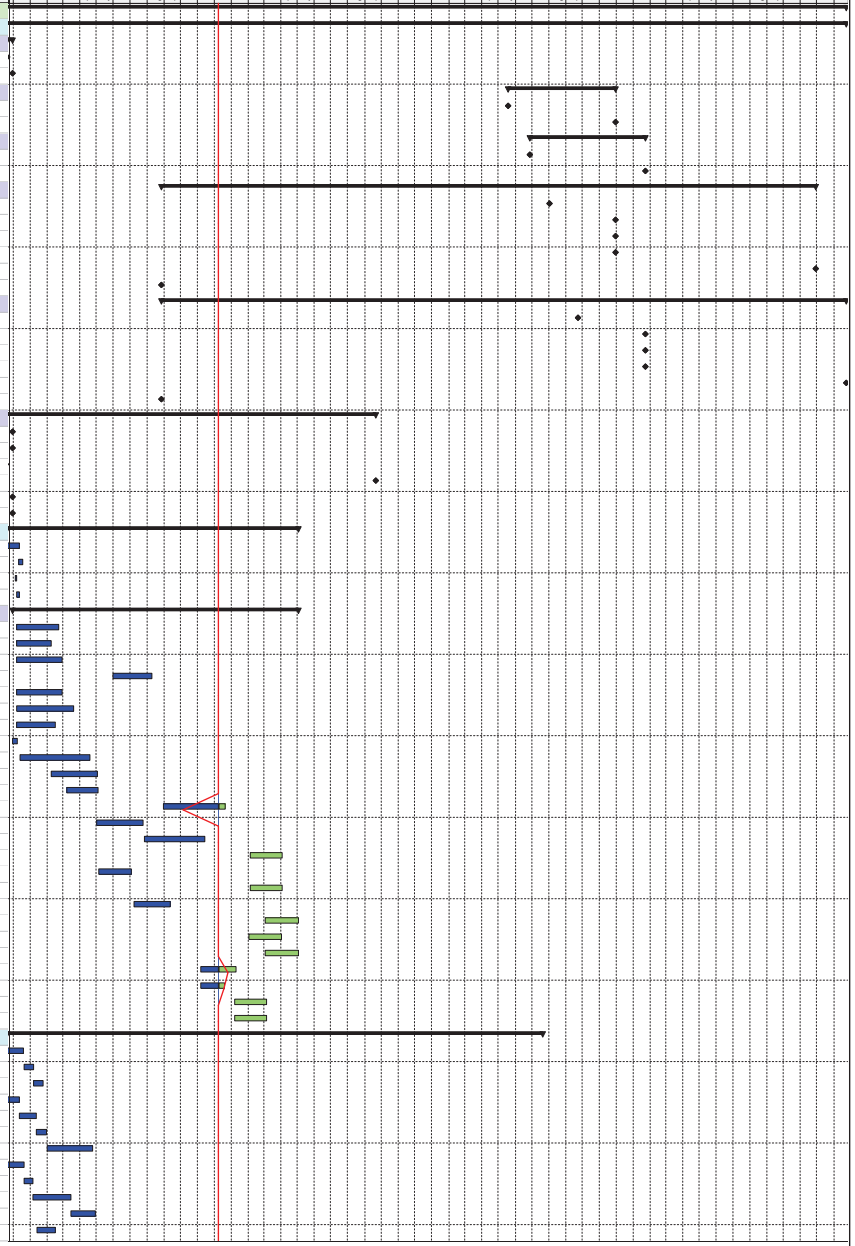
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-18)

3 Monthly Rolling Programme
(Data Date : 20-Dec-2018)

Date	Revision	Checked	Approved
20-Dec-18			

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
NE/2017/02 - Updated Programme (Dec 2018)		1526			1142	17-Nov-17 A	23-Jan-22	18-Oct-18	29-Nov-21	-55	
Contractual Dates		1516			856	17-Nov-17 A	23-Jan-22	18-Oct-18	29-Nov-21	-55	
Commencement Date		0	C3-7d		0	20-Nov-17 A	30-Nov-17 A	18-Oct-18	18-Oct-18		
K10000	Contract Date	0	C3-7d	100%	0	20-Nov-17 A		18-Oct-18			
K10010	Starting Date	0	C3-7d	100%	0	30-Nov-17 A		18-Oct-18			
Key Dates (contract)		195	C3-7d		195	18-May-20	29-Nov-20	18-May-20	29-Nov-20	0	
K10020	Key Date 1 - Completion of works for the T&C of route-wide lighting, E&M and TCSS	0	C3-7d	0%	0		18-May-20*		18-May-20	0	
K10030	Key Date 2 - Completion of works for the opening of Road P2	0	C3-7d	0%	0		29-Nov-20*		29-Nov-20	0	
Key Dates (planned)		210	C3-7d		210	27-Jun-20	23-Jan-21	18-May-20	29-Nov-20	-55	
K10040	Key Date 1 - Completion of works for the T&C of route-wide lighting, E&M and TCSS (planned)	0	C3-7d	0%	0		27-Jun-20*		18-May-20	-40	
K10050	Key Date 2 - Completion of works for the opening of Road P2 (planned)	0	C3-7d	0%	0		23-Jan-21*		29-Nov-20	-55	
Completion Dates (contract)		1179	C3-7d		485	27-Aug-18 A	29-Nov-21	01-Aug-20	29-Nov-21	0	
K10060	Section 1 - All works not covered by other Sections	0	C3-7d	0%	0		01-Aug-20*		01-Aug-20	0	
K10070	Section 2 - Bridgeworks	0	C3-7d	0%	0		29-Nov-20*		29-Nov-20	0	
K10080	Section 3 - Preservation and Protection of Existing Trees	0	C3-7d	0%	0		29-Nov-20*		29-Nov-20	0	
K10090	Section 4 - Landscape Softworks	0	C3-7d	0%	0		29-Nov-20*		29-Nov-20	0	
K10100	Section 5 - Establishment Works	0	C3-7d	0%	0		29-Nov-21*		29-Nov-21	0	
K10110	Section 6 - Community Liaison Centre	0	C3-7d	100%	0	27-Aug-18 A			29-Nov-21		
Completion Dates (planned)		1234	C3-7d		488	27-Aug-18 A	23-Jan-22	01-Aug-20	29-Nov-21	-55	
K10120	Section 1 - All works not covered by other Sections (planned)	0	C3-7d	0%	0		22-Sep-20*		01-Aug-20	-52	
K10130	Section 2 - Bridgeworks (planned)	0	C3-7d	0%	0		23-Jan-21*		29-Nov-20	-55	
K10140	Section 3 - Preservation and Protection of Existing Trees (planned)	0	C3-7d	0%	0		23-Jan-21*		29-Nov-20	-55	
K10150	Section 4 - Landscape Softworks (planned)	0	C3-7d	0%	0		23-Jan-21*		29-Nov-20	-55	
K10160	Section 5 - Establishment Works (planned)	0	C3-7d	0%	0		23-Jan-22*		29-Nov-21	-55	
K10170	Section 6 - Community Liaison Centre (planned)	0	C3-7d	100%	0	27-Aug-18 A			29-Nov-21		
Access Dates		477	C3-6d		0	17-Nov-17 A	21-Sep-19	21-Sep-19	29-Nov-21	650	
K10180	Portion I	0	C3-6d	100%	0	30-Nov-17 A		29-Nov-21			
K10190	Portion II	0	C3-6d	100%	0	30-Nov-17 A		29-Nov-21			
K10200	Portion III	0	C3-6d	100%	0	17-Nov-17 A		29-Nov-21			
K10210	Portion IV	0	C3-6d	0%	0	21-Sep-19*		21-Sep-19		0	
K10220	Portion V	0	C3-6d	100%	0	30-Nov-17 A		29-Nov-21			
K10230	Portion VI	0	C3-6d	100%	0	30-Nov-17 A		29-Nov-21			
Subcontracting		530			145	20-Nov-17 A	03-May-19	18-Oct-18	29-Nov-21	941	
S10000	Proposal on competitive process for selection of suppliers of Plant and Materials, Equipment and insurance	21	C3-7d	100%	0	20-Nov-17 A	11-Dec-17 A	18-Jun-19	18-Jun-19		
S10010	Acceptance of proposal on competitive process	21	C3-7d	100%	0	11-Dec-17 A	18-Dec-17 A	18-Jun-19	18-Jun-19		
S10020	Subcontracting procedure	3	C3-6d	100%	0	04-Dec-17 A	06-Dec-17 A	18-Oct-18	18-Oct-18		
S10030	Acceptance of subcontracting procedure	6	C3-7d	100%	0	07-Dec-17 A	12-Dec-17 A	18-Oct-18	18-Oct-18		
Subcontract Packages		418	C3-6d		114	30-Nov-17 A	03-May-19	18-Oct-18	29-Nov-21	766	
S10040	SC003 - Community Liaison Centre subcontract	48	C3-6d	100%	0	07-Dec-17 A	21-Feb-18 A	29-Nov-21	29-Nov-21		
S10050	SC004 - Contractor's site office subcontract	48	C3-6d	100%	0	07-Dec-17 A	08-Feb-18 A	01-Aug-20	01-Aug-20		
S10060	SC002 - Pre-construction condition survey subcontract	48	C3-6d	100%	0	07-Dec-17 A	27-Feb-18 A	18-Oct-18	18-Oct-18		
S10070	SC014 - Groundwater monitoring subcontract	48	C3-6d	100%	0	31-May-18 A	09-Aug-18 A	06-Dec-18	06-Dec-18		
S10080	SC005 - Site security system subcontract	48	C3-6d	100%	0	07-Dec-17 A	27-Feb-18 A	01-Aug-20	01-Aug-20		
S10090	SC006 - ICE for temporary works and Contractor's Design works	48	C3-6d	100%	0	07-Dec-17 A	20-Mar-18 A	18-Oct-18	18-Oct-18		
S10100	SC028 - Landscaping subcontract	48	C3-6d	100%	0	07-Dec-17 A	15-Feb-18 A	18-Oct-18	18-Oct-18		
S10110	Traffic consultant (1st stage)	17	C3-6d	100%	0	30-Nov-17 A	08-Dec-17 A	18-Oct-18	18-Oct-18		
S10120	SC008 - Traffic consultant (2nd stage)	48	C3-6d	100%	0	13-Dec-17 A	19-Apr-18 A	03-Nov-18	03-Nov-18		
S10130	SC013 - Road, Drainage, Watermain subcontract	48	C3-6d	100%	0	08-Feb-18 A	03-May-18 A	18-Oct-18	18-Oct-18		
S10150	SC010 - Ground investigation subcontract	48	C3-6d	100%	0	08-Mar-18 A	04-May-18 A	06-Dec-18	06-Dec-18		
S10160	SC018 - Bored pile subcontract	48	C3-6d	79.17%	10	30-Aug-18 A	20-Dec-18	20-Dec-18	04-Jan-19	10	
S10170	SC019 - Socketted H-pile subcontract	48	C3-6d	100%	0	02-May-18 A	24-Jul-18 A	21-Dec-18	21-Dec-18		
S10180	SC031 - Road lighting system and electrical system for footbridge subcontract	48	C3-6d	100%	0	27-Jul-18 A	14-Nov-18 A	15-Mar-19	15-Mar-19		
S10190	SC017 - Fences, railing, parapets, crash gate and untensioned beam barriers	48	C3-6d	0%	48	04-Feb-19*	03-Apr-19	18-May-19	15-Jul-19	80	
S10200	SC015 - Flexible surfacing, milling and resurfacing	48	C3-6d	100%	0	05-May-18 A	03-Jul-18 A	02-Jul-19	02-Jul-19		
S10220	SC029 - Irrigation system subcontract	48	C3-6d	0%	48	04-Feb-19*	03-Apr-19	29-May-19	25-Jul-19	89	
S10230	SC030 - Lift system subcontract	48	C3-6d	100%	0	09-Jul-18 A	11-Sep-18 A	11-Feb-19	11-Feb-19		
S10240	SC022 - Footbridge waterproofing	48	C3-6d	0%	48	04-Mar-19*	03-May-19	08-Apr-20	08-Jun-20	326	
S10250	SC025 - Glazing subcontract	48	C3-6d	0%	48	02-Feb-19*	02-Apr-19	04-Feb-19	03-Apr-19	1	
S10260	SC032 - Canopy for footbridge and cladding of arch subcontract	48	C3-6d	0%	48	04-Mar-19*	03-May-19	14-Jun-19	10-Aug-19	81	
S10270	SC020 - Footbridge RC works subcontract	48	C3-6d	50%	24	07-Nov-18 A	09-Jan-19	15-Mar-19	12-Apr-19	76	
S10280	SC021 - Prestressing, bearing and fabricated movement joint subcontract	45	C3-6d	80%	9	07-Nov-18 A	19-Dec-18	08-Oct-19	18-Oct-19	243	
S10290	SC023 - Footbridge steelworks (steel arch & lift beams)	48	C3-6d	0%	48	07-Jan-19*	06-Mar-19	25-Sep-19	21-Nov-19	212	
S10300	SC026 - Footbridge finishing	48	C3-6d	0%	48	07-Jan-19*	06-Mar-19	23-Jun-20	19-Aug-20	431	
General Submissions		974			589	20-Nov-17 A	20-Jul-20	18-Oct-18	07-Oct-20	79	
C10000	Draft Safety Plan (submission)	14	C3-7d	100%	0	20-Nov-17 A	19-Dec-17 A	18-Oct-18	18-Oct-18		
C10010	Safety Plan (submission)	6	C3-6d	100%	0	20-Dec-17 A	06-Jan-18 A	18-Oct-18	18-Oct-18		
C10020	Safety Plan (PM's acceptance)	21	C3-7d	100%	0	07-Jan-18 A	24-Jan-18 A	18-Oct-18	18-Oct-18		
C10030	Environmental Management Plan (prepare & submit)	21	C3-7d	100%	0	20-Nov-17 A	11-Dec-17 A	18-Oct-18	18-Oct-18		
C10040	Environmental Management Plan (review & discuss)	6	C3-7d	100%	0	12-Dec-17 A	11-Jan-18 A	18-Oct-18	18-Oct-18		
C10050	Environmental Management Plan (resubmit)	6	C3-6d	100%	0	12-Jan-18 A	30-Jan-18 A	18-Oct-18	18-Oct-18		
C10060	Environmental Management Plan (PM's acceptance)	21	C3-7d	100%	0	31-Jan-18 A	25-Apr-18 A	18-Oct-18	18-Oct-18		
C10070	Subcontractor Management Plan (submission)	30	C3-7d	100%	0	20-Nov-17 A	20-Dec-17 A	18-Oct-18	18-Oct-18		
C10080	Subcontractor Management Plan (PM's comments)	21	C3-7d	100%	0	21-Dec-17 A	05-Jan-18 A	18-Oct-18	18-Oct-18		
C10090	Subcontractor Management Plan (resubmit)	56	C3-6d	100%	0	06-Jan-18 A	15-Mar-18 A	18-Oct-18	18-Oct-18		
C10100	Subcontractor Management Plan (PM's acceptance)	21	C3-7d	100%	0	16-Mar-18 A	30-Apr-18 A	18-Oct-18	18-Oct-18		
C10110	Noise Mitigation Plan (prepare & submit)	1	C3-6d	100%	0	13-Jan-18 A	15-Feb-18 A	21-Dec-18	21-Dec-18		

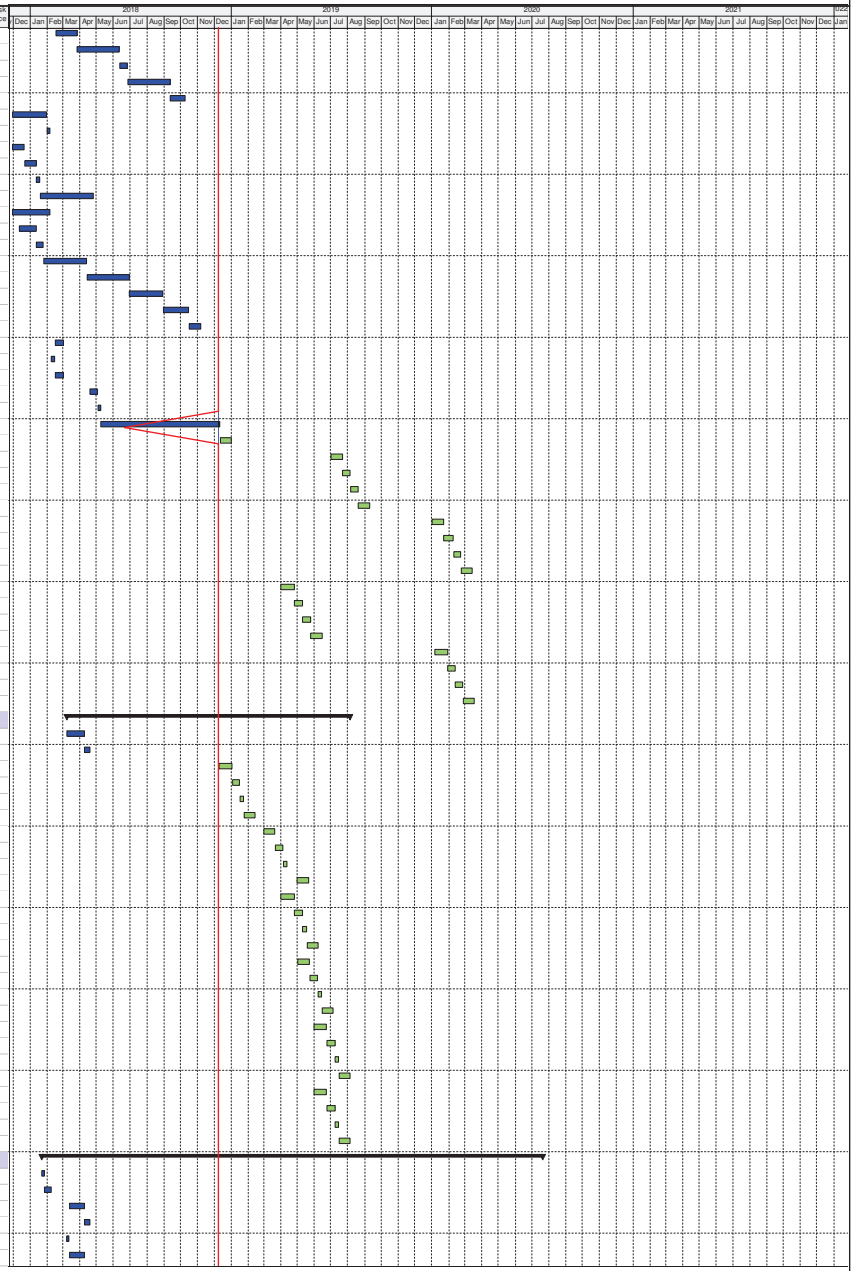


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C10120	Noise Mitigation Plan (review & comment)	18	C3-6d	100%	0	16-Feb-18 A	26-Mar-18 A	21-Dec-18	21-Dec-18		
C10121	Noise Mitigation Plan (resubmit)	12	C3-6d	100%	0	27-Mar-18 A	11-Jun-18 A	21-Dec-18	21-Dec-18		
C10122	Noise Mitigation Plan (review & comment)	12	C3-6d	100%	0	12-Jun-18 A	26-Jun-18 A	21-Dec-18	21-Dec-18		
C10123	Noise Mitigation Plan (resubmit)	12	C3-6d	100%	0	27-Jun-18 A	11-Sep-18 A	21-Dec-18	21-Dec-18		
C10124	Noise Mitigation Plan (accept)	21	C3-7d	100%	0	12-Sep-18 A	10-Oct-18 A	21-Dec-18	21-Dec-18		
C10130	Weather Protection Scheme (prepare & submit)	30	C3-7d	100%	0	30-Nov-17 A	30-Jan-18 A	18-Oct-18	18-Oct-18		
C10140	Weather Protection Scheme (accept)	21	C3-7d	100%	0	31-Jan-18 A	05-Feb-18 A	18-Oct-18	18-Oct-18		
C10150	Waste Management Plan (prepare & submit)	18	C3-6d	100%	0	30-Nov-17 A	20-Dec-17 A	18-Oct-18	18-Oct-18		
C10160	Waste Management Plan (review & discuss)	18	C3-6d	100%	0	21-Dec-17 A	11-Jan-18 A	18-Oct-18	18-Oct-18		
C10170	Waste Management Plan (resubmit)	12	C3-6d	100%	0	12-Jan-18 A	18-Jan-18 A	18-Oct-18	18-Oct-18		
C10180	Waste Management Plan (accept)	21	C3-7d	100%	0	19-Jan-18 A	25-Apr-18 A	18-Oct-18	18-Oct-18		
C10190	Site Traffic Safety Management Plan	42	C3-7d	100%	0	30-Nov-17 A	05-Feb-18 A	18-Oct-18	18-Oct-18		
C10200	Construction Impact Assessment (prepare & submit - Issue 1)	24	C3-6d	100%	0	12-Dec-17 A	11-Jan-18 A	21-Dec-18	21-Dec-18		
C10210	Construction Impact Assessment (review & discuss)	12	C3-6d	100%	0	12-Jan-18 A	24-Jan-18 A	21-Dec-18	21-Dec-18		
C10220	Construction Impact Assessment (resubmit - Issue 2 and 3)	12	C3-6d	100%	0	25-Jan-18 A	13-Apr-18 A	21-Dec-18	21-Dec-18		
C10230	Construction Impact Assessment (resubmit - Issue 4)	12	C3-6d	100%	0	14-Apr-18 A	29-Jun-18 A	21-Dec-18	21-Dec-18		
C10231	Construction Impact Assessment (resubmit - Issue 5)	12	C3-6d	100%	0	30-Jun-18 A	29-Aug-18 A	21-Dec-18	21-Dec-18		
C10232	Construction Impact Assessment (resubmit - Issue 6)	12	C3-7d	100%	0	30-Aug-18 A	16-Oct-18 A	21-Dec-18	21-Dec-18		
C10233	Construction Impact Assessment (accept)	21	C3-7d	100%	0	17-Oct-18 A	07-Nov-18 A	21-Dec-18	21-Dec-18		
C10240	Monitoring proposal for Geotechnical Monitoring	30	C3-7d	100%	0	15-Feb-18 A	02-Mar-18 A	06-Dec-18	06-Dec-18		
C10250	Geotechnical instrumentation programme (prepare & submit)	6	C3-6d	100%	0	08-Feb-18 A	14-Feb-18 A	06-Dec-18	06-Dec-18		
C10260	Geotechnical instrumentation programme (accept)	21	C3-7d	100%	0	15-Feb-18 A	02-Mar-18 A	06-Dec-18	06-Dec-18		
C10270	Temporary Drainage Management Plan (prepare & submit)	27	C3-6d	100%	0	19-Apr-18 A	03-May-18 A	22-Dec-18	22-Dec-18		
C10271	Temporary Drainage Management Plan (review & discuss)	5	C3-6d	100%	0	04-May-18 A	08-May-18 A	22-Dec-18	22-Dec-18		
C10272	Temporary Drainage Management Plan (resubmit)	6	C3-6d	66.67%	2	09-May-18 A	11-Dec-18	22-Dec-18	24-Dec-18	11	
C10273	Temporary Drainage Management Plan (accept)	21	C3-7d	0%	21	12-Dec-18	01-Jan-19	26-Dec-18	15-Jan-19	14	
C10280	Fall Arrest System (prepare & submit)	18	C3-6d	0%	18	02-Jul-19*	22-Jul-19	31-Dec-19	22-Jan-20	151	
C10290	Fall Arrest System (review & discuss)	12	C3-6d	0%	12	23-Jul-19	05-Aug-19	22-Jan-20	08-Feb-20	151	
C10300	Fall Arrest System (resubmit)	12	C3-6d	0%	12	06-Aug-19	19-Aug-19	08-Feb-20	22-Feb-20	151	
C10310	Fall Arrest System (accept)	21	C3-7d	0%	21	20-Aug-19	09-Sep-19	22-Feb-20	14-Mar-20	186	
C10320	Bridge waterproofing system (prepare & submit)	18	C3-6d	0%	18	02-Jan-20*	22-Jan-20	09-Jun-20	30-Jun-20	127	
C10330	Bridge waterproofing system (review & discuss)	12	C3-6d	0%	12	23-Jan-20	08-Feb-20	02-Jul-20	15-Jul-20	127	
C10340	Bridge waterproofing system (resubmit)	12	C3-6d	0%	12	10-Feb-20	22-Feb-20	16-Jul-20	29-Jul-20	127	
C10350	Bridge waterproofing system (accept)	21	C3-7d	0%	21	23-Feb-20	14-Mar-20	30-Jul-20	19-Aug-20	158	
C10360	Particulars of bridge bearings (prepare & submit)	18	C3-6d	0%	18	01-Apr-19*	25-Apr-19	18-Oct-19	08-Nov-19	162	
C10370	Particulars of bridge bearings (review & discuss)	12	C3-6d	0%	12	26-Apr-19	10-May-19	08-Nov-19	22-Nov-19	162	
C10380	Particulars of bridge bearings (resubmit)	12	C3-6d	0%	12	11-May-19	25-May-19	22-Nov-19	06-Dec-19	162	
C10390	Particulars of bridge bearings (accept)	21	C3-7d	0%	21	26-May-19	15-Jun-19	06-Dec-19	27-Dec-19	195	
C10400	Pillar box arrangement (prepare & submit)	18	C3-6d	0%	18	06-Jan-20*	29-Jan-20	15-Jan-20	07-Feb-20	8	
C10410	Pillar box arrangement (review & discuss)	12	C3-6d	0%	12	30-Jan-20	12-Feb-20	08-Feb-20	21-Feb-20	8	
C10420	Pillar box arrangement (resubmit)	12	C3-6d	0%	12	13-Feb-20	26-Feb-20	22-Feb-20	06-Mar-20	8	
C10430	Pillar box arrangement (accept)	21	C3-7d	0%	21	27-Feb-20	18-Mar-20	07-Mar-20	27-Mar-20	9	
Temporary Works (TW) Design		516			239	08-Mar-18 A	05-Aug-19	18-Oct-18	23-Sep-19	49	
C10440	TW for trench excavation (prepare & submit)	12	C3-6d	100%	0	08-Mar-18 A	09-Apr-18 A	18-Oct-18	18-Oct-18		
C10470	TW for trench excavation (accept)	19	C3-7d	100%	0	10-Apr-18 A	19-Apr-18 A	18-Oct-18	18-Oct-18		
C10480	TW for socketted H-pile test (prepare & submit)	18	C3-6d	0%	18	10-Dec-18*	02-Jan-19	25-Mar-19	15-Apr-19	84	
C10490	TW for socketted H-pile test (review & discuss)	12	C3-6d	0%	12	03-Jan-19	16-Jan-19	16-Apr-19	03-May-19	84	
C10500	TW for socketted H-pile test (resubmit)	6	C3-6d	0%	6	17-Jan-19	23-Jan-19	04-May-19	10-May-19	84	
C10510	TW for socketted H-pile test (accept)	21	C3-7d	0%	21	24-Jan-19	13-Feb-19	11-May-19	31-May-19	107	
C10520	TW for construction of pile cap (prepare & submit)	18	C3-6d	0%	18	01-Mar-19*	21-Mar-19	13-Apr-19	08-May-19	36	
C10530	TW for construction of pile cap (review & discuss)	12	C3-6d	0%	12	22-Mar-19	04-Apr-19	09-May-19	23-May-19	36	
C10540	TW for construction of pile cap (resubmit)	6	C3-6d	0%	6	06-Apr-19	12-Apr-19	24-May-19	30-May-19	36	
C10550	TW for construction of pile cap (accept)	21	C3-7d	0%	21	01-May-19*	21-May-19	31-May-19	20-Jun-19	30	
C10560	TW for construction of pier/column (prepare & submit)	18	C3-6d	0%	18	01-Apr-19*	25-Apr-19	08-Jul-19	27-Jul-19	76	
C10570	TW for construction of pier/column (review & discuss)	12	C3-6d	0%	12	26-Apr-19	10-May-19	29-Jul-19	10-Aug-19	76	
C10580	TW for construction of pier/column (resubmit)	6	C3-6d	0%	6	11-May-19	18-May-19	12-Aug-19	17-Aug-19	76	
C10590	TW for construction of pier/column (accept)	21	C3-7d	0%	21	19-May-19	08-Jun-19	19-Aug-19	08-Sep-19	92	
C10600	TW for construction of bridge deck (prepare & submit)	18	C3-6d	0%	18	02-May-19*	23-May-19	23-Jul-19	12-Aug-19	67	
C10610	TW for construction of bridge deck (review & discuss)	12	C3-6d	0%	12	24-May-19	06-Jun-19	13-Aug-19	26-Aug-19	67	
C10620	TW for construction of bridge deck (resubmit)	6	C3-6d	0%	6	08-Jun-19	14-Jun-19	27-Aug-19	02-Sep-19	67	
C10630	TW for construction of bridge deck (accept)	21	C3-7d	0%	21	15-Jun-19	05-Jul-19	03-Sep-19	23-Sep-19	80	
C10640	TW for construction of lift shaft (prepare & submit)	18	C3-6d	0%	18	01-Jun-19*	22-Jun-19	23-Jul-19	12-Aug-19	42	
C10650	TW for construction of lift shaft (review & discuss)	12	C3-6d	0%	12	24-Jun-19	08-Jul-19	13-Aug-19	26-Aug-19	42	
C10660	TW for construction of lift shaft (resubmit)	6	C3-6d	0%	6	09-Jul-19	15-Jul-19	27-Aug-19	02-Sep-19	42	
C10670	TW for construction of lift shaft (accept)	21	C3-7d	0%	21	16-Jul-19	05-Aug-19	03-Sep-19	23-Sep-19	49	
C10680	TW for construction of staircase (prepare & submit)	18	C3-6d	0%	18	01-Jun-19*	22-Jun-19	23-Jul-19	12-Aug-19	42	
C10690	TW for construction of staircase (review & discuss)	12	C3-6d	0%	12	24-Jun-19	08-Jul-19	13-Aug-19	26-Aug-19	42	
C10700	TW for construction of staircase (resubmit)	6	C3-6d	0%	6	09-Jul-19	15-Jul-19	27-Aug-19	02-Sep-19	42	
C10710	TW for construction of staircase (accept)	21	C3-7d	0%	21	16-Jul-19	05-Aug-19	03-Sep-19	23-Sep-19	49	
Method Statements (MS)		894			589	22-Jan-18 A	20-Jul-20	18-Oct-18	07-Oct-20	79	
C10720	MS tree felling (prepare & submit)	12	C3-6d	100%	0	22-Jan-18 A	26-Jan-18 A	18-Oct-18	18-Oct-18		
C10730	MS tree felling (accept)	21	C3-7d	100%	0	27-Jan-18 A	07-Feb-18 A	18-Oct-18	18-Oct-18		
C10740	MS for trench excavation (prepare & submit)	11	C3-6d	100%	0	13-Mar-18 A	09-Apr-18 A	18-Oct-18	18-Oct-18		
C10770	MS for trench excavation (accept)	19	C3-7d	100%	0	10-Apr-18 A	19-Apr-18 A	18-Oct-18	18-Oct-18		
C10780	MS for Contractor's site office (prepare & submit)	6	C3-6d	100%	0	08-Mar-18 A	12-Mar-18 A	01-Aug-20	01-Aug-20		
C10790	MS for Contractor's site office (review & discuss)	6	C3-6d	100%	0	13-Mar-18 A	09-Apr-18 A	01-Aug-20	01-Aug-20		

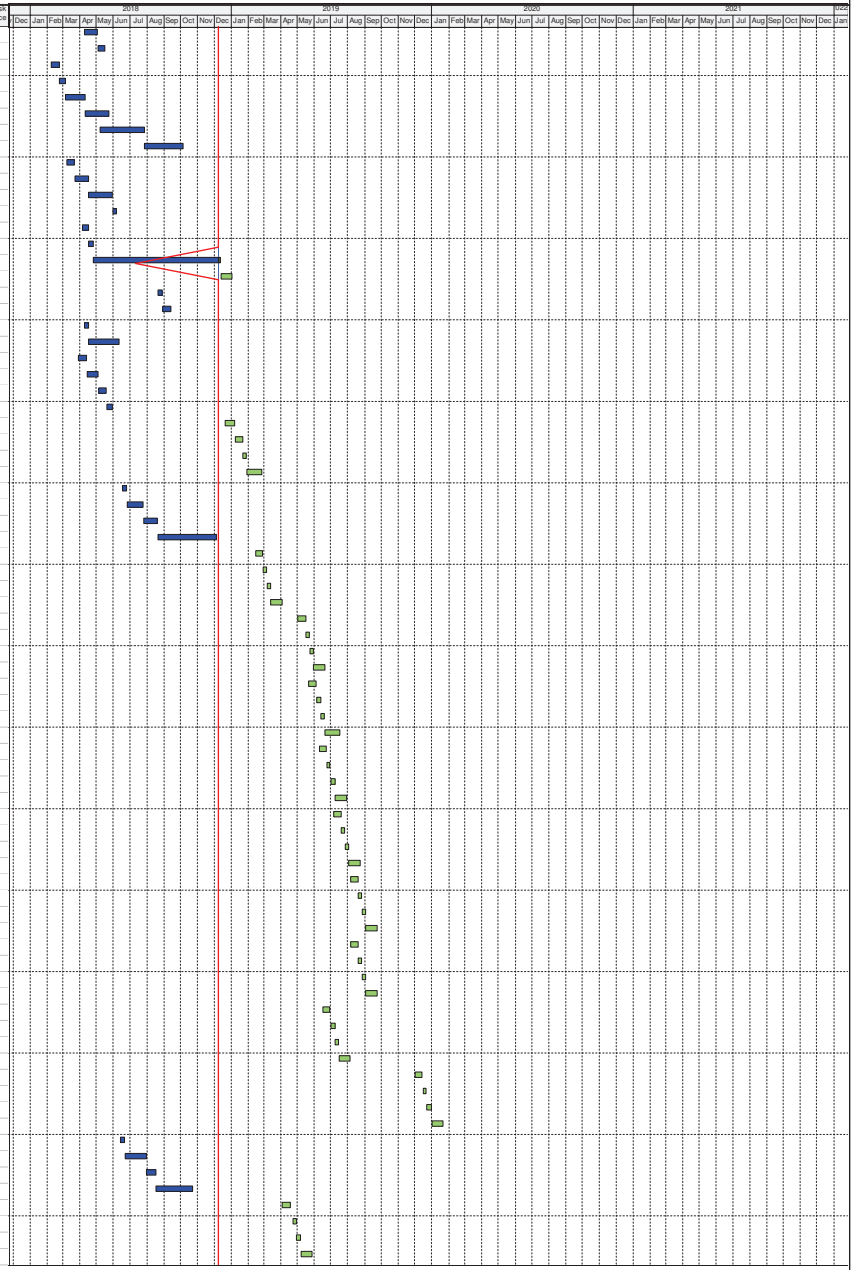


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C10800	MS for Contractor's site office (resubmit)	5	C3-6d	100%	0	10-Apr-18 A	03-May-18 A	01-Aug-20	01-Aug-20		
C10810	MS for Contractor's site office (accept)	19	C3-7d	100%	0	04-May-18 A	16-May-18 A	01-Aug-20	01-Aug-20		
C10820	MS for temporary road construction (prepare & submit)	6	C3-6d	100%	0	08-Feb-18 A	22-Feb-18 A	18-Oct-18	18-Oct-18		
C10830	MS for temporary road construction (review & discuss)	6	C3-6d	100%	0	23-Feb-18 A	05-Mar-18 A	18-Oct-18	18-Oct-18		
C10840	MS for temporary road construction (resubmit)	6	C3-6d	100%	0	06-Mar-18 A	10-Apr-18 A	18-Oct-18	18-Oct-18		
C10850	MS for temporary road construction (accept)	12	C3-7d	100%	0	11-Apr-18 A	23-May-18 A	18-Oct-18	18-Oct-18		
C10860	MS for watermain (prepare & submit)	12	C3-6d	100%	0	08-May-18 A	26-Jul-18 A	10-Dec-18	10-Dec-18		
C10890	MS for watermain (accept)	11	C3-7d	100%	0	27-Jul-18 A	05-Oct-18 A	10-Dec-18	10-Dec-18		
C10900	MS for tree transplanting (prepare & submit)	6	C3-6d	100%	0	08-Mar-18 A	22-Mar-18 A	03-Nov-18	03-Nov-18		
C10910	MS for tree transplanting (review & discuss)	6	C3-6d	100%	0	23-Mar-18 A	16-Apr-18 A	03-Nov-18	03-Nov-18		
C10920	MS for tree transplanting (resubmit)	5	C3-6d	100%	0	17-Apr-18 A	30-May-18 A	03-Nov-18	03-Nov-18		
C10930	MS for tree transplanting (accept)	19	C3-7d	100%	0	31-May-18 A	06-Jun-18 A	03-Nov-18	03-Nov-18		
C10931	MS for tree protection (prepare & submit)	6	C3-6d	100%	0	06-Apr-18 A	16-Apr-18 A	20-Mar-19	20-Mar-19		
C10932	MS for tree protection (review & discuss)	6	C3-6d	100%	0	17-Apr-18 A	25-Apr-18 A	20-Mar-19	20-Mar-19		
C10933	MS for tree protection (resubmit)	6	C3-6d	50%	3	26-Apr-18 A	12-Dec-18	20-Mar-19	23-Mar-19	81	
C10934	MS for tree protection (accept)	21	C3-7d	0%	21	13-Dec-18	02-Jan-19	23-Mar-19	13-Apr-19	101	
C10940	MS for standpipe and piezometer (prepare & submit)	5	C3-6d	100%	0	21-Aug-18 A	28-Aug-18 A	06-Dec-18	06-Dec-18		
C10970	MS for standpipe and piezometer (accept)	28	C3-7d	100%	0	29-Aug-18 A	13-Sep-18 A	06-Dec-18	06-Dec-18		
C10980	MS for drainage (prepare & submit)	5	C3-6d	100%	0	09-Apr-18 A	16-Apr-18 A	18-Oct-18	18-Oct-18		
C11010	MS for drainage (accept)	21	C3-7d	100%	0	17-Apr-18 A	11-Jun-18 A	18-Oct-18	18-Oct-18		
C11020	MS for ground investigation (prepare & submit)	12	C3-6d	100%	0	29-Mar-18 A	13-Apr-18 A	06-Dec-18	06-Dec-18		
C11030	MS for ground investigation (review & discuss)	12	C3-6d	100%	0	14-Apr-18 A	04-May-18 A	06-Dec-18	06-Dec-18		
C11040	MS for ground investigation (resubmit)	6	C3-6d	100%	0	05-May-18 A	19-May-18 A	06-Dec-18	06-Dec-18		
C11050	MS for ground investigation (accept by PM & MTRCL)	28	C3-7d	100%	0	20-May-18 A	29-May-18 A	06-Dec-18	06-Dec-18		
C11060	MS for bored pile (prepare & submit)	12	C3-6d	0%	12	21-Dec-18	07-Jan-19	04-Jan-19	18-Jan-19	10	
C11070	MS for bored pile (review & discuss)	12	C3-6d	0%	12	08-Jan-19	21-Jan-19	18-Jan-19	01-Feb-19	10	
C11080	MS for bored pile (resubmit)	6	C3-6d	0%	6	22-Jan-19	28-Jan-19	01-Feb-19	12-Feb-19	10	
C11090	MS for bored pile (accept by PM & MTRCL)	28	C3-7d	0%	28	29-Jan-19	25-Feb-19	12-Feb-19	12-Mar-19	15	
C11100	MS for construction of socketted H-pile (prepare & submit)	12	C3-6d	100%	0	18-Jun-18 A	25-Jun-18 A	21-Dec-18	21-Dec-18		
C11110	MS for construction of socketted H-pile (review & discuss)	6	C3-6d	100%	0	26-Jun-18 A	25-Jul-18 A	21-Dec-18	21-Dec-18		
C11120	MS for construction of socketted H-pile (resubmit)	6	C3-6d	100%	0	26-Jul-18 A	20-Aug-18 A	21-Dec-18	21-Dec-18		
C11130	MS for construction of socketted H-pile (accept by PM & MTRCL)	28	C3-7d	100%	0	21-Aug-18 A	04-Dec-18 A	21-Dec-18	21-Dec-18		
C11140	MS for socketted H-pile testing (prepare & submit)	12	C3-6d	0%	12	14-Feb-19	27-Feb-19	01-Jun-19	15-Jun-19	86	
C11150	MS for socketted H-pile testing (review & discuss)	6	C3-6d	0%	6	28-Feb-19	06-Mar-19	17-Jun-19	22-Jun-19	86	
C11160	MS for socketted H-pile testing (resubmit)	6	C3-6d	0%	6	07-Mar-19	13-Mar-19	24-Jun-19	29-Jun-19	86	
C11170	MS for socketted H-pile testing (accept)	21	C3-7d	0%	21	14-Mar-19	03-Apr-19	02-Jul-19	22-Jul-19	110	
C11180	MS for bored pile testing (prepare & submit)	12	C3-6d	0%	12	02-May-19*	16-May-19	09-Aug-19	23-Aug-19	82	
C11190	MS for bored pile testing (review & discuss)	6	C3-6d	0%	6	17-May-19	23-May-19	23-Aug-19	30-Aug-19	82	
C11200	MS for bored pile testing (resubmit)	6	C3-6d	0%	6	24-May-19	30-May-19	30-Aug-19	06-Sep-19	82	
C11210	MS for bored pile testing (accept)	21	C3-7d	0%	21	31-May-19	20-Jun-19	06-Sep-19	27-Sep-19	98	
C11220	MS for construction of pile cap (prepare & submit)	12	C3-6d	0%	12	22-May-19	04-Jun-19	21-Jun-19	05-Jul-19	25	
C11230	MS for construction of pile cap (review & discuss)	6	C3-6d	0%	6	05-Jun-19	12-Jun-19	06-Jul-19	12-Jul-19	25	
C11240	MS for construction of pile cap (resubmit)	6	C3-6d	0%	6	13-Jun-19	19-Jun-19	13-Jul-19	19-Jul-19	25	
C11250	MS for construction of pile cap (accept by PM & MTRCL)	28	C3-7d	0%	28	20-Jun-19	17-Jul-19	20-Jul-19	16-Aug-19	30	
C11260	MS for construction of pier/column (prepare & submit)	12	C3-6d	0%	12	10-Jun-19	22-Jun-19	09-Sep-19	23-Sep-19	77	
C11270	MS for construction of pier/column (review & discuss)	6	C3-6d	0%	6	24-Jun-19	29-Jun-19	15-Oct-19	22-Oct-19	94	
C11280	MS for construction of pier/column (resubmit)	6	C3-6d	0%	6	02-Jul-19	08-Jul-19	22-Oct-19	29-Oct-19	94	
C11290	MS for construction of pier/column (accept)	21	C3-7d	0%	21	09-Jul-19	29-Jul-19	29-Oct-19	19-Nov-19	113	
C11300	MS for construction of bridge deck (prepare & submit)	12	C3-6d	0%	12	06-Jul-19	19-Jul-19	24-Sep-19	09-Oct-19	67	
C11310	MS for construction of bridge deck (review & discuss)	6	C3-6d	0%	6	20-Jul-19	26-Jul-19	07-Jan-20	14-Jan-20	141	
C11320	MS for construction of bridge deck (resubmit)	6	C3-6d	0%	6	27-Jul-19	02-Aug-19	14-Jan-20	21-Jan-20	141	
C11330	MS for construction of bridge deck (accept)	21	C3-7d	0%	21	03-Aug-19	23-Aug-19	21-Jan-20	11-Feb-20	172	
C11340	MS for construction of lift shaft (prepare & submit)	12	C3-6d	0%	12	06-Aug-19	19-Aug-19	24-Sep-19	09-Oct-19	41	
C11350	MS for construction of lift shaft (review & discuss)	6	C3-6d	0%	6	20-Aug-19	26-Aug-19	11-Oct-19	17-Oct-19	42	
C11360	MS for construction of lift shaft (resubmit)	6	C3-6d	0%	6	27-Aug-19	02-Sep-19	18-Oct-19	24-Oct-19	42	
C11370	MS for construction of lift shaft (accept)	21	C3-7d	0%	21	03-Sep-19	23-Sep-19	25-Oct-19	14-Nov-19	52	
C11380	MS for construction of staircase (prepare & submit)	12	C3-6d	0%	12	06-Aug-19	19-Aug-19	24-Sep-19	09-Oct-19	41	
C11390	MS for construction of staircase (review & discuss)	6	C3-6d	0%	6	20-Aug-19	26-Aug-19	10-Oct-19	16-Oct-19	41	
C11400	MS for construction of staircase (resubmit)	6	C3-6d	0%	6	27-Aug-19	02-Sep-19	17-Oct-19	23-Oct-19	41	
C11410	MS for construction of staircase (accept)	21	C3-7d	0%	21	03-Sep-19	23-Sep-19	24-Oct-19	13-Nov-19	51	
C11420	MS for installation of bearing and movement joints (prepare & submit)	12	C3-6d	0%	12	17-Jun-19	29-Jun-19	27-Dec-19	11-Jan-20	161	
C11430	MS for installation of bearing and movement joints (review & discuss)	6	C3-6d	0%	6	02-Jul-19	08-Jul-19	11-Jan-20	18-Jan-20	161	
C11440	MS for installation of bearing and movement joints (resubmit)	6	C3-6d	0%	6	09-Jul-19	15-Jul-19	18-Jan-20	29-Jan-20	161	
C11450	MS for installation of bearing and movement joints (accept)	21	C3-7d	0%	21	16-Jul-19	05-Aug-19	29-Jan-20	19-Feb-20	198	
C11460	MS for prestressing (prepare & submit)	12	C3-6d	0%	12	02-Dec-19*	14-Dec-19	09-Mar-20	23-Mar-20	79	
C11470	MS for prestressing (review & discuss)	6	C3-6d	0%	6	16-Dec-19	21-Dec-19	23-Mar-20	30-Mar-20	79	
C11480	MS for prestressing (resubmit)	6	C3-6d	0%	6	23-Dec-19	31-Dec-19	30-Mar-20	07-Apr-20	79	
C11490	MS for prestressing (accept)	21	C3-7d	0%	21	01-Jan-20	21-Jan-20	07-Apr-20	28-Apr-20	98	
C11500	MS for flexible pavement, kerb & road marking (prepare & submit)	12	C3-6d	100%	0	14-Jun-18 A	21-Jun-18 A	02-Jul-19	02-Jul-19		
C11510	MS for flexible pavement, kerb & road marking (review & discuss)	6	C3-6d	100%	0	22-Jun-18 A	30-Jul-18 A	02-Jul-19	02-Jul-19		
C11520	MS for flexible pavement, kerb & road marking (resubmit)	6	C3-6d	100%	0	31-Jul-18 A	16-Aug-18 A	02-Jul-19	02-Jul-19		
C11530	MS for flexible pavement, kerb & road marking (accept)	21	C3-7d	100%	0	17-Aug-18 A	22-Oct-18 A	02-Jul-19	02-Jul-19		
C11540	MS for fences, railing, parapets, crash gate and untensioned beam barriers (prepare & submit)	12	C3-6d	0%	12	04-Apr-19*	18-Apr-19	16-Jul-19	29-Jul-19	80	
C11550	MS for fences, railing, parapets, crash gate and untensioned beam barriers (review & discuss)	6	C3-6d	0%	6	23-Apr-19	29-Apr-19	30-Jul-19	05-Aug-19	80	
C11560	MS for fences, railing, parapets, crash gate and untensioned beam barriers (resubmit)	6	C3-6d	0%	6	30-Apr-19	07-May-19	06-Aug-19	12-Aug-19	80	
C11570	MS for fences, railing, parapets, crash gate and untensioned beam barriers (accept)	21	C3-7d	0%	21	08-May-19	28-May-19	13-Aug-19	02-Sep-19	97	



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C11580	MS for footbridge waterproofing (prepare & submit)	12	C3-6d	0%	12	16-Mar-20	28-Mar-20	20-Aug-20	02-Sep-20	127	
C11590	MS for footbridge waterproofing (review & discuss)	6	C3-6d	0%	6	30-Mar-20	06-Apr-20	03-Sep-20	09-Sep-20	127	
C11600	MS for footbridge waterproofing (resubmit)	6	C3-6d	0%	6	07-Apr-20	16-Apr-20	10-Sep-20	16-Sep-20	127	
C11610	MS for footbridge waterproofing (accept)	21	C3-7d	0%	21	17-Apr-20	07-May-20	17-Sep-20	07-Oct-20	153	
C11620	MS for footbridge steelworks (steel arch & lift beams) (prepare & submit)	12	C3-6d	0%	12	01-Nov-19*	14-Nov-19	22-Nov-19	05-Dec-19	18	
C11630	MS for footbridge steelworks (steel arch & lift beams) (review & discuss)	6	C3-6d	0%	6	15-Nov-19	21-Nov-19	06-Dec-19	12-Dec-19	18	
C11640	MS for footbridge steelworks (steel arch & lift beams) (resubmit)	6	C3-6d	0%	6	22-Nov-19	28-Nov-19	13-Dec-19	19-Dec-19	18	
C11650	MS for footbridge steelworks (steel arch & lift beams) (accept)	21	C3-7d	0%	21	29-Nov-19	19-Dec-19	20-Dec-19	09-Jan-20	21	
C11660	MS for footbridge finishing (prepare & submit)	12	C3-6d	0%	12	01-Jun-20*	13-Jun-20	20-Aug-20	02-Sep-20	67	
C11670	MS for footbridge finishing (review & discuss)	6	C3-6d	0%	6	15-Jun-20	20-Jun-20	03-Sep-20	09-Sep-20	67	
C11680	MS for footbridge finishing (resubmit)	6	C3-6d	0%	6	22-Jun-20	29-Jun-20	10-Sep-20	16-Sep-20	67	
C11690	MS for footbridge finishing (accept)	21	C3-7d	0%	21	30-Jun-20	20-Jul-20	17-Sep-20	07-Oct-20	79	
C11700	MS for fall arrest system (prepare & submit)	18	C3-6d	0%	18	10-Sep-19	02-Oct-19	14-Mar-20	06-Apr-20	151	
C11710	MS for fall arrest system (review & discuss)	12	C3-6d	0%	12	03-Oct-19	17-Oct-19	06-Apr-20	23-Apr-20	151	
C11720	MS for fall arrest system (resubmit)	12	C3-6d	0%	12	18-Oct-19	31-Oct-19	23-Apr-20	09-May-20	151	
C11730	MS for fall arrest system (accept)	21	C3-7d	0%	21	01-Nov-19	21-Nov-19	09-May-20	30-May-20	190	
Community Liaison Centre (CLC)		271			0	30-Nov-17 A	27-Aug-18 A	29-Nov-21	29-Nov-21		
C11740	PM's written instruction	1	C3-6d	100%	0	30-Nov-17 A	30-Nov-17 A	29-Nov-21	29-Nov-21		
C11750	Proposed layout (prepare & submit)	6	C3-6d	100%	0	01-Dec-17 A	13-Jan-18 A	29-Nov-21	29-Nov-21		
C11760	Proposed layout (review & discuss)	6	C3-6d	100%	0	14-Jan-18 A	22-Jan-18 A	29-Nov-21	29-Nov-21		
C11770	Proposed layout (resubmit)	6	C3-6d	100%	0	23-Jan-18 A	18-Apr-18 A	29-Nov-21	29-Nov-21		
C11780	Proposed layout (accept)	21	C3-7d	100%	0	19-Apr-18 A	29-May-18 A	29-Nov-21	29-Nov-21		
C11785	Design of CLC foundation (submit & accept)	12	C3-6d	100%	0	19-Apr-18 A	08-May-18 A	29-Nov-21	29-Nov-21		
C11790	Design of CLC (prepare & submit)	12	C3-6d	100%	0	19-Feb-18 A	19-Apr-18 A	29-Nov-21	29-Nov-21		
C11800	Design of CLC (review & discuss)	6	C3-6d	100%	0	20-Apr-18 A	24-Apr-18 A	29-Nov-21	29-Nov-21		
C11810	Design of CLC (resubmit)	6	C3-6d	100%	0	25-Apr-18 A	30-Apr-18 A	29-Nov-21	29-Nov-21		
C11820	Design of CLC (accept)	21	C3-7d	100%	0	01-May-18 A	18-May-18 A	29-Nov-21	29-Nov-21		
C11821	MS for CLC (prepare & submit)	6	C3-6d	100%	0	02-Apr-18 A	17-Apr-18 A	29-Nov-21	29-Nov-21		
C11822	MS for CLC (review & discuss)	6	C3-6d	100%	0	18-Apr-18 A	08-May-18 A	29-Nov-21	29-Nov-21		
C11823	MS for CLC (resubmit)	6	C3-6d	100%	0	09-May-18 A	10-May-18 A	29-Nov-21	29-Nov-21		
C11824	MS for CLC (accept)	21	C3-7d	100%	0	11-May-18 A	18-May-18 A	29-Nov-21	29-Nov-21		
Construction of CLC		69	C3-6d		0	18-Apr-18 A	27-Aug-18 A	29-Nov-21	29-Nov-21		
C11830-1	Site formation	5	C3-6d	100%	0	18-Apr-18 A	19-Apr-18 A	29-Nov-21	29-Nov-21		
C11830-2	Concrete slab	5	C3-6d	100%	0	20-Apr-18 A	23-Apr-18 A	29-Nov-21	29-Nov-21		
C11830-3	Steel frame	17	C3-6d	100%	0	18-May-18 A	25-May-18 A	29-Nov-21	29-Nov-21		
C11830-4	Wall, ceiling, doors, windows	24	C3-6d	100%	0	26-May-18 A	10-Aug-18 A	29-Nov-21	29-Nov-21		
C11830-5	Furnishing	30	C3-6d	100%	0	03-Jul-18 A	10-Aug-18 A	29-Nov-21	29-Nov-21		
C11830-6	E&M	30	C3-6d	100%	0	03-Jul-18 A	10-Aug-18 A	29-Nov-21	29-Nov-21		
C11830-7	T&C of CLC	14	C3-6d	100%	0	10-Aug-18 A	27-Aug-18 A	29-Nov-21	29-Nov-21		
Preservation and Protection of Existing Trees		852	C3-6d		483	27-Dec-17 A	23-Jan-21	18-Oct-18	28-Nov-20	-45	
C11840	Tree survey and tree report	12	C3-6d	100%	0	27-Dec-17 A	13-Jan-18 A	18-Oct-18	18-Oct-18		
C11850	Preservation and protection of existing trees	715	C3-6d	32.38%	483	08-Feb-18 A	23-Jan-21	13-Apr-19	28-Nov-20	-45	
Footbridge Canopy		293			293	01-Jun-19	19-Mar-20	10-Aug-19	30-May-20	72	
C11860	Design of steel canopy & cladding of arch (prepare & submit)	90	C3-6d	0%	90	01-Jun-19*	17-Sep-19	10-Aug-19	27-Nov-19	58	
C11870	Design of steel canopy & cladding of arch (review & discuss)	18	C3-6d	0%	18	18-Sep-19	10-Oct-19	27-Nov-19	18-Dec-19	58	
C11880	Design of steel canopy & cladding of arch (resubmit)	18	C3-6d	0%	18	11-Oct-19	31-Oct-19	18-Dec-19	11-Jan-20	58	
C11890	Design of steel canopy & cladding of arch (accept)	21	C3-7d	0%	21	01-Nov-19	21-Nov-19	11-Jan-20	01-Feb-20	71	
C11900	MS for steel canopy & cladding of arch (prepare & submit)	18	C3-6d	0%	18	22-Nov-19	12-Dec-19	14-Mar-20	06-Apr-20	91	
C11910	MS for steel canopy & cladding of arch (review & discuss)	12	C3-6d	0%	12	13-Dec-19	28-Dec-19	06-Apr-20	23-Apr-20	91	
C11920	MS for steel canopy & cladding of arch (resubmit)	12	C3-6d	0%	12	30-Dec-19	13-Jan-20	23-Apr-20	09-May-20	91	
C11930	MS for steel canopy & cladding of arch (accept)	21	C3-7d	0%	21	14-Jan-20	03-Feb-20	09-May-20	30-May-20	116	
C11940	Material order, fabrication and delivery of footbridge canopy & cladding of arch	96	C3-6d	0%	96	22-Nov-19	19-Mar-20	01-Feb-20	30-May-20	55	
Lift System		761			752	12-Sep-18 A	31-Dec-20	11-Feb-19	28-Nov-20	-32	
Design		179			170	12-Sep-18 A	28-May-19	11-Feb-19	26-Jul-19	59	
C11950	Design of lift system (prepare & submit)	90	C3-6d	10%	81	12-Sep-18 A	20-Mar-19	11-Feb-19	22-May-19	48	
C11960	Design of lift system (review & discuss)	18	C3-6d	0%	18	21-Mar-19	11-Apr-19	23-May-19	13-Jun-19	48	
C11970	Design of lift system (resubmit)	18	C3-6d	0%	18	12-Apr-19	07-May-19	14-Jun-19	05-Jul-19	48	
C11980	Design of lift system (accept)	21	C3-7d	0%	21	08-May-19	28-May-19	06-Jul-19	26-Jul-19	59	
Method Statement		72			72	29-May-19	08-Aug-19	29-Nov-19	10-Feb-20	186	
C11990	MS for lift installation (prepare & submit)	18	C3-6d	0%	18	29-May-19	19-Jun-19	29-Nov-19	19-Dec-19	153	
C12000	MS for lift installation (review & discuss)	12	C3-6d	0%	12	20-Jun-19	04-Jul-19	20-Dec-19	06-Jan-20	153	
C12010	MS for lift installation (resubmit)	12	C3-6d	0%	12	05-Jul-19	18-Jul-19	07-Jan-20	20-Jan-20	153	
C12020	MS for lift installation (accept)	21	C3-7d	0%	21	19-Jul-19	08-Aug-19	21-Jan-20	10-Feb-20	186	
Material Order & Delivery		335	C3-7d		335	29-May-19	27-Apr-20	27-Jul-19	02-Aug-20	97	
C12030	Material order and delivery - Lift 2A & 2B	210	C3-7d	0%	210	29-May-19	24-Dec-19	27-Jul-19	21-Feb-20	59	
C12031	Material order and delivery - Lift 3A & 3B	210	C3-7d	0%	210	01-Oct-19*	27-Apr-20	19-Oct-19	15-May-20	18	
C12032	Material order and delivery - Lift 1A & 1B	210	C3-7d	0%	210	29-May-19*	24-Dec-19	06-Jan-20	02-Aug-20	222	
Electricity Supply & Pillar Box		260	C3-6d		260	29-May-19	09-Apr-20	26-Oct-19	22-Apr-20	8	
C12040	Application for electricity supply	144	C3-6d	0%	144	29-May-19	18-Nov-19	26-Oct-19	22-Apr-20	124	
C12060	Pillar box construction	18	C3-6d	0%	18	19-Mar-20	09-Apr-20	28-Mar-20	22-Apr-20	8	
Lift 2A & 2B		86	C3-6d		86	11-Feb-20	27-May-20	11-Feb-20	31-Oct-20	130	
C12050-10	Lift shaft scaffolding (2A & 2B)	10	C3-6d	0%	10	11-Feb-20	21-Feb-20	11-Feb-20	21-Feb-20	0	
C12050-15	Lift machine & guide rail (2A & 2B)	12	C3-6d	0%	12	22-Feb-20	06-Mar-20	22-Feb-20	06-Mar-20	0	
C12050-20	Lift door and landing (2A & 2B)	10	C3-6d	0%	10	07-Mar-20	18-Mar-20	07-Mar-20	18-Mar-20	0	
C12050-25	Control panel and lift shaft wiring (2A & 2B)	6	C3-6d	0%	6	19-Mar-20	25-Mar-20	19-Mar-20	25-Mar-20	0	
C12050-30	Modify lift shaft scaffolding (2A & 2B)	6	C3-6d	0%	6	26-Mar-20	01-Apr-20	26-Mar-20	01-Apr-20	0	

Actual Work
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Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C12050-35	Lift car assembly and cage wiring (2A & 2B)	14	C3-6d	0%	14	02-Apr-20	22-Apr-20	02-Apr-20	22-Apr-20	0	
C12050-40	Connect temporary / permanent power supply to control panel (2A & 2B)	2	C3-6d	0%	2	23-Apr-20	24-Apr-20	23-Apr-20	24-Apr-20	0	
C12050-45	Remove lift shaft scaffold (2A & 2B)	6	C3-6d	0%	6	25-Apr-20	04-May-20	25-Apr-20	04-May-20	0	
C12050-50	Slow speed test (2A & 2B)	5	C3-6d	0%	5	05-May-20	09-May-20	08-Oct-20	13-Oct-20	130	
C12050-55	CCTV and intercom system (2A & 2B)	5	C3-6d	0%	5	11-May-20	15-May-20	14-Oct-20	19-Oct-20	130	
C12050-60	High speed & load test (2A & 2B)	10	C3-6d	0%	10	16-May-20	27-May-20	20-Oct-20	31-Oct-20	130	
Lift 3A & 3B		85	C3-6d		85	05-May-20	13-Aug-20	05-May-20	31-Oct-20	65	
C12052-10	Lift shaft scaffolding (3A & 3B)	10	C3-6d	0%	10	05-May-20	15-May-20	05-May-20	15-May-20	0	
C12052-15	Lift machine & guide rail (3A & 3B)	12	C3-6d	0%	12	16-May-20	29-May-20	16-May-20	29-May-20	0	
C12052-20	Lift door and landing (3A & 3B)	10	C3-6d	0%	10	30-May-20	10-Jun-20	30-May-20	10-Jun-20	0	
C12052-25	Control panel and lift shaft wiring (3A & 3B)	6	C3-6d	0%	6	11-Jun-20	17-Jun-20	11-Jun-20	17-Jun-20	0	
C12052-30	Modify lift shaft scaffolding (3A & 3B)	6	C3-6d	0%	6	18-Jun-20	24-Jun-20	18-Jun-20	24-Jun-20	0	
C12052-35	Lift car assembly and cage wiring (3A & 3B)	14	C3-6d	0%	14	26-Jun-20	13-Jul-20	26-Jun-20	13-Jul-20	0	
C12052-40	Connect temporary / permanent power supply to control panel (3A & 3B)	2	C3-6d	0%	2	14-Jul-20	15-Jul-20	14-Jul-20	15-Jul-20	0	
C12052-45	Remove lift shaft scaffold (3A & 3B)	5	C3-6d	0%	5	16-Jul-20	21-Jul-20	16-Jul-20	21-Jul-20	0	
C12052-50	Slow speed test (3A & 3B)	5	C3-6d	0%	5	22-Jul-20	27-Jul-20	08-Oct-20	13-Oct-20	65	
C12052-55	CCTV and intercom system (3A & 3B)	5	C3-6d	0%	5	28-Jul-20	01-Aug-20	14-Oct-20	19-Oct-20	65	
C12052-60	High speed & load test (3A & 3B)	10	C3-6d	0%	10	03-Aug-20	13-Aug-20	20-Oct-20	31-Oct-20	65	
Lift 1A & 1B		85	C3-6d		85	22-Jul-20	31-Oct-20	22-Jul-20	31-Oct-20	0	
C12054-10	Lift shaft scaffolding (1A & 1B)	10	C3-6d	0%	10	22-Jul-20	01-Aug-20	22-Jul-20	01-Aug-20	0	
C12054-15	Lift machine & guide rail (1A & 1B)	12	C3-6d	0%	12	03-Aug-20	15-Aug-20	03-Aug-20	15-Aug-20	0	
C12054-20	Lift door and landing (1A & 1B)	10	C3-6d	0%	10	17-Aug-20	27-Aug-20	17-Aug-20	27-Aug-20	0	
C12054-25	Control panel and lift shaft wiring (1A & 1B)	6	C3-6d	0%	6	28-Aug-20	03-Sep-20	28-Aug-20	03-Sep-20	0	
C12054-30	Modify lift shaft scaffolding (1A & 1B)	6	C3-6d	0%	6	04-Sep-20	10-Sep-20	04-Sep-20	10-Sep-20	0	
C12054-35	Lift car assembly and cage wiring (1A & 1B)	14	C3-6d	0%	14	11-Sep-20	26-Sep-20	11-Sep-20	26-Sep-20	0	
C12054-40	Connect temporary / permanent power supply to control panel (1A & 1B)	2	C3-6d	0%	2	28-Sep-20	29-Sep-20	28-Sep-20	29-Sep-20	0	
C12054-45	Remove lift shaft scaffold (1A & 1B)	5	C3-6d	0%	5	30-Sep-20	07-Oct-20	30-Sep-20	07-Oct-20	0	
C12054-50	Slow speed test (1A & 1B)	5	C3-6d	0%	5	08-Oct-20	13-Oct-20	08-Oct-20	13-Oct-20	0	
C12054-55	CCTV and intercom system (1A & 1B)	5	C3-6d	0%	5	14-Oct-20	19-Oct-20	14-Oct-20	19-Oct-20	0	
C12054-60	High speed & load test (1A & 1B)	10	C3-6d	0%	10	20-Oct-20	31-Oct-20	20-Oct-20	31-Oct-20	0	
EMSD		49	C3-6d		49	02-Nov-20	31-Dec-20	02-Nov-20	28-Nov-20	-25	
C12080-10	Form LE5 submission	2	C3-6d	0%	2	02-Nov-20	03-Nov-20	02-Nov-20	03-Nov-20	0	
C12080-20	EMSD inspection	16	C3-6d	0%	16	03-Dec-20	22-Dec-20	04-Nov-20	21-Nov-20	-25	
C12080-30	Use permit issuance	6	C3-6d	0%	6	22-Dec-20	31-Dec-20	23-Nov-20	28-Nov-20	-25	
Electrical System for Footbridge		637			724	15-Nov-18 A	03-Dec-20	05-Oct-19	03-Nov-20	-29	
C12090	Design of electrical system for footbridge (prepare & submit)	90	C3-6d	23.33%	69	15-Nov-18 A	06-Mar-19	05-Oct-19	27-Dec-19	241	
C12100	Design of electrical system for footbridge (review & discuss)	18	C3-6d	0%	18	07-Mar-19	27-Mar-19	28-Dec-19	18-Jan-20	241	
C12110	Design of electrical system for footbridge (resubmit)	18	C3-6d	0%	18	28-Mar-19	18-Apr-19	20-Jan-20	12-Feb-20	241	
C12120	Design of electrical system for footbridge (accept)	21	C3-7d	0%	21	19-Apr-19	09-May-19	13-Feb-20	04-Mar-20	300	
C12130	MS for electrical system (prepare & submit)	18	C3-6d	0%	18	10-May-19	31-May-19	16-Apr-20	08-May-20	277	
C12140	MS for electrical system (review & discuss)	18	C3-6d	0%	18	01-Jun-19	22-Jun-19	09-May-20	29-May-20	277	
C12150	MS for electrical system (resubmit)	12	C3-6d	0%	12	24-Jun-19	08-Jul-19	30-May-20	12-Jun-20	277	
C12160	MS for electrical system (accept)	21	C3-7d	0%	21	09-Jul-19	29-Jul-19	13-Jun-20	03-Jul-20	340	
C12170	Material order and delivery of footbridge electrical system	96	C3-6d	0%	96	10-May-19	02-Sep-19	05-Mar-20	03-Jul-20	245	
C12180	Install electrical system for footbridge (incl. footbridge lighting system)	78	C3-6d	0%	78	03-Aug-20	05-Nov-20	04-Jul-20	05-Oct-20	-25	
C12190	Testing and commissioning of electrical system for footbridge	24	C3-6d	0%	24	05-Nov-20	03-Dec-20	06-Oct-20	03-Nov-20	-25	
Glazing System		637			637	03-Apr-19	29-Dec-20	04-Apr-19	28-Nov-20	-31	
C12200	Design of glazing system (prepare & submit)	90	C3-6d	0%	90	03-Apr-19	25-Jul-19	04-Apr-19	26-Jul-19	1	
C12210	Design of glazing system (review & discuss)	18	C3-6d	0%	18	26-Jul-19	15-Aug-19	27-Jul-19	16-Aug-19	1	
C12220	Design of glazing system (resubmit)	18	C3-6d	0%	18	16-Aug-19	05-Sep-19	17-Aug-19	06-Sep-19	1	
C12230	Design of glazing system (accept)	21	C3-7d	0%	21	06-Sep-19	26-Sep-19	07-Sep-19	27-Sep-19	1	
C12240	MS for glazing system (prepare & submit)	18	C3-6d	0%	18	27-Sep-19	19-Oct-19	05-Nov-19	25-Nov-19	31	
C12250	MS for glazing system (review & discuss)	18	C3-6d	0%	18	21-Oct-19	09-Nov-19	26-Nov-19	16-Dec-19	31	
C12260	MS for glazing system (resubmit)	12	C3-6d	0%	12	11-Nov-19	23-Nov-19	17-Dec-19	02-Jan-20	31	
C12270	MS for glazing system (accept)	21	C3-7d	0%	21	24-Nov-19	14-Dec-19	03-Jan-20	23-Jan-20	40	
C12280	Material order and delivery of glazing system	96	C3-6d	0%	96	27-Sep-19	22-Jan-20	28-Sep-19	23-Jan-20	1	
C12290	Install glazing system (Lift 2A & 2B)	12	C3-6d	0%	12	24-Jan-20	10-Feb-20	24-Jan-20	10-Feb-20	0	
C12292	Install glazing system (Lift 3A & 3B)	12	C3-6d	0%	12	13-Mar-20	26-Mar-20	18-Apr-20	04-May-20	27	
C12294	Install glazing system (Lift 1A & 1B)	12	C3-6d	0%	12	13-Mar-20	26-Mar-20	08-Jul-20	21-Jul-20	92	
C12300	Install glazing system (canopy)	100	C3-6d	0%	100	28-Aug-20	29-Dec-20	01-Aug-20	28-Nov-20	-24	
Road Lighting System		590			566	15-Nov-18 A	27-Jun-20	15-Mar-19	18-May-20	-40	
C12310	Design of road lighting system (prepare & submit)	70	C3-6d	78.57%	15	15-Nov-18 A	28-Dec-18	15-Mar-19	01-Apr-19	76	
C12320	Design of road lighting system (review & discuss)	18	C3-6d	0%	18	29-Dec-18	19-Jan-19	02-Apr-19	26-Apr-19	76	
C12330	Design of road lighting system (resubmit)	24	C3-6d	0%	24	21-Jan-19	20-Feb-19	27-Apr-19	27-May-19	76	
C12340	Design of road lighting system (accept by PM & HyD)	21	C3-7d	0%	21	21-Feb-19	13-Mar-19	28-May-19	17-Jun-19	96	
C12350	MS for road lighting system (prepare & submit)	18	C3-6d	0%	18	14-Mar-19	03-Apr-19	26-Jul-19	15-Aug-19	107	
C12360	MS for road lighting system (review & discuss)	18	C3-6d	0%	18	04-Apr-19	29-Apr-19	16-Aug-19	05-Sep-19	107	
C12370	MS for road lighting system (resubmit)	12	C3-6d	0%	12	30-Apr-19	15-May-19	06-Sep-19	20-Sep-19	107	
C12380	MS for road lighting system (accept)	21	C3-7d	0%	21	16-May-19	05-Jun-19	21-Sep-19	11-Oct-19	128	
C12390	Material order and delivery of road lighting system	96	C3-6d	0%	96	14-Mar-19	12-Jul-19	18-Jun-19	11-Oct-19	75	
C12400	Install road lighting system	128	C3-6d	0%	128	21-Nov-19	29-Apr-20	12-Oct-19	16-Mar-20	-34	
C12410	Testing and commissioning of road lighting system	48	C3-6d	0%	48	02-May-20	27-Jun-20	17-Mar-20	18-May-20	-34	
Stage 0 Works		124	C3-6d		0	01-Dec-17 A	07-Jul-18 A	18-Oct-18	01-Aug-20		
Preliminary Works		124	C3-6d		0	01-Dec-17 A	07-Jul-18 A	18-Oct-18	01-Aug-20		
C12420	Application of XP	75	C3-6d	100%	0	01-Dec-17 A	05-Mar-18 A	18-Oct-18	18-Oct-18		
C12430	Utilities detection (Road P2 south of interchange)	6	C3-6d	100%	0	13-Jan-18 A	18-Jan-18 A	18-Oct-18	18-Oct-18		

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NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
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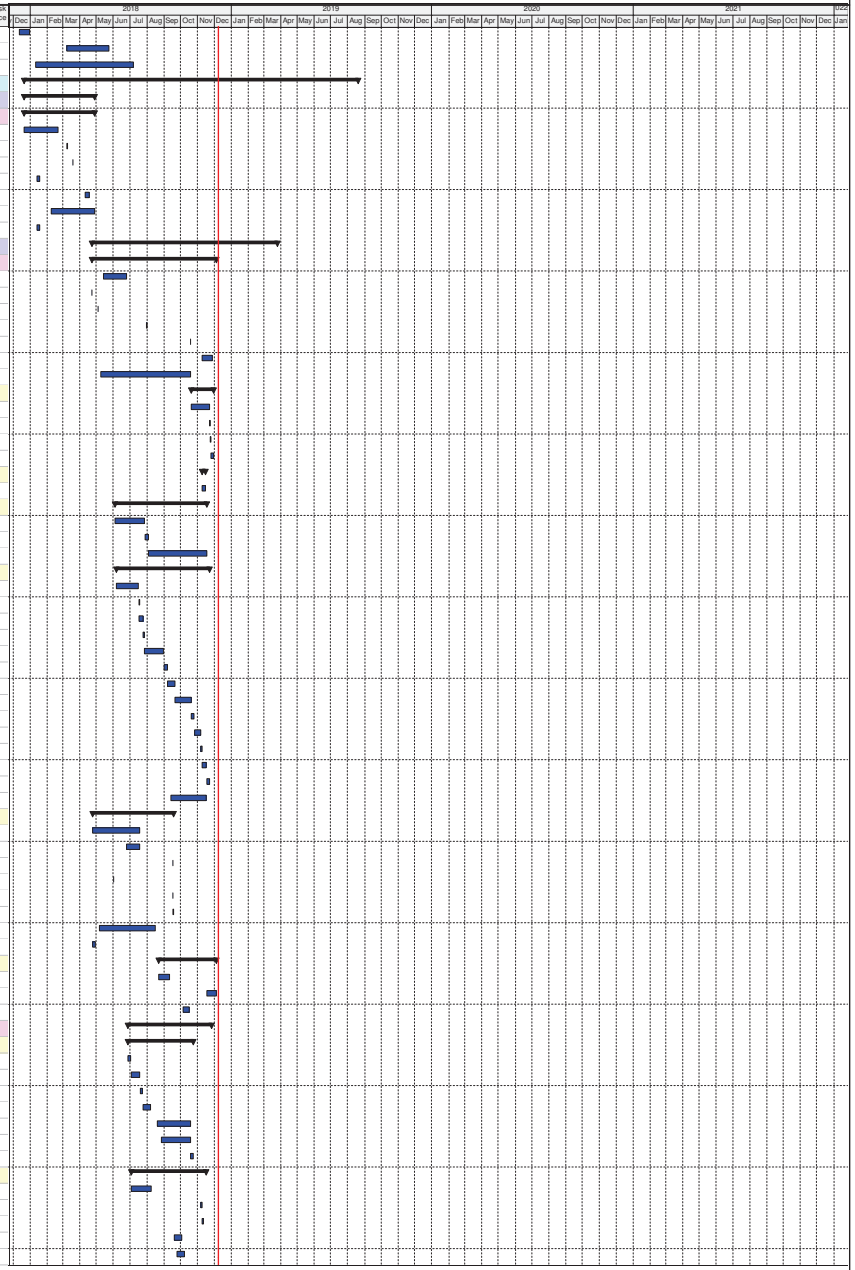
Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C12440	Initial site survey	6	C3-6d	100%	0	11-Dec-17 A	30-Dec-17 A	18-Oct-18	18-Oct-18		
C12450	Pre-construction condition survey and manhole survey	24	C3-6d	100%	0	08-Mar-18 A	23-May-18 A	18-Oct-18	18-Oct-18		
C12460	Contractor's site office	30	C3-6d	100%	0	10-Jan-18 A	07-Jul-18 A	01-Aug-20	01-Aug-20		
Stage 1 Works		609			255	20-Dec-17 A	20-Aug-19	18-Oct-18	29-Nov-21	804	
TTA Stage 1A		147	C3-6d		0	20-Dec-17 A	28-Apr-18 A	18-Oct-18	04-Nov-18		
TTA		147	C3-6d		0	20-Dec-17 A	28-Apr-18 A	18-Oct-18	04-Nov-18		
C12470	Design and acceptance of TTA Drg. 001A / 007, 002A / 008, and 006A	42	C3-6d	100%	0	20-Dec-17 A	20-Feb-18 A	18-Oct-18	18-Oct-18		
C12480	Implementation of TTA Stage 1A (trial pits) (TTA Drg. 006A)	2	C3-6d	100%	0	08-Mar-18 A	09-Mar-18 A	18-Oct-18	18-Oct-18		1
C12490	Implementation of TTA Stage 1A (roundabout) (part of TTA Drg. 001A / 007)	2	C3-6d	100%	0	19-Mar-18 A	19-Mar-18 A	18-Oct-18	18-Oct-18		1
C12500	Utilities detection (Po Shun Road north of interchange)	4	C3-6d	100%	0	13-Jan-18 A	18-Jan-18 A	18-Oct-18	18-Oct-18		
C12510	Modification of road layout at roundabout	12	C3-6d	100%	0	11-Apr-18 A	18-Apr-18 A	18-Oct-18	18-Oct-18		
C12530	Tree felling (Road P2 south of interchange, TGC01 & TGC02)	12	C3-6d	100%	0	08-Feb-18 A	28-Apr-18 A	18-Oct-18	18-Oct-18		
C12570	Utilities detection (Chui Ling Road south - existing cycle track)	5	C3-6d	100%	0	13-Jan-18 A	18-Jan-18 A	04-Nov-18	04-Nov-18		
TTA Stage 1B-1, 1B-2, 1B-3 & 1B-4		440			108	23-Apr-18 A	26-Mar-19	18-Oct-18	29-Nov-21	804	
TTA		379			0	23-Apr-18 A	04-Dec-18 A	18-Oct-18	29-Nov-21		
C12520	Temporary footpath & cycle track at south of Chui Ling Road / Po Yap Road (for TTA Stage 1B-1 & 1B-2)	11	C3-6d	100%	0	14-May-18 A	25-Jun-18 A	18-Oct-18	18-Oct-18		
C12550	Implementation of TTA Stage 1B-1 (part of TTA Drg. 002A / 008)	2	C3-6d	100%	0	23-Apr-18 A	23-Apr-18 A	18-Oct-18	18-Oct-18		1
C12560	Implementation of TTA Stage 1B-2 (TTA Drg. 002A / 008, 030A & 031A)	2	C3-6d	100%	0	04-May-18 A	04-May-18 A	18-Oct-18	18-Oct-18		1
C12561	Implementation of TTA Stage 1B-3 (TTA Drg. 002A, 027B, 030A & 031A)	2	C3-6d	100%	0	31-Jul-18 A	31-Jul-18 A	18-Oct-18	18-Oct-18		1
C12562	Implementation of TTA Stage 1B-4 (TTA Drg. 038C)	2	C3-6d	100%	0	19-Oct-18 A	19-Oct-18 A	18-Oct-18	18-Oct-18		1
C12564	Preparation work & arrange RMO for TTA Stage 1C	12	C3-6d	100%	0	09-Nov-18 A	27-Nov-18 A	03-Nov-18	03-Nov-18		
C12600	Modify north-east island at roundabout (affected by supply of aggregate NCE No.8)	32	C3-6d	100%	0	09-May-18 A	18-Oct-18 A	18-Oct-18	18-Oct-18		
Modify central median (Po Shun Road) (TTA Drg. 038C)		30	C3-6d		0	20-Oct-18 A	30-Nov-18 A	18-Oct-18	18-Oct-18		
C12605-1	Central median (Po Shun Road) - Demolish existing divider & excavation	30	C3-6d	100%	0	20-Oct-18 A	22-Nov-18 A	18-Oct-18	18-Oct-18		
C12605-2	Central median (Po Shun Road) - Formation	3	C3-6d	100%	0	23-Nov-18 A	23-Nov-18 A	18-Oct-18	18-Oct-18		
C12605-3	Central median (Po Shun Road) - Sub-base	5	C3-6d	100%	0	24-Nov-18 A	24-Nov-18 A	18-Oct-18	18-Oct-18		
C12605-4	Central median (Po Shun Road) - Sub-base SRT	7	C3-6d	100%	0	25-Nov-18 A	30-Nov-18 A	18-Oct-18	18-Oct-18		
Modify roundabout island (TTA Drg. 038C)		24	C3-6d		0	09-Nov-18 A	15-Nov-18 A	22-Oct-18	22-Oct-18		
C12606-1	Roundabout - Demolish existing island & excavation	24	C3-6d	100%	0	09-Nov-18 A	15-Nov-18 A	22-Oct-18	22-Oct-18		
Modify central median (Po Yap Road)		85			0	04-Jun-18 A	17-Nov-18 A	18-Oct-18	18-Oct-18		
C12600-2	Modify central median (Po Yap Road)	36	C3-6d	100%	0	04-Jun-18 A	27-Jul-18 A	18-Oct-18	18-Oct-18		
C12600-3	Arrangement of SRT (NCE No.13)	7	C3-7d	100%	0	28-Jul-18 A	03-Aug-18 A	18-Oct-18	18-Oct-18		
C12600-4	Modify central median (Po Yap Road)	21	C3-6d	100%	0	04-Aug-18 A	17-Nov-18 A	18-Oct-18	18-Oct-18		
Modify central median (Chui Ling Road)		137			0	06-Jun-18 A	22-Nov-18 A	18-Oct-18	03-Nov-18		
C12650-1	Modify east portion of central median (Chui Ling Road) (TTA Drg. 029B) - Excavation	18	C3-6d	100%	0	06-Jun-18 A	16-Jul-18 A	18-Oct-18	18-Oct-18		
C12650-1.1	Preparation work for TTA Stage 2.2	2	C3-6d	100%	0	17-Jul-18 A	18-Jul-18 A	18-Oct-18	18-Oct-18		
C12650-1.2	WSD emergency works Chiu Ling Road (NCE No.11)	6	C3-7d	100%	0	17-Jul-18 A	24-Jul-18 A	18-Oct-18	18-Oct-18		
C12650-1.3	Arrange subcontractor for implementation of TTA Stage 2.2	2	C3-6d	100%	0	25-Jul-18 A	26-Jul-18 A	18-Oct-18	18-Oct-18		
C12650-3	Mid portion of South central median (TTA Drg. 030A) - Excavation	18	C3-6d	100%	0	27-Jul-18 A	31-Aug-18 A	18-Oct-18	18-Oct-18		
C12650-4.1	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Gullies	12	C3-6d	100%	0	01-Sep-18 A	06-Sep-18 A	18-Oct-18	18-Oct-18		
C12650-4.2	Design review of clash between existing CLP cables and gullies by PM	12	C3-7d	100%	0	07-Sep-18 A	20-Sep-18 A	18-Oct-18	18-Oct-18		
C12650-4.3	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Gullies restart	12	C3-6d	100%	0	21-Sep-18 A	20-Oct-18 A	18-Oct-18	18-Oct-18		
C12650-5	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Formation	5	C3-6d	100%	0	20-Oct-18 A	25-Oct-18 A	18-Oct-18	18-Oct-18		
C12650-6	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Sub-base	6	C3-6d	100%	0	26-Oct-18 A	06-Nov-18 A	18-Oct-18	18-Oct-18		
C12650-6.1	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Sub-base SRT	2	C3-6d	100%	0	07-Nov-18 A	08-Nov-18 A	18-Oct-18	18-Oct-18		
C12650-7	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Road paving	7	C3-6d	100%	0	09-Nov-18 A	16-Nov-18 A	18-Oct-18	18-Oct-18		
C12650-7.1	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Road paving core test	5	C3-6d	100%	0	17-Nov-18 A	22-Nov-18 A	03-Nov-18	03-Nov-18		
C12650-8	Modify mid portion of North central median (TTA Drg. 031A)	16	C3-6d	100%	0	13-Sep-18 A	16-Nov-18 A	03-Nov-18	03-Nov-18		
Tree felling and transplanting		306	C3-6d		0	24-Apr-18 A	18-Sep-18 A	03-Nov-18	29-Nov-21		
C12580	Tree felling (Po Yap Road)	12	C3-6d	100%	0	24-Apr-18 A	19-Jul-18 A	29-Nov-21	29-Nov-21		
C12590	Tree transplanting (Po Yap Road) central median	54	C3-6d	100%	0	25-Jun-18 A	19-Jul-18 A	29-Nov-21	29-Nov-21		
C12591	Tree transplanting (Po Yap Road) south side	21	C3-6d	100%	0	17-Sep-18 A	17-Sep-18 A	02-Feb-19	02-Feb-19		
C12610	Tree transplanting (adjacent TKO Sports Centre) T304, T21005 to T21008	48	C3-6d	100%	0	01-Jun-18 A	02-Jun-18 A	03-Nov-18	03-Nov-18		
C12611	Tree transplanting C100	1	C3-6d	100%	0	17-Sep-18 A	17-Sep-18 A	15-Jan-19	15-Jan-19		
C12630	Tree transplanting (Chui Ling Road)	48	C3-6d	100%	0	17-Sep-18 A	18-Sep-18 A	02-Apr-19	02-Apr-19		
C12770	Tree felling (Chui Ling Road)	11	C3-6d	100%	0	07-May-18 A	15-Aug-18 A	12-Mar-19	12-Mar-19		
C13540	Tree felling (Po Shun Road central median)	6	C3-6d	100%	0	24-Apr-18 A	30-Apr-18 A	01-Jun-20	01-Jun-20		
Groundwater monitoring point		105	C3-6d		0	22-Aug-18 A	04-Dec-18 A	06-Dec-18	13-Mar-19		
C12640	Install groundwater monitoring point GWMP 04	9	C3-6d	100%	0	22-Aug-18 A	10-Sep-18 A	21-Dec-18	21-Dec-18		
C12641	Install groundwater monitoring point GWMP 05	9	C3-6d	100%	0	17-Nov-18 A	04-Dec-18 A	13-Mar-19	13-Mar-19		
C12642	Install groundwater monitoring point GWMP 01	9	C3-6d	100%	0	05-Oct-18 A	16-Oct-18 A	06-Dec-18	06-Dec-18		
Drainage		212			0	28-Jun-18 A	26-Nov-18 A	18-Oct-18	12-Mar-19		
Stormwater SMH5101-SMH5101A		136			0	28-Jun-18 A	24-Oct-18 A	18-Oct-18	06-Dec-18		
C12660-1	Install ELS & excavate	7	C3-6d	100%	0	28-Jun-18 A	03-Jul-18 A	18-Oct-18	18-Oct-18		1
C12660-2	Idle due to shortage of supply of aggregate (NCE No.8) & design review	15	C3-7d	100%	0	04-Jul-18 A	18-Jul-18 A	18-Oct-18	18-Oct-18		
C12660-3	Re-excavate	7	C3-6d	100%	0	19-Jul-18 A	23-Jul-18 A	18-Oct-18	18-Oct-18		
C12660-4	Lay drain pipe	7	C3-6d	100%	0	24-Jul-18 A	07-Aug-18 A	18-Oct-18	18-Oct-18		
C12660-5	Manhole SMH5101	18	C3-6d	100%	0	20-Aug-18 A	18-Oct-18 A	06-Dec-18	06-Dec-18		
C12660-6	Manhole SMH5101A	18	C3-6d	100%	0	27-Aug-18 A	18-Oct-18 A	06-Dec-18	06-Dec-18		
C12660-7	Backfill	5	C3-6d	100%	0	19-Oct-18 A	24-Oct-18 A	06-Dec-18	06-Dec-18		
Stormwater DN525 (PMI No.003)		152	C3-6d		0	03-Jul-18 A	16-Nov-18 A	03-Nov-18	12-Mar-19		
C12665-1	Trial pits, removal of existing planter, modify existing manhole	14	C3-6d	100%	0	03-Jul-18 A	08-Aug-18 A	03-Nov-18	03-Nov-18		
C12665-2	Install ELS & excavate	18	C3-6d	100%	0	06-Nov-18 A	08-Nov-18 A	12-Mar-19	12-Mar-19		6
C12665-3	Lay drain DN525 pipe	8	C3-6d	100%	0	09-Nov-18 A	11-Nov-18 A	12-Mar-19	12-Mar-19		
C12665-4	Manhole SMH6702	18	C3-6d	100%	0	19-Sep-18 A	03-Oct-18 A	12-Mar-19	12-Mar-19		
C12665-5	Manhole SMH6703	18	C3-6d	100%	0	24-Sep-18 A	08-Oct-18 A	12-Mar-19	12-Mar-19		

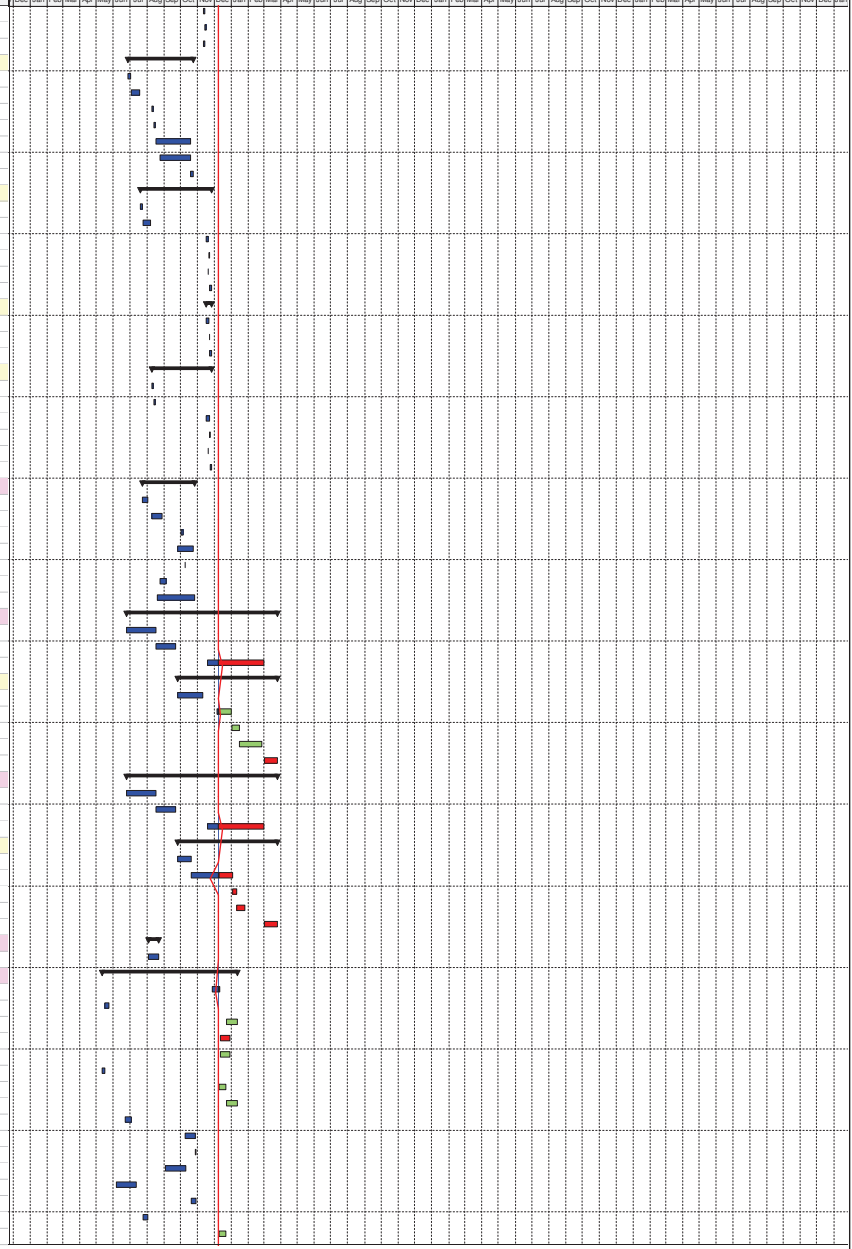


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C12665-6	Connection to existing manholes	4	C3-6d	100%	0	12-Nov-18 A	13-Nov-18 A	12-Mar-19	12-Mar-19		
C12665-7	Backfill	9	C3-6d	100%	0	14-Nov-18 A	16-Nov-18 A	12-Mar-19	12-Mar-19		
C12665-8	Demolish existing manhole	6	C3-6d	100%	0	11-Nov-18 A	14-Nov-18 A	12-Mar-19	12-Mar-19		
Stormwater SMH5001-SMH5001A		136			0	28-Jun-18 A	24-Oct-18 A	18-Oct-18	06-Dec-18		
C12680-1	Install ELS & excavate	7	C3-6d	100%	0	28-Jun-18 A	03-Jul-18 A	18-Oct-18	18-Oct-18		1
C12680-2	Idle due to shortage of supply of aggregate (NCE No.8) & design review	15	C3-7d	100%	0	04-Jul-18 A	18-Jul-18 A	18-Oct-18	18-Oct-18		
C12680-3	Re-excavate	7	C3-6d	100%	0	09-Aug-18 A	12-Aug-18 A	18-Oct-18	18-Oct-18		
C12680-4	Lay drain pipe	7	C3-6d	100%	0	13-Aug-18 A	15-Aug-18 A	18-Oct-18	18-Oct-18		
C12680-5	Manhole SMH5001	18	C3-6d	100%	0	17-Aug-18 A	18-Oct-18 A	06-Dec-18	06-Dec-18		
C12680-6	Manhole SMH5001A	18	C3-6d	100%	0	24-Aug-18 A	18-Oct-18 A	06-Dec-18	06-Dec-18		
C12680-7	Backfill	5	C3-6d	100%	0	19-Oct-18 A	24-Oct-18 A	06-Dec-18	06-Dec-18		
Stormwater SMH5101A-SMH5101B		87	C3-6d		0	19-Jul-18 A	26-Nov-18 A	06-Nov-18	06-Dec-18		
C12682-1	Install ELS & excavate (Stage 1)	7	C3-6d	100%	0	19-Jul-18 A	23-Jul-18 A	06-Nov-18	06-Nov-18		
C12682-2	Lay drain pipe (Stage 1)	7	C3-6d	100%	0	24-Jul-18 A	07-Aug-18 A	06-Nov-18	06-Nov-18		
C12682-3	Install ELS & excavate (Stage 2 start after part of Portion I & Portion II handed over by C2)	7	C3-6d	100%	0	16-Nov-18 A	20-Nov-18 A	06-Nov-18	06-Nov-18		1
C12682-4	Lay drain pipe (Stage 2)	7	C3-6d	100%	0	21-Nov-18 A	22-Nov-18 A	06-Nov-18	06-Nov-18		
C12682-5	Manhole SMH5101B (Stage 2)	18	C3-6d	100%	0	20-Nov-18 A	20-Nov-18 A	06-Dec-18	06-Dec-18		
C12682-6	Backfill (Stage 2)	5	C3-6d	100%	0	23-Nov-18 A	26-Nov-18 A	06-Dec-18	06-Dec-18		
Stormwater SMH5101B-SMH5002		15	C3-6d		0	16-Nov-18 A	26-Nov-18 A	06-Dec-18	06-Dec-18		
C12686-1	Install ELS & excavate (Stage 2)	4	C3-6d	100%	0	16-Nov-18 A	21-Nov-18 A	06-Dec-18	06-Dec-18		1
C12686-2	Lay drain pipe (Stage 2)	4	C3-6d	100%	0	22-Nov-18 A	22-Nov-18 A	06-Dec-18	06-Dec-18		
C12686-3	Backfill (Stage 2)	4	C3-6d	100%	0	23-Nov-18 A	26-Nov-18 A	06-Dec-18	06-Dec-18		
Stormwater SMH5001A-SMH5002		87	C3-6d		0	09-Aug-18 A	26-Nov-18 A	24-Oct-18	06-Dec-18		
C12684-1	Install ELS & excavate (Stage 1)	7	C3-6d	100%	0	09-Aug-18 A	12-Aug-18 A	24-Oct-18	24-Oct-18		
C12684-2	Lay drain pipe (Stage 1)	7	C3-6d	100%	0	13-Aug-18 A	15-Aug-18 A	24-Oct-18	24-Oct-18		
C12684-3	Install ELS & excavate (Stage 2 start after part of Portion I & Portion II handed over by C2)	7	C3-6d	100%	0	16-Nov-18 A	22-Nov-18 A	24-Oct-18	24-Oct-18		1
C12684-4	Lay drain pipe (Stage 2)	7	C3-6d	100%	0	23-Nov-18 A	23-Nov-18 A	01-Nov-18	01-Nov-18		
C12684-5	Manhole SMH5002 (Stage 2)	18	C3-6d	100%	0	20-Nov-18 A	20-Nov-18 A	09-Nov-18	09-Nov-18		
C12684-6	Backfill (Stage 2)	5	C3-6d	100%	0	24-Nov-18 A	26-Nov-18 A	06-Dec-18	06-Dec-18		
Utilities		144	C3-6d		0	23-Jul-18 A	26-Oct-18 A	18-Oct-18	06-Dec-18		
C12700	Gas main at Chui Ling Road (central median) by HKCG	19	C3-6d	100%	0	23-Jul-18 A	02-Aug-18 A	03-Nov-18	03-Nov-18		1
C12790	Lay 11kV cables at Po Shun Road by CLPP	19	C3-6d	100%	0	10-Aug-18 A	28-Aug-18 A	03-Nov-18	03-Nov-18		1
C12791	Connection switch over of 11kV cables at Po Shun Road by CLPP	16	C3-6d	100%	0	02-Oct-18 A	05-Oct-18 A	03-Nov-18	03-Nov-18		
C12800	Gas main at Po Shun Road by HKCG	19	C3-6d	100%	0	26-Sep-18 A	23-Oct-18 A	03-Nov-18	03-Nov-18		1
C12810	Telecom cables at Po Shun Road (North) by HGC & PCCW	19	C3-6d	100%	0	09-Oct-18 A	09-Oct-18 A	06-Dec-18	06-Dec-18		1
C12820	Lay 11kV cables by CLPP - 1st Stage cross-road ducts at north Road P2	17	C3-6d	100%	0	25-Aug-18 A	05-Sep-18 A	18-Oct-18	18-Oct-18		1
C12821	Lay 11kV cables by CLPP - 2nd Stage east of Road P2	14	C3-6d	100%	0	20-Aug-18 A	26-Oct-18 A	18-Oct-18	18-Oct-18		1
Fresh Watermain		275			108	25-Jun-18 A	26-Mar-19	06-Dec-18	22-Mar-19	-4	
C12862-10	Trial pits	66	C3-6d	100%	0	25-Jun-18 A	16-Aug-18 A	06-Dec-18	06-Dec-18		
C12862-20	Design review of fresh watermain CHA & CHA1 by PM	36	C3-7d	100%	0	17-Aug-18 A	21-Sep-18 A	06-Dec-18	06-Dec-18		
C12862-30	Material order & delivery FWM CHA 0 to 167 (PMI No. 012)	90	C3-7d	7.78%	83	19-Nov-18 A	01-Mar-19	06-Dec-18	26-Feb-19	-3	
Fresh watermain CHA 90 to 167.181		154	C3-6d		86	26-Sep-18 A	26-Mar-19	11-Dec-18	22-Mar-19	-3	
C12862-40	Install ELS & excavate CHA 130 to 167.181	12	C3-6d	100%	0	26-Sep-18 A	10-Nov-18 A	11-Dec-18	11-Dec-18		
C12862-50	Lay fresh watermain CHA 130 to 161.413 (Stage 1a)	24	C3-6d	29.17%	17	06-Dec-18 A	31-Dec-18	11-Dec-18	02-Jan-19	1	
C12862-52	Install ELS & excavate CHA 90 to 130	12	C3-6d	0%	12	02-Jan-19	15-Jan-19	03-Jan-19	16-Jan-19	1	
C12862-54	Lay fresh watermain CHA 90 to 130 (Stage 1b)	32	C3-6d	0%	32	16-Jan-19	25-Feb-19	17-Jan-19	26-Feb-19	1	
C12862-60	Lay fresh watermain CHA 161.413 to 167.181 (Stage 2)	21	C3-6d	0%	21	02-Mar-19	26-Mar-19	27-Feb-19	22-Mar-19	-3	
Salt Watermain		200			108	25-Jun-18 A	26-Mar-19	04-Nov-18	22-Feb-19	-32	
C12712-10	Trial pits	73	C3-6d	100%	0	25-Jun-18 A	16-Aug-18 A	04-Nov-18	04-Nov-18		
C12712-20	Design review of salt watermain CHA & CHB by PM	36	C3-7d	100%	0	17-Aug-18 A	21-Sep-18 A	04-Nov-18	04-Nov-18		
C12712-30	Material order & delivery SWM CHA 0 to 124 (PMI No. 012)	90	C3-7d	7.78%	83	19-Nov-18 A	01-Mar-19	04-Nov-18	25-Jan-19	-35	
Salt watermain CHA 50 to 124.388		146	C3-6d		86	26-Sep-18 A	26-Mar-19	10-Dec-18	22-Feb-19	-27	
C12712-40	Install ELS & excavate CHA 74 to 124.388	12	C3-6d	100%	0	26-Sep-18 A	20-Oct-18 A	10-Dec-18	10-Dec-18		
C12712-50	Lay salt watermain CHA 74 to 118.237 (Stage 1a)	24	C3-6d	20.83%	19	21-Oct-18 A	03-Jan-19	10-Dec-18	03-Jan-19	0	
C12712-52	Install ELS & excavate CHA 50 to 74	6	C3-6d	0%	6	04-Jan-19	10-Jan-19	04-Jan-19	10-Jan-19	0	
C12712-54	Lay salt watermain CHA 50 to 74 (Stage 1b)	13	C3-6d	0%	13	11-Jan-19	25-Jan-19	11-Jan-19	25-Jan-19	0	
C12712-60	Lay salt watermain CHA 118.237 to 124.388 (Stage 2)	21	C3-6d	0%	21	02-Mar-19	26-Mar-19	26-Jan-19	22-Feb-19	-27	
CCTV High Mast		5	C3-6d		0	04-Aug-18 A	21-Aug-18 A	22-Jan-19	22-Jan-19		
C12920	Predrilling at CCTV/PH1 (1 no.) PD#1	5	C3-6d	100%	0	04-Aug-18 A	21-Aug-18 A	22-Jan-19	22-Jan-19		
Footbridge Predrilling		410			34	11-May-18 A	12-Jan-19	06-Dec-18	29-Nov-21	861	
C12720	Predrilling at PC5/PH4 (Pier 01) (1 no.) PD#1	4	C3-6d	50%	2	28-Nov-18 A	11-Dec-18	06-Dec-18	07-Dec-18	-3	
C12970	Predrilling at PC1-3/PH1 (1 no.) PD#1	4	C3-6d	100%	0	17-May-18 A	23-May-18 A	15-May-19	15-May-19		
C12972	Acceptance of founding level PC1-3	21	C3-7d	0%	21	23-Dec-18	12-Jan-19	29-May-19	18-Jun-19	157	
C12980	Propose founding level PC1-1	14	C3-6d	0%	14	12-Dec-18	29-Dec-18	08-Dec-18	24-Dec-18	-3	
C12981	Propose founding level PC8	14	C3-6d	0%	14	12-Dec-18	29-Dec-18	21-Dec-18	10-Jan-19	9	
C13010	Predrilling at PC7/PH1 (1 no.) PD#1	4	C3-6d	100%	0	11-May-18 A	16-May-18 A	21-Dec-18	21-Dec-18		
C13011	Propose founding level PC7	12	C3-6d	0%	12	10-Dec-18	22-Dec-18	31-May-19	14-Jun-19	136	
C13012	Acceptance of founding level PC7	21	C3-7d	0%	21	23-Dec-18	12-Jan-19	15-Jun-19	05-Jul-19	174	
C13020	Predrilling at PC4/PH1 (1 no.) PD#1	4	C3-6d	100%	0	22-Jun-18 A	03-Jul-18 A	21-Dec-18	21-Dec-18		
C13030	Propose founding level PC4	12	C3-6d	100%	0	09-Oct-18 A	27-Oct-18 A	21-Dec-18	21-Dec-18		
C13040	Acceptance of founding level PC4	21	C3-7d	100%	0	28-Oct-18 A	28-Oct-18 A	21-Dec-18	21-Dec-18		
C13051	Predrilling at PC2-1/PH1 & PH2 (Pier 02) (2 no.) PD#1	5	C3-6d	100%	0	03-Sep-18 A	10-Oct-18 A	28-Jun-19	28-Jun-19		
C13320	Predrilling at PC2-2/PH3 & PH4 (Pier 03) (2 nos.) PD#1	16	C3-6d	100%	0	07-Jun-18 A	12-Jul-18 A	03-Apr-19	03-Apr-19		
C13399	Predrilling at PC6/PH2 (Pier 05) (1 nos.) PD#1	4	C3-6d	100%	0	20-Oct-18 A	29-Oct-18 A	29-Nov-21	29-Nov-21		
C13410	Predrilling at PC1-2/PH1 (1 no.) PD#1	4	C3-6d	100%	0	25-Jul-18 A	02-Aug-18 A	26-Apr-19	26-Apr-19		
C13411	Propose founding level PC1-2	12	C3-6d	0%	12	10-Dec-18	22-Dec-18	12-Aug-19	24-Aug-19	196	



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NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
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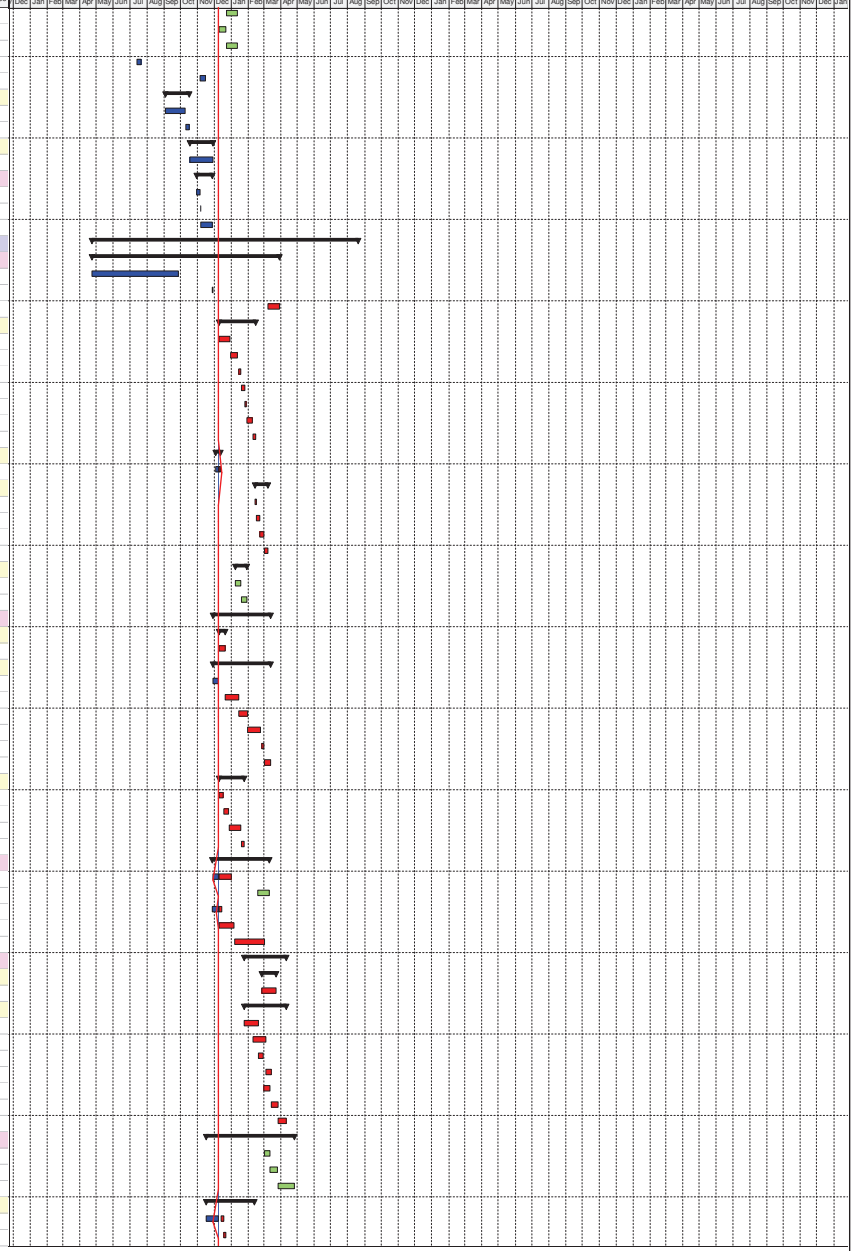
Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C13412	Acceptance of founding level PC1-2	21	C3-7d	0%	21	23-Dec-18	12-Jan-19	26-Aug-19	15-Sep-19	246	
C13413	Propose founding level PC3-1	12	C3-6d	0%	12	10-Dec-18*	22-Dec-18	26-Apr-19	10-May-19	108	
C13414	Acceptance of founding level PC3-1	21	C3-7d	0%	21	23-Dec-18	12-Jan-19	11-May-19	31-May-19	139	
C13421	Predrilling at PC2-3/PH3 (Pier 04) (1 no.) PD#2	4	C3-6d	100%	0	14-Jul-18 A	20-Jul-18 A	18-Jun-19	18-Jun-19		
C13450	Predrilling at PC3-2 (1 no.) PD#2	4	C3-6d	100%	0	05-Nov-18 A	15-Nov-18 A	18-Jun-19	18-Jun-19		
Uncharted 2 nos. DI pipes near Sports Centre (NCE No.26)		45			0	03-Sep-18 A	16-Oct-18 A	06-Dec-18	06-Dec-18		
C13425	Investigate uncharted 2 nos. DI pipes	44	C3-7d	100%	0	03-Sep-18 A	09-Oct-18 A	06-Dec-18	06-Dec-18		
C13426	Remove and dispose of uncharted 2 nos. DI pipes (PMI No. 015)	6	C3-6d	100%	0	10-Oct-18 A	16-Oct-18 A	06-Dec-18	06-Dec-18		
Inspection pits for Predrilling		38	C3-6d		0	18-Oct-18 A	28-Nov-18 A	06-Dec-18	06-Dec-18		
C13428	Inspection pits for predrilling at PC5 (6 nos.)	38	C3-6d	100%	0	18-Oct-18 A	28-Nov-18 A	06-Dec-18	06-Dec-18		
Footbridge Piling		35			0	30-Oct-18 A	27-Nov-18 A	21-Dec-18	21-Dec-18		
C13140	Mobilize plant SP#2	6	C3-6d	100%	0	30-Oct-18 A	05-Nov-18 A	21-Dec-18	21-Dec-18		
C13150	Socketted H-pile at PC4/P4 (1 no.) SP#2	7	C3-6d	100%	0	06-Nov-18 A	06-Nov-18 A	21-Dec-18	21-Dec-18		1
C13151	Uncharted water pipes at PC4 (NCE No.38)	21	C3-7d	100%	0	07-Nov-18 A	27-Nov-18 A	21-Dec-18	21-Dec-18		
TTA Stage 1C		470			254	23-Apr-18 A	20-Aug-19	18-Oct-18	15-Aug-19	-5	
TTA		268	C3-6d		89	23-Apr-18 A	29-Mar-19	18-Oct-18	22-Jul-19	89	
C12740	Design and acceptance of TTA Stage 1C (south of roundabout)	42	C3-6d	100%	0	23-Apr-18 A	26-Sep-18 A	03-Nov-18	03-Nov-18		
C12750	Implementation of TTA Stage 1C (TTA Drg. 053B)	2	C3-6d	100%	0	28-Nov-18 A	28-Nov-18 A	03-Nov-18	03-Nov-18		1
C13100	Preparation work for temporary signalized junction TTA Stage 2A	18	C3-6d	0%	18	09-Mar-19	29-Mar-19	12-Jan-19	01-Feb-19	-45	
Modify central median (Chui Ling Road)		52	C3-6d		52	10-Dec-18	14-Feb-19	30-Nov-18	01-Feb-19	-8	
C12650-09	West portion of central median (TTA Drg. 060) - Excavation	16	C3-6d	0%	16	10-Dec-18	29-Dec-18	30-Nov-18	18-Dec-18	-8	
C12650-10	West portion of central median (TTA Drg. 060) - Gullies	11	C3-6d	0%	11	31-Dec-18	12-Jan-19	19-Dec-18	03-Jan-19	-8	
C12650-11	West portion of central median (TTA Drg. 060) - Formation	5	C3-6d	0%	5	14-Jan-19	18-Jan-19	04-Jan-19	09-Jan-19	-8	
C12650-12	West portion of central median (TTA Drg. 060) - Sub-base	6	C3-6d	0%	6	19-Jan-19	25-Jan-19	10-Jan-19	16-Jan-19	-8	
C12650-14	West portion of central median (TTA Drg. 060) - Sub-base SRT	2	C3-6d	0%	2	26-Jan-19	28-Jan-19	17-Jan-19	18-Jan-19	-8	
C12650-15	West portion of central median (TTA Drg. 060) - Road paving	7	C3-6d	0%	7	29-Jan-19	08-Feb-19	19-Jan-19	26-Jan-19	-8	
C12650-16	West portion of central median (TTA Drg. 060) - Road paving core test	5	C3-6d	0%	5	09-Feb-19	14-Feb-19	28-Jan-19	01-Feb-19	-8	
Modify central median (Po Shun Road) (TTA Drg. 038C)		6	C3-6d		3	04-Dec-18 A	12-Dec-18	18-Oct-18	20-Oct-18	-45	
C12605-5	Central median (Po Shun Road) - Temporary road paving	6	C3-6d	50%	3	04-Dec-18 A	12-Dec-18	18-Oct-18	20-Oct-18	-45	
Modify roundabout island (TTA Drg. 038C)		21	C3-6d		21	13-Feb-19	08-Mar-19	15-Dec-18	11-Jan-19	-45	
C12606-2	Roundabout - Formation	3	C3-6d	0%	3	13-Feb-19	15-Feb-19	15-Dec-18	18-Dec-18	-45	
C12606-3	Roundabout - Sub-base	5	C3-6d	0%	5	16-Feb-19	21-Feb-19	19-Dec-18	24-Dec-18	-45	
C12606-4	Roundabout - Sub-base SRT	7	C3-6d	0%	7	22-Feb-19	01-Mar-19	27-Dec-18	04-Jan-19	-45	
C12606-5	Roundabout - Temporary road paving	6	C3-6d	0%	6	02-Mar-19	08-Mar-19	05-Jan-19	11-Jan-19	-45	
Groundwater monitoring point		18	C3-6d		18	09-Jan-19	29-Jan-19	01-Apr-19	22-Jul-19	137	
C12643	Install groundwater monitoring point GWMP 03	9	C3-6d	0%	9	09-Jan-19	18-Jan-19	01-Apr-19	12-Apr-19	68	
C12644	Install groundwater monitoring point GWMP 02	9	C3-6d	0%	9	19-Jan-19	29-Jan-19	11-Jul-19	22-Jul-19	137	
Drainage		101	C3-6d		75	29-Nov-18 A	13-Mar-19	24-Oct-18	01-Feb-19	-31	
Uncharted 2 nos. DI pipes near Sports Centre (NCE No.26)		10	C3-6d		10	10-Dec-18	20-Dec-18	03-Nov-18	14-Nov-18	-31	
C12669	Remove & dispose 2 nos. uncharted DI pipes near Pier 03 (PMI No. 015)	10	C3-6d	0%	10	10-Dec-18	20-Dec-18	03-Nov-18	14-Nov-18	-31	
Stormwater DN900 (PMI No.004)		101	C3-6d		65	29-Nov-18 A	13-Mar-19	03-Nov-18	01-Feb-19	-31	
C12670-0	Inspection pits	4	C3-6d	100%	0	29-Nov-18 A	08-Dec-18 A	03-Nov-18	03-Nov-18		
C12670-1	Install ELS & excavate for DN900	18	C3-6d	0%	18	21-Dec-18	14-Jan-19	15-Nov-18	05-Dec-18	-31	1
C12670-2	Lay drain DN900 pipe	14	C3-6d	0%	14	15-Jan-19	30-Jan-19	06-Dec-18	21-Dec-18	-31	
C12670-3	Manhole SMH6701	18	C3-6d	0%	18	31-Jan-19	23-Feb-19	22-Dec-18	15-Jan-19	-31	
C12670-4	Connection DN900 to existing manholes	5	C3-6d	0%	5	25-Feb-19	01-Mar-19	16-Jan-19	21-Jan-19	-31	
C12670-5	Backfill DN900	10	C3-6d	0%	10	02-Mar-19	13-Mar-19	22-Jan-19	01-Feb-19	-31	
Stormwater SMH5002-SMH5003		37	C3-6d		37	10-Dec-18	24-Jan-19	24-Oct-18	05-Dec-18	-40	
C12688-1	Install ELS & excavate (Stage 2)	7	C3-6d	0%	7	10-Dec-18	17-Dec-18	24-Oct-18	31-Oct-18	-40	1
C12688-2	Lay drain pipe (Stage 2)	7	C3-6d	0%	7	18-Dec-18	27-Dec-18	01-Nov-18	08-Nov-18	-40	
C12688-3	Manhole SMH5003 (Stage 2)	18	C3-6d	0%	18	28-Dec-18	18-Jan-19	09-Nov-18	29-Nov-18	-40	
C12688-4	Backfill (Stage 2)	5	C3-6d	0%	5	19-Jan-19	24-Jan-19	30-Nov-18	05-Dec-18	-40	
Utilities		85	C3-6d		73	28-Nov-18 A	11-Mar-19	18-Oct-18	02-Apr-19	19	
C12701	Gas main at Chui Ling Road (North) by HKCG	19	C3-6d	10.53%	17	29-Nov-18 A	31-Dec-18	03-Nov-18	22-Nov-18	-31	1
C12780	Telecom cables at Chui Ling Road by HGC, CATV, PCCW (incl. Chui Shin Street)	19	C3-6d	0%	19	18-Feb-19*	11-Mar-19	12-Mar-19	02-Apr-19	19	1
C12822	Lay 11kV cables by CLPP - 3rd Stage cross-road ducts at south Road P2	14	C3-6d	64.29%	5	28-Nov-18 A	14-Dec-18	06-Nov-18	10-Nov-18	-29	
C12823	Lay 11kV cables by CLPP - 4th Stage west of Road P2	21	C3-6d	0%	21	10-Dec-18*	05-Jan-19	18-Oct-18	10-Nov-18	-45	
C12824	Connection and switch over of 11kV cables at Road P2 by CLPP	45	C3-6d	0%	45	07-Jan-19	02-Mar-19	12-Nov-18	05-Jan-19	-45	5
Fresh Watermain		62	C3-6d		62	25-Jan-19	11-Apr-19	06-Dec-18	22-Feb-19	-40	
Fresh Watermain CHA 0 to 90 and CHA1 0 to 15.540		24	C3-6d		24	25-Feb-19	23-Mar-19	29-Dec-18	26-Jan-19	-45	
C12860-05	Install ELS & excavate CHA 0 to 90	24	C3-6d	0%	24	25-Feb-19	23-Mar-19	29-Dec-18	26-Jan-19	-45	
Fresh watermain CHB 0 to 37.202, CHC 0 to 74.858, CHD 0 to 29.591		62	C3-6d		62	25-Jan-19	11-Apr-19	06-Dec-18	22-Feb-19	-40	
C12830-1	Install ELS & excavate CHC	19	C3-6d	0%	19	25-Jan-19	19-Feb-19	06-Dec-18	29-Dec-18	-40	
C12830-2	Lay fresh watermain CHC	19	C3-6d	0%	19	09-Feb-19	04-Mar-19	18-Dec-18	12-Jan-19	-40	
C12830-4	Install ELS & excavate CHD	8	C3-6d	0%	8	20-Feb-19	28-Feb-19	03-Jan-19	11-Jan-19	-38	
C12830-5	Lay fresh watermain CHD	9	C3-6d	0%	9	05-Mar-19	14-Mar-19	14-Jan-19	23-Jan-19	-40	
C12830-7	Install ELS & excavate CHB	10	C3-6d	0%	10	01-Mar-19	12-Mar-19	12-Jan-19	23-Jan-19	-38	
C12830-8	Lay fresh watermain CHB	11	C3-6d	0%	11	15-Mar-19	27-Mar-19	24-Jan-19	08-Feb-19	-40	
C12840	Fresh watermain testing CHB, CHC, CHD	12	C3-6d	0%	12	27-Mar-19	11-Apr-19	08-Feb-19	22-Feb-19	-40	
Salt Watermain		134	C3-6d		105	16-Nov-18 A	25-Apr-19	22-Oct-18	15-Aug-19	92	
C12890	Salt watermain CHC 0 to 9.178	9	C3-6d	0%	9	02-Mar-19	12-Mar-19	25-Jun-19	06-Jul-19	92	
C12900	Salt watermain testing CHC	12	C3-6d	0%	12	13-Mar-19	26-Mar-19	06-Jul-19	20-Jul-19	92	
C12910	Connection and commissioning of salt watermain CHC	22	C3-6d	0%	22	27-Mar-19	25-Apr-19	20-Jul-19	15-Aug-19	92	
DN150 bypass SWM at existing roundabout (PMI No. 012)		76	C3-6d		47	16-Nov-18 A	12-Feb-19	22-Oct-18	14-Dec-18	-45	
C12714-0	Inspection pits at roundabout	24	C3-6d	79.17%	5	16-Nov-18 A	18-Dec-18	22-Oct-18	26-Oct-18	-45	
C12714-1	Install ELS & excavate DN150 SWM	4	C3-6d	0%	4	19-Dec-18	22-Dec-18	27-Oct-18	31-Oct-18	-45	



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C12714-2	Lay DN150 SWM	6	C3-6d	0%	6	24-Dec-18	02-Jan-19	01-Nov-18	07-Nov-18	-45	
C12714-3	Salt watermain testing DN150 SWM	6	C3-6d	0%	6	03-Jan-19	09-Jan-19	08-Nov-18	14-Nov-18	-45	
C12714-4	Connection of salt watermain DN150 SWM	22	C3-6d	0%	22	10-Jan-19	04-Feb-19	15-Nov-18	10-Dec-18	-45	
C12714-5	Backfill DN150 SWM	4	C3-6d	0%	4	08-Feb-19	12-Feb-19	11-Dec-18	14-Dec-18	-45	
Salt Watermain CHA 0 to 50 and CHB 0 to 25.141		33	C3-6d		33	25-Feb-19	03-Apr-19	12-Jan-19	22-Feb-19	-34	
C12710-05	Install ELS & excavate CHA 0 to 50	15	C3-6d	0%	15	25-Feb-19	13-Mar-19	12-Jan-19	29-Jan-19	-34	
C12710-06	Lay salt watermain CHA 0 to 50	18	C3-6d	0%	18	14-Mar-19	03-Apr-19	30-Jan-19	22-Feb-19	-34	
CCTV High Mast		94			94	10-Dec-18	13-Mar-19	22-Jan-19	02-May-19	50	
C12930	Propose founding levels at CCTV high mast	14	C3-6d	0%	14	10-Dec-18*	27-Dec-18	22-Jan-19	09-Feb-19	34	
C12940	Acceptance of proposed founding level at CCTV high mast	21	C3-7d	0%	21	28-Dec-18	17-Jan-19	11-Feb-19	03-Mar-19	45	
C12949	Order and deliver steel casing for socketted H-piles CCTV High Mast	30	C3-7d	0%	30	18-Jan-19*	16-Feb-19	04-Mar-19	02-Apr-19	45	
C12950	Mobilize plant SP#1	6	C3-6d	0%	6	18-Jan-19	24-Jan-19	27-Mar-19	02-Apr-19	55	
C12960	Socketted H-piles at CCTV High Mast (3 nos.) SP#1	21	C3-6d	0%	21	18-Feb-19	13-Mar-19	03-Apr-19	02-May-19	38	3
Footbridge Predrilling		142			142	10-Dec-18	30-Apr-19	25-Dec-18	15-Aug-19	107	
C12971	Propose founding level PC1-3	12	C3-6d	0%	12	10-Dec-18	22-Dec-18	15-May-19	28-May-19	122	
C12990	Acceptance of founding level PC1-1	21	C3-7d	0%	21	30-Dec-18	19-Jan-19	25-Dec-18	15-Jan-19	-4	
C12991	Acceptance of founding level PC8	21	C3-7d	0%	21	30-Dec-18	19-Jan-19	10-Jan-19	31-Jan-19	12	
C13049	Predrilling at PC2-1/PH4 (Pier 02) (1 nos.) PD#1	5	C3-6d	0%	5	14-Mar-19	19-Mar-19	28-Jun-19	05-Jul-19	85	
C13050	Predrilling at PC2-1/PH3 (Pier 02) (1 nos.) PD#1	5	C3-6d	0%	5	20-Mar-19	25-Mar-19	05-Jul-19	11-Jul-19	85	
C13060	Propose founding level PC2-1 (Pier 02)	12	C3-6d	0%	12	26-Mar-19	09-Apr-19	11-Jul-19	25-Jul-19	85	
C13070	Acceptance of founding level PC2-1 (Pier 02)	21	C3-7d	0%	21	10-Apr-19	30-Apr-19	25-Jul-19	15-Aug-19	107	
C13110	Predrilling at PC5-PH1 to PH3, PH5, PH6 (Pier 01) (5 nos.) PD#1	21	C3-6d	0%	21	12-Dec-18	08-Jan-19	08-Jan-19	01-Feb-19	21	
C13120	Propose founding level PC5 (Pier 01)	12	C3-6d	0%	12	09-Jan-19	22-Jan-19	01-Feb-19	19-Feb-19	21	
C13130	Acceptance of founding level PC5 (Pier 01)	21	C3-7d	0%	21	23-Jan-19	12-Feb-19	19-Feb-19	12-Mar-19	28	
Footbridge Piling		230	C3-6d		204	28-Nov-18 A	20-Aug-19	21-Dec-18	15-Aug-19	-4	
C13152	Socketted H-piles at PC4 (4 nos.) SP#2 - restart	28	C3-6d	35.71%	18	28-Nov-18 A	02-Jan-19	21-Dec-18	15-Jan-19	11	4
C13250	Socketted H-piles at PC1-1 (2 nos.) SP#2	14	C3-6d	0%	14	21-Jan-19	08-Feb-19	15-Jan-19	31-Jan-19	-4	2
C13260	Socketted H-piles at PC8 (2 nos.) SP#2	14	C3-6d	0%	14	09-Feb-19	25-Feb-19	31-Jan-19	20-Feb-19	-4	2
C13340	Mobilize plant BP#1	6	C3-6d	0%	6	09-Mar-19	16-Mar-19	05-Mar-19	12-Mar-19	-4	
C13350	Bored piles at PC5 (Pier 01) (6 nos.) BP#1	126	C3-6d	0%	126	18-Mar-19	20-Aug-19	12-Mar-19	15-Aug-19	-4	6
Stage 2 Works		597			485	20-Aug-18 A	07-Apr-20	11-Jan-19	24-Jul-20	108	
TTA Stage 2A		393	C3-6d		300	20-Aug-18 A	13-Dec-19	11-Jan-19	04-Nov-19	-34	
TTA		356	C3-6d		263	20-Aug-18 A	31-Oct-19	11-Jan-19	19-Sep-19	-34	
C13180	Design and acceptance of TTA Stage 2A	37	C3-6d	49.11%	19	20-Aug-18 A	03-Jan-19	11-Jan-19	01-Feb-19	25	
C13190	Implementation of TTA Stage 2A-1 (TTA Drg. 058)	2	C3-6d	0%	2	30-Mar-19	01-Apr-19	02-Feb-19	04-Feb-19	-45	1
C13191	Modify water barrier arrangement and junction signals test	18	C3-6d	0%	18	02-Apr-19	26-Apr-19	08-Feb-19	28-Feb-19	-45	
C13192	Implementation of TTA Stage 2A-2	2	C3-6d	0%	2	27-Apr-19	29-Apr-19	01-Mar-19	02-Mar-19	-45	1
C13193	Implementation of TTA Stage 2A-3 (Po Yap Road - Area 1 & Area 4)	2	C3-6d	0%	2	30-Apr-19	02-May-19	16-Mar-19	18-Mar-19	-34	1
C13194	Implementation of TTA Stage 2A-4 (Po Yap Road - Area 2 & Area 5)	2	C3-6d	0%	2	30-Oct-19	31-Oct-19	18-Sep-19	19-Sep-19	-34	1
C13196	Implementation of TTA Stage 2A-5 (Chui Ling Road - Area 1)	2	C3-6d	0%	2	30-Apr-19	02-May-19	14-Jun-19	15-Jun-19	36	1
C13200	Temporary footpath and cycle track (for TTA Stage 2B)	24	C3-6d	0%	24	30-Apr-19	29-May-19	04-Mar-19	30-Mar-19	-45	
Drainage		187	C3-6d		187	03-May-19	13-Dec-19	19-Mar-19	04-Nov-19	-34	
SMH6401 (Po Yap Road - Area 1)		30	C3-6d		30	03-May-19	08-Jun-19	19-Mar-19	26-Apr-19	-34	
C13210-10	Install ELS & excavate (10m)	5	C3-6d	0%	5	03-May-19	08-May-19	19-Mar-19	23-Mar-19	-34	
C13210-20	Lay DN300 pipe (10m)	2	C3-6d	0%	2	09-May-19	10-May-19	25-Mar-19	26-Mar-19	-34	
C13210-30	Manhole SMH6401	18	C3-6d	0%	18	11-May-19	01-Jun-19	27-Mar-19	17-Apr-19	-34	
C13210-40	Backfill	5	C3-6d	0%	5	03-Jun-19	08-Jun-19	18-Apr-19	26-Apr-19	-34	
SMH6401-SMH6402-exist.manhole (Po Yap Road - Area 2)		37	C3-6d		37	01-Nov-19	13-Dec-19	20-Sep-19	04-Nov-19	-34	
C13212-10	Install ELS & excavate SMH6401-SMH6402 and SMH6402-exist.manhole	10	C3-6d	0%	10	01-Nov-19	12-Nov-19	20-Sep-19	02-Oct-19	-34	
C13212-20	Lay DN300 pipe (95m) SMH6401-SMH6402	16	C3-6d	0%	16	13-Nov-19	30-Nov-19	03-Oct-19	22-Oct-19	-34	
C13212-30	Lay DN375 pipe (22m) SMH6402-exist.manhole	5	C3-6d	0%	5	13-Nov-19	18-Nov-19	03-Oct-19	09-Oct-19	-34	
C13212-40	Manhole SMH6402	14	C3-6d	0%	14	19-Nov-19	04-Dec-19	10-Oct-19	25-Oct-19	-34	
C13212-50	Connection to existing manhole	5	C3-6d	0%	5	19-Nov-19	23-Nov-19	21-Oct-19	25-Oct-19	-25	
C13212-60	Backfill	8	C3-6d	0%	8	05-Dec-19	13-Dec-19	26-Oct-19	04-Nov-19	-34	
Fresh Watermain		24	C3-6d		24	12-Apr-19	15-May-19	23-Feb-19	22-Mar-19	-40	
Fresh watermain CHB 0 to 37.202, CHC 0 to 74.858, CHD 0 to 29.591		24	C3-6d		24	12-Apr-19	15-May-19	23-Feb-19	22-Mar-19	-40	
C12850	Connection of fresh watermain CHB, CHC, CHD	24	C3-6d	0%	24	12-Apr-19	15-May-19	23-Feb-19	22-Mar-19	-40	
Roadworks		148	C3-6d		148	03-May-19	29-Oct-19	27-Apr-19	17-Sep-19	-34	
Po Yap Road - Area 1		118	C3-6d		118	10-Jun-19	29-Oct-19	27-Apr-19	17-Sep-19	-34	
C13230-10	Excavation (PYR Area 1)	20	C3-6d	0%	20	10-Jun-19	03-Jul-19	27-Apr-19	22-May-19	-34	2
C13230-20	Gullies (PYR Area 1)	20	C3-6d	0%	20	04-Jul-19	26-Jul-19	23-May-19	15-Jun-19	-34	2
C13230-30	Road lighting ducting (PYR Area 1)	12	C3-6d	0%	12	27-Jul-19	09-Aug-19	17-Jun-19	29-Jun-19	-34	
C13230-40	Formation, sub-base and kerbs (PYR Area 1)	18	C3-6d	0%	18	10-Aug-19	30-Aug-19	02-Jul-19	22-Jul-19	-34	
C13230-50	Road paving and layby pavement (PYR Area 1)	18	C3-6d	0%	18	31-Aug-19	21-Sep-19	23-Jul-19	12-Aug-19	-34	
C13230-60	Footpath and cycle track (PYR Area 1)	18	C3-6d	0%	18	23-Sep-19	15-Oct-19	13-Aug-19	02-Sep-19	-34	
C13230-70	Type 2 railing and chain link fence (Area 1)	12	C3-6d	0%	12	16-Oct-19	29-Oct-19	03-Sep-19	17-Sep-19	-34	
Chui Ling Road - Area 1		60	C3-6d		60	03-May-19	15-Jul-19	17-Jun-19	26-Aug-19	36	
C13232-10	Excavation (CLR Area 1)	20	C3-6d	0%	20	03-May-19	27-May-19	17-Jun-19	10-Jul-19	36	
C13232-20	Gullies (CLR Area 1)	20	C3-6d	0%	20	28-May-19	20-Jun-19	11-Jul-19	02-Aug-19	36	
C13232-30	Road lighting ducting (CLR Area 1)	20	C3-6d	0%	20	21-Jun-19	15-Jul-19	03-Aug-19	26-Aug-19	36	
Footbridge Piling		42	C3-6d		42	01-Jun-19	22-Jul-19	01-Jun-19	22-Jul-19	0	
C13160	Socketted H-piles at PC3-1 P1 & P3 (2 nos.) SP#1	14	C3-6d	0%	14	01-Jun-19	18-Jun-19	01-Jun-19	18-Jun-19	0	2
C13170	Socketted H-piles at PC1-3 (2 nos.) SP#1	14	C3-6d	0%	14	19-Jun-19	05-Jul-19	19-Jun-19	05-Jul-19	0	2
C13240	Socketted H-piles at PC7 (2 nos.) SP#1	14	C3-6d	0%	14	06-Jul-19	22-Jul-19	06-Jul-19	22-Jul-19	0	2
TTA Stage 2B		373	C3-6d		373	04-Jan-19	07-Apr-20	09-Feb-19	26-Feb-20	-34	
TTA		130	C3-6d		130	04-Jan-19	15-Jun-19	09-Feb-19	22-Aug-19	57	

Actual Work
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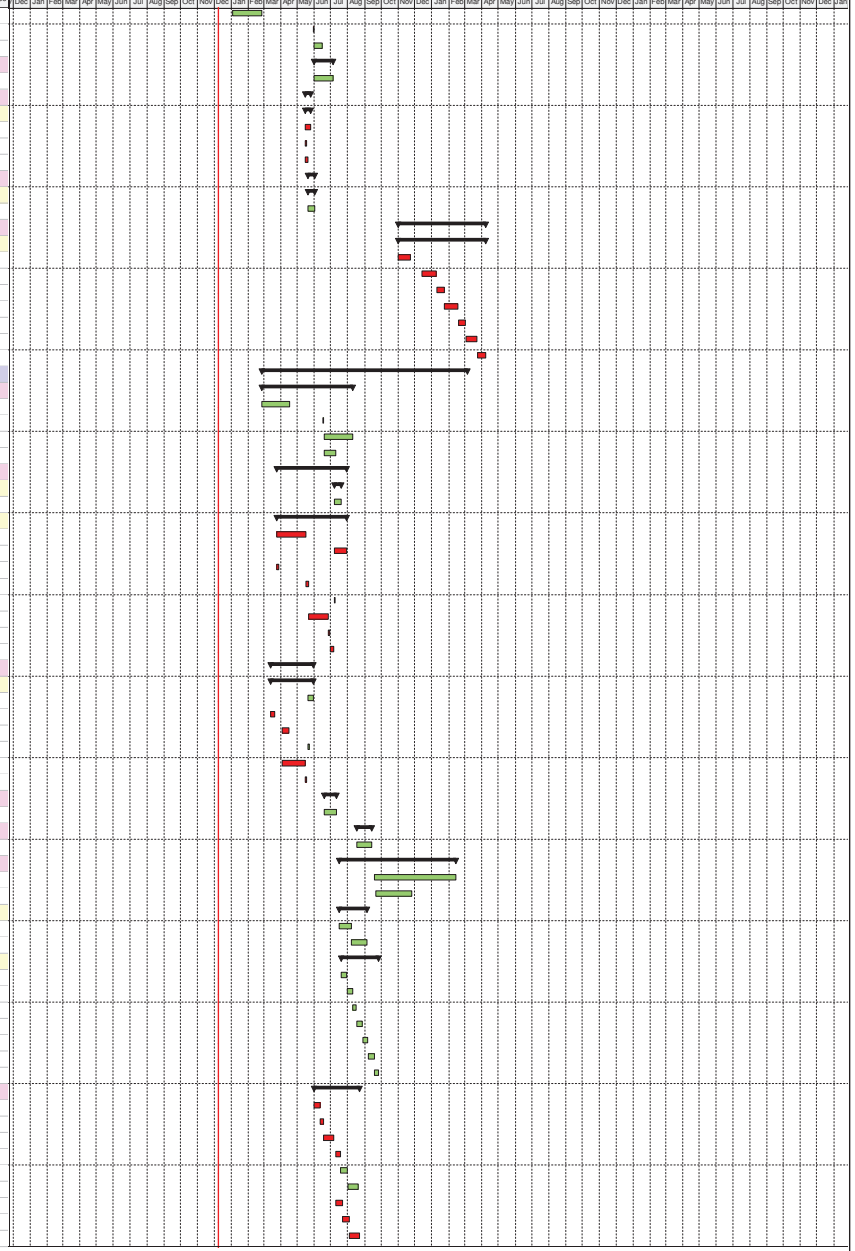
NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C13270	Design and acceptance of TTA Stage 2B	42	C3-6d	0%	42	04-Jan-19	26-Feb-19	09-Feb-19	30-Mar-19	29	
C13280	Implementation of TTA Stage 2B	2	C3-6d	0%	2	30-May-19	31-May-19	01-Apr-19	02-Apr-19	-45	1
C13290	Temporary road for Chui Shin Street (for TTA Stage 2C)	12	C3-6d	0%	12	01-Jun-19	15-Jun-19	09-Aug-19	22-Aug-19	57	
Drainage		28	C3-6d		28	01-Jun-19	05-Jul-19	27-Nov-19	31-Dec-19	148	
C13300	Stormwater SMH6601-SMH6602, SMH5001-SMH6602	28	C3-6d	0%	28	01-Jun-19	05-Jul-19	27-Nov-19	31-Dec-19	148	1
Fresh Watermain		9	C3-6d		9	16-May-19	25-May-19	23-Mar-19	02-Apr-19	-40	
Fresh watermain CHB 0 to 37.202, CHC 0 to 74.858, CHD 0 to 29.591		9	C3-6d		9	16-May-19	25-May-19	23-Mar-19	02-Apr-19	-40	
C12830-3	Backfill CHC	9	C3-6d	0%	9	16-May-19	25-May-19	23-Mar-19	02-Apr-19	-40	
C12830-6	Backfill CHD	3	C3-6d	0%	3	16-May-19	18-May-19	30-Mar-19	02-Apr-19	-34	
C12830-9	Backfill CHB	4	C3-6d	0%	4	16-May-19	20-May-19	29-Mar-19	02-Apr-19	-35	
Salt Watermain		12	C3-6d		12	20-May-19	01-Jun-19	21-May-19	03-Jun-19	1	
Salt watermain CHA 50 to 124.388		12	C3-6d		12	20-May-19	01-Jun-19	21-May-19	03-Jun-19	1	
C12712-70	Backfill CHA 50 to 124.388	12	C3-6d	0%	12	20-May-19	01-Jun-19	21-May-19	03-Jun-19	1	
Roadworks		129	C3-6d		129	01-Nov-19	07-Apr-20	12-Oct-19	26-Feb-20	-34	
Po Yap Road - Area 2		129	C3-6d		129	01-Nov-19	07-Apr-20	12-Oct-19	26-Feb-20	-34	
C13231-10	Excavation (PYR Area 2)	20	C3-6d	0%	20	01-Nov-19	23-Nov-19	12-Oct-19	04-Nov-19	-17	2
C13231-20	Gullies (PYR Area 2)	20	C3-6d	0%	20	14-Dec-19	09-Jan-20	05-Nov-19	27-Nov-19	-34	2
C13231-30	Road lighting ducting (PYR Area 2)	12	C3-6d	0%	12	10-Jan-20	23-Jan-20	28-Nov-19	11-Dec-19	-34	
C13231-40	Formation, sub-base and kerbs (PYR Area 2)	18	C3-6d	0%	18	24-Jan-20	17-Feb-20	12-Dec-19	04-Jan-20	-34	
C13231-50	Road paving (PYR Area 2)	12	C3-6d	0%	12	18-Feb-20	02-Mar-20	06-Jan-20	18-Jan-20	-34	
C13231-60	Footpath and cycle track (PYR Area 2)	18	C3-6d	0%	18	03-Mar-20	23-Mar-20	20-Jan-20	12-Feb-20	-34	
C13231-70	Type 2 railing and chain link fence (PYR Area 2)	12	C3-6d	0%	12	24-Mar-20	07-Apr-20	13-Feb-20	26-Feb-20	-34	
TTA Stage 2C		374			374	26-Feb-19	05-Mar-20	28-Jan-19	24-Jul-20	141	
TTA		135	C3-6d		135	26-Feb-19	10-Aug-19	27-Jun-19	19-Oct-19	57	
C13360	Design and acceptance of TTA Stage 2C	42	C3-6d	0%	42	26-Feb-19	17-Apr-19	27-Jun-19	16-Aug-19	97	
C13370	Implementation of TTA - Stage 2C	2	C3-6d	0%	2	17-Jun-19	18-Jun-19	23-Aug-19	24-Aug-19	57	1
C13380	Modification of road formation and layout	45	C3-6d	0%	45	19-Jun-19	10-Aug-19	26-Aug-19	19-Oct-19	57	
C13390	Temporary footpath and cycle track (for TTA Stage 3A)	18	C3-6d	0%	18	19-Jun-19	10-Jul-19	27-Sep-19	19-Oct-19	84	
Fresh Watermain		127			127	25-Mar-19	29-Jul-19	28-Jan-19	02-Aug-19	4	
Fresh watermain CHA 111.181 to 167.181		11	C3-6d		11	08-Jul-19	19-Jul-19	22-Jul-19	02-Aug-19	12	
C12862-70	Backfill CHA 111.181 to 167.181	11	C3-6d	0%	11	08-Jul-19	19-Jul-19	22-Jul-19	02-Aug-19	12	
Fresh Watermain CHA 0 to 90 and CHA1 0 to 15.540		127			127	25-Mar-19	29-Jul-19	28-Jan-19	26-Jun-19	-33	
C12860-06	Lay fresh watermain CHA 0 to 90	40	C3-6d	0%	40	25-Mar-19	16-May-19	28-Jan-19	18-Mar-19	-45	
C12860-07	Backfill CHA 0 to 111.181	19	C3-6d	0%	19	08-Jul-19	29-Jul-19	04-Jun-19	26-Jun-19	-27	
C12860-08	Install ELS & excavate CHA1	4	C3-6d	0%	4	25-Mar-19	28-Mar-19	14-Mar-19	18-Mar-19	-9	
C12860-09	Lay fresh watermain CHA1	4	C3-6d	0%	4	17-May-19	21-May-19	19-Mar-19	22-Mar-19	-45	
C12860-10	Backfill CHA1	2	C3-6d	0%	2	08-Jul-19	09-Jul-19	01-Jun-19	03-Jun-19	-29	
C13220	Fresh watermain test, swab, sterilize, water sample CHA, CHA1	30	C3-6d	0%	30	22-May-19	26-Jun-19	23-Mar-19	02-May-19	-45	
C13310	Connection of fresh watermain CHA, CHA1	3	C3-6d	0%	3	27-Jun-19	29-Jun-19	03-May-19	06-May-19	-45	
C13311	Maintain existing and new fresh watermain CHA, CHA1 (NCE No.35)	7	C3-7d	0%	7	30-Jun-19	06-Jul-19	07-May-19	13-May-19	-54	
Salt Watermain		61	C3-6d		61	14-Mar-19	30-May-19	23-Feb-19	03-Jun-19	3	
Salt Watermain CHA 0 to 50 and CHB 0 to 25.141		61	C3-6d		61	14-Mar-19	30-May-19	23-Feb-19	03-Jun-19	3	
C12710-07	Backfill CHA 0 to 50	10	C3-6d	0%	10	20-May-19	30-May-19	23-May-19	03-Jun-19	3	
C12710-08	Install ELS & excavate CHB	7	C3-6d	0%	7	14-Mar-19	21-Mar-19	12-Mar-19	19-Mar-19	-2	
C12710-09	Lay salt watermain CHB	9	C3-6d	0%	9	04-Apr-19	15-Apr-19	20-Mar-19	29-Mar-19	-13	
C12710-10	Backfill CHB	4	C3-6d	0%	4	20-May-19	23-May-19	30-May-19	03-Jun-19	9	
C12870	Salt watermain test, swab CHA, CHB	30	C3-6d	0%	30	04-Apr-19	15-May-19	23-Feb-19	29-Mar-19	-34	
C12880	Connection and commissioning of salt watermain CHA, CHB	3	C3-6d	0%	3	16-May-19	18-May-19	30-Mar-19	02-Apr-19	-34	
Utilities		19	C3-6d		19	19-Jun-19	11-Jul-19	26-Sep-19	19-Oct-19	83	
C12690	Gas main at Chui Ling Road (South) by HKCG	19	C3-6d	0%	19	19-Jun-19	11-Jul-19	26-Sep-19	19-Oct-19	83	1
CCTV High Mast		24	C3-6d		24	17-Aug-19	13-Sep-19	20-Sep-19	19-Oct-19	28	
C13600	Pile cap for CCTV high mast	24	C3-6d	0%	24	17-Aug-19	13-Sep-19	20-Sep-19	19-Oct-19	28	
Roadworks		174	C3-6d		174	16-Jul-19	13-Feb-20	03-Aug-19	02-Jun-20	88	
C13580	Roadworks at Chui Ling Road (North), Po Shun Road (North), Po Yap Road (North)	120	C3-6d	0%	120	18-Sep-19	13-Feb-20	02-Jan-20	30-May-20	86	
C13590	Roadwork within Portion IV	54	C3-6d	0%	54	21-Sep-19	25-Nov-19	25-Mar-20	02-Jun-20	151	
Chui Ling Road - Area 1		44	C3-6d		44	16-Jul-19	04-Sep-19	27-Aug-19	19-Oct-19	36	
C13232-40	Formation, sub-base and kerbs (CLR Area 1)	20	C3-6d	0%	20	16-Jul-19	07-Aug-19	27-Aug-19	19-Sep-19	36	
C13232-50	Footpath, cycletrack and layby pavement (CLR Area 1)	24	C3-6d	0%	24	08-Aug-19	04-Sep-19	20-Sep-19	19-Oct-19	36	
Po Yap Road - Area 3		57	C3-6d		57	20-Jul-19	25-Sep-19	03-Aug-19	11-Oct-19	12	
C13233-10	Excavation (PYR Area 3)	9	C3-6d	0%	9	20-Jul-19	30-Jul-19	03-Aug-19	13-Aug-19	12	
C13233-20	Gullies (PYR Area 3)	9	C3-6d	0%	9	31-Jul-19	09-Aug-19	14-Aug-19	23-Aug-19	12	
C13233-30	Road lighting ducting (PYR Area 3)	6	C3-6d	0%	6	10-Aug-19	16-Aug-19	24-Aug-19	30-Aug-19	12	
C13233-40	Formation, sub-base and kerbs (PYR Area 3)	9	C3-6d	0%	9	17-Aug-19	27-Aug-19	31-Aug-19	10-Sep-19	12	
C13233-50	Road paving (PYR Area 3)	9	C3-6d	0%	9	28-Aug-19	06-Sep-19	11-Sep-19	21-Sep-19	12	
C13233-60	Footpath and cycle track (PYR Area 3)	9	C3-6d	0%	9	07-Sep-19	18-Sep-19	23-Sep-19	03-Oct-19	12	
C13233-70	Type 2 railing and chain link fence (PYR Area 3)	6	C3-6d	0%	6	19-Sep-19	25-Sep-19	04-Oct-19	11-Oct-19	12	
Footbridge Predrilling		83			83	01-Jun-19	22-Aug-19	03-Apr-19	29-Jan-20	160	
C13321	Predrilling at PC2-2/PH1 & PH2 (Pier 03) (2 nos.) PD#1	8	C3-6d	0%	8	01-Jun-19	11-Jun-19	03-Apr-19	12-Apr-19	-45	
C13322	Propose founding level PC2-2 (Pier 03)	5	C3-6d	0%	5	12-Jun-19	17-Jun-19	13-Apr-19	18-Apr-19	-45	
C13323	Acceptance of founding level PC2-2 (Pier 03)	19	C3-7d	0%	19	18-Jun-19	06-Jul-19	23-Apr-19	11-May-19	-56	
C13400	Predrilling at PC6/PH1 & PH3 (Pier 05) (2 nos.) PD#1	8	C3-6d	0%	8	10-Jul-19	18-Jul-19	04-Jun-19	13-Jun-19	-29	
C13401	Propose founding level PC6 (Pier 05)	11	C3-6d	0%	11	19-Jul-19	31-Jul-19	27-Dec-19	10-Jan-20	134	
C13402	Acceptance of founding level PC6 (Pier 05)	19	C3-7d	0%	19	01-Aug-19	19-Aug-19	10-Jan-20	29-Jan-20	163	
C13420	Predrilling at PC2-3/PH1, PH2, PH4 (Pier 04) (3 nos.) PD#2	11	C3-6d	0%	11	10-Jul-19	22-Jul-19	04-Jun-19	17-Jun-19	-29	
C13430	Propose founding level PC2-3 (Pier 04)	11	C3-6d	0%	11	23-Jul-19	03-Aug-19	16-Jul-19	27-Jul-19	-6	
C13440	Acceptance of founding level PC2-3 (Pier 04)	19	C3-7d	0%	19	04-Aug-19	22-Aug-19	29-Jul-19	16-Aug-19	-6	

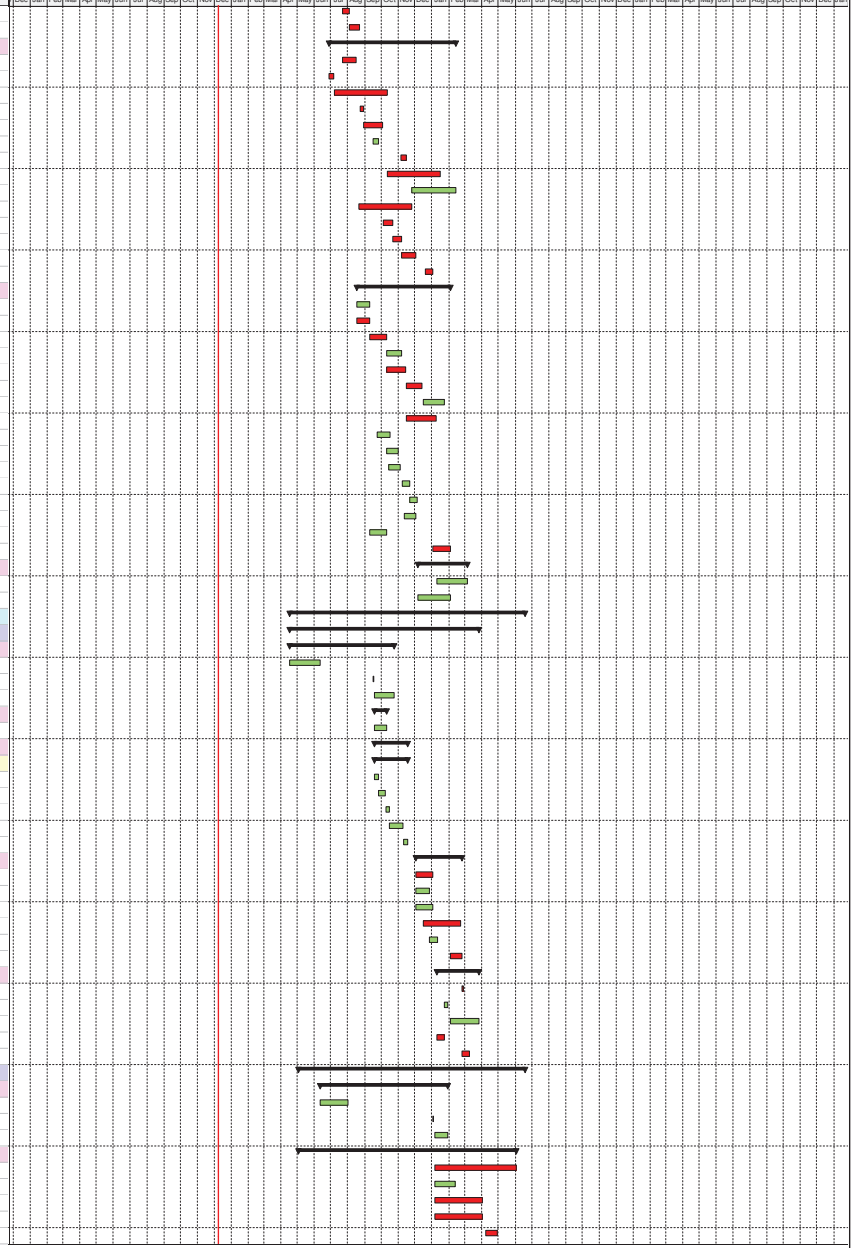


Actual Work
Remaining Work
Critical Remaining Work
Summary
Milestone

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C13460	Propose founding level PC3-2	11	C3-6d	0%	11	23-Jul-19	03-Aug-19	18-Jun-19	29-Jun-19	-29	
C13470	Acceptance of founding level PC3-2	19	C3-7d	0%	19	04-Aug-19	22-Aug-19	01-Jul-19	19-Jul-19	-34	
Footbridge Piling		187	C3-6d		187	28-Jun-19	13-Feb-20	04-May-19	16-Apr-20	50	
C13330	First loading test (socketted H-piles)	22	C3-6d	0%	22	23-Jul-19	16-Aug-19	23-Jul-19	16-Aug-19	0	
C13480	Mobilize plant BP#2	6	C3-6d	0%	6	28-Jun-19	06-Jul-19	04-May-19	11-May-19	-45	
C13490	Bored piles at PC2-2 (Pier 03) (4 nos.) BP#2	80	C3-6d	0%	80	08-Jul-19	11-Oct-19	14-May-19	16-Aug-19	-45	2
C13500	Mobilize plant SP#2	6	C3-6d	0%	6	23-Aug-19	29-Aug-19	20-Jul-19	26-Jul-19	-29	
C13510	Socketted H-piles at PC3-2 (4 nos.) SP#2	28	C3-6d	0%	28	30-Aug-19	03-Oct-19	27-Jul-19	28-Aug-19	-29	4
C13610	Bored pile testing (Pier 01)	10	C3-6d	0%	10	16-Sep-19	26-Sep-19	27-Sep-19	10-Oct-19	10	
C13620	Bored pile testing (Pier 03)	9	C3-6d	0%	9	06-Nov-19	15-Nov-19	11-Oct-19	21-Oct-19	-22	
C13630	Bored piles at PC2-3 (Pier 04) (4 nos.) BP#2	80	C3-6d	0%	80	12-Oct-19	16-Jan-20	17-Aug-19	21-Nov-19	-45	2
C13650	Bored piles at PC6 (Pier 05) (3 nos.) BP#1	63	C3-6d	0%	63	26-Nov-19	13-Feb-20	29-Jan-20	16-Apr-20	50	3
C13660	Bored pile at PC2-1 (Pier 02) (4 nos.) BP#1	80	C3-6d	0%	80	21-Aug-19	25-Nov-19	15-Aug-19	20-Nov-19	-4	2
C13670	Socketted H-piles at PC3-1 P2 & P4 (2 nos.) SP#2	14	C3-6d	0%	14	04-Oct-19	21-Oct-19	29-Aug-19	13-Sep-19	-29	2
C13680	Socketted H-piles at PC1-2 (2 nos.) SP#2	14	C3-6d	0%	14	22-Oct-19	06-Nov-19	16-Sep-19	02-Oct-19	-29	2
C13690	Second loading test (socketted H-piles)	22	C3-6d	0%	22	07-Nov-19	02-Dec-19	03-Oct-19	29-Oct-19	-29	
C14020	Bored pile testing (Pier 02)	9	C3-6d	0%	9	20-Dec-19	02-Jan-20	16-Dec-19	27-Dec-19	-4	
Footbridge Substructure		137	C3-6d		137	17-Aug-19	03-Feb-20	17-Aug-19	19-Jun-20	112	
C13700	Pile cap PC1-3	20	C3-6d	0%	20	17-Aug-19	09-Sep-19	23-Aug-19	16-Sep-19	5	
C13710	Pile cap PC1-1	20	C3-6d	0%	20	17-Aug-19	09-Sep-19	17-Aug-19	09-Sep-19	0	
C13720	Pile cap PC8	24	C3-6d	0%	24	10-Sep-19	10-Oct-19	10-Sep-19	10-Oct-19	0	
C13730	Pile cap PC4	24	C3-6d	0%	24	11-Oct-19	07-Nov-19	17-Oct-19	13-Nov-19	5	
C13740	Pile cap PC5 (Pier 01)	30	C3-6d	0%	30	11-Oct-19	14-Nov-19	11-Oct-19	14-Nov-19	0	
C13790	Pile cap PC2-2 (Pier 03)	25	C3-6d	0%	25	16-Nov-19	14-Dec-19	21-Oct-19	19-Nov-19	-22	
C13810	Column at PC5 (Pier 01)	30	C3-6d	0%	30	16-Dec-19	23-Jan-20	15-May-20	19-Jun-20	118	
C13850	Wall at PC5 (Lift shaft 2A & 2B)	45	C3-6d	0%	45	15-Nov-19	09-Jan-20	15-Nov-19	09-Jan-20	0	
C13860	Column at PC1-1 (Staircase 02) - 1st pour	18	C3-6d	0%	18	24-Sep-19	16-Oct-19	09-May-20	30-May-20	183	
C13870	Wall at PC8 (Staircase 02) - 2nd pour	18	C3-6d	0%	18	11-Oct-19	31-Oct-19	09-May-20	30-May-20	170	
C13880	Column at PC1-3 (Staircase 01) - 2nd pour	18	C3-6d	0%	18	14-Oct-19	04-Nov-19	11-Mar-20	01-Apr-20	122	
C13890	Wall at PC4 (Staircase 03) - 1st pour	12	C3-6d	0%	12	08-Nov-19	21-Nov-19	14-Nov-19	27-Nov-19	5	
C13900	Wall at PC4 (Staircase 03) - 2nd pour	12	C3-6d	0%	12	22-Nov-19	05-Dec-19	28-Nov-19	11-Dec-19	5	
C13910	Wall at PC7 (Staircase 01) - 4th pour	18	C3-6d	0%	18	11-Nov-19	02-Dec-19	11-Mar-20	01-Apr-20	98	
C14040	Pile cap PC7	24	C3-6d	0%	24	10-Sep-19	10-Oct-19	17-Sep-19	16-Oct-19	5	
C14050	Pile Cap PC2-1 (Pier 02)	24	C3-6d	0%	24	03-Jan-20	03-Feb-20	27-Dec-19	29-Jan-20	-4	
Footbridge Superstructure		72	C3-6d		72	06-Dec-19	05-Mar-20	12-Dec-19	24-Jul-20	113	
C14130	Staircase 02 structure - 3rd pour	45	C3-6d	0%	45	10-Jan-20	05-Mar-20	30-May-20	24-Jul-20	113	
C14150	Staircase 03 structure - 3rd pour	45	C3-6d	0%	45	06-Dec-19	03-Feb-20	12-Dec-19	08-Feb-20	5	
Stage 3 Works		345	C3-6d		345	17-Apr-19	18-Jun-20	14-May-19	28-Nov-20	135	
TTA Stage 3A		279	C3-6d		279	17-Apr-19	26-Mar-20	17-Aug-19	08-Jul-20	81	
TTA		153	C3-6d		153	17-Apr-19	24-Oct-19	17-Aug-19	26-Nov-19	28	
C13520	Design and acceptance of TTA Stage 3A	42	C3-6d	0%	42	17-Apr-19	12-Jun-19	17-Aug-19	08-Oct-19	97	
C13530	Implementation of TTA - Stage 3A	2	C3-6d	0%	2	16-Sep-19	17-Sep-19	21-Oct-19	22-Oct-19	28	1
C13550	Modifcation of existing roundabout to temporary signalized junction	30	C3-6d	0%	30	18-Sep-19	24-Oct-19	23-Oct-19	26-Nov-19	28	
Roadworks		18	C3-6d		18	18-Sep-19	10-Oct-19	06-Nov-19	26-Nov-19	40	
C13570	Footpath and cycle track (for TTA Stage 3B)	18	C3-6d	0%	18	18-Sep-19	10-Oct-19	06-Nov-19	26-Nov-19	40	
Salt Watermain		51	C3-6d		51	18-Sep-19	18-Nov-19	23-Nov-19	29-Jan-20	56	
DN200 SWM at Chui Shin Street (PMI No. 012)		51	C3-6d		51	18-Sep-19	18-Nov-19	23-Nov-19	29-Jan-20	56	
C12712-1	Install ELS & excavate DN200 SWM	7	C3-6d	0%	7	18-Sep-19	25-Sep-19	23-Nov-19	02-Dec-19	56	
C12712-2	Lay DN200 SWM	9	C3-6d	0%	9	26-Sep-19	08-Oct-19	02-Dec-19	12-Dec-19	56	
C12712-3	Salt watermain testing DN200 SWM	6	C3-6d	0%	6	09-Oct-19	15-Oct-19	12-Dec-19	19-Dec-19	56	
C12712-4	Connection of salt watermain DN200 SWM	22	C3-6d	0%	22	16-Oct-19	09-Nov-19	19-Dec-19	17-Jan-20	56	
C12712-5	Backfill DN200 SWM	7	C3-6d	0%	7	11-Nov-19	18-Nov-19	17-Jan-20	29-Jan-20	56	
Footbridge Substructure		66	C3-6d		66	03-Dec-19	24-Feb-20	30-Oct-19	18-Mar-20	20	
C13760	Pile cap PC3-2	24	C3-6d	0%	24	03-Dec-19	02-Jan-20	30-Oct-19	26-Nov-19	-29	
C13770	Pile cap PC1-2	20	C3-6d	0%	20	03-Dec-19	27-Dec-19	10-Feb-20	04-Mar-20	54	
C13780	Pile cap PC3-1	24	C3-6d	0%	24	03-Dec-19	02-Jan-20	08-Jan-20	08-Feb-20	29	
C13800	Column at PC2-2 (Pier 03)	54	C3-6d	0%	54	16-Dec-19	22-Feb-20	19-Nov-19	24-Jan-20	-22	
C13820	Column PC1-2 (Staircase 01) - 1st pour	12	C3-6d	0%	12	28-Dec-19	11-Jan-20	04-Mar-20	18-Mar-20	54	
C14060	Column at PC2-1 (Pier 02)	18	C3-6d	0%	18	04-Feb-20	24-Feb-20	29-Jan-20	19-Feb-20	-4	
Footbridge Superstructure		63	C3-6d		63	10-Jan-20	26-Mar-20	10-Jan-20	08-Jul-20	81	
C14080	Bearing Pier 02	3	C3-6d	0%	3	25-Feb-20	27-Feb-20	19-Feb-20	22-Feb-20	-4	
C14120	Bearing Pier 01	3	C3-6d	0%	3	23-Jan-20	30-Jan-20	04-Jul-20	08-Jul-20	129	
C14160	Staircase 03 structure -4th pour	45	C3-6d	0%	45	04-Feb-20	26-Mar-20	10-Feb-20	01-Apr-20	5	
C14210	Lift shaft steelworks (Lift 2A & 2B)	12	C3-6d	0%	12	10-Jan-20	23-Jan-20	10-Jan-20	23-Jan-20	0	
C14260	Falsework Portion 2	12	C3-6d	0%	12	25-Feb-20	09-Mar-20	19-Feb-20	04-Mar-20	-4	
TTA Stage 3B		336	C3-6d		336	03-May-19	18-Jun-20	14-May-19	28-Nov-20	135	
TTA		188	C3-6d		188	12-Jun-19	29-Jan-20	09-Oct-19	30-May-20	99	
C13930	Design and acceptance of TTA Stage 3B	42	C3-6d	0%	42	12-Jun-19	01-Aug-19	09-Oct-19	26-Nov-19	97	
C13940	Implementation of TTA - Stage 3B	2	C3-6d	0%	2	03-Jan-20	04-Jan-20	27-Nov-19	28-Nov-19	-29	1
C13950	Permanent footpath and cycle track (for TTA Stage 4A)	18	C3-6d	0%	18	06-Jan-20	29-Jan-20	11-May-20	30-May-20	99	
Roadworks		322	C3-6d		322	03-May-19	02-Jun-20	14-May-19	30-May-20	-2	
C13960	Drainage works along Chui Ling Road and Po Yap Road	119	C3-6d	0%	119	06-Jan-20	02-Jun-20	03-Jan-20	30-May-20	-2	
C13970	Directional sign DS26,27,28 (incl. footing & steel frame)	30	C3-6d	0%	30	06-Jan-20	12-Feb-20	20-Jan-20	26-Feb-20	12	
C13980	Roadwork for carriageway and cycle track	72	C3-6d	0%	72	06-Jan-20	01-Apr-20	29-Nov-19	27-Feb-20	-29	
C13990	Ductings for TCSS and road lighting	72	C3-6d	0%	72	06-Jan-20	01-Apr-20	29-Nov-19	27-Feb-20	-29	
C14000	Signage	16	C3-6d	0%	16	08-Apr-20	29-Apr-20	27-Feb-20	16-Mar-20	-34	

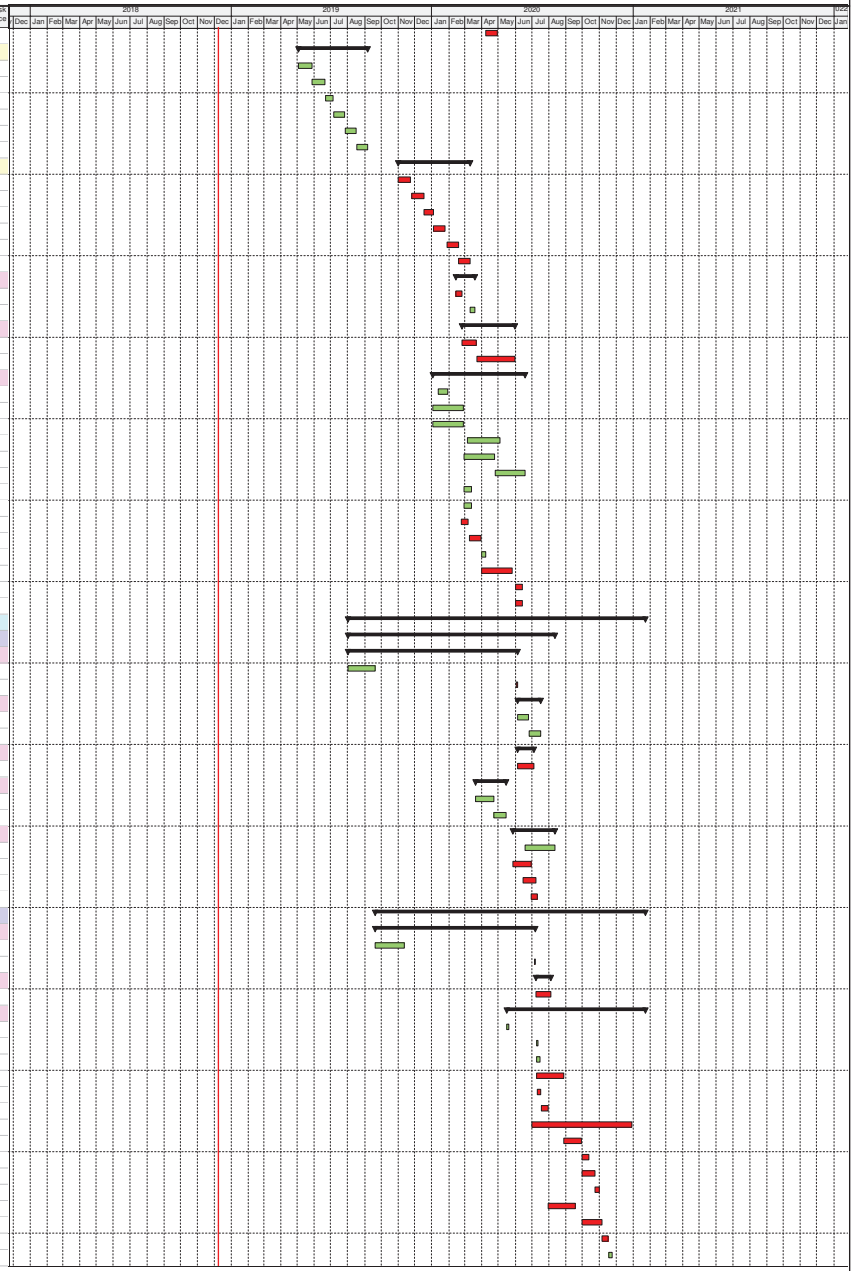


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C14010	Lighting posts	15	C3-6d	0%	15	08-Apr-20	28-Apr-20	28-Feb-20	16-Mar-20	-33	
Po Yap Road Area 4		106	C3-6d		106	03-May-19	06-Sep-19	14-May-19	17-Sep-19	8	
C13962-10	Excavation (PYR Area 4)	20	C3-6d	0%	20	03-May-19	27-May-19	14-May-19	05-Jun-19	8	2
C13962-20	Gullies (PYR Area 4)	20	C3-6d	0%	20	28-May-19	20-Jun-19	06-Jun-19	29-Jun-19	8	2
C13962-30	Road lighting ducting (PYR Area 4)	12	C3-6d	0%	12	21-Jun-19	05-Jul-19	02-Jul-19	15-Jul-19	8	
C13962-40	Formation, sub-base and kerbs (PYR Area 4)	18	C3-6d	0%	18	06-Jul-19	26-Jul-19	16-Jul-19	05-Aug-19	8	
C13962-50	Concrete profile barrier (PYR Area 4)	18	C3-6d	0%	18	27-Jul-19	16-Aug-19	06-Aug-19	26-Aug-19	8	
C13962-60	Road paving (PYR Area 4)	18	C3-6d	0%	18	17-Aug-19	06-Sep-19	27-Aug-19	17-Sep-19	8	
Po Yap Road Area 5		106	C3-6d		106	01-Nov-19	10-Mar-20	19-Oct-19	26-Feb-20	-11	
C13964-10	Excavation (PYR Area 5)	20	C3-6d	0%	20	01-Nov-19	23-Nov-19	19-Oct-19	11-Nov-19	-11	2
C13964-20	Gullies (PYR Area 5)	20	C3-6d	0%	20	25-Nov-19	17-Dec-19	12-Nov-19	04-Dec-19	-11	2
C13964-30	Road lighting ducting (PYR Area 5)	12	C3-6d	0%	12	18-Dec-19	03-Jan-20	05-Dec-19	18-Dec-19	-11	
C13964-40	Formation, sub-base and kerbs (PYR Area 5)	18	C3-6d	0%	18	04-Jan-20	24-Jan-20	19-Dec-19	11-Jan-20	-11	
C13964-50	Concrete profile barrier (PYR Area 5)	18	C3-6d	0%	18	29-Jan-20	18-Feb-20	13-Jan-20	05-Feb-20	-11	
C13964-60	Road paving (PYR Area 5)	18	C3-6d	0%	18	19-Feb-20	10-Mar-20	06-Feb-20	26-Feb-20	-11	
Footbridge Piling		30	C3-6d		30	14-Feb-20	19-Mar-20	17-Dec-19	23-May-20	50	
C13640	Bored pile testing (Pier 04)	9	C3-6d	0%	9	14-Feb-20	24-Feb-20	17-Dec-19	28-Dec-19	-45	
C14030	Bored pile testing (Pier 05)	9	C3-6d	0%	9	10-Mar-20	19-Mar-20	14-May-20	23-May-20	50	
Footbridge Substructure		77	C3-6d		77	25-Feb-20	30-May-20	30-Dec-19	01-Apr-20	-45	
C13750	Pile cap PC2-3 (Pier 04)	23	C3-6d	0%	23	25-Feb-20	21-Mar-20	30-Dec-19	29-Jan-20	-45	
C14070	Column at PC2-3 (Pier 04)	54	C3-6d	0%	54	23-Mar-20	30-May-20	30-Jan-20	01-Apr-20	-45	
Footbridge Superstructure		135	C3-6d		135	03-Jan-20	18-Jun-20	24-Jan-20	28-Nov-20	135	
C13830	Column PC1-2 (Staircase 01) - 3rd pour	12	C3-6d	0%	12	13-Jan-20	29-Jan-20	18-Mar-20	01-Apr-20	54	
C13840	Wall at PC3-1 (Lift shaft 1A & 1B)	45	C3-6d	0%	45	03-Jan-20	27-Feb-20	08-Feb-20	01-Apr-20	29	
C13920	Wall at PC3-2 (Lift shaft 3A & 3B)	45	C3-6d	0%	45	03-Jan-20	27-Feb-20	07-Feb-20	30-Mar-20	27	
C14140	Staircase 02 structure - 4th pour	45	C3-6d	0%	45	06-Mar-20	04-May-20	24-Jul-20	15-Sep-20	113	
C14170	Staircase 01 structure - 5th pour	45	C3-6d	0%	45	28-Feb-20	24-Apr-20	01-Apr-20	30-May-20	29	
C14180	Staircase 01 structure - 6th pour	45	C3-6d	0%	45	25-Apr-20	18-Jun-20	30-May-20	24-Jul-20	29	
C14200	Lift shaft steelworks (Lift 1A & 1B)	12	C3-6d	0%	12	28-Feb-20	12-Mar-20	22-Jun-20	07-Jul-20	92	
C14220	Lift shaft steelworks (Lift 3A & 3B)	12	C3-6d	0%	12	28-Feb-20	12-Mar-20	31-Mar-20	17-Apr-20	27	
C14230	Falsework Portion 1	12	C3-6d	0%	12	24-Feb-20	07-Mar-20	24-Jan-20	11-Feb-20	-22	
C14240	Deck structure Portion 1	19	C3-6d	0%	19	09-Mar-20	30-Mar-20	11-Feb-20	04-Mar-20	-22	
C14250	Remove falsework Portion 1	6	C3-6d	0%	6	31-Mar-20	07-Apr-20	23-Nov-20	28-Nov-20	192	
C14270	Deck structure Portion 2	43	C3-6d	0%	43	31-Mar-20	26-May-20	04-Mar-20	28-Apr-20	-22	
C14290	Falsework at Portion 0 (Pier 04)	12	C3-6d	0%	12	01-Jun-20	13-Jun-20	02-Apr-20	20-Apr-20	-45	
C14310	Falsework Portion 3a	12	C3-6d	0%	12	01-Jun-20	13-Jun-20	29-Apr-20	14-May-20	-26	
Stage 4 Works		441	C3-6d		441	01-Aug-19	23-Jan-21	18-Mar-20	28-Nov-20	-45	
TTA Stage 4A		306	C3-6d		306	01-Aug-19	12-Aug-20	18-Mar-20	15-Sep-20	29	
TTA		249	C3-6d		249	01-Aug-19	04-Jun-20	18-Mar-20	02-Jun-20	-2	
C14320	Design and acceptance of TTA Stage 4A	42	C3-6d	0%	42	01-Aug-19	20-Sep-19	18-Mar-20	12-May-20	187	
C14330	Implementation of TTA - Stage 4A	2	C3-6d	0%	2	03-Jun-20	04-Jun-20	01-Jun-20	02-Jun-20	-2	1
Drainage		34	C3-6d		34	05-Jun-20	16-Jul-20	22-Jun-20	01-Aug-20	14	
C14340	Stormwater SMH6501 to SMH6503	17	C3-6d	0%	17	05-Jun-20	24-Jun-20	22-Jun-20	13-Jul-20	14	1
C14350	Stormwater SMH 6503 to SMH 6502	17	C3-6d	0%	17	26-Jun-20	16-Jul-20	14-Jul-20	01-Aug-20	14	1
Roadworks		24	C3-6d		24	05-Jun-20	04-Jul-20	03-Jun-20	02-Jul-20	-2	
C14360	Roadworks at Po Shun Road north and west of interchange	24	C3-6d	0%	24	05-Jun-20	04-Jul-20	03-Jun-20	02-Jul-20	-2	
Footbridge substructure		43	C3-6d		43	20-Mar-20	15-May-20	23-May-20	15-Jul-20	50	
C14090	Pile Cap PC6 (Pier 05)	25	C3-6d	0%	25	20-Mar-20	22-Apr-20	23-May-20	22-Jun-20	50	
C14100	Column at PC6 (Pier 05)	18	C3-6d	0%	18	23-Apr-20	15-May-20	22-Jun-20	15-Jul-20	50	
Footbridge superstructure		65	C3-6d		65	27-May-20	12-Aug-20	21-Apr-20	15-Sep-20	29	
C14190	Staircase 01 structure - 7th pour	45	C3-6d	0%	45	19-Jun-20	12-Aug-20	24-Jul-20	15-Sep-20	29	
C14280	Cure and prestress Portion 2 (Stage 1 stressing)	28	C3-6d	0%	28	27-May-20	29-Jun-20	28-Apr-20	02-Jun-20	-22	1
C14300	Deck structure Portion 0 (Pier 04)	19	C3-6d	0%	19	15-Jun-20	08-Jul-20	21-Apr-20	14-May-20	-45	
C14400	Deck outer section Portion 2	9	C3-6d	0%	9	30-Jun-20	10-Jul-20	02-Jun-20	12-Jun-20	-22	
TTA Stage 4B		399	C3-6d		399	20-Sep-19	23-Jan-21	13-May-20	28-Nov-20	-45	
TTA		233	C3-6d		233	20-Sep-19	07-Jul-20	13-May-20	04-Jul-20	-2	
C14430	Design and acceptance of TTA Stage 4B	42	C3-6d	0%	42	20-Sep-19	11-Nov-19	13-May-20	02-Jul-20	187	
C14440	Implementation of TTA - Stage 4B	2	C3-6d	0%	2	06-Jul-20	07-Jul-20	03-Jul-20	04-Jul-20	-2	1
Roadworks		24	C3-6d		24	08-Jul-20	04-Aug-20	06-Jul-20	01-Aug-20	-2	
C14450	Roadworks at Po Shun Road north of interchange	24	C3-6d	0%	24	08-Jul-20	04-Aug-20	06-Jul-20	01-Aug-20	-2	
Footbridge superstructure		209	C3-6d		209	16-May-20	23-Jan-21	15-May-20	28-Nov-20	-45	
C14110	Bearing Pier 05	3	C3-6d	0%	3	16-May-20	19-May-20	29-Jul-20	01-Aug-20	62	
C14370	Bearing Pier 04	3	C3-6d	0%	3	09-Jul-20	11-Jul-20	08-Aug-20	11-Aug-20	26	
C14380	Remove falsework Portion 0 (Pier 04)	6	C3-6d	0%	6	09-Jul-20	15-Jul-20	23-Nov-20	28-Nov-20	114	
C14390	Deck structure Portion 3a	43	C3-6d	0%	43	09-Jul-20	27-Aug-20	15-May-20	06-Jul-20	-45	
C14410	Remove falsework Portion 2	6	C3-6d	0%	6	11-Jul-20	17-Jul-20	12-Jun-20	19-Jun-20	-22	
C14420	Falsework Portion 3b	11	C3-6d	0%	11	18-Jul-20	30-Jul-20	19-Jun-20	04-Jul-20	-22	
C14460	Erect steel canopy	150	C3-6d	0%	150	30-Jun-20	29-Dec-20	30-May-20	27-Nov-20	-25	
C14470	Cure and prestress Portion 3a (Stage 2 stressing)	28	C3-6d	0%	28	28-Aug-20	29-Sep-20	07-Jul-20	07-Aug-20	-45	1
C14480	Deck outer section Portion 3a	9	C3-6d	0%	9	30-Sep-20	12-Oct-20	20-Aug-20	29-Aug-20	-35	
C14490	Deck structure Portion 3a adjacent Portion 0	19	C3-6d	0%	19	30-Sep-20	23-Oct-20	08-Aug-20	29-Aug-20	-45	
C14500	Remove falsework Portion 3a	6	C3-6d	0%	6	24-Oct-20	31-Oct-20	31-Aug-20	05-Sep-20	-45	
C14510	Deck structure Portion 3b	43	C3-6d	0%	43	31-Jul-20	18-Sep-20	04-Jul-20	24-Aug-20	-22	
C14520	Cure and prestress Portion 3b (Stage 3 stressing)	28	C3-6d	0%	28	30-Sep-20	04-Nov-20	24-Aug-20	25-Sep-20	-31	1
C14530	Deck outer section Portion 3b	10	C3-6d	0%	10	05-Nov-20	16-Nov-20	27-Oct-20	07-Nov-20	-7	
C14540	Remove falsework Portion 3b	6	C3-6d	0%	6	17-Nov-20	23-Nov-20	23-Nov-20	28-Nov-20	5	



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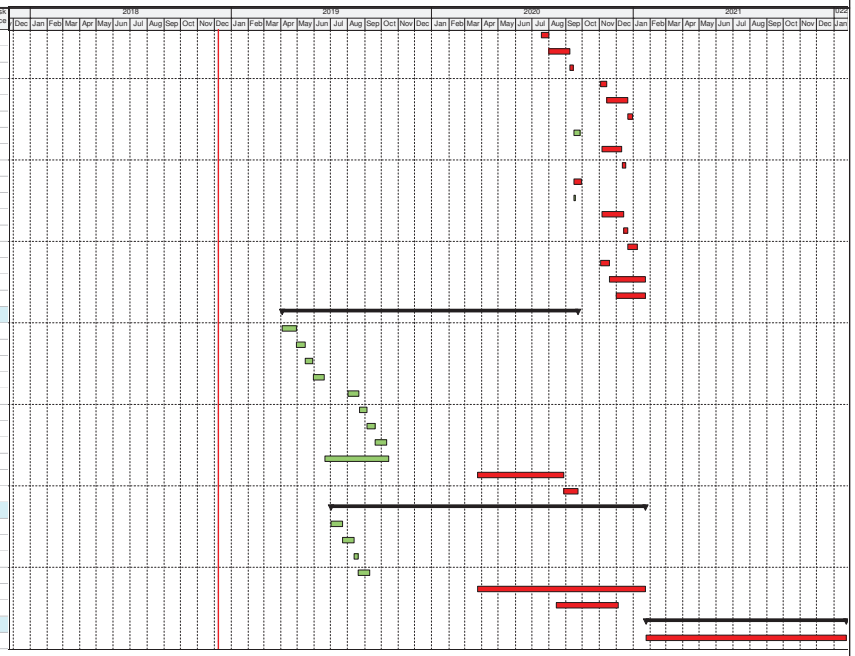
NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (December 2018)

Date	Revision	Checked	Approved
08-Dec-18	RWP-2018-12 (Data date 8-Dec-18)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C14550	Falsework Portion 4	12	C3-6d	0%	12	18-Jul-20	31-Jul-20	15-Jul-20	29-Jul-20	-2	
C14560	Deck structure Portion 4	32	C3-6d	0%	32	01-Aug-20	07-Sep-20	29-Jul-20	04-Sep-20	-2	
C14570	Remove falsework Portion 4	6	C3-6d	0%	6	08-Sep-20	14-Sep-20	04-Sep-20	11-Sep-20	-2	
C14580	Falsework Portion 5	11	C3-6d	0%	11	02-Nov-20	13-Nov-20	15-Sep-20	28-Sep-20	-37	
C14590	Deck structure Portion 5	32	C3-6d	0%	32	14-Nov-20	21-Dec-20	28-Sep-20	07-Nov-20	-37	
C14600	Remove falsework Portion 5	6	C3-6d	0%	6	22-Dec-20	30-Dec-20	23-Nov-20	28-Nov-20	-25	
C14610	Falsework Portion 6a	11	C3-6d	0%	11	15-Sep-20	26-Sep-20	15-Sep-20	28-Sep-20	1	
C14620	Deck structure Portion 6a	32	C3-6d	0%	32	05-Nov-20	11-Dec-20	28-Sep-20	07-Nov-20	-29	
C14630	Remove falsework Portion 6a	6	C3-6d	0%	6	12-Dec-20	18-Dec-20	23-Nov-20	28-Nov-20	-17	
C14640	Falsework Portion 6b	12	C3-6d	0%	12	15-Sep-20	28-Sep-20	11-Sep-20	25-Sep-20	-2	
C14650	Bearing Portion 6b	3	C3-6d	0%	3	15-Sep-20	17-Sep-20	25-Sep-20	29-Sep-20	10	
C14660	Deck structure Portion 6b	34	C3-6d	0%	34	05-Nov-20	14-Dec-20	25-Sep-20	07-Nov-20	-31	2
C14670	Remove falsework Portion 6b	6	C3-6d	0%	6	15-Dec-20	21-Dec-20	23-Nov-20	28-Nov-20	-19	
C14680	Install fabricated movement joints (4 nos.)	13	C3-6d	0%	13	22-Dec-20	08-Jan-21	07-Nov-20	23-Nov-20	-37	
C14690	Falsework for arch structure and arch cladding	15	C3-6d	0%	15	02-Nov-20	18-Nov-20	07-Sep-20	23-Sep-20	-45	
C14700	Erect arch structure and arch cladding	54	C3-6d	0%	54	19-Nov-20	23-Jan-21	24-Sep-20	28-Nov-20	-45	
C14710	Finishing works	44	C3-6d	0%	44	01-Dec-20	23-Jan-21	08-Oct-20	28-Nov-20	-45	
Irrigation System		538			538	04-Apr-19	22-Sep-20	26-Jul-19	01-Aug-20	-52	
C14720	Details of irrigation system (prepare & submit)	18	C3-6d	0%	18	04-Apr-19*	29-Apr-19	26-Jul-19	15-Aug-19	89	
C14730	Details of irrigation system (review & discuss)	12	C3-6d	0%	12	30-Apr-19	15-May-19	16-Aug-19	29-Aug-19	89	
C14740	Details of irrigation system (resubmit)	12	C3-6d	0%	12	16-May-19	29-May-19	30-Aug-19	12-Sep-19	89	
C14750	Details of irrigation system (accept)	21	C3-7d	0%	21	30-May-19	19-Jun-19	13-Sep-19	03-Oct-19	106	
C14760	MS for irrigation system (prepare & submit)	18	C3-6d	0%	18	01-Aug-19*	21-Aug-19	20-Nov-19	10-Dec-19	92	
C14770	MS for irrigation system (review & discuss)	12	C3-6d	0%	12	22-Aug-19	04-Sep-19	11-Dec-19	24-Dec-19	92	
C14780	MS for irrigation system (resubmit)	12	C3-6d	0%	12	05-Sep-19	19-Sep-19	27-Dec-19	10-Jan-20	92	
C14790	MS for irrigation system (accept)	21	C3-7d	0%	21	20-Sep-19	10-Oct-19	11-Jan-20	31-Jan-20	113	
C14800	Material order and delivery of irrigation system	96	C3-6d	0%	96	20-Jun-19	14-Oct-19	04-Oct-19	31-Jan-20	88	
C14810	Install irrigation system	127	C3-6d	0%	127	24-Mar-20	27-Aug-20	01-Feb-20	07-Jul-20	-44	
C14820	Testing and commissioning of irrigation system	22	C3-6d	0%	22	28-Aug-20	22-Sep-20	08-Jul-20	01-Aug-20	-44	
Landscaping Softworks		572			572	02-Jul-19	23-Jan-21	19-Nov-19	28-Nov-20	-56	
C14830	MS for landscaping works (prepare & submit)	18	C3-6d	0%	18	02-Jul-19*	22-Jul-19	19-Nov-19	09-Dec-19	117	
C14840	MS for landscaping works (review & discuss)	18	C3-6d	0%	18	23-Jul-19	12-Aug-19	10-Dec-19	02-Jan-20	117	
C14850	MS for landscaping works (resubmit)	6	C3-6d	0%	6	13-Aug-19	19-Aug-19	03-Jan-20	09-Jan-20	117	
C14860	MS for landscaping works (accept)	21	C3-7d	0%	21	20-Aug-19	09-Sep-19	10-Jan-20	30-Jan-20	143	
C14870	Landscaping Softworks (at-grade)	249	C3-6d	0%	249	24-Mar-20	23-Jan-21	31-Jan-20	28-Nov-20	-45	
C14880	Landscaping Softworks (on footbridge)	94	C3-6d	0%	94	14-Aug-20	04-Dec-20	08-Aug-20	28-Nov-20	-5	
Establishment Works		365	C3-7d		365	24-Jan-21	23-Jan-22	29-Nov-20	29-Nov-21	-55	
C14890	Establishment Works	365	C3-7d	0%	365	24-Jan-21	23-Jan-22	29-Nov-20	29-Nov-21	-55	



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NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
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Subject: 3 Months Look Ahead Programme

Activities	Jan, 2019	Feb, 2019	March, 2019
Construction of Pour 2 of main deck (GL4 – 5)			
Remove steel mould & scaffolding of bridge deck (GL4-5)			
Connection work to existing structure at Park Central			
Removal of scaffolding at +12.15 Platform and Staircase 1			
Erection of scaffolding for Pour 2 of Staircase 2			

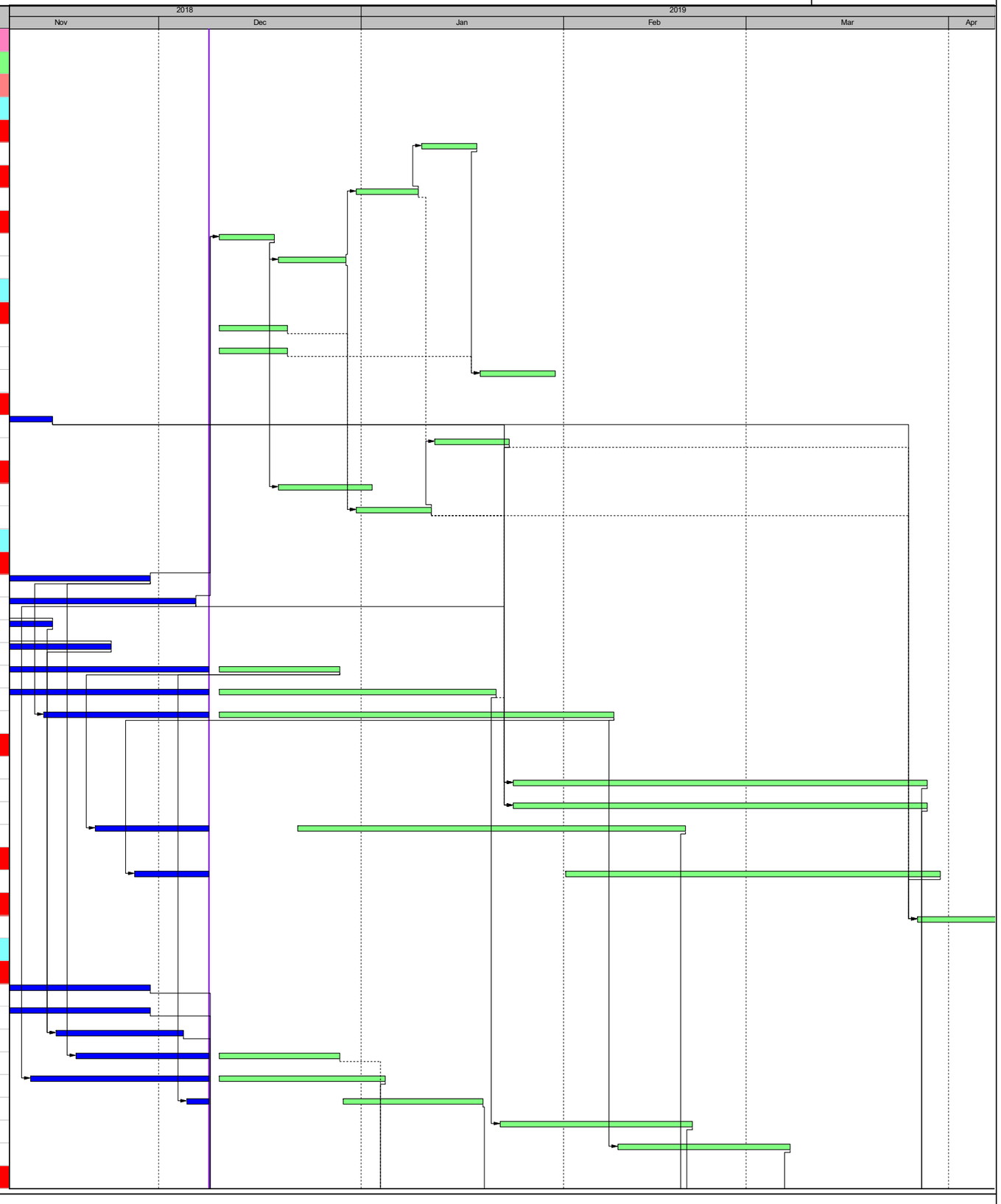
Subject: Construction Programme (Dec, 2018)

Activities	Week 1	Week 2	Week 3	Week 4
Construction of Pour 1 of main deck (GL4 - 5)				
Erection of scaffolding for Staircase 1				
Installation of Lift Car				
Plate Load Test for the temporary filled area				

NE/2017/01 Tseung Kwan O - Lam Tin Tunnel- Tseung Kwan O Interchange and Associated Works

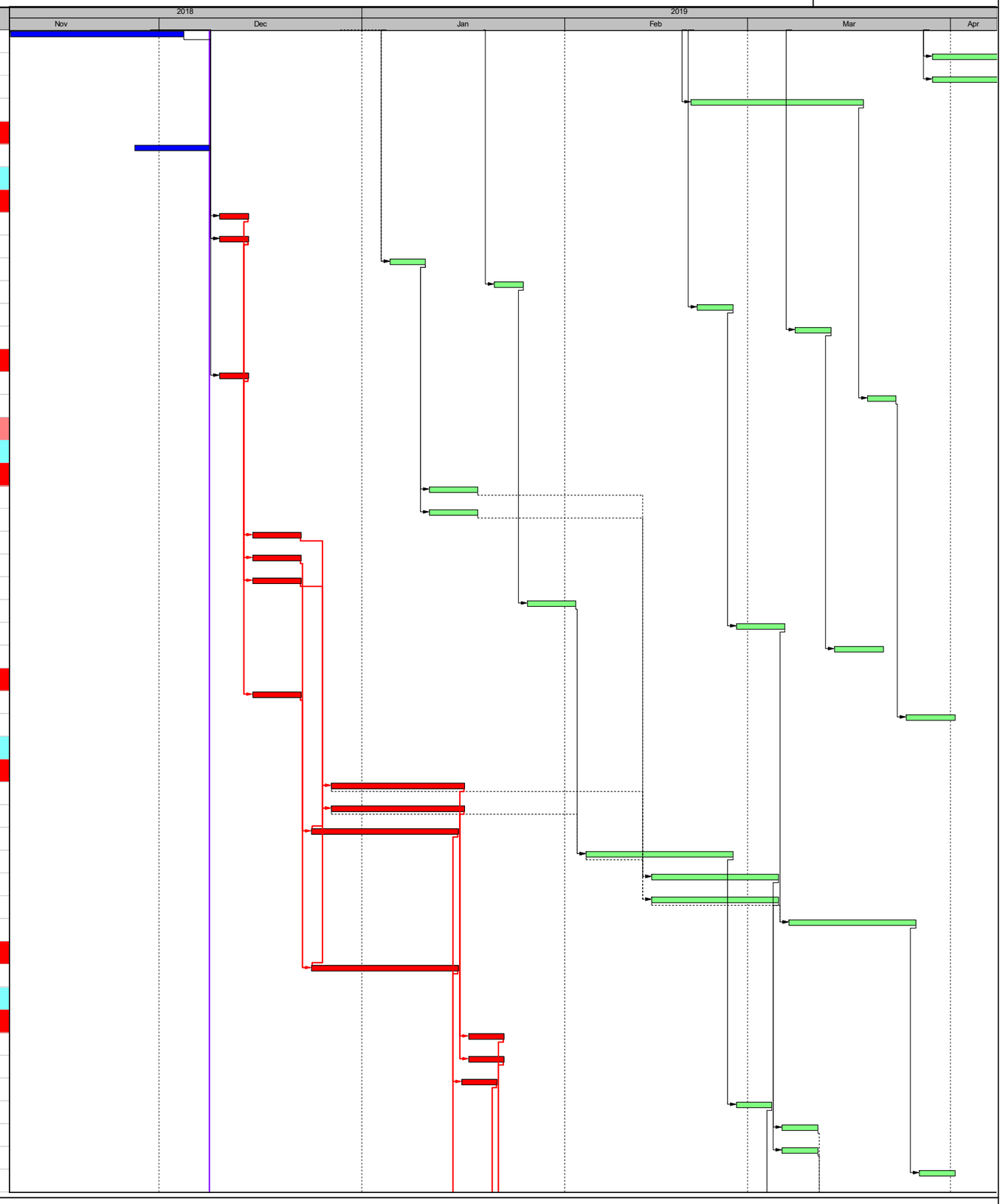
Rolling programme (December 2018 to March 2019)

Activity ID	Activity Name	Original Duration	Start	Finish
Tseung Kwan O Lam Tin Tunnel - Tseung Kwan O Interchange and Associated Works		238	13-Sep-18 A	16-Jul-19
Construction Work		238	13-Sep-18 A	16-Jul-19
Pre-Drilling & Piling Work		202	13-Sep-18 A	01-Jun-19
Temporary Platform erection for Pre-drilling & Piling		32	10-Dec-18	18-Jan-19
Bridge S300		8	10-Jan-19	18-Jan-19
CON-10140	Temporary Platform Erection & Silt Curtain Installation for Pier 4H	8	10-Jan-19	18-Jan-19
Bridge S200		8	31-Dec-18	09-Jan-19
CON-10220	Temporary Platform Erection & Silt Curtain Installation for Pier 2D	8	31-Dec-18	09-Jan-19
Bridge S100		16	10-Dec-18	29-Dec-18
CON-10250	Temporary Platform Erection & Silt Curtain Installation for Pier 3B	8	10-Dec-18	18-Dec-18
CON-10260	Temporary Platform Erection & Silt Curtain Installation for Pier 3C	8	19-Dec-18	29-Dec-18
Pre-drilling		78	23-Oct-18 A	30-Jan-19
Bridge S300		42	10-Dec-18	30-Jan-19
CON-10450	Pre-drill 4F Including Plant Mobilisation and Demobilisation (2 nos./Team 3)	10	10-Dec-18	20-Dec-18
CON-10470	Pre-drill 4G Including Plant Mobilisation and Demobilisation (2 nos./Team 1)	10	10-Dec-18	20-Dec-18
CON-10490	Pre-drill 4H Including Plant Mobilisation and Demobilisation (2 nos./Team 1)	10	19-Jan-19	30-Jan-19
Bridge S200		72	23-Oct-18 A	23-Jan-19
CON-10560	Pre-drill 2J Including Plant Mobilisation and Demobilisation (2 nos./Team 2)	10	23-Oct-18 A	14-Nov-18 A
CON-10570	Pre-drill 2D Including Plant Mobilisation and Demobilisation (2 nos./Team 3)	10	12-Jan-19	23-Jan-19
Bridge S100		18	19-Dec-18	11-Jan-19
CON-10600	Pre-drill 3B Including Plant Mobilisation and Demobilisation (2 nos./Team 4)	10	19-Dec-18	02-Jan-19
CON-10610	Pre-drill 3C Including Plant Mobilisation and Demobilisation (2 nos./Team 3)	10	31-Dec-18	11-Jan-19
Bored Pile Include Fabrication & Delivery of Pile Cage and Casing		202	13-Sep-18 A	01-Jun-19
Bridge ML		112	13-Sep-18 A	08-Feb-19
CON-10640	Bored Pile 1E-N Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 2)	52	26-Sep-18 A	29-Nov-18 A
CON-10650	Bored Pile 1E-S Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 3)	52	28-Sep-18 A	06-Dec-18 A
CON-10680	Bored Pile 1G - P1 Including Plant Mobilisation and Demobilisation (1 no. Pile / Team 2)	37	13-Sep-18 A	14-Nov-18 A
CON-10681	Bored Pile 1G - P2 Including Plant Mobilisation and Demobilisation(1 no. Pile / Team 3)	37	13-Sep-18 A	23-Nov-18 A
CON-10690	Bored Pile 1H Including Plant Mobilisation and Demobilisation (2 nos/ Team 1)	52	23-Oct-18 A	28-Dec-18
CON-10700	Bored Pile 1J Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 4)	52	03-Nov-18 A	21-Jan-19
CON-10710	Bored Pile 1K Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 2)	52	13-Nov-18 A	08-Feb-19
Bridge S300		107	28-Oct-18 A	28-Mar-19
CON-10721	Bored Pile 4A Installation of Rebar Cage + Concreting (1 nos. Pile / Team 4)	10	28-Oct-18 A	07-Nov-18 A
CON-10740	Bored Pile 4C Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 4)	52	24-Jan-19	28-Mar-19
CON-10750	Bored Pile 4D Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 3)	52	24-Jan-19	28-Mar-19
CON-10760	Bored Pile 4E Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 1)	52	21-Nov-18 A	19-Feb-19
Bridge S200		52	27-Nov-18 A	30-Mar-19
CON-10870	Bored Pile 2G Including Plant Demobilisation (2 nos. Pile / Team 2)	52	27-Nov-18 A	30-Mar-19
Bridge S100		52	27-Mar-19	01-Jun-19
CON-10910	Bored Pile 3C Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 2)	52	27-Mar-19	01-Jun-19
Curing and Bored Pile Test (Sonic + Interface Core/Full Core)		160	14-Oct-18 A	04-May-19
Bridge ML		96	14-Oct-18 A	07-Mar-19
CON-10940	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1F-N Including Plant Mobilisation and Demobilisation	23	14-Oct-18 A	29-Nov-18 A
CON-10950	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1F-S Including Plant Mobilisation and Demobilisation	23	20-Oct-18 A	29-Nov-18 A
CON-10960	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1G Including Plant Mobilisation and Demobilisation	23	15-Nov-18 A	04-Dec-18 A
CON-10970	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1E-N Including Plant Mobilisation and Demobilisation	23	18-Nov-18 A	28-Dec-18
CON-10980	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1E-S Including Plant Mobilisation and Demobilisation	23	11-Nov-18 A	04-Jan-19
CON-10990	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1H Including Plant Mobilisation and Demobilisation	23	05-Dec-18 A	19-Jan-19
CON-11000	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1J Including Plant Mobilisation and Demobilisation	23	22-Jan-19	20-Feb-19
CON-11010	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1K Including Plant Mobilisation and Demobilisation	23	09-Feb-19	07-Mar-19
Bridge S300		137	08-Nov-18 A	29-Apr-19



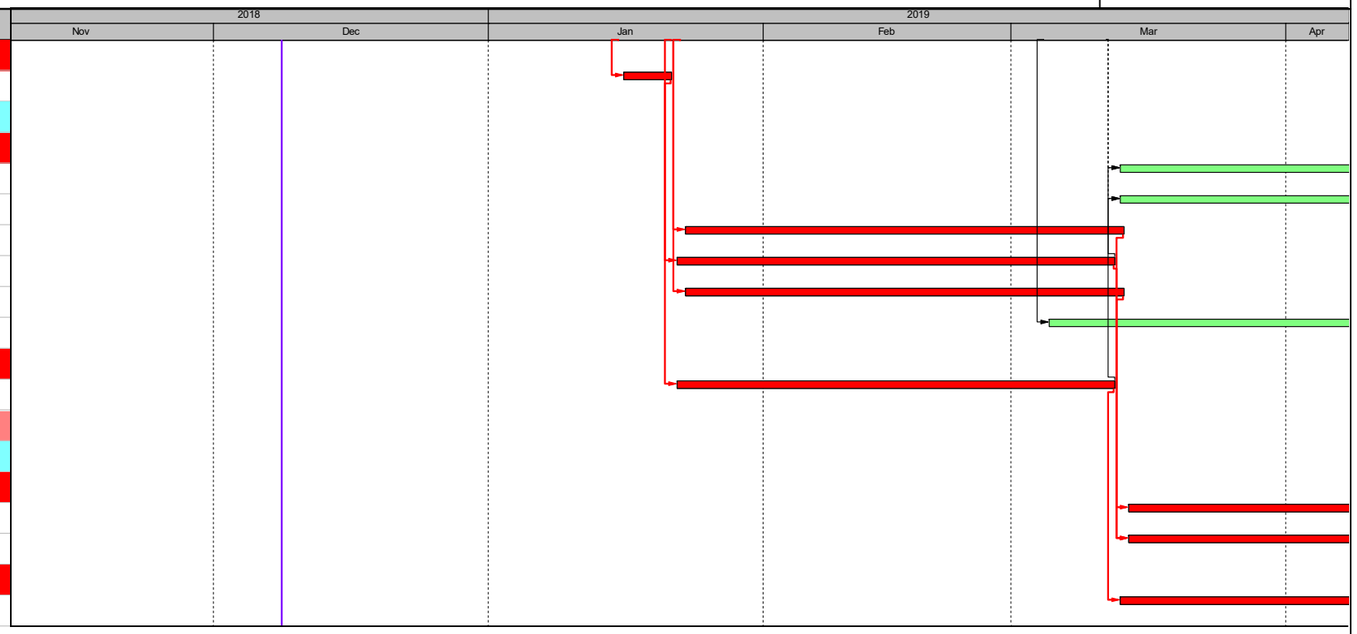
Milestone | Works | Critical Works | Actual | Actual Progress of Regular Submission | BL Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
CON-11020	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 4A Including Plant Mobilisation and Demobilisation	23	08-Nov-18 A	04-Dec-18 A
CON-11030	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 4C Including Plant Mobilisation and Demobilisation	23	29-Mar-19	29-Apr-19
CON-11040	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 4D Including Plant Mobilisation and Demobilisation	23	29-Mar-19	29-Apr-19
CON-11050	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 4E Including Plant Mobilisation and Demobilisation	23	20-Feb-19	18-Mar-19
Bridge S200		23	27-Nov-18 A	04-May-19
CON-11120	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 2E Including Plant Mobilisation and Demobilisation	23	27-Nov-18 A	04-May-19
Removal of Temp. Working platform		84	10-Dec-18	23-Mar-19
Bridge ML		75	10-Dec-18	13-Mar-19
CON-11240	Removal of Temporary Platform Erection for Pier 1GN & 1GS	5	10-Dec-18	14-Dec-18
CON-11250	Removal of Temporary Platform Erection for Pier 1F-N & 1F-S	5	10-Dec-18	14-Dec-18
CON-11260	Removal of Temporary Platform Erection for Pier 1E-N & 1E-S	5	05-Jan-19	10-Jan-19
CON-11270	Removal of Temporary Platform Erection for Pier 1HN & 1HS	5	21-Jan-19	25-Jan-19
CON-11280	Removal of Temporary Platform Erection for Pier 1JN & 1JS	5	21-Feb-19	26-Feb-19
CON-11290	Removal of Temporary Platform Erection for Pier 1KN & 1KS	5	08-Mar-19	13-Mar-19
Bridge S300		84	10-Dec-18	23-Mar-19
CON-11300	Removal of Temporary Platform Erection for Pier 4A	5	10-Dec-18	14-Dec-18
CON-11330	Removal of Temporary Platform Erection for Pier 4E	5	19-Mar-19	23-Mar-19
Pile Cap Construction		105	15-Dec-18	27-Apr-19
Preparation Work for the Installation of Precast Shell		86	15-Dec-18	01-Apr-19
Bridge ML		77	15-Dec-18	21-Mar-19
CON-15660	Preparation work Installation of Precast Shell for Pier 1E-N	7	11-Jan-19	18-Jan-19
CON-15670	Preparation work Installation of Precast Shell for Pier 1E-S	7	11-Jan-19	18-Jan-19
CON-15680	Preparation work Installation of Precast Shell for Pier 1F-N	7	15-Dec-18	22-Dec-18
CON-15690	Preparation work Installation of Precast Shell for Pier 1F-S	7	15-Dec-18	22-Dec-18
CON-15700	Preparation work Installation of Precast Shell for Pier 1G	7	15-Dec-18	22-Dec-18
CON-15710	Preparation work Installation of Precast Shell for Pier 1H	7	26-Jan-19	02-Feb-19
CON-15720	Preparation work Installation of Precast Shell for Pier 1J	7	27-Feb-19	06-Mar-19
CON-15730	Preparation work Installation of Precast Shell for Pier 1K	7	14-Mar-19	21-Mar-19
Bridge S300		86	15-Dec-18	01-Apr-19
CON-15740	Preparation work Installation of Precast Shell for Pier 4A	7	15-Dec-18	22-Dec-18
CON-15780	Preparation work Installation of Precast Shell for Pier 4E	7	25-Mar-19	01-Apr-19
Installation of Precast Shell and Sealing		74	24-Dec-18	26-Mar-19
Bridge ML		74	24-Dec-18	26-Mar-19
CON-11520	Install Precast Shell and Sealing for Pier 1G (1 no. Shell / Team 2)	17	27-Dec-18	16-Jan-19
CON-11530	Install Precast Shell and Sealing for Pier 1F-N (1 nos. Shell / Team 1)	17	27-Dec-18	16-Jan-19
CON-11540	Install Precast Shell and Sealing for Pier 1F-S (1 nos. Shell / Team 2)	17	24-Dec-18	15-Jan-19
CON-11550	Install Precast Shell and Sealing for Pier 1H (1 nos. Shell / Team 1)	17	04-Feb-19	26-Feb-19
CON-11560	Install Precast Shell and Sealing for Pier 1E-N (1 nos. Shell / Team 2)	17	14-Feb-19	05-Mar-19
CON-11570	Install Precast Shell and Sealing for Pier 1E-S (1 nos. Shell / Team 1)	17	14-Feb-19	05-Mar-19
CON-11580	Install Precast Shell and Sealing for Pier 1J (1 nos. Shell / Team 1)	17	07-Mar-19	26-Mar-19
Bridge S300		17	24-Dec-18	15-Jan-19
CON-11600	Install Precast Shell and Sealing for Pier 4A (1 nos. Shell / Team 1)	17	24-Dec-18	15-Jan-19
Trimming of Bored Pile Head		62	16-Jan-19	01-Apr-19
Bridge ML		62	16-Jan-19	01-Apr-19
CON-11820	Trimming Bored Pile 1G	5	17-Jan-19	22-Jan-19
CON-11830	Trimming Bored Pile 1F-N	5	17-Jan-19	22-Jan-19
CON-11840	Trimming Bored Pile 1F-S	5	16-Jan-19	21-Jan-19
CON-11850	Trimming Bored Pile 1H	5	27-Feb-19	04-Mar-19
CON-11860	Trimming Bored Pile 1E-N	5	06-Mar-19	11-Mar-19
CON-11870	Trimming Bored Pile 1E-S	5	06-Mar-19	11-Mar-19
CON-11880	Trimming Bored Pile 1J	5	27-Mar-19	01-Apr-19



Milestone | Works | Critical Works | Actual | Actual Progress of Regular Submission | BL Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
Bridge S300		5	16-Jan-19	21-Jan-19
CON-11900	Trimming Bored Pile 4A	5	16-Jan-19	21-Jan-19
Pile Cap Rebar Erection, Concreting and Curing		76	22-Jan-19	27-Apr-19
Bridge ML		76	22-Jan-19	27-Apr-19
CON-12120	Pile Cap Rebar Erection, Concreting and Curing for Pier 1E-N (1 nos.Pile Cap/Team 3)	36	13-Mar-19	27-Apr-19
CON-12130	Pile Cap Rebar Erection, Concreting and Curing for Pier 1E-S (1 nos.Pile Cap/Team 4)	36	13-Mar-19	27-Apr-19
CON-12140	Pile Cap Rebar Erection, Concreting and Curing for Pier 1F-N (1 nos.Pile Cap/Team 2)	40	23-Jan-19	13-Mar-19
CON-12150	Pile Cap Rebar Erection, Concreting and Curing for Pier 1F-S (1 nos.Pile Cap/Team 3)	40	22-Jan-19	12-Mar-19
CON-12160	Pile Cap Rebar Erection, Concreting and Curing for Pier 1G (1 nos.Pile Cap/Team 1)	40	23-Jan-19	13-Mar-19
CON-12170	Pile Cap Rebar Erection, Concreting and Curing for Pier 1H (1 nos.Pile Cap/Team 5)	40	05-Mar-19	24-Apr-19
Bridge S300		40	22-Jan-19	12-Mar-19
CON-12200	Pile Cap Rebar Erection, Concreting and Curing for Pier 4A (1 nos.Pile Cap/Team 4)	40	22-Jan-19	12-Mar-19
Construction Pier Element		100	13-Mar-19	16-Jul-19
Construction of Pier		100	13-Mar-19	16-Jul-19
Bridge ML		88	14-Mar-19	03-Jul-19
CON-12420	Construction of Pier 1G, Type 4M (2 Pours) Including Erection of Formwork & Temp. Work (1 nos.Pier /Team 1)	84	14-Mar-19	27-Jun-19
CON-12430	Construction of Pier 1F, Type 3 (2 Pours) Including Erection of Formwork & Temp. Work (1 nos.Pier /Team 2)	88	14-Mar-19	03-Jul-19
Bridge S300		100	13-Mar-19	16-Jul-19
CON-12480	Construction of Pier 4A, type 1M (2 Pours) Including Erection of Formwork & Temp. Work (1 nos.Pier /Team 3)	100	13-Mar-19	16-Jul-19



Milestone | Works | Critical Works | Actual | Actual Progress of Regular Submission | BL Milestone

APPENDIX R
RECORD OF LANDFILL GAS MONITORING BY CONTRACTOR

APPENDIX R - RECORD OF LANDFILL GAS MONITORING BY THE CONTRACTOR

Location	Date of Measurement	Sampling time	Weather Condition	Temperature (°C)	Methane (%)	Carbon dioxide (%)	Oxygen (%)
Portion III	2018/12/1	8:20	Sunny	20	0	0	20.9
	2018/12/1	13:10	Sunny	21	0	0	20.9
	2018/12/3	8:25	Cloudy	21	0	0	20.9
	2018/12/3	13:15	Cloudy	22	0	0	20.9
	2018/12/4	8:10	Cloudy	21	0	0	20.9
	2018/12/4	13:15	Cloudy	22	0	0	20.9
	2018/12/5	8:30	Rainy	20	0	0	20.9
	2018/12/5	13:01	Rainy	21	0	0	20.9
	2018/12/6	8:10	Cloudy	19	0	0	20.9
	2018/12/6	13:10	Cloudy	20	0	0	20.9
	2018/12/7	8:12	Cloudy	17	0	0	20.9
	2018/12/7	13:15	Cloudy	18	0	0	20.9
	2018/12/8	8:15	Cloudy	15	0	0	20.9
	2018/12/8	13:10	Cloudy	16	0	0	20.9
	2018/12/10	8:15	Rainy	14	0	0	20.9
	2018/12/10	13:20	Cloudy	15	0	0	20.9
	2018/12/11	8:15	Sunny	14	0	0	20.9
	2018/12/11	13:15	Sunny	15	0	0	20.9
	2018/12/12	8:10	Cloudy	13	0	0	20.9
	2018/12/12	13:15	Sunny	14	0	0	20.9
	2018/12/13	8:15	Cloudy	15	0	0	20.9
	2018/12/13	13:10	Cloudy	16	0	0	20.9
	2018/12/14	8:15	Cloudy	16	0	0	20.9
	2018/12/14	13:15	Cloudy	17	0	0	20.9
	2018/12/15	8:15	Cloudy	17	0	0	20.9
	2018/12/15	13:05	Cloudy	18	0	0	20.9
	2018/12/17	8:10	Cloudy	17	0	0	20.9
	2018/12/17	13:10	Cloudy	18	0	0	20.9
	2018/12/18	8:05	Cloudy	18	0	0	20.9
	2018/12/18	13:15	Cloudy	19	0	0	20.9
	2018/12/19	8:15	Cloudy	19	0	0	20.9
	2018/12/19	13:10	Sunny	20	0	0	20.9
	2018/12/20	8:10	Cloudy	19	0	0	20.9
	2018/12/20	13:15	Cloudy	20	0	0	20.9
	2018/12/21	8:00	Cloudy	20	0	0	20.9
	2018/12/21	13:15	Cloudy	21	0	0	20.9
	2018/12/22	8:10	Cloudy	19	0	0	20.9
	2018/12/22	13:00	Cloudy	21	0	0	20.9
	2018/12/24	8:15	Rainy	18	0	0	20.9
	2018/12/24	13:10	Rainy	19	0	0	20.9
	2018/12/27	8:15	Cloudy	18	0	0	20.9
	2018/12/27	13:20	Cloudy	19	0	0	20.9
	2018/12/28	8:10	Sunny	17	0	0	20.9
	2018/12/28	13:15	Cloudy	18	0	0	20.9
	2018/12/29	8:10	Cloudy	13	0	0	20.9
	2018/12/29	13:15	Cloudy	14	0	0	20.9
	2018/12/31	8:10	Cloudy	12	0	0	20.9
	2018/12/31	13:15	Cloudy	13	0	0	20.9

APPENDIX S
UPDATED CONSTRUCTION NOISE ASSESSMENT

Appendix T – Cultural Heritage Monitoring Results

Date	Time	Tilting				Settlement (mm)			Vibration (mm/s)		
									Measurement Direction		
		THT-TM-01	THT-TM-02	THT-TM-03	THT-TM-04	THT-BSP-1	THT-BSP-2	THT-BSP-3	Tran	Vertical	Longitudinal
1-Dec-18	12:16	-1 : 44997	1 : 23683	1 : 26470	1 : 64285	+2	Stop monitoring	Stop monitoring	0.126	0.118	0.095
3-Dec-18	09:56	-1 : 14515	1 : 44998	-1 : 18000	1 : 64285	+2	Stop monitoring	Stop monitoring	0.15	0.15	0.134
4-Dec-18	10:11	-1 : 12161	1 : 13235	-1 : 20454	-1 : 22500	+3	Stop monitoring	Stop monitoring	0.11	0.126	0.102
5-Dec-18	09:54	-1 : 28123	1 : 34614	1 : 89999	1 : 64285	+3	Stop monitoring	Stop monitoring	0.11	0.11	0.087
6-Dec-18	17:35	-1 : 449967	1 : 23683	-1 : 23684	1 : 14516	+4	Stop monitoring	Stop monitoring	0.41	0.276	0.828
7-Dec-18	09:54	1 : 32140	1 : 17999	-1 : 18000	1 : 8182	+4	Stop monitoring	Stop monitoring	0.166	0.11	0.134
8-Dec-18	10:10	1 : 22498	1 : 14516	-1 : 28125	1 : 12162	+3	Stop monitoring	Stop monitoring	0.118	0.221	0.11
10-Dec-18	10:23	1 : 56246	1 : 13235	-1 : 34615	1 : 14516	+3	Stop monitoring	Stop monitoring	0.11	0.181	0.079
11-Dec-18	11:18	-1 : 64281	1 : 28124	-1 : 112498	1 : 20454	+3	Stop monitoring	Stop monitoring	0.11	0.11	0.079
12-Dec-18	10:35	-1 : 112492	1 : 34614	1 : 89999	1 : 16071	+2	Stop monitoring	Stop monitoring	0.26	0.441	0.347
13-Dec-18	09:29	-1 : 449967	1 : 44998	1 : 224996	1 : 13235	+3	Stop monitoring	Stop monitoring	0.221	0.441	0.221
14-Dec-18	09:00	-1 : 112492	1 : 34614	1 : 40908	1 : 12162	+1	Stop monitoring	Stop monitoring	0.11	0.118	0.087
15-Dec-18	09:53	-1 : 449967	1 : 23683	1 : 40908	1 : 13235	+2	Stop monitoring	Stop monitoring	0.118	0.11	0.079
17-Dec-18	10:45	1 : 40906	1 : 28124	1 : 32142	1: 9184	+3	Stop monitoring	Stop monitoring	0.126	0.229	0.142
18-Dec-18	10:19	1 : 56246	1 : 17999	1 : 26470	1: 7759	+3	Stop monitoring	Stop monitoring	0.473	0.678	0.292
19-Dec-18	17:23	1 : 26469	1 : 16071	1 : 19565	1 : 11250	+2	Stop monitoring	Stop monitoring	0.142	0.181	0.095
20-Dec-18	17:01	-1 : 17999	-1 : 32142	-1 : 23684	1 : 14516	+1	Stop monitoring	Stop monitoring	0.11	0.102	0.079

Date	Time	Tilting				Settlement (mm)			Vibration (mm/s)		
									Measurement Direction		
		THT-TM-01	THT-TM-02	THT-TM-03	THT-TM-04	THT-BSP-1	THT-BSP-2	THT-BSP-3	Tran	Vertical	Longitudinal
21-Dec-18	14:54	-1 : 16070	1 : 10465	-1 : 34615	1 : 20454	+3	Stop monitoring	Stop monitoring	0.102	0.158	0.079
22-Dec-18	13:15	-1 : 14515	1 : 20454	-1 : 16071	1 : 34615	+4	Stop monitoring	Stop monitoring	0.134	0.173	0.11
24-Dec-18	09:34	-1 : 449967	1 : 23683	-1 : 23684	1 : 14516	+3	Stop monitoring	Stop monitoring	0.126	0.142	0.095
27-Dec-18	11:05	-1 : 44997	1 : 17999	-1 : 18000	1: 8182	+1	Stop monitoring	Stop monitoring	0.118	0.11	0.102
28-Dec-18	10:24	1 : 22498	1 : 11250	-1 : 28125	1 : 12162	+4	Stop monitoring	Stop monitoring	0.15	0.158	0.142
29-Dec-18	10:00	-1 : 449967	1 : 13235	-1 : 34615	1 : 14516	+3	Stop monitoring	Stop monitoring	0.173	0.315	0.118
31-Dec-18	15:08	-1 : 112492	1 : 34614	1 : 89999	1 : 112499	+2	Stop monitoring	Stop monitoring	0.118	0.118	0.071
Alert Level			1:2000			6			4.5		
Alarm Level			1:1500			8			4.8		
Action Level			1:1000			10			5		

Note: ***Bold*** means Alert Level exceedance ***Bold Italic*** means Alarm Level exceedance ***Bold Italic with underline*** means Action Level exceedance

APPENDIX U
PIEZOMETER MONITORING RESULTS

Appendix U – Construction Phase Daily Piezometer Monitoring Results

Date	Daily Piezometer Monitoring	
	38568-LDH1	**TKO-LBH907**
1-Dec-18	87.65	
3-Dec-18	87.65	
4-Dec-18	87.65	
5-Dec-18	87.65	
6-Dec-18	87.65	
7-Dec-18	87.65	
8-Dec-18	87.65	
10-Dec-18	87.65	
11-Dec-18	87.65	
12-Dec-18	87.65	
13-Dec-18	87.65	
14-Dec-18	87.65	
15-Dec-18	87.65	
17-Dec-18	87.65	
18-Dec-18	87.65	
19-Dec-18	87.65	
20-Dec-18	87.65	
21-Dec-18	87.65	
22-Dec-18	87.65	
24-Dec-18	87.65	
27-Dec-18	87.65	
28-Dec-18	87.65	
29-Dec-18	87.65	
31-Dec-18	87.65	
Action Level(mpD)	+74.65	+17.59

Note: ***Bold Italic with underline*** means Action Level exceedance