


Civil Engineering and Development Department

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

**Quarterly Environmental
Monitoring and Audit Report –
February 2018 – April 2018**

(version 1.0)

Approved By



(Dr. Priscilla Choy,
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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TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
Introduction.....	1
Environmental Monitoring Works.....	1
Key Information in the Reporting Quarter.....	2
1. INTRODUCTION	4
Background.....	4
Project Organizations.....	4
Construction Activities undertaken during the Report Quarter	4
2. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS	5
Monitoring Parameters and Monitoring Locations.....	5
Monitoring Methodology and Calibration Details.....	5
Environmental Quality Performance Limits (Action and Limit Levels)	5
Implementation Status of Environmental Mitigation Measures	5
Site Audit Summary.....	5
Status of Waste Management	5
3. MONITORING RESULTS.....	6
Weather Conditions	6
Air Quality	6
Construction Noise	6
Water Quality.....	6
Ecological Monitoring	7
Monitoring on Cultural Heritage	8
Landscape and Visual Monitoring and Audit	8
Landfill Gas Monitoring	8
Waste Management.....	8
Influencing Factors on the Monitoring Results	8
4. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)	10
Summary of Exceedances	10
Review of the Reasons for and the Implications of Non-compliance.....	10
Summary of Environmental Complaints and Prosecutions	10
5. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS	11
Effectiveness of Mitigation Measures	11
Recommendations.....	11

LIST OF TABLE

Table I	Summary Table for Non-compliance Recorded in the Reporting Quarter
Table II	Summary Table for Key Information in the Reporting Quarter
Table 1.1	Key Project Contacts
Table 3.1	Summary of Weather Conditions in the Reporting Period
Table 3.2	Major Dust Sources during the Monitoring in the Reporting Period
Table 3.3	Major Noise Sources during the Monitoring in the Reporting Period

LIST OF FIGURES

Figure 1	Site Layout Plan
Figure 1a	Site Portions under Works Contract No. NE/2015/01 (Lam Tin Side)
Figure 1b	Site Portions under Works Contract No. NE/2015/01 (Tseung Kwan O Side)
Figure 1c	Site Portions under Works Contract No. NE/2015/02
Figure 1d	Site Portions under Works Contract No. NE/2015/03
Figure 1e	Site Portions under Works Contract No. NE/2017/01
Figure 1f	Site Portions under Works Contract No. NE/2017/01
Figure 1g	Site Portions under Works Contract No. NE/2017/02
Figure 1h	Site Portions under Works Contract No. NE/2017/02
Figure 2	Locations of Air Quality Monitoring Stations
Figure 3	Locations of Construction Noise Monitoring Stations
Figure 4	Locations of Groundwater Quality Monitoring Stations
Figure 5	Locations of Marine Water Quality Monitoring Stations
Figure 6	Locations of Landfill Gas Monitoring
Figure 7	Location of Post-translocation Coral Monitoring
Figure 8	Location of Monitoring for Cultural Heritage
Figure 9	Location of Water Quality Monitoring in Temporary Embayment
Figure 3.1a-b	Locations of Representative Air Sensitive Receivers in the Study Area during Construction Phase (Lam Tin)
Figure 3.2a-b	Locations of Representative Air Sensitive Receivers in the Study Area during Construction Phase (Tseung Kwan O)
Figure 4.1	Locations of Noise Sensitive Receivers
Figure 5.1	Locations of Water Quality Sensitive Receivers
Figure 6.2	Marine Ecological Sensitive Receivers within and in Vicinity of the Assessment Areas
Figure 9.2	Cultural Heritage Resources at Cha Kwo Ling

LIST OF APPENDICES

A	Monitoring Requirements
B	Action and Limit Levels
C	Graphical Presentation of Air Quality Monitoring Results
D	Graphical Presentation of Noise Monitoring Results
E	Graphical Presentation of Groundwater Quality Monitoring Results
F	Graphical Presentation of Marine Water Quality Monitoring Results
G	Graphical Presentation of Landfill Gas Monitoring Results
H	Site Audit Summary
I	Environmental Mitigation Implementation Schedule (EMIS)

J	Waste Generated Quantity
K	Summary of Exceedances
L	Summaries of Environmental Complaint, Warning, Summon and Notification of Successful Prosecution
M	Summary Table for Major Site Activities undertaken in the Reporting Quarter
N	Event and Action Plan
O	Ecological Monitoring

EXECUTIVE SUMMARY**Introduction**

1. This is the 6th Quarterly 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 summary report presents the EM&A works performed in the period from February to April 2018.
2. During the reporting quarter, the following works contracts were undertaken within the site:
 - Contract No. NE/2015/01 – Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works; and
 - 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.

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 in the reporting quarter for the Project is tabulated in **Table I**. Details of the environmental monitoring results is presented in **Section 3**.

Table I Non-compliance (Exceedance) Record for the Project in the Reporting Quarter

Parameter	No. of Exceedance		No. of Exceedance due to Construction Activities of this Project		Action Taken
	Action Level	Limit Level	Action Level	Limit Level	
February 2018					
Air Quality	0	0	0	0	N/A
Noise	3	0	3	0	Refer to Appendix L
Groundwater Quality	0	2	0	0	N/A (Refer to Section 3.10)
Marine Water Quality	0	0	0	0	N/A
Groundwater Level Monitoring (Piezometer Monitoring)	N/A	N/A	N/A	N/A	N/A
Ecological	0	0	0	0	N/A
Cultural Heritage	0	0	0	0	N/A
Landfill Gas	0	0	0	0	N/A
March 2018					
Air Quality	0	0	0	0	N/A
Noise	11	0	11	0	Refer to

Parameter	No. of Exceedance		No. of Exceedance due to Construction Activities of this Project		Action Taken
	Action Level	Limit Level	Action Level	Limit Level	
					Appendix L
Groundwater Quality	0	2	0	0	N/A (Refer to Section 3.11)
Marine Water Quality	0	0	0	0	N/A
Groundwater Level Monitoring (Piezometer Monitoring)	N/A	N/A	N/A	N/A	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
April 2018					
Air Quality	0	0	0	0	N/A
Noise	13	0	13	0	Refer to Appendix L
Groundwater Quality	1	12	0	0	N/A (Refer to Section 3.12)
Marine Water Quality	0	0	0	0	N/A
Groundwater Level Monitoring (Piezometer Monitoring)	N/A	N/A	N/A	N/A	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

Key Information in the Reporting Quarter

5. Summary of key information in the reporting quarter is tabulated in **Table II**.

Table II Summary Table for Key Information in the Reporting Quarter

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received / Complaint referred by EPD (April 2018)	14	Noise nuisance / Light pollution / Odour nuisance	Investigation completed	Closed	Details refer to App L
Complaint received / Complaint referred by EPD (March 2018)	17*	Construction dust / Noise nuisance / Landscape and Visual Impacts	Investigation completed	Closed	
Complaint received / Complaint referred by EPD (February 2018)	6	Construction dust / Noise nuisance	Investigation completed	Closed	
Reporting Changes	0	---	N/A	N/A	---
Notifications of any summons & prosecutions received (March 2018)	0	---	N/A	N/A	---

Note (*): The number of complaints in March 2018 has been updated.

6. Environmental monitoring works for the Project are considered effective and is generating data to categorically identify the environmental impacts from the works and influencing factors in the vicinity of monitoring stations.

1. INTRODUCTION

Background

- 1.1 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.
- 1.2 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**.
- 1.3 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.

Project Organizations

- 1.4 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)
- 1.5 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Phone No.	Fax No.
CEDD	Project Proponent	Mr. Chiang Nin Tat, Eric	2301 1384	2739 0076
AECOM	Engineer’s Representative	Mr. KY Chan	3922 9000	2759 1698
Cinotech	Environmental Team	Dr. Priscilla Choy	2151 2089	3107 1388
		Ms. Ivy Tam	2151 2090	
AnewR	Independent Environmental Checker	Mr. Adi Lee	2618 2836	3007 8648

Construction Activities undertaken during the Report Quarter

- 1.6 The major site activities undertaken in the reporting quarter are shown in **Appendix M**.

2. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Monitoring Locations

- 2.1 The EM&A Manual designates locations for environmental monitoring in terms of air quality, noise, groundwater quality, water quality, ecology, cultural heritage and landfill gas due to the Project. The Project area and monitoring locations are depicted in **Figures 1 - 6**. **Appendix A** gives details of monitoring requirements. Locations of the environmental sensitive receivers are shown in **Figures 3.1, 3.2, 4.1, 5.1, 6.2 and 9.2**.

Monitoring Methodology and Calibration Details

- 2.2 Monitoring works/equipment were conducted/calibrated regularly in accordance with the EM&A Manual. Copies of calibration certificates are attached in the appendices of the Monthly EM&A Reports.

Environmental Quality Performance Limits (Action and Limit Levels)

- 2.3 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results. Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective action plans would be implemented. The Action/Limit Levels for each environmental parameter are given in **Appendix B**.
- 2.4 Should the monitoring results of the environmental monitoring parameters at any designated monitoring stations indicate that the Action / Limit Levels are exceeded, the actions in accordance with the Event and Action Plans in **Appendix N** was carried out.

Implementation Status of Environmental Mitigation Measures

- 2.5 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manual for implementation by the Contractor. The implementation status of environmental mitigation measures (EMIS) is given in **Appendix I**.

Site Audit Summary

- 2.6 During site inspections in the reporting period, no non-conformance was identified. The observations and recommendations made during the reporting period are summarized in **Appendix H**.

Status of Waste Management

- 2.7 The amount of wastes generated by the activities of the Work Contracts within TKO-LTT during the reporting period is shown in **Appendix J**.

3. MONITORING RESULTS

Weather Conditions

3.1 The weather during monitoring sessions was summarized in **Table 3.1**.

Table 3.1 Summary of Weather Conditions in the Reporting Period

Reporting Month	General Weather Conditions
February 2018	Sunny, Cloudy and Rainy
March 2018	Sunny, Cloudy and Rainy
April 2018	Sunny, Cloudy and Rainy

3.2 The detail of weather conditions for each individual monitoring session was presented in monthly EM&A report.

Air Quality

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

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

3.5 The graphical presentations of the air quality monitoring results are shown in **Appendix C**.

Construction Noise

February 2018

3.6 All noise monitoring was conducted as scheduled in the reporting month. Three (3) Action Level exceedances were recorded due to the documented complaints received in the reporting month. No Limit Level exceedance was recorded.

March 2018

3.7 All noise monitoring was conducted as scheduled in the reporting month. Eleven (11) Action Level exceedances were recorded due to the documented complaints received in the reporting month. No Limit Level exceedance was recorded.

April 2018

3.8 All noise monitoring was conducted as scheduled in the reporting month. Thirteen (13) Action Level exceedances were recorded due to the documented complaints received in the reporting month. No Limit Level exceedance was recorded.

3.9 The graphical presentations of the noise monitoring results are shown in **Appendix D**.

Water Quality

February 2018

3.10 Groundwater quality monitoring was conducted as scheduled in the reporting month. Two (2) Limit Level exceedances was recorded in the reporting month. No Action Level exceedance was recorded in the reporting month. It is considered that the exceedance are not project-related based on the following reasons:

- The distance between the tunnel construction activities and monitoring station of stream 2 is about 1000 meters.
- There was no tunnel boring and tunnel construction works in Tseung Kwan O side.

March 2018

3.11 Groundwater quality monitoring was conducted as scheduled in the reporting month. Two (2) Limit Level exceedances was recorded in the reporting month and drying out of stream water at Stream 3 was observed on 27 March 2018. No Action Level exceedance was recorded in the reporting month. It is considered that the exceedance and drying out of stream water are not project-related based on the following reasons:

- For stream 3, there is no tunnel boring and tunnel construction works in Tseung Kwan O side.

April 2018

3.12 Groundwater quality monitoring was conducted as scheduled in the reporting month. One (1) Action Level and Twelve (12) Limit Level exceedances were recorded in the reporting month and drying out of stream water at Stream 3 was observed on 11 April 2018. It is considered that drying out of stream water is non project-related due to no tunnel boring or tunnel construction works in Tseung Kwan O side in this reporting month. It is considered that the exceedance are not project-related based on the following reasons:

- The exceedances are considered probably due to non-project factors, such as domestic sewage and adverse weather. The investigation details are shown in **Appendix K**.
- The vertical distance between Stream 1 and tunnel construction site is more than 44 meters. Therefore, Stream 1 should not be affected by any tunnel construction works as its elevation is above the tunnel construction site.
- The distance between the tunnel construction activities and monitoring station of Stream 2 and 3 are about 1000 meters.

3.13 The graphical presentations of the groundwater quality monitoring results are shown in **Appendix E**.

3.14 All marine water monitoring was conducted as scheduled in the reporting quarter. No Action / Limit Level exceedance was recorded during the reporting quarter.

3.15 The graphical presentations of the marine water quality monitoring results are shown in **Appendix F**.

3.16 Construction phase daily piezometer monitoring was not carried out in this reporting period as there is no tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan.

Ecological Monitoring

3.17 Post-translocation 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 survey were completed in November 2017.

Monitoring on Cultural Heritage

- 3.18 Monitoring of vibration impacts at Cha Kwo Ling Tin Hau Temple commenced on 8 April 2017. No Alert Alarm and Action (AAA) Level exceedance was recorded in the reporting quarter.

Landscape and Visual Monitoring and Audit

- 3.19 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 **Appendix H**.

Landfill Gas Monitoring

- 3.20 Monitoring of landfill gases was commenced in December 2016 and were carried out by the Contractors at excavation location, Portion III in the reporting quarter. No Limit Level exceedance was recorded. The graphical presentations of the landfill gas monitoring results are shown in **Appendix G**.

Waste Management

- 3.21 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 **Appendix I**.

Influencing Factors on the Monitoring Results

- 3.22 During the reporting period, the major dust and noise source identified at the designated monitoring stations are as follows:

Table 3.2 Major Dust Sources during the Monitoring in the Reporting Period

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

Table 3.3 Major Noise Sources during the Monitoring in the Reporting Period

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. Non-compliance (exceedances) of the Environmental Quality Performance Limits (Action and Limit Levels)

Summary of Exceedances

- 4.1 Environmental monitoring works were performed in the reporting period and all monitoring results were checked and reviewed. A summary of exceedances is attached in **Appendix K**.

Air Quality

- 4.2 No Action/Limit Level exceedance was recorded in the reporting quarter.

Construction Noise

- 4.3 Twenty-seven (27) Action Level exceedances were recorded due to the documented complaints received from monitoring station in the reporting quarter. No Limit Level exceedance was recorded in the reporting quarter.

Water Quality

- 4.4 One (1) Action Level and sixteen (16) Limit Level exceedance were recorded during the groundwater quality monitoring in the reporting quarter. It is considered that the exceedances are considered to be non-project related.

- 4.5 No Action and Limit Level exceedances were recorded during marine water quality monitoring in the reporting quarter.

Ecological Monitoring

No action/limit level of mortality was exceeded in the monitoring survey conducted in the reporting quarter.

Monitoring on Cultural Heritage

- 4.7 No Alert Alarm and Action (AAA) Level exceedance was recorded in the reporting quarter.

Landscape and Visual

- 4.8 No non-compliance of the landscape and visual impact was recorded in the reporting quarter.

Landfill Gas

- 4.9 No Limit Level exceedance was recorded in the reporting quarter.

Review of the Reasons for and the Implications of Non-compliance

- 4.10 There was no non-compliance from the site audits in the reporting quarter. The observations and recommendations made in each individual site audit session were attached in the **Appendix H**.

Summary of Environmental Complaints and Prosecutions

- 4.11 Thirty-seven (37) cases of environmental complaints on this Project were received in the reporting quarter. The details were attached in the **Appendix L**.

- 4.12 No warning, summon and notification of successful prosecution was received in the reporting quarter.

5. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

Effectiveness of Mitigation Measures

- 5.1 The mitigation measures recommended in the EIA report are considered effective in minimizing environmental impacts.
- 5.2 The Contractor has implemented the recommended mitigation measures except those mitigation measures not applicable at this stage.
- 5.3 Environmental monitoring works were performed in the reporting quarter and all monitoring results were checked and reviewed.
- 5.4 The summary record of non-compliance (exceedances) of Action/Limit Level for environmental monitoring in the reporting quarter has been presented in **Table I** above and in **Appendix K**.
- 5.5 Thirty-seven (37) cases of environmental complaints were received in the reporting quarter. The details were attached in the **Appendix L**.
- 5.6 No warning, summon and notification of successful prosecution was received in the reporting quarter.

Recommendations

- 5.7 Joint weekly site audits by the representatives of the Engineer, Contractor and the ET were conducted in the reporting quarter. The following recommendations was made to the Contractor for the coming reporting month:

Air Quality Impact

- To implement dust suppression measures such as water spray on all haul roads, stockpiles, dry surfaces, excavation and rock breaking works.
- To cover stockpile of dusty material by impervious material
- To properly display NRMM Label to Powered Mechanical Equipment on site
- To avoid smoke emission from Powered Mechanical Equipment on site
- To remove the dusty cement bags after use.
- To provide sand bag bunds to gullies at site access near the site office
- To provide top and three-side enclosure for grouting equipment on site
- To repair the gaps and the noise tarpaulin sheets to ensure the effectiveness of dust curtain.

Construction Noise

- 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 provide mitigation measures to PME as proposed in the approved NMP.
- To repair noise barrier of breaker on site.
- To provide proper acoustic material for enclosing the breaker head

Water Quality Impact

- To prevent any surface runoff discharge into any stream course or the waters in vicinity.
- To review and implement temporary drainage system.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks or those accumulated in drainage.
- To provide bund to 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 provide and repair the silt curtain to fully enclose the site.
- To remove the dusty material to avoid mud/sand fall into the sea.
- To prevent silty water flow out of site during wheel washing
- To provide bunds or containment pit to prevent muddy water flow out of site.
- To remove the construction waste in U-channel.
- To set up proper drainage system within site.
- To cover or seal the gaps of covers of catchpit to prevent silt water or oil stain flow out of site.
- To remove the sand material deposited near the seafront.
- To provide sand bag bunds to gullies

Waste/Chemical Management

- To check for any accumulation of waste materials or rubbish on site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To avoid improper handling or storage of oil drum on site.
- To provide label to identify waste storage area within site.
- To remove oil stain mixed with muddy water within site.
- To provide drip tray to chemical containers
- To remove the construction material from drip tray and provide a plug for drip tray on site.

Landscape and Visual

- To remove the construction material near the tree and set up proper tree protection area

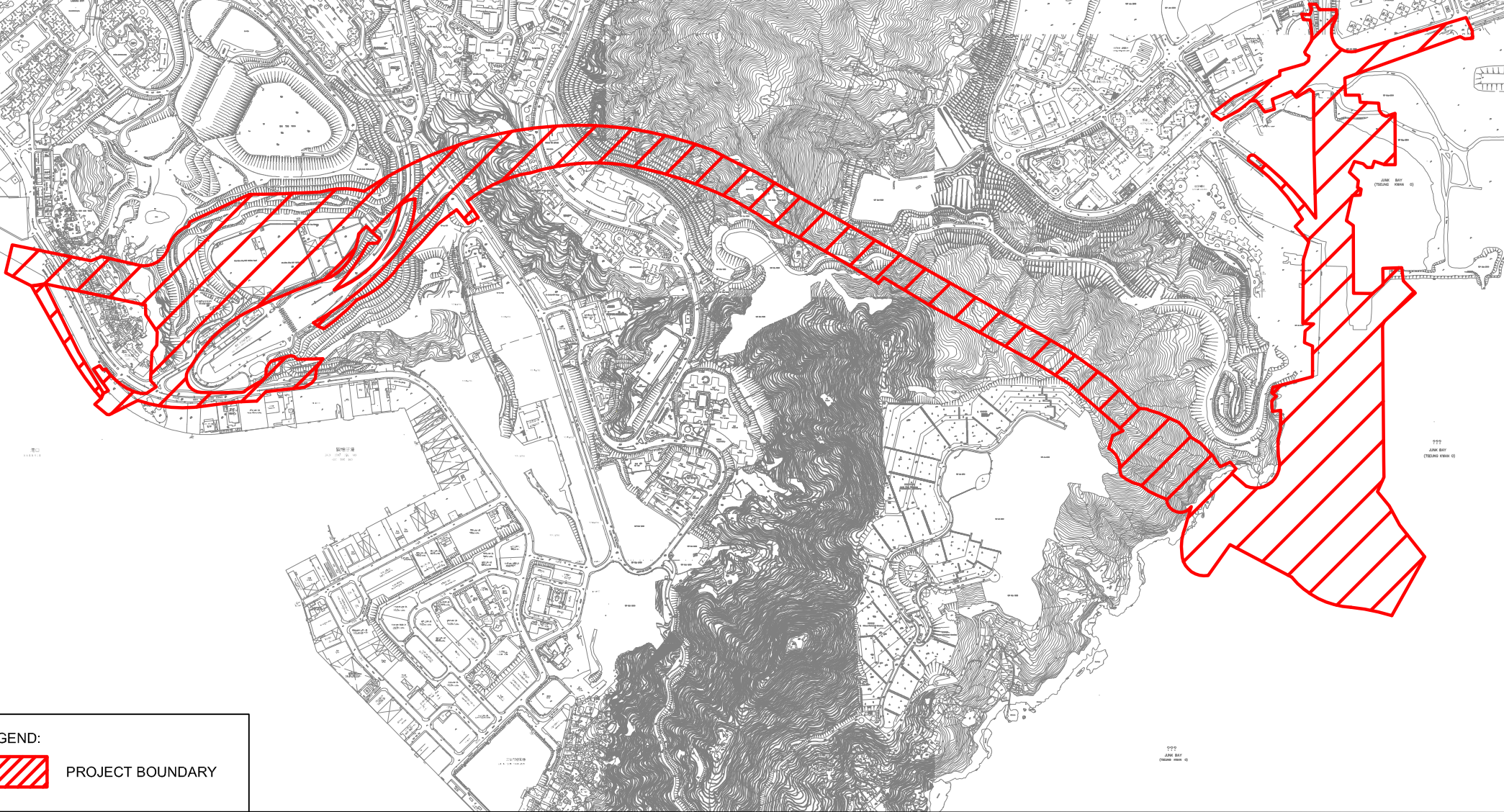
Permit/Licence

- To provide and display the Environmental Permit for the marine barge.
- To update the Environmental Permit displayed on crane barge.

Cultural Heritage

- To properly set up fenced-off buffer zone around Tin Hau Temple.

FIGURES

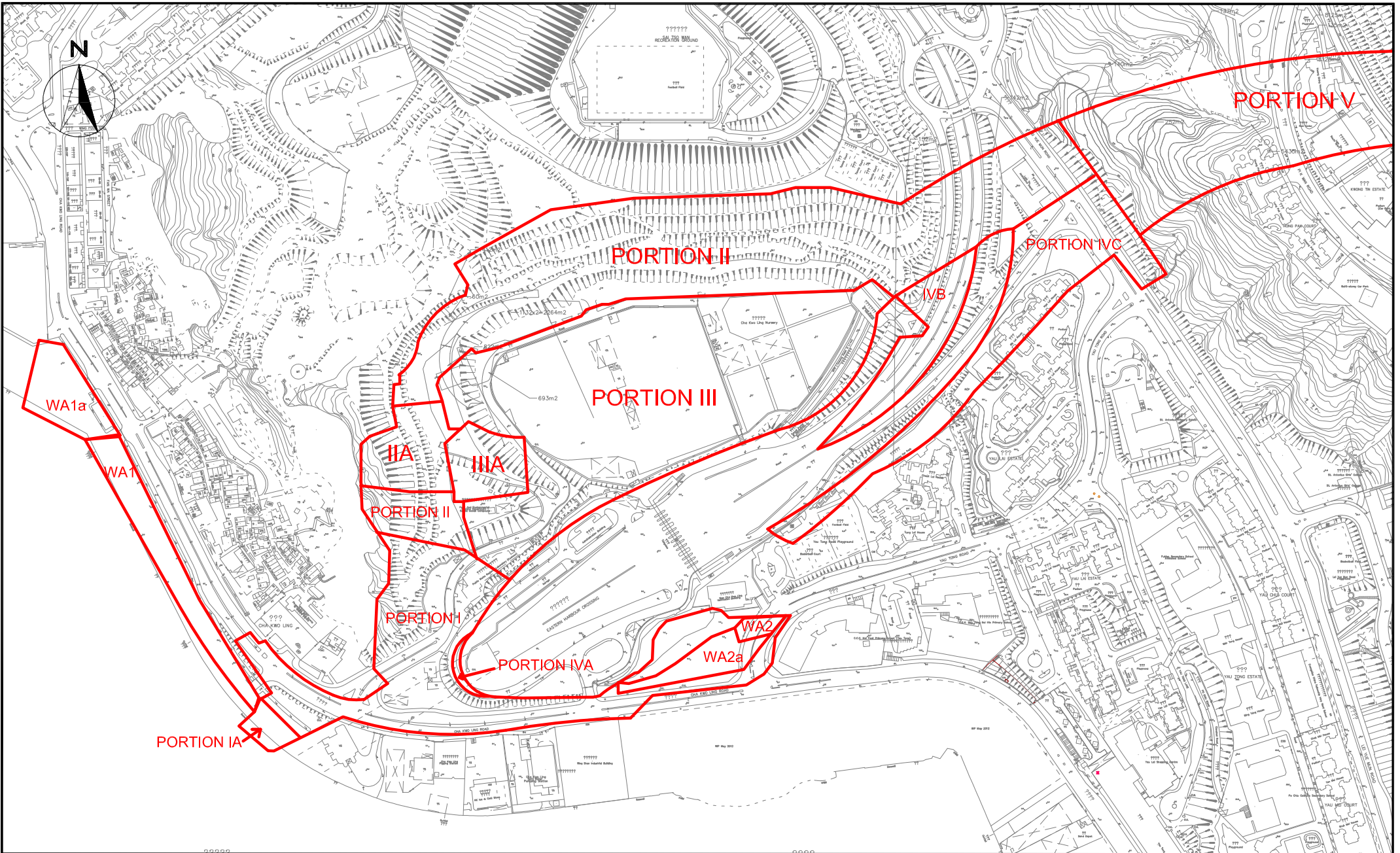


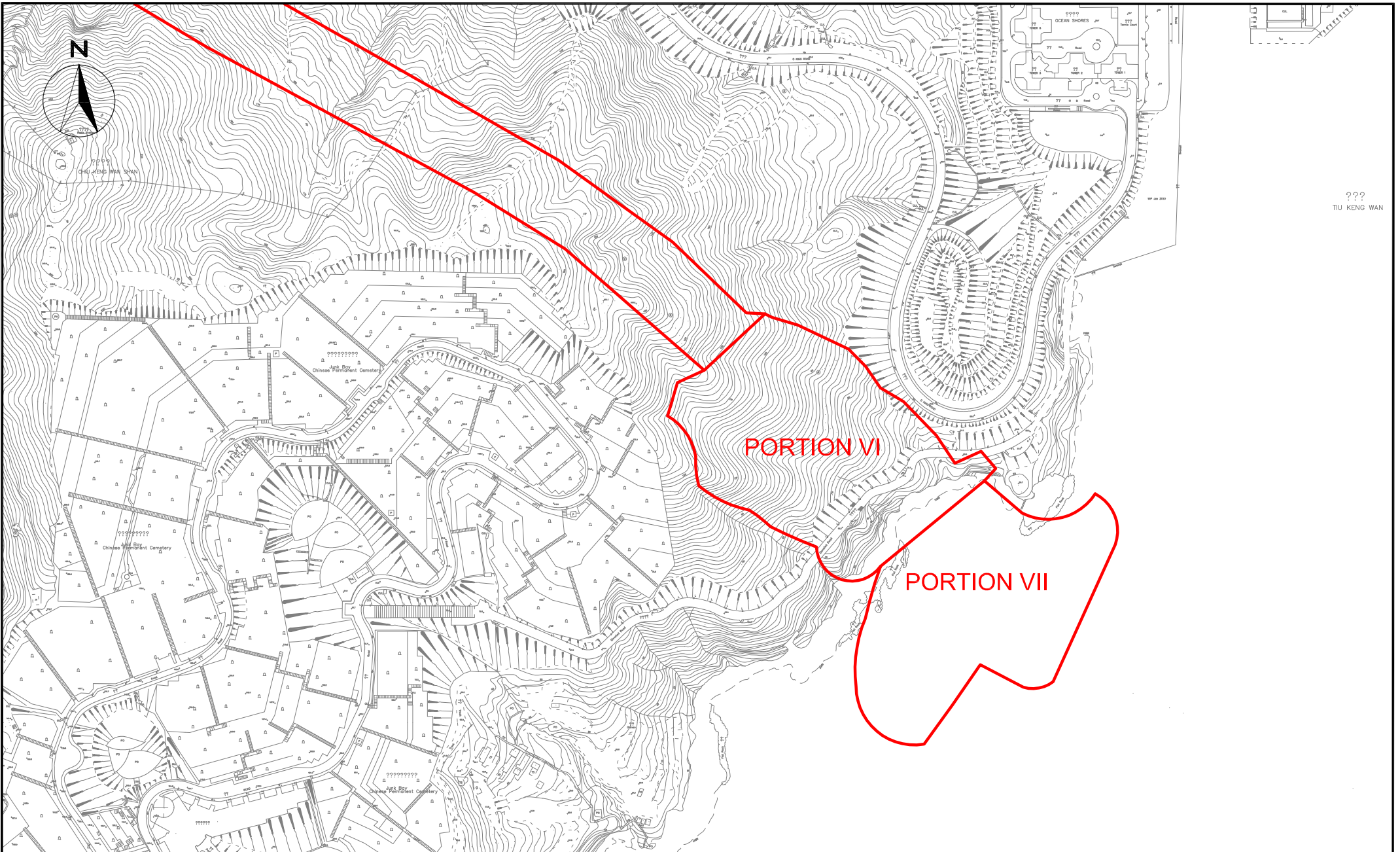
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 PROJECT BOUNDARY



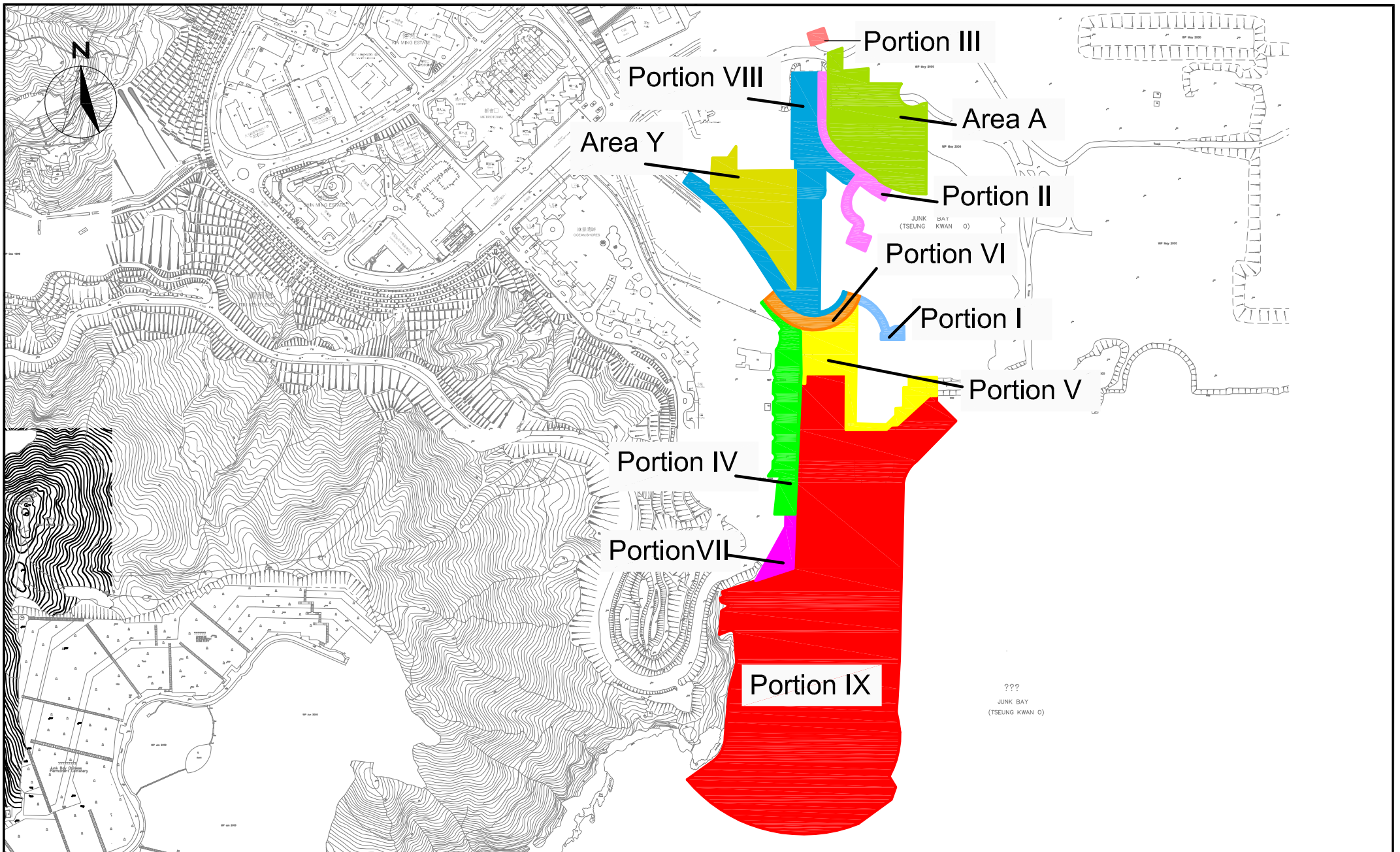
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction
Site Layout Plan

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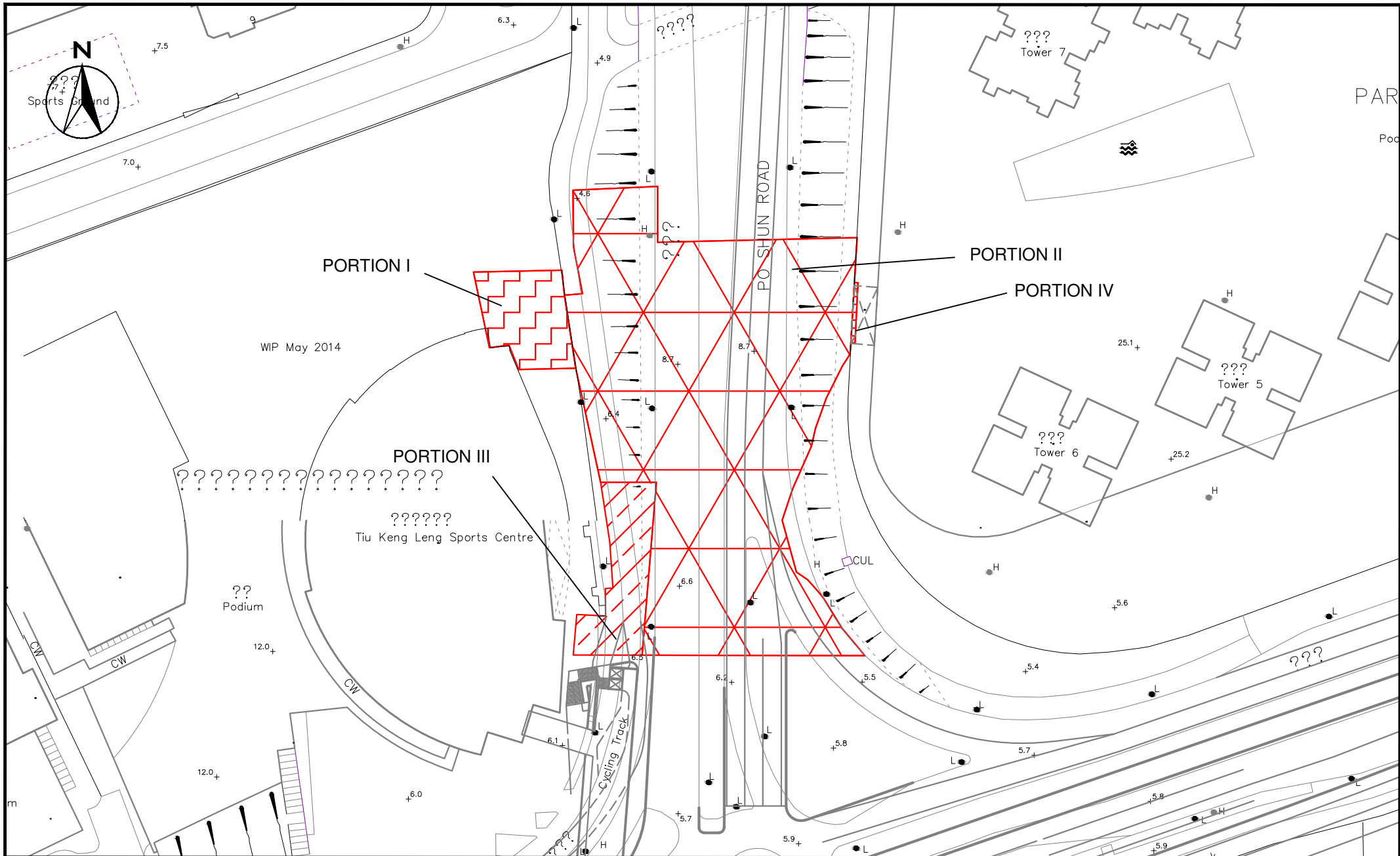




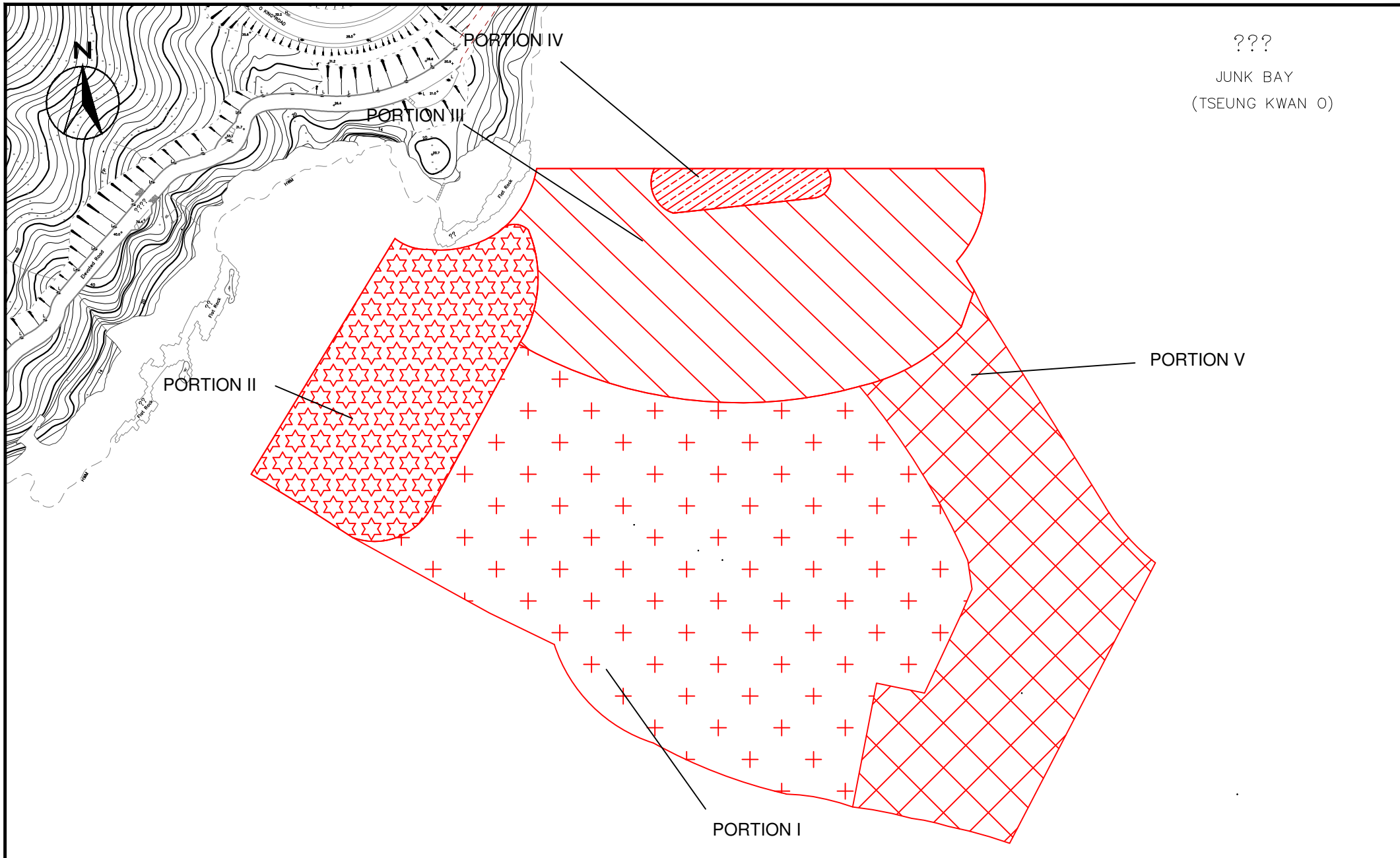
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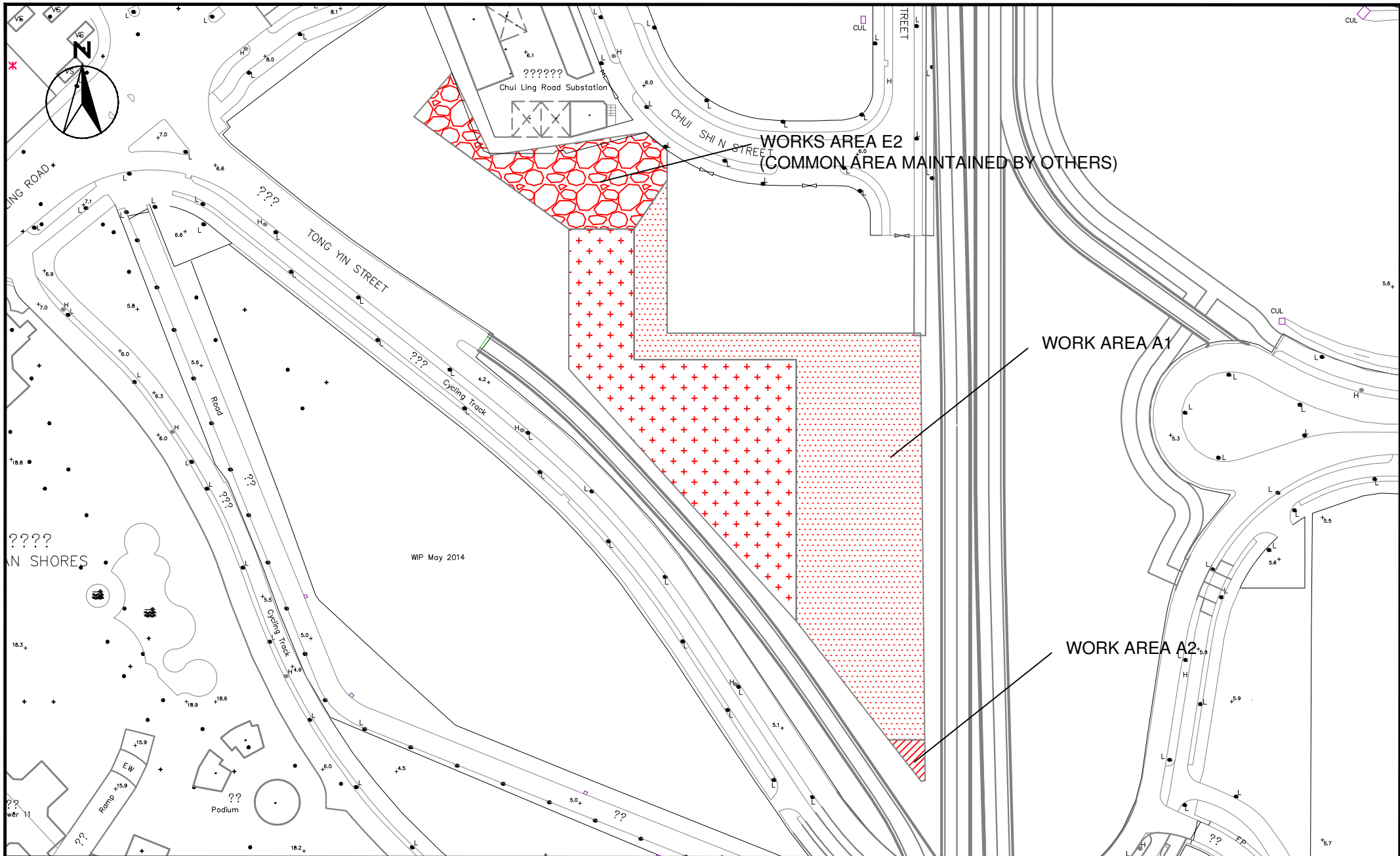
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JUNK BAY
(TSEUNG KWAN O)

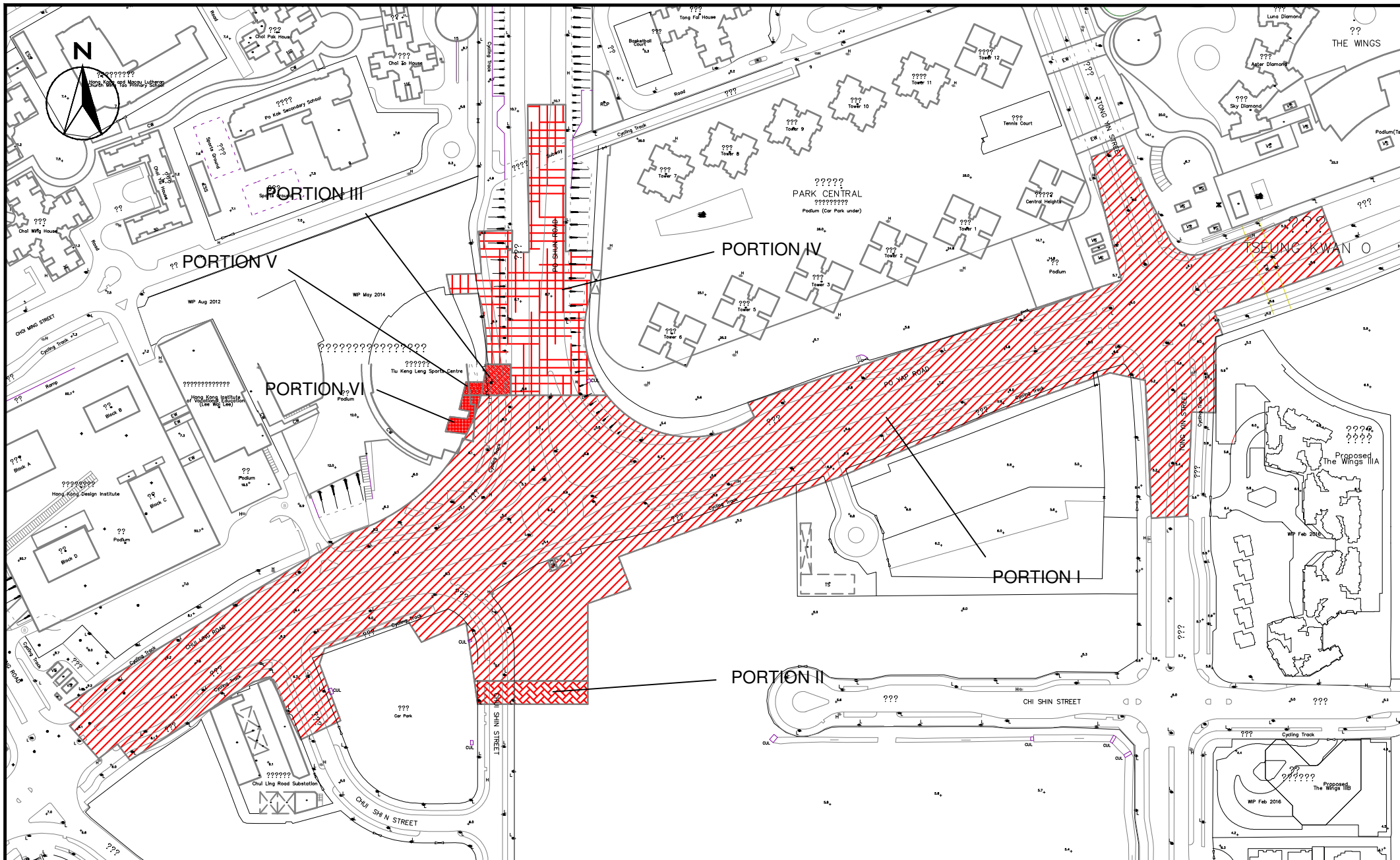


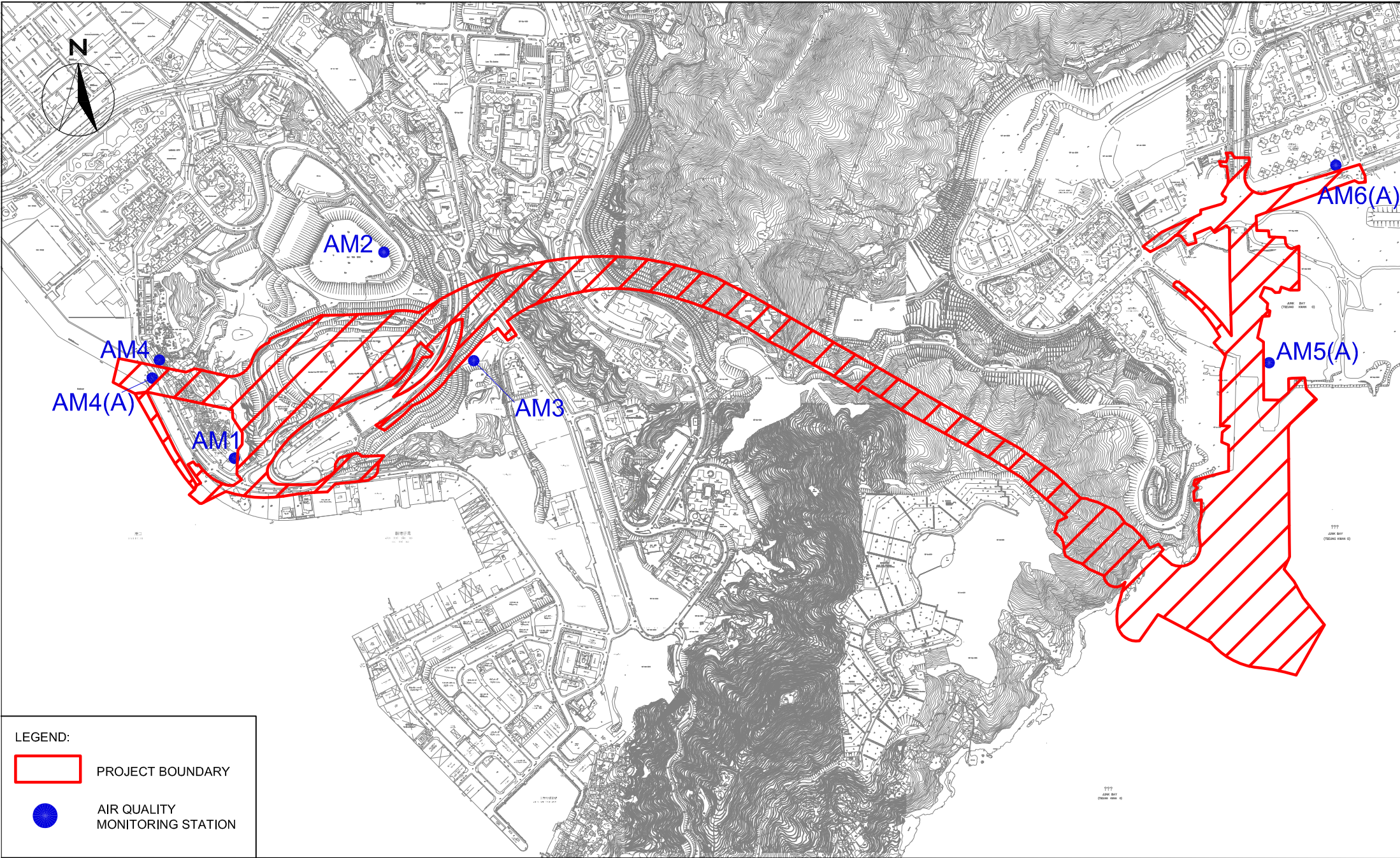
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 Environmental Team for Tseung Kwan O - Lam Tin Tunnel
 - Design and Construction
 Site Portions under Work Contract No. NE/2017/01

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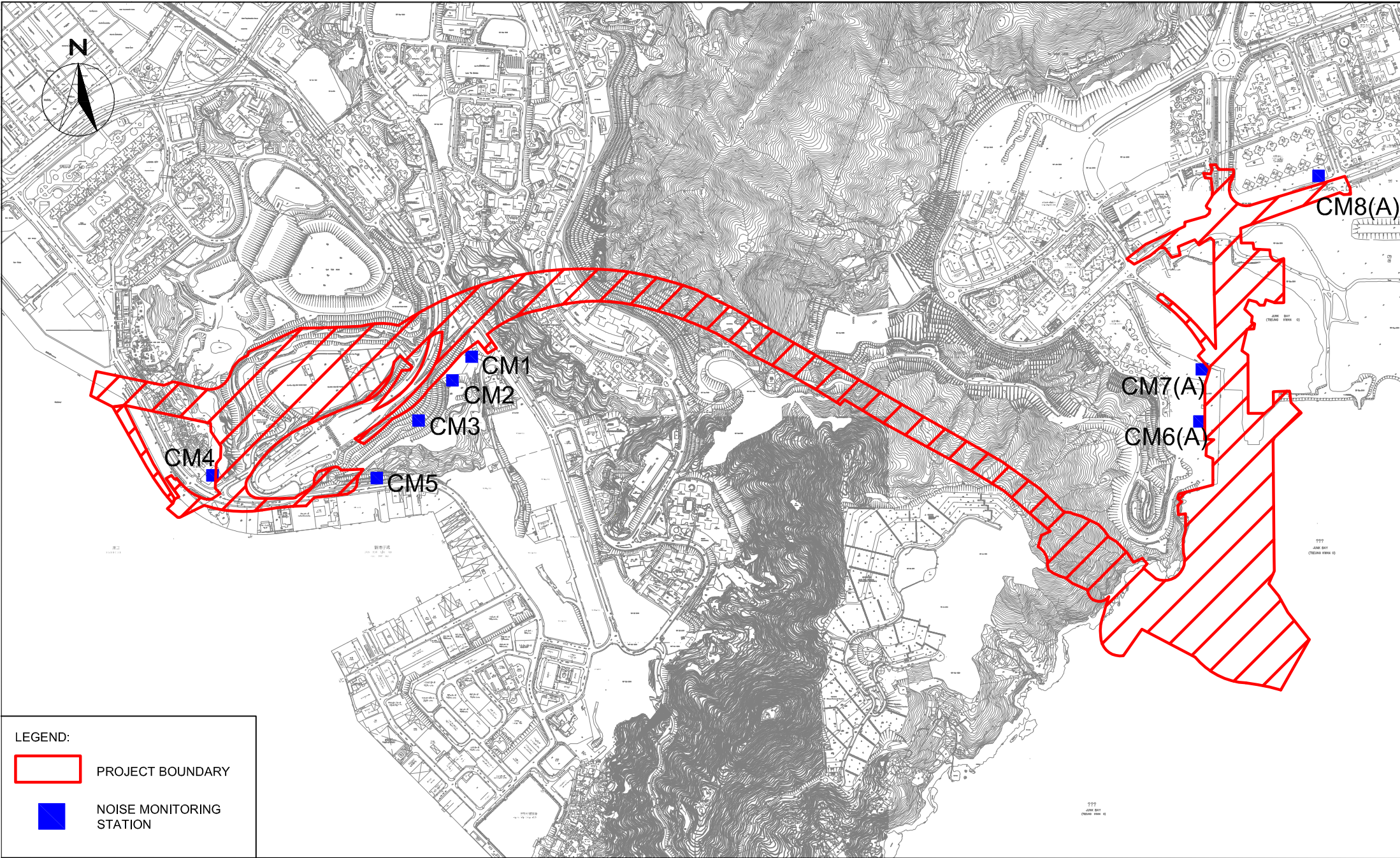
LEGEND:

- PROJECT BOUNDARY
- AIR QUALITY MONITORING STATION



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

SCALE	1:15000 @ A4	DATE	APR 2017	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	2	REV
				-



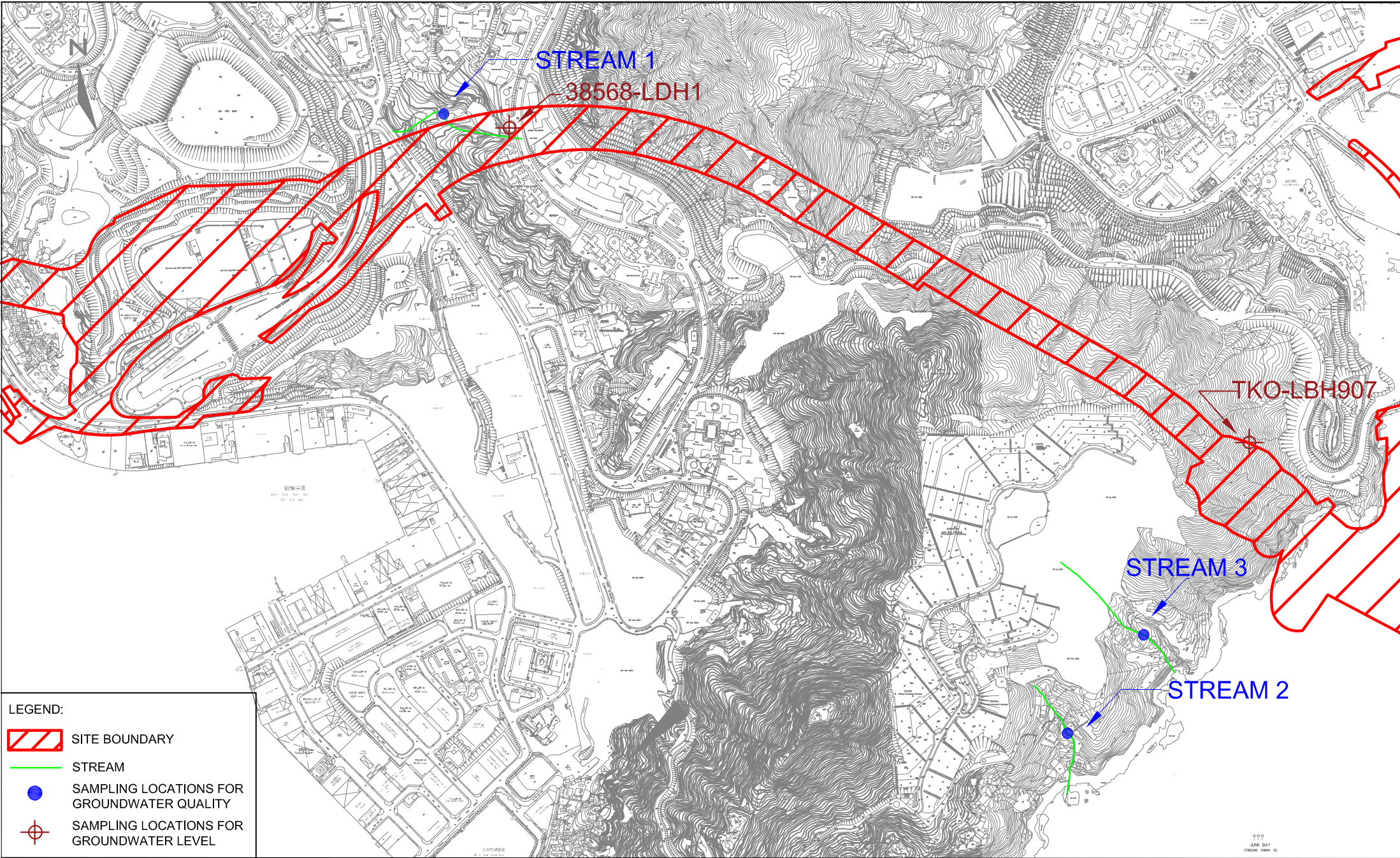
LEGEND:

- PROJECT BOUNDARY
- NOISE MONITORING STATION







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

SCALE	1:15000 @ A4	DATE	APR 2017	
CHECK	JF	DRAWN	JW	
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			-	



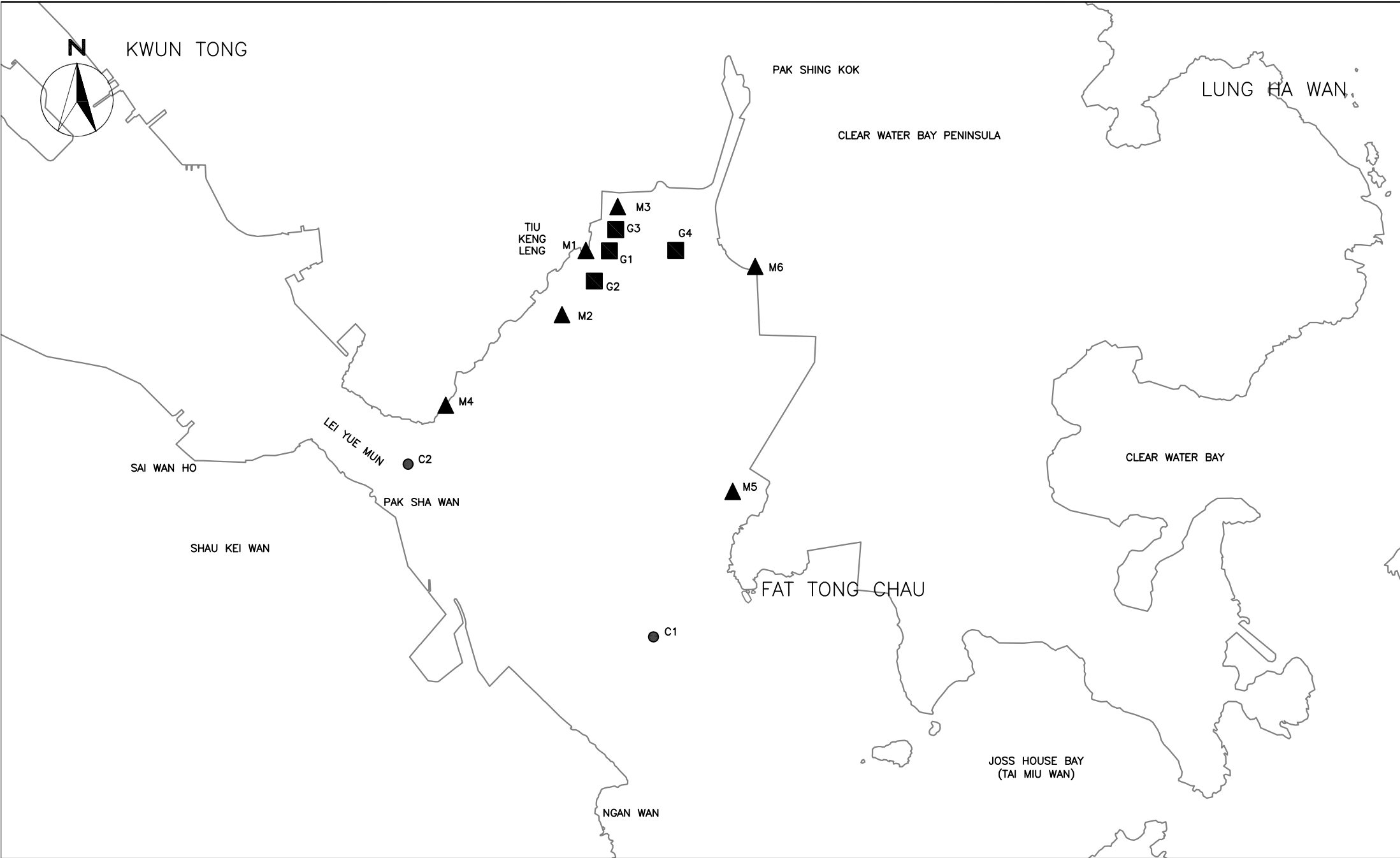
LEGEND:

-  SITE BOUNDARY
-  STREAM
-  SAMPLING LOCATIONS FOR GROUNDWATER QUALITY
-  SAMPLING LOCATIONS FOR GROUNDWATER LEVEL



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

SCALE	1:10000 @ A4	DATE	APR 2017	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	4	REV
				-



CINOTECH

Cinotech Consultants Limited

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 —

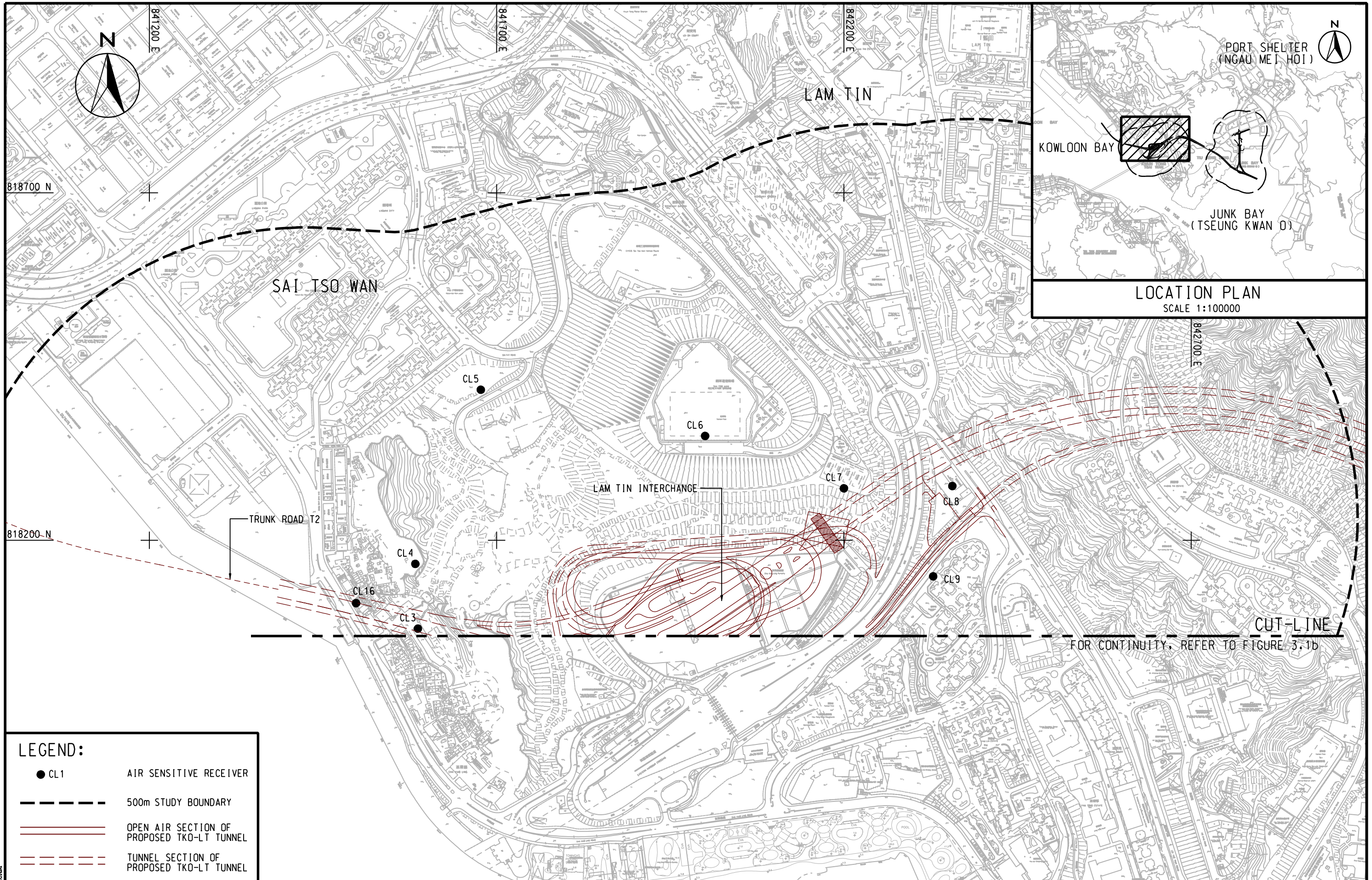


Title Agreement No. CE/59/2015 (EP)
 Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
 Locations of Landfill Gas Monitoring

Scale N.T.S
 Date Dec-16

Project No. MA16034
 Figure 6





- LEGEND:**
- CL1 AIR SENSITIVE RECEIVER
 - 500m STUDY BOUNDARY
 - OPEN AIR SECTION OF PROPOSED TKO-LT TUNNEL
 - - - TUNNEL SECTION OF PROPOSED TKO-LT TUNNEL

CUT-LINE
FOR CONTINUITY, REFER TO FIGURE 3.1b

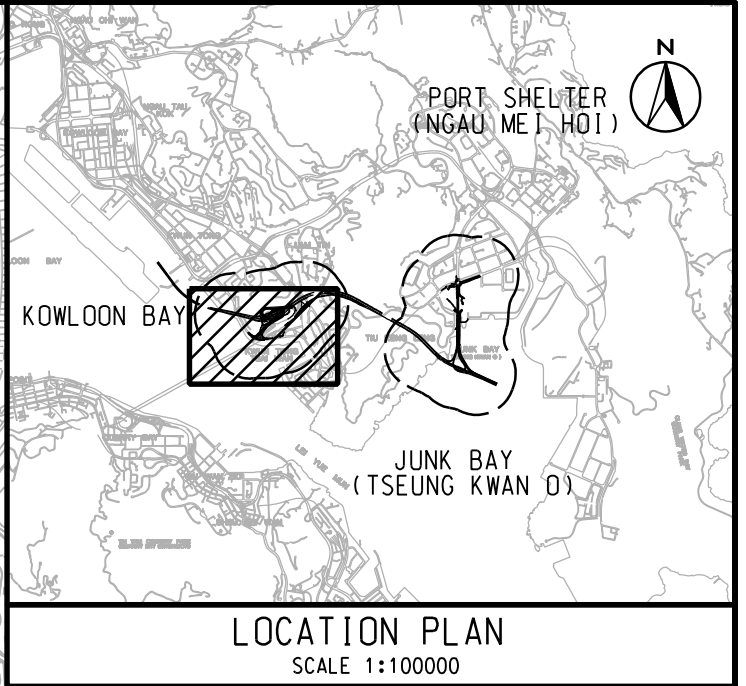
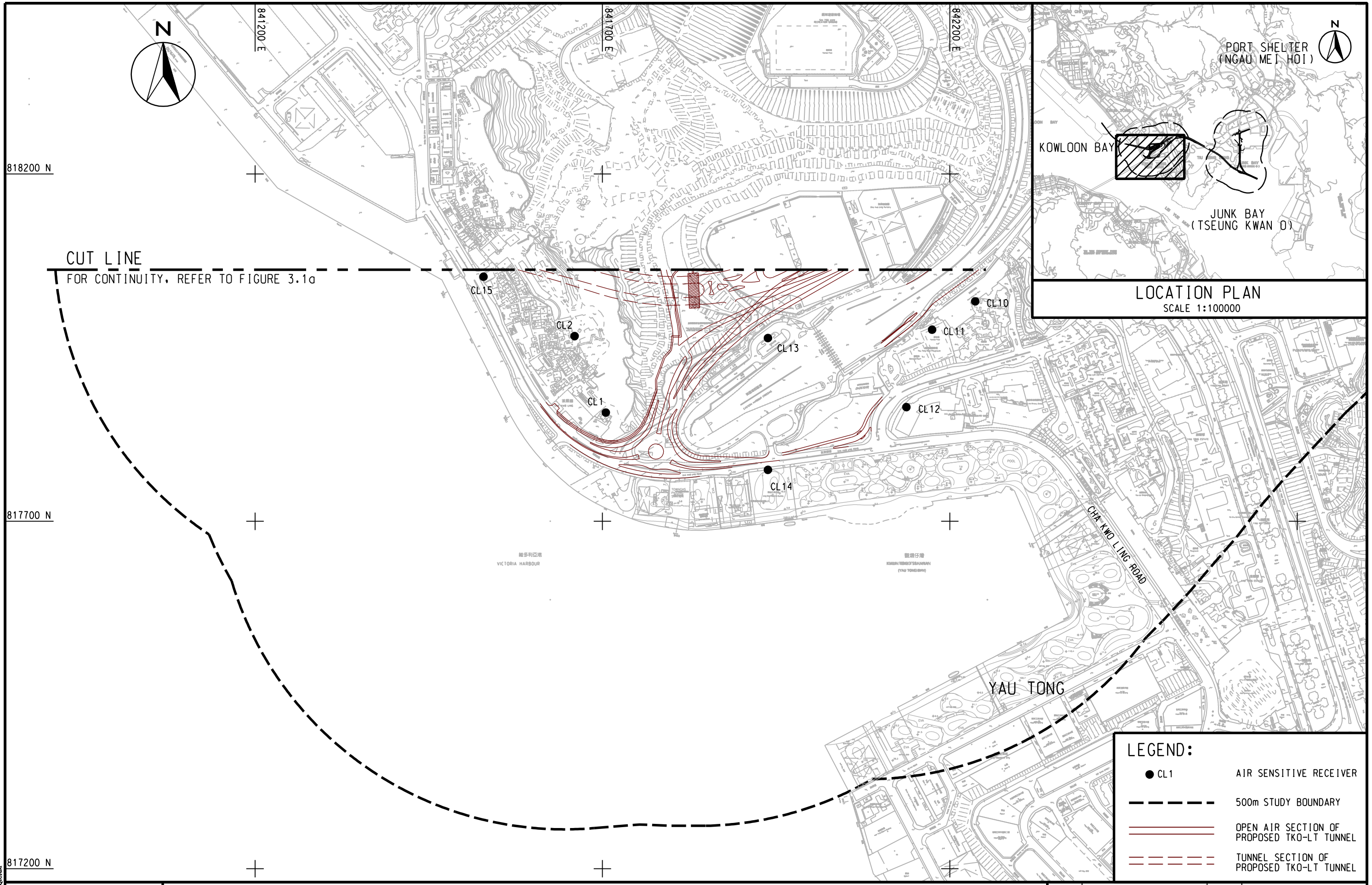


AGREEMENT NO. CE 42/2008 (CE)
TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION
**LOCATIONS OF REPRESENTATIVE AIR SENSITIVE RECEIVERS
IN THE STUDY AREA DURING CONSTRUCTION PHASE (LAM TIN)**

SHEET 1 OF 2

SCALE	A3 1 : 5000	DATE	NOV. 2012
CHECK	-	DRAWN	HLLS
JOB No.	60097677	DRAWING No.	FIGURE 3.1a
		REV	-

Plot File by: J1/G2013 QTCAM



LEGEND:

- CL1 AIR SENSITIVE RECEIVER
- 500m STUDY BOUNDARY
- OPEN AIR SECTION OF PROPOSED TKO-LT TUNNEL
- - - TUNNEL SECTION OF PROPOSED TKO-LT TUNNEL

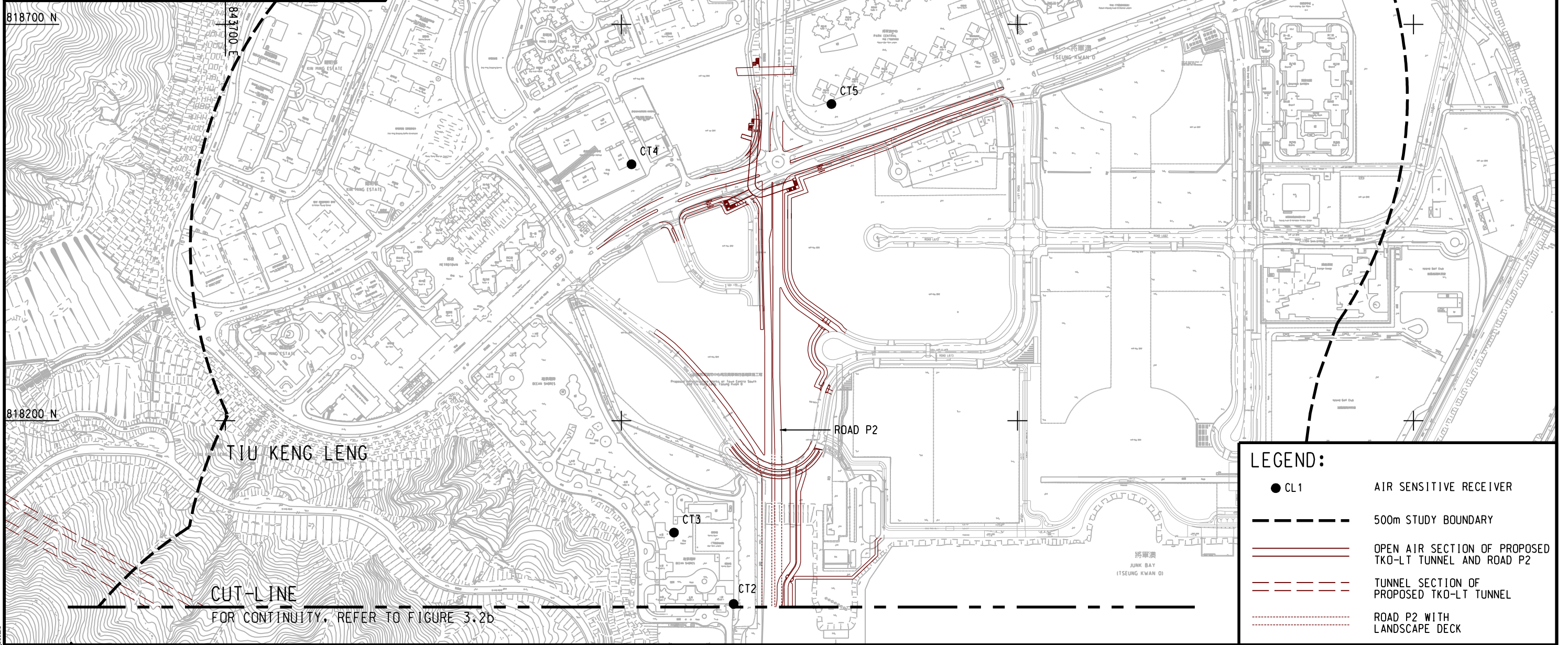
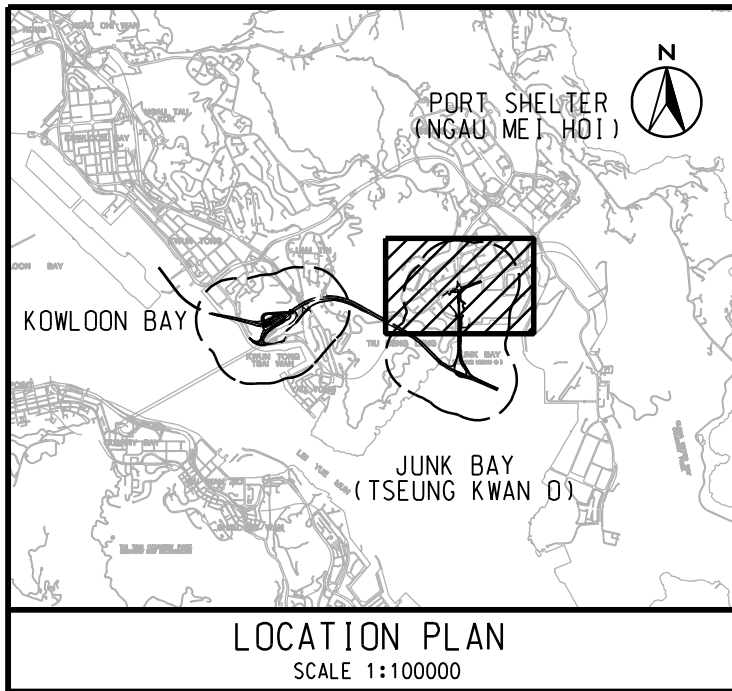


AGREEMENT NO. CE 42/2008 (CE)
 TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION
**LOCATIONS OF REPRESENTATIVE AIR SENSITIVE RECEIVERS
 IN THE STUDY AREA DURING CONSTRUCTION PHASE (LAM TIN)**

SHEET 2 OF 2

SCALE	A3 1 : 5000	DATE	NOV. 2012
CHECK	-	DRAWN	HLLS
JOB No.	60097677	DRAWING No.	FIGURE 3.1b
		REV	-

Plot File by: J1/6/2013 QIUAM



LEGEND:

- CL1 AIR SENSITIVE RECEIVER
- 500m STUDY BOUNDARY
- ==== OPEN AIR SECTION OF PROPOSED TKO-LT TUNNEL AND ROAD P2
- TUNNEL SECTION OF PROPOSED TKO-LT TUNNEL
- ROAD P2 WITH LANDSCAPE DECK

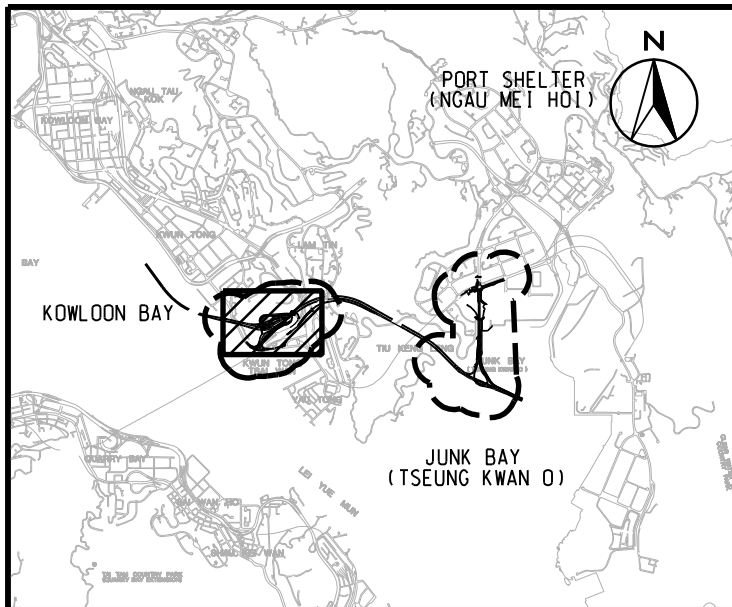
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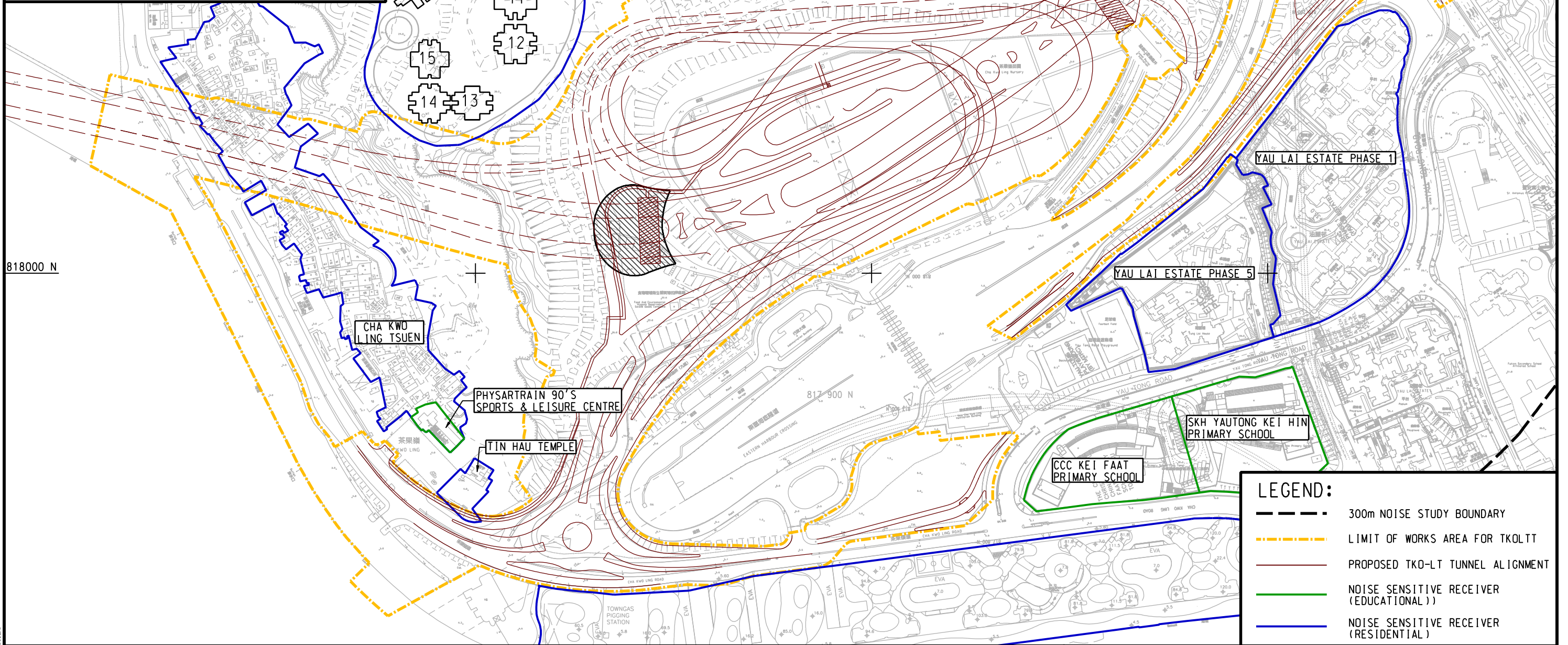
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TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION
**LOCATIONS OF REPRESENTATIVE AIR SENSITIVE RECEIVERS
IN THE STUDY AREA DURING CONSTRUCTION PHASE (TSEUNG KWAN O)**

SHEET 1 OF 2

SCALE	A3 1 : 5000	DATE	NOV. 2012
CHECK	-	DRAWN	HLL
JOB No.	60097677	DRAWING No.	FIGURE 3.2a
		REV	-



LOCATION PLAN
SCALE 1 : 90000



LEGEND:

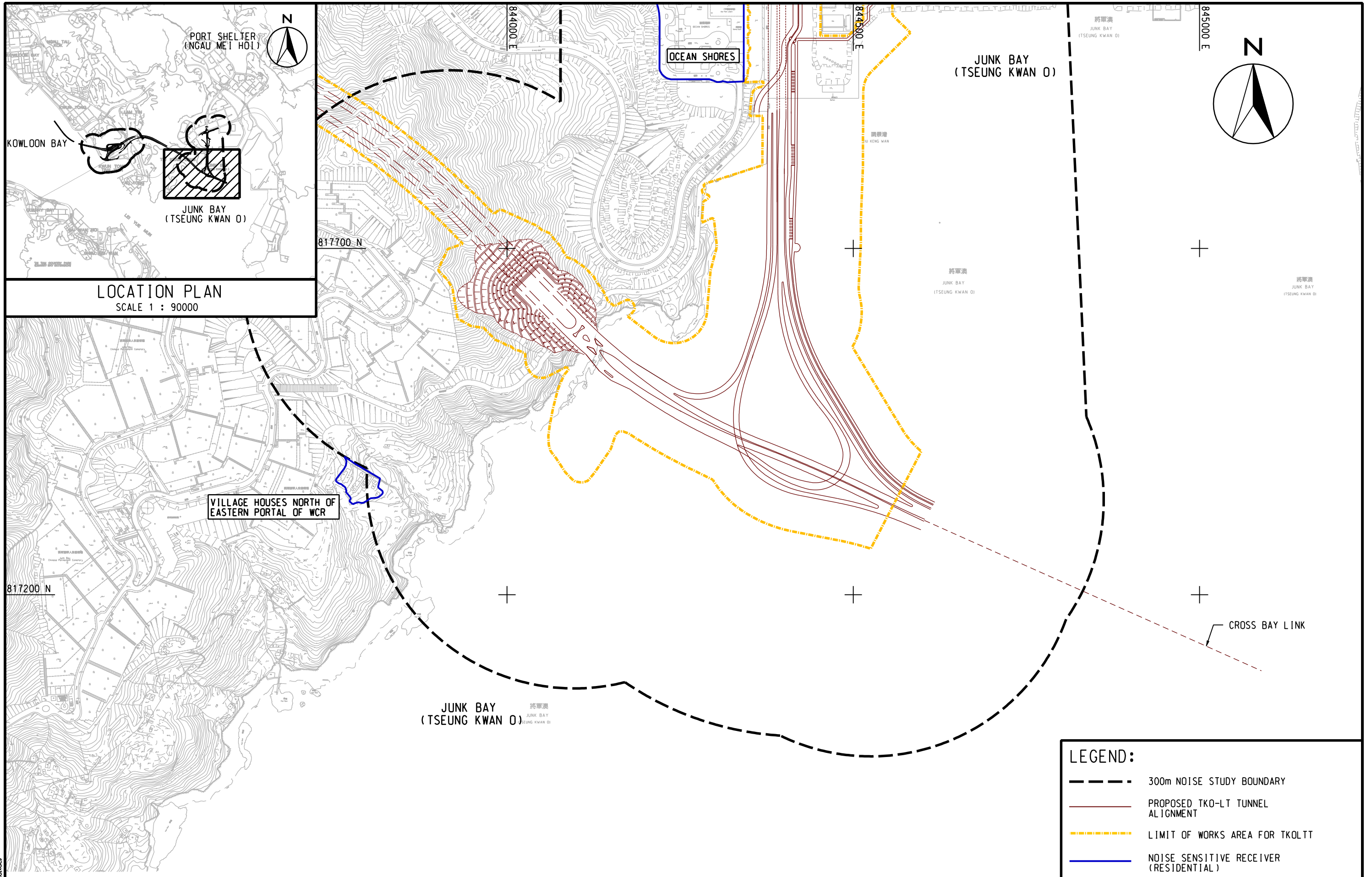
- 300m NOISE STUDY BOUNDARY
- - - - - LIMIT OF WORKS AREA FOR TKOLTT
- PROPOSED TKO-LT TUNNEL ALIGNMENT
- NOISE SENSITIVE RECEIVER (EDUCATIONAL)
- NOISE SENSITIVE RECEIVER (RESIDENTIAL)

AGREEMENT NO. CE 42/2008 (CE)
TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION
LOCATIONS OF NOISE SENSITIVE RECEIVERS

SHEET 1 OF 4

SCALE	A3 1 : 3000	DATE	NOV. 2012
CHECK	--	DRAWN	HLL
JOB No.	60097677	DRAWING No.	FIGURE 4.1
		REV	--





LEGEND:

- 300m NOISE STUDY BOUNDARY
- PROPOSED TKO-LT TUNNEL ALIGNMENT
- LIMIT OF WORKS AREA FOR TKOLTT
- NOISE SENSITIVE RECEIVER (RESIDENTIAL)

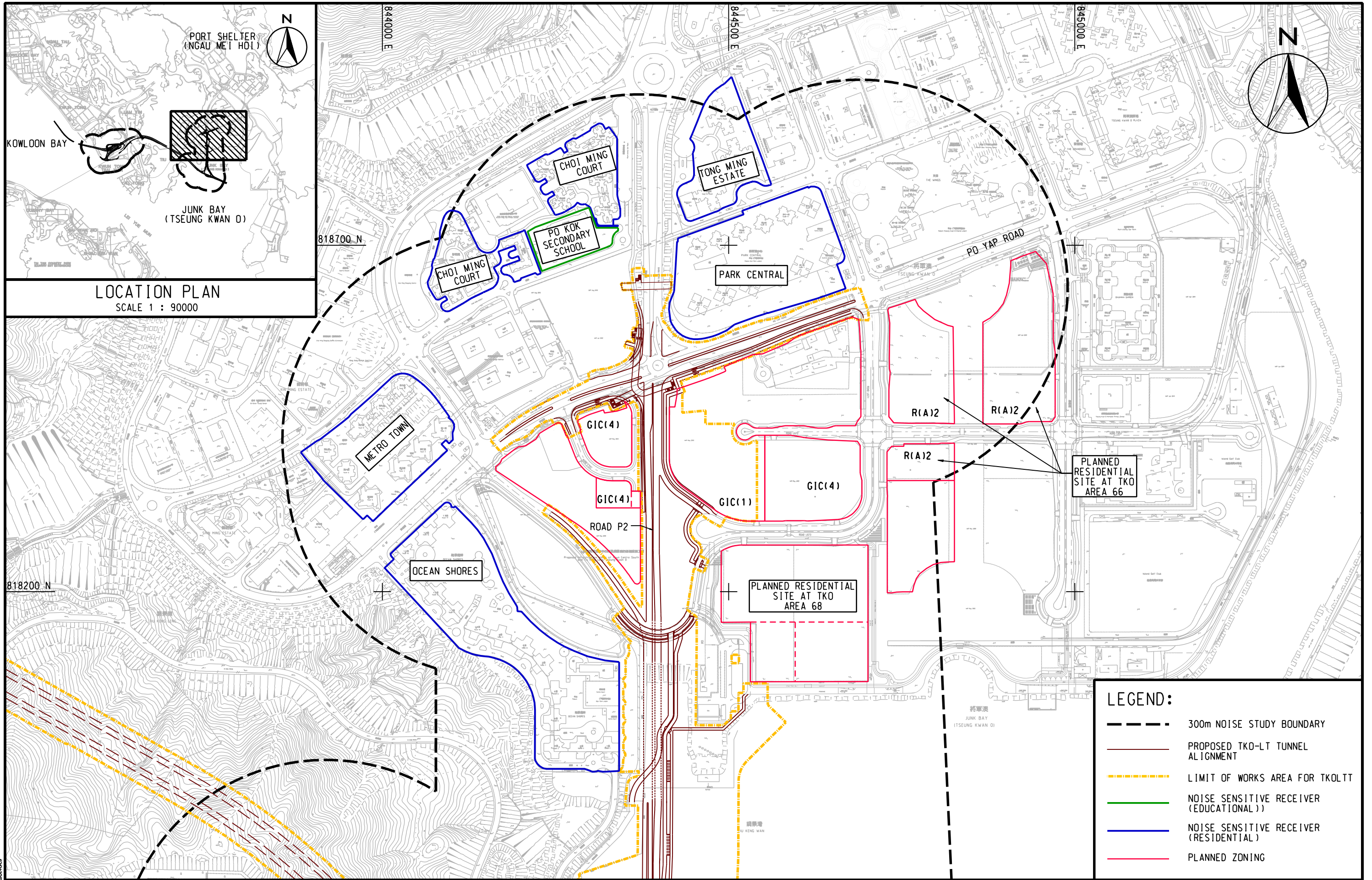


AGREEMENT NO. CE 42/2008 (CE)
 TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION
 LOCATIONS OF NOISE SENSITIVE RECEIVERS

SHEET 3 OF 4

SCALE	A3 1 : 5000	DATE	JAN. 2013
CHECK	--	DRAWN	HLLS
JOB No.	60097677	DRAWING No.	FIGURE 4.1
		REV	--

Plot File by : 24/01/2013 XIONGCI



LOCATION PLAN
SCALE 1 : 90000

LEGEND:

- 300m NOISE STUDY BOUNDARY
- PROPOSED TKO-LT TUNNEL ALIGNMENT
- LIMIT OF WORKS AREA FOR TKOLTT
- NOISE SENSITIVE RECEIVER (EDUCATIONAL)
- NOISE SENSITIVE RECEIVER (RESIDENTIAL)
- PLANNED ZONING



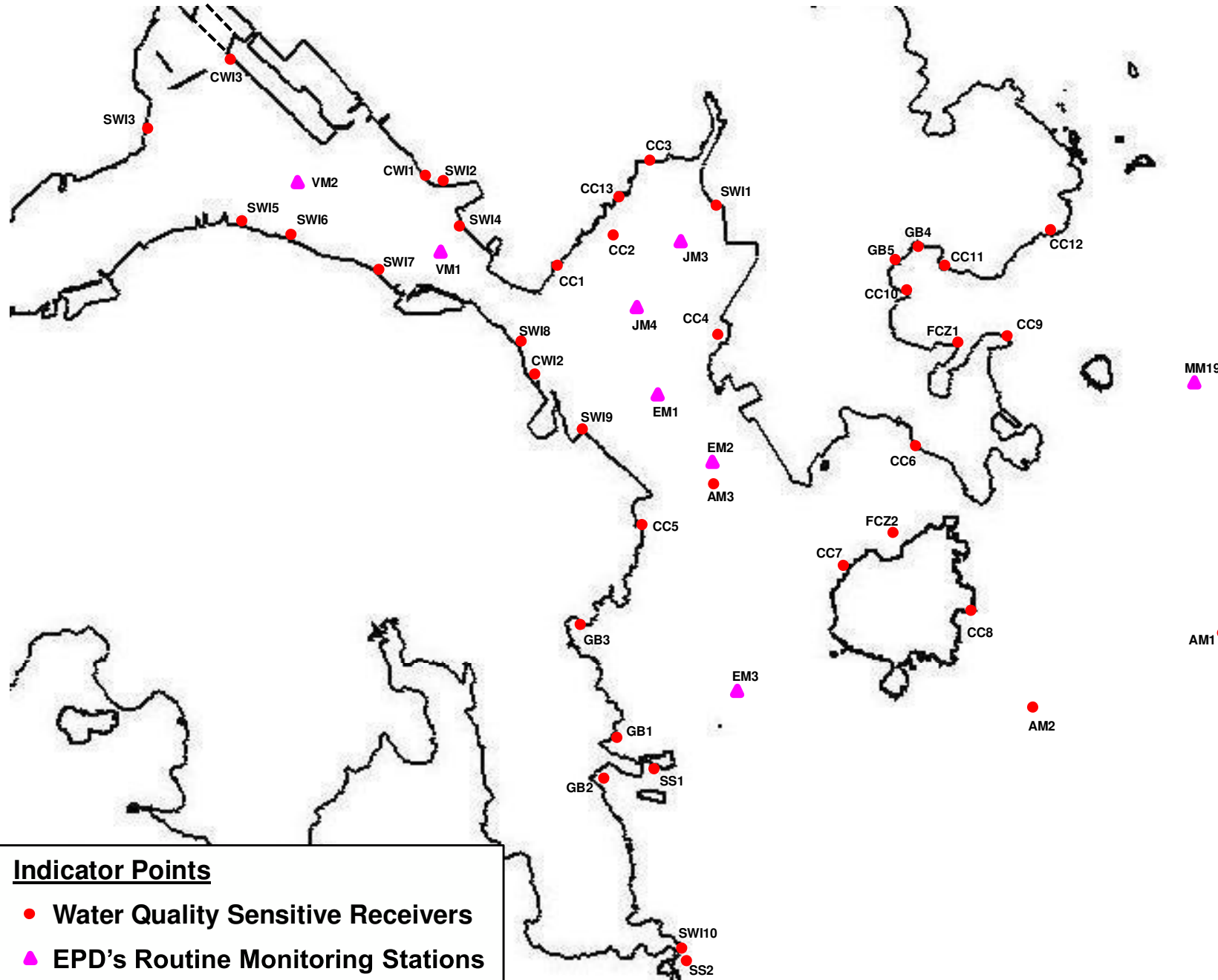
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TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION
LOCATIONS OF NOISE SENSITIVE RECEIVERS

SCALE	A3 1 : 5000	DATE	JAN. 2013
CHECK	--	DRAWN	HLLS
JOB No.	60097677	DRAWING No.	FIGURE 4.1
		REV	--

SHEET 4 OF 4

Plot File by : 24/01/2013 XIONGCCI

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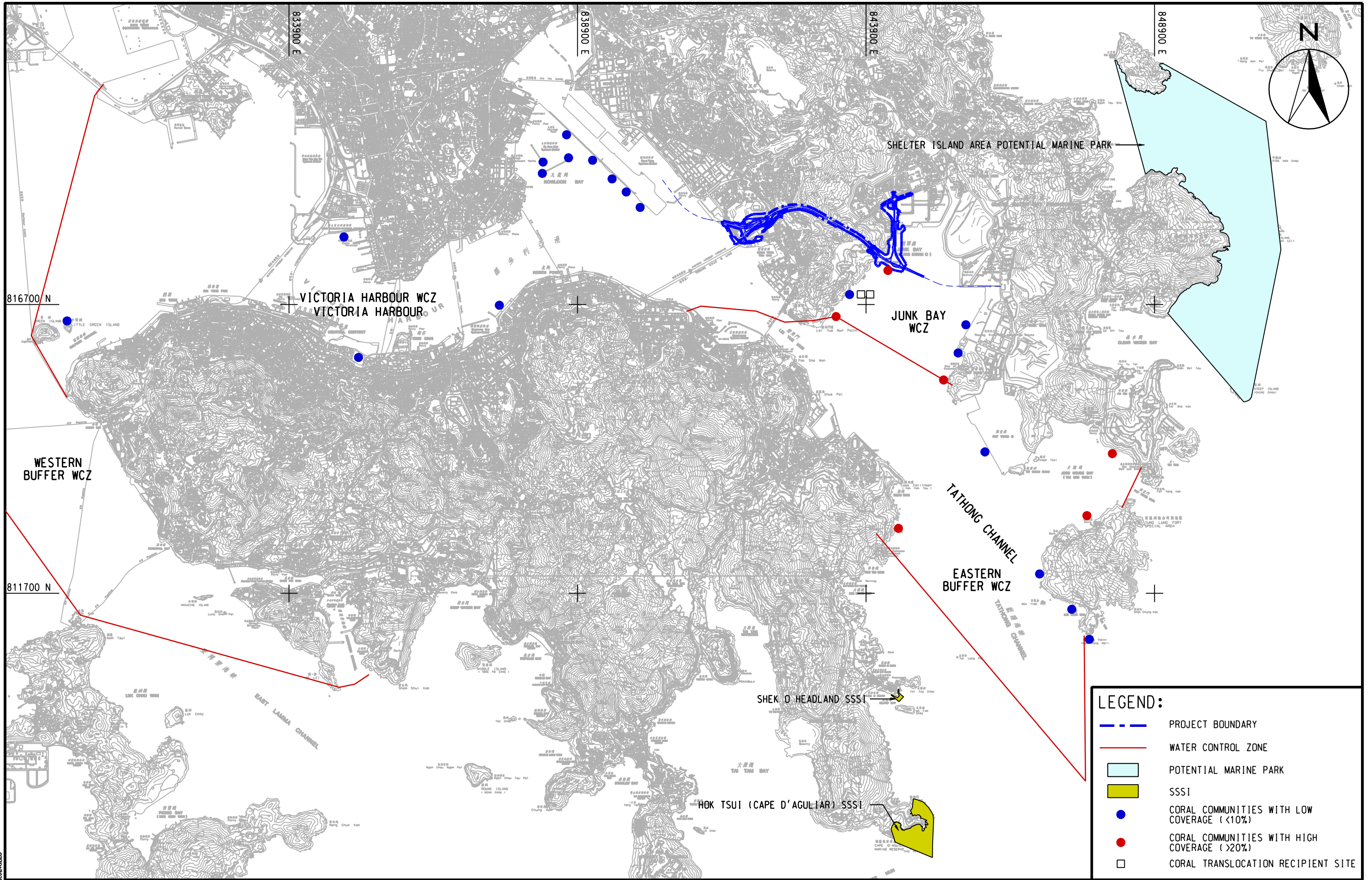


Indicator Points

- Water Quality Sensitive Receivers
- ▲ EPD's Routine Monitoring Stations

WSR ID	Description
SWI1	WSD's Salt Water Intakes at Tseung Kwan O
SWI2	WSD's Salt Water Intakes at Yau Tong
SWI3	WSD's Salt Water Intakes at Tai Wan
SWI4	WSD's Salt Water Intakes at Cha Kwo Lang
SWI5	WSD's Salt Water Intakes at North Point
SWI6	WSD's Salt Water Intakes at Quarry Bay
SWI7	WSD's Salt Water Intakes at Sai Wan Ho
SWI8	WSD's Salt Water Intakes at Heng Fa Chuen
SWI9	WSD's Salt Water Intakes at Siu Sai Wan
SWI10	Salt Water Intakes at Cape D'Agular for Swire Institute of Marine Science, The University of Hong Kong
CWI1	Cooling Water Intakes for Dairy Farm Ice Plant
CWI2	Cooling Water Intakes for Pamela Youde Nethersole Eastern Hospital
CWI3	Future Kai Tak Cooling Water Intakes
CC1	Coral Sites at Chiu Keng Wan
CC2	Coral Sites at Junk Bay
CC3	Coral Sites at Junk Island
CC4	Coral Sites at Fat Tong Chau West
CC5	Coral Sites at Tso Tui Wan North
CC6	Coral Sites at Joss House Bay
CC7	Coral Sites at Tung Lung Chau West
CC8	Coral Sites at Tung Lung Chau East
CC9	Coral Sites at Shek Mei Tau
CC10	Coral Sites at So Shi Tau
CC11	Coral Sites at Tai Wang Tau
CC12	Coral Sites at Po Keng Teng
CC13	Coral Sites at Junk Bay near Chiu Keng Wan
SS1	SSSI at Shek O Headland
SS2	SSSI at Cape D'Agular
FCZ1	Fish Culture Zone at Po Toi O
FCZ2	Fish Culture Zone at Tung Lung Chau
AM1	Spotted Occurrence of Amphioxus (historical record of summer survey)
AM2	Spotted Occurrence of Amphioxus (Yr 2006 record of summer survey)
AM3	Spotted Occurrence of Amphioxus (Yr 2006 record of summer survey)
GB1	Shek O Rocky Bay
GB2	Shek O Beach
GB3	Big Wave Bay Beach
GB4	Clear Water Bay First Beach
GB5	Clear Water Bay Second Beach
MM19	
AM1	
AM2	
EM1	
EM2	
EM3	
JM1	
JM2	
JM3	
JM4	

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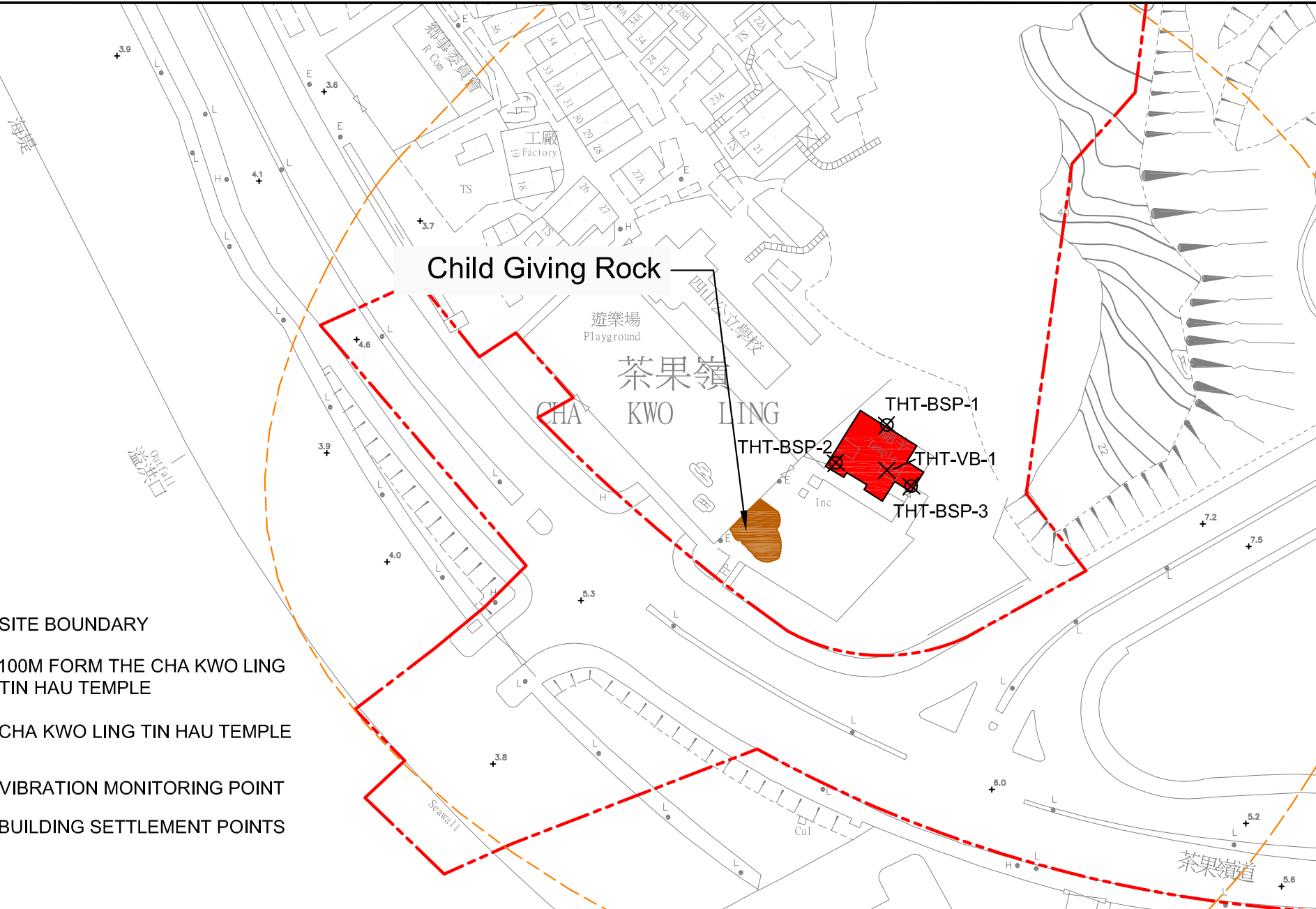
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AGREEMENT NO. CE 42/2008 (CE)
TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION

MARINE ECOLOGICAL SENSITIVE RECEIVERS WITHIN AND IN VICINITY OF THE ASSESSMENT AREA

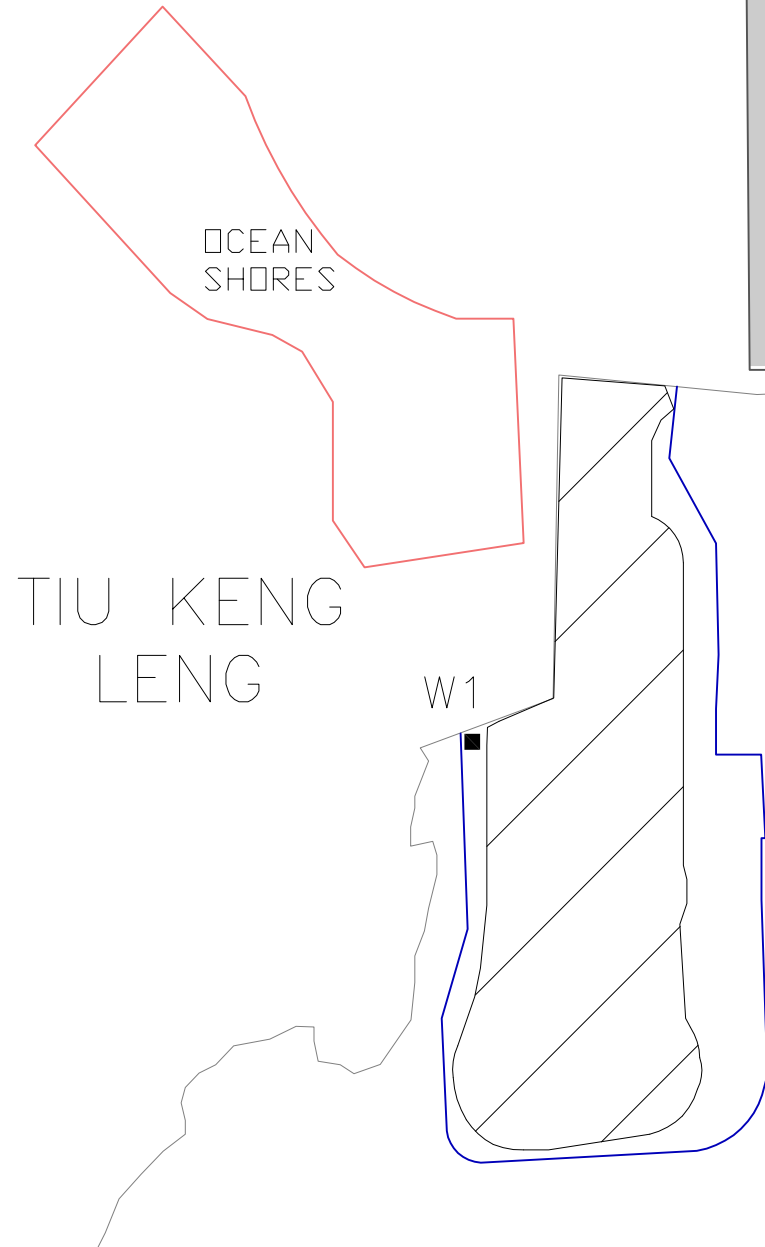
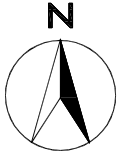
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CHECK	-	DRAWN	DXL
JOB NO.	60097677	DRAWING No.	FIGURE 6.2
		REV	-



LEGEND

- - - SITE BOUNDARY
- - - 100M FORM THE CHA KWO LING TIN HAU TEMPLE
- CHA KWO LING TIN HAU TEMPLE
- X VIBRATION MONITORING POINT
- ⊗ BUILDING SETTLEMENT POINTS

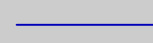
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CHECK	JF	DRAWN	AC	
JOB No.	MA16034	FIGURE NO.	8	REV
				-



LEGEND



IMPACT STATIONS



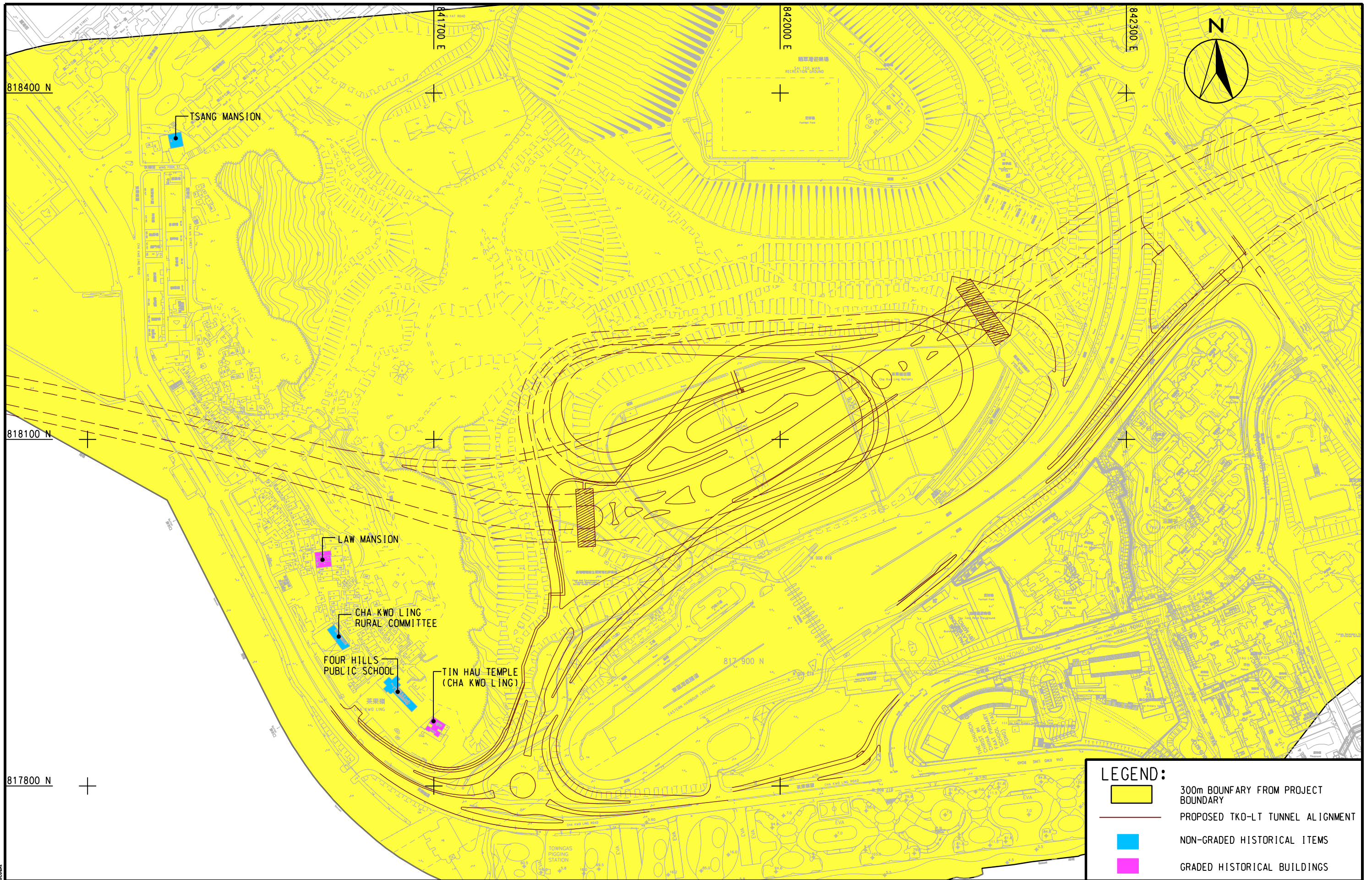
LOCATION OF TEMPORARY MARINE EMBAYMENT BY STEEL COFFERDAM



RECLAMATION FOOTPRINT

CURRENT SHORELINE

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



LEGEND:

	300m BOUNDARY FROM PROJECT BOUNDARY
	PROPOSED TKO-LT TUNNEL ALIGNMENT
	NON-GRADED HISTORICAL ITEMS
	GRADED HISTORICAL BUILDINGS

Plot File by: 1/11/2013 QTCAM



AGREEMENT NO. CE 42/2008 (CE)
 TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION
CULTURAL HERITAGE RESOURCES AT CHA KWO LING

SCALE	A3 1 : 3000	DATE	DEC. 2012
CHECK	--	DRAWN	HLL
JOB No.	60097677	DRAWING No.	FIGURE 9.2
		REV	--

**APPENDIX A
MONITORING REQUIREMENTS**

Appendix A - Environmental Impact Monitoring Requirements

Table I – Air Quality Monitoring

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Air Quality	1 hour TSP	Three times / 6 days	<ul style="list-style-type: none"> • AM1 – Tin Hau Temple • AM2 – Sai Tso Wan Recreation Ground • AM3 – Yau Lai Estate Bik Lai House • AM4⁽¹⁾ – Road Traffic at Cha Kwo Ling Road • 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 	<ul style="list-style-type: none"> • AM1 – Ground Level • AM2 – Ground Level • AM3 – Rooftop (41/F) • AM4⁽¹⁾ – Ground Level • AM4(A)^{(2)(*)} – Rooftop (3/F) • AM5(A)^(*) – Ground Level • AM6(A)^(*) – 1/F
	24 hour TSP	Once / 6 days		

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.

Table II – Noise Monitoring

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Construction Noise	L _{eq} , L ₉₀ & L ₁₀ at 30 minute intervals during 0700 to 1900 on normal weekdays	Once per week	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • CM1 – Rooftop (41/F) • CM2 – Rooftop (41/F) • CM3 – Rooftop (40/F) • CM4 – Ground Level • CM5 – Rooftop (6/F) • CM6(A)* – Ground Level • CM7(A)* – Ground Level • CM8(A)* – 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.

Table III – Water Quality Monitoring

Monitoring Stations	Parameters, unit	Depth	Frequency
Groundwater Quality			
Stream 1- Stream 3	<ul style="list-style-type: none"> • DO, mg/L • DO Saturation, % • pH • Water Temperature (°C) • Turbidity, NTU • SS, mg/L • BOD₅, mg O₂/L • TOC, mg-TOC/L • Total Nitrogen, mg/L • Ammonia-N, mg NH₃-N/L • Total Phosphate, mg-P/L 	Mid-depth	<p style="text-align: center;">Biweekly</p> <p style="text-align: center;">(When the tunnel construction works are found within 50m of the location, weekly.)</p>
Marine Water Quality			
M1 M2 M3 M4 M5 M6 C1 C2 G1 G2 G3 G4	<p><i>In-situ:</i></p> <p>Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity</p> <p><u>Laboratory Testing:</u></p> <p>Suspended Solids (SS)</p>	<p><u>M1-M5, C1-C2, G1-G4</u></p> <ul style="list-style-type: none"> • 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. <p><u>M6</u></p> <ul style="list-style-type: none"> • at the vertical level where the water abstraction point of the intake is located(i.e. approximately mid-depth level) 	<p style="text-align: center;">3 days per week</p> <p style="text-align: center;">/</p> <p style="text-align: center;">2 per monitoring day</p> <p style="text-align: center;">(1 for mid-ebb and 1 for mid-flood)</p>

Table IV –Landfill Gas Monitoring

Type of Monitoring	Parameter	Frequency	Location
Landfill Gas	Methane, Carbon dioxide and Oxygen	at least daily before starting the work of the day	<ul style="list-style-type: none">• Excavation Locations• Manholes and Chambers• Relocation of monitoring wells• Any other Confined Spaces

Table V –Ecological Monitoring

Type of Monitoring	Parameter	Frequency
Marine Ecology	The presence, survival, health condition and growth of the translocated coral colonies	Once every 3 months after completion for a period of 12 months

**APPENDIX B
ACTION AND LIMIT LEVELS**

APPENDIX B – Action and Limit Levels**Air Quality*****1-hr TSP***

Monitoring Stations	Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
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, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
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 from any one of the monitoring stations	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/C³ 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 DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, 5-day biochemical oxygen demand (BOD₅), 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.
3. 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)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day	<u>6.9mg/L</u> or 130% of upstream control station's SS at the same tide of the same day
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day
	<u>Station M6</u>		
Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>	

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.

Ecology***Post-translocation Coral Monitoring***

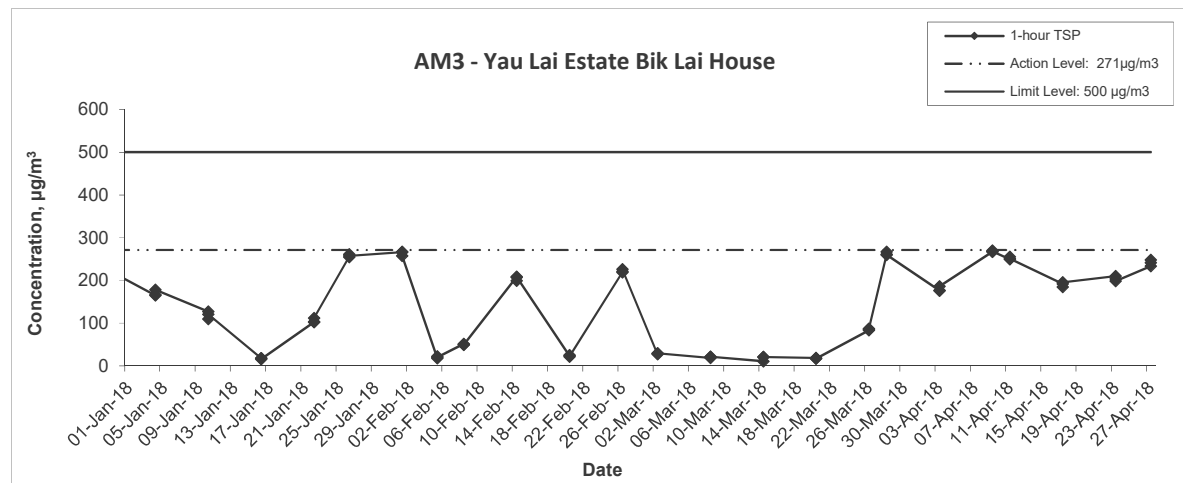
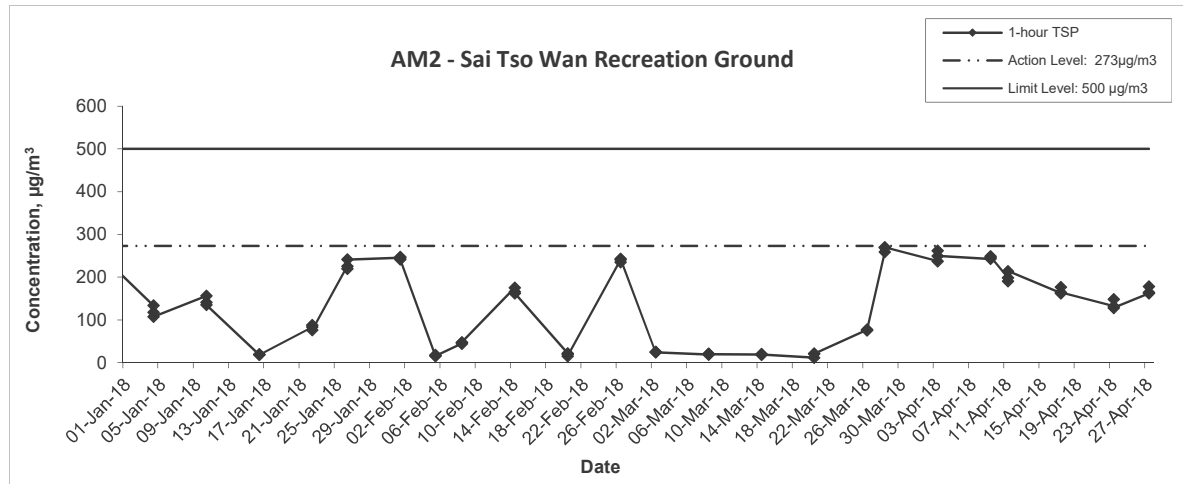
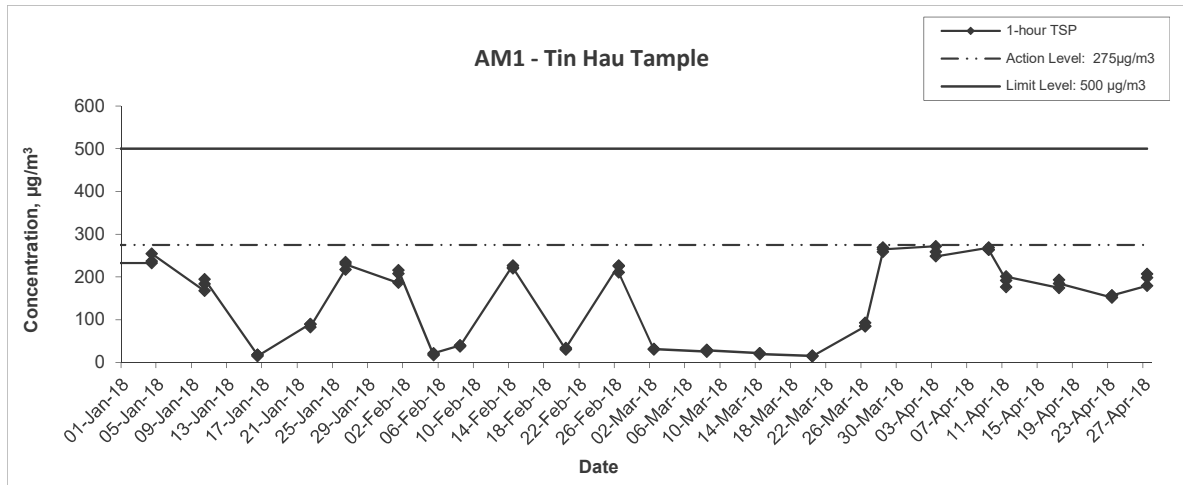
Parameter	Action Level Definition	Limit Level Definition
Mortality	If during Impact Monitoring a 15% increase in the percentage of partial mortality on hard corals occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Action Level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

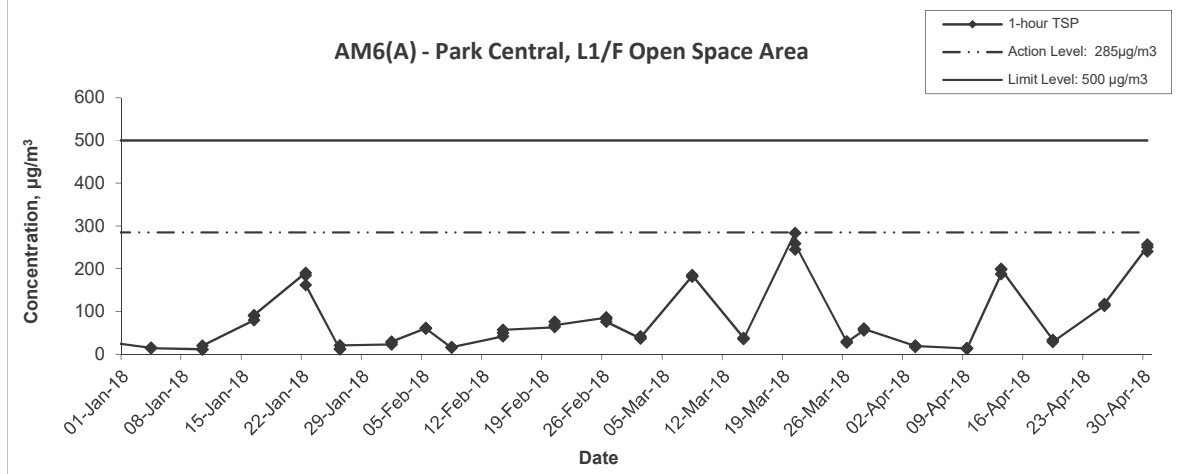
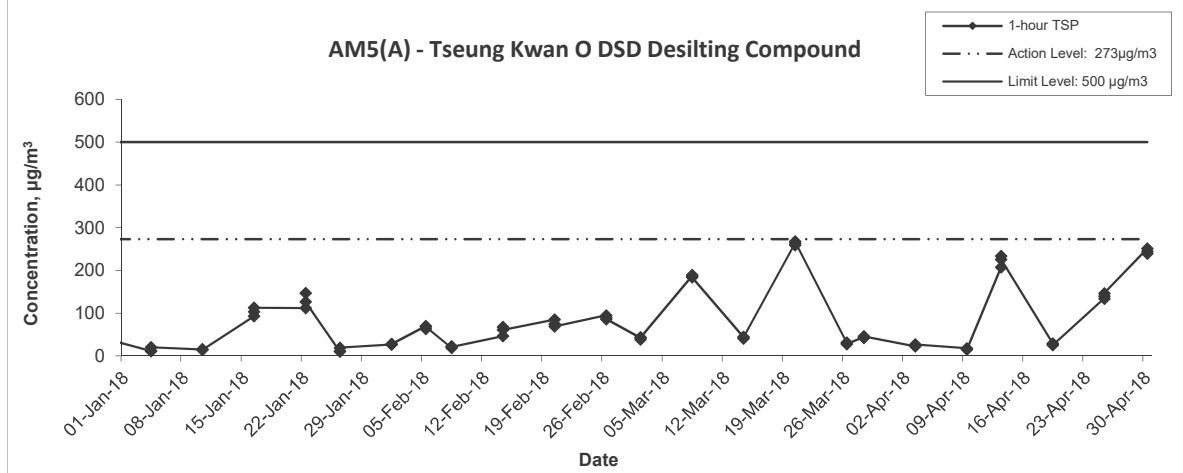
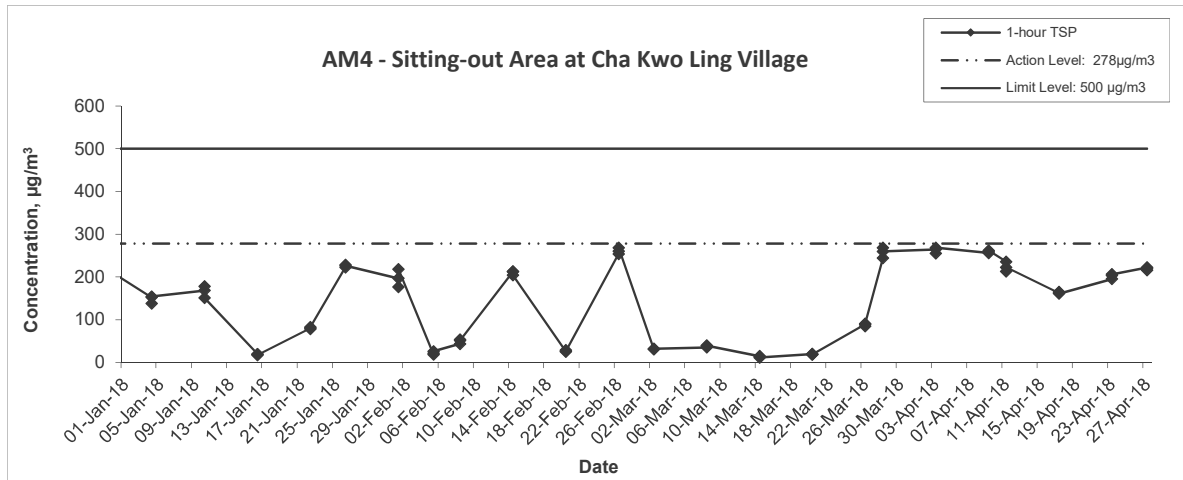
**APPENDIX C
GRAPHICAL PRESENTATION OF AIR
QUALITY MONITORING RESULTS**

1-hr TSP Concentration Levels



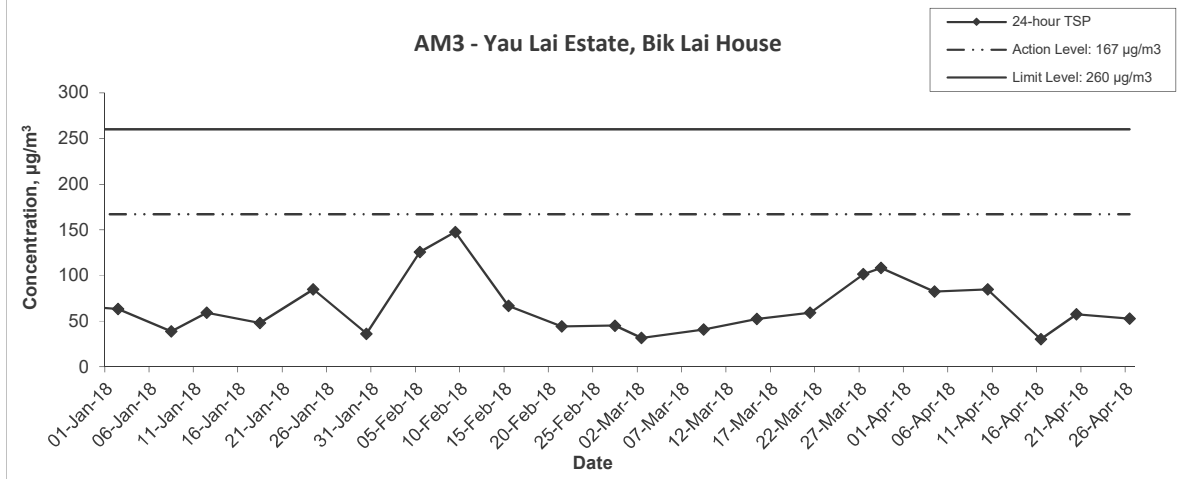
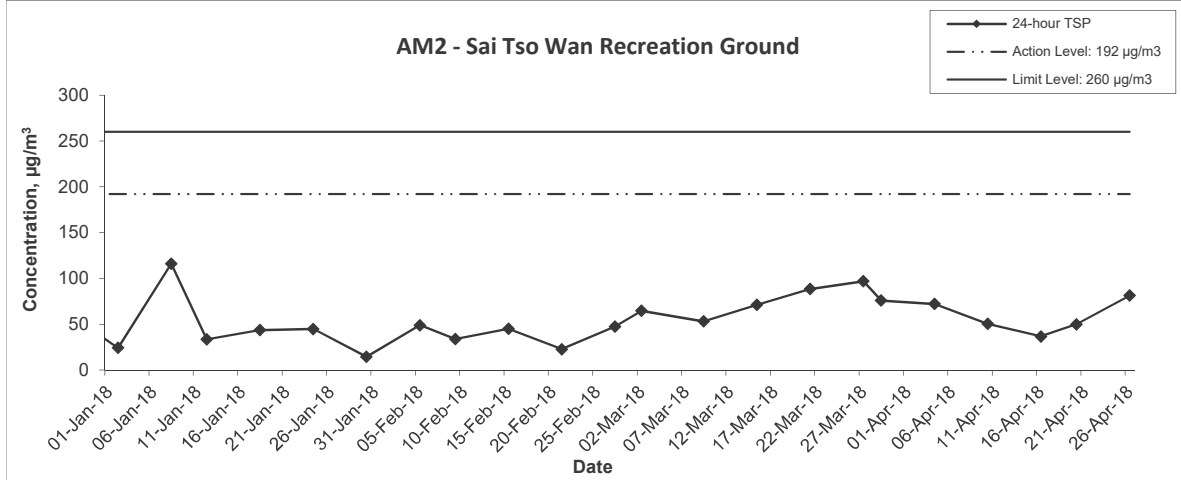
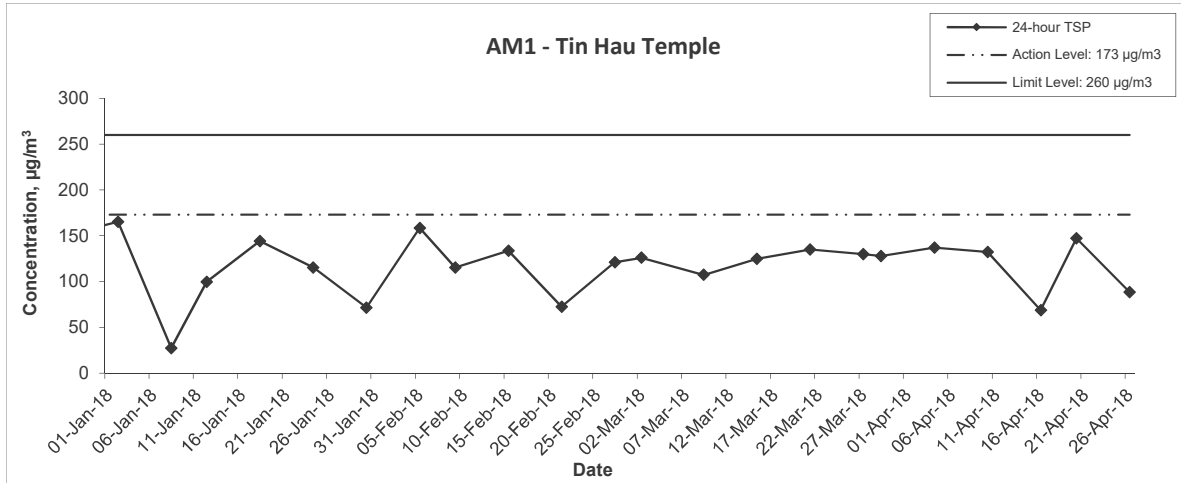
Title	Agreement No. CE/59/2015 (EP)	Scale	Project	CINOTECH
	Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction	N.T.S	No. MA16034	
Graphical Presentation of 1-hour TSP Monitoring Results		Date	Appendix	
		Apr 18		

1-hr TSP Concentration Levels



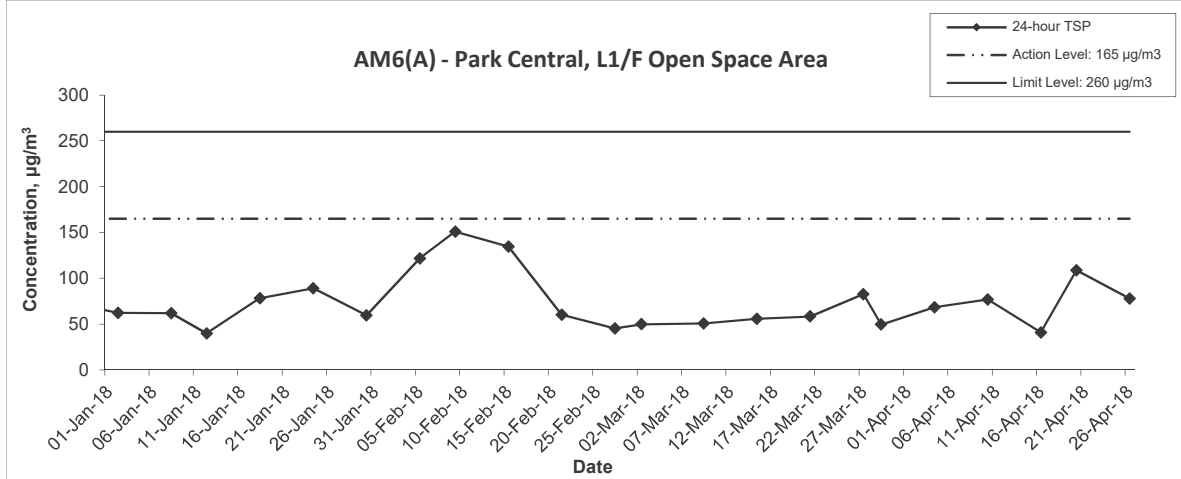
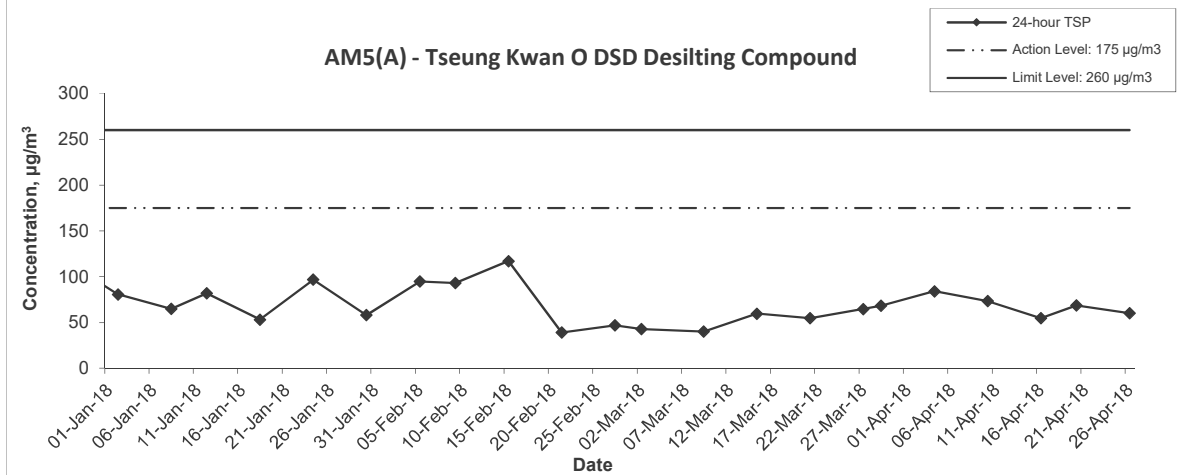
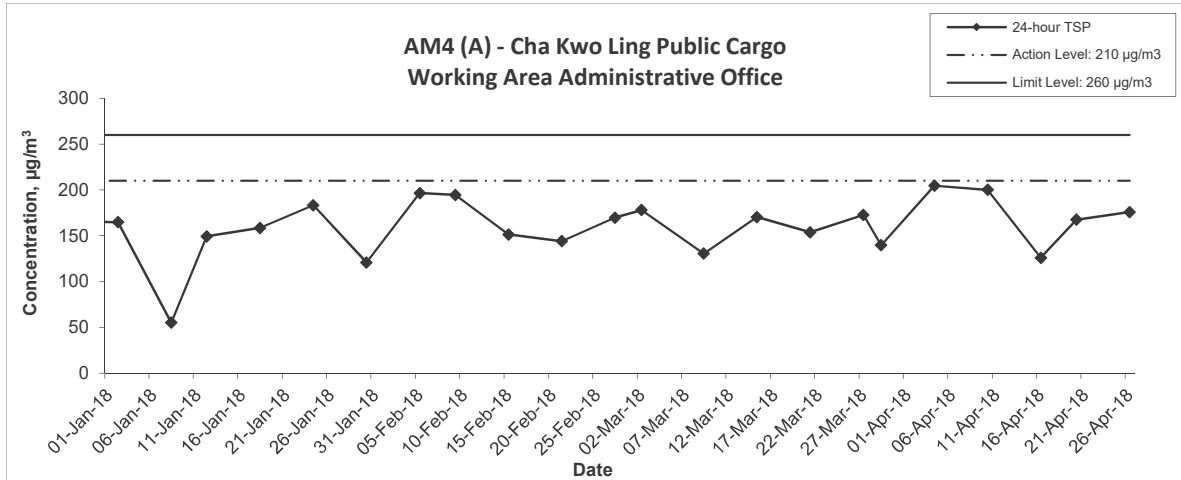
Title	Agreement No. CE/59/2015 (EP)	Scale	N.T.S	Project No.	MA16034	CINOTECH
	Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction	Date	Apr 18	Appendix		
Graphical Presentation of 1-hour TSP Monitoring Results						

24-hr TSP Concentration Levels



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

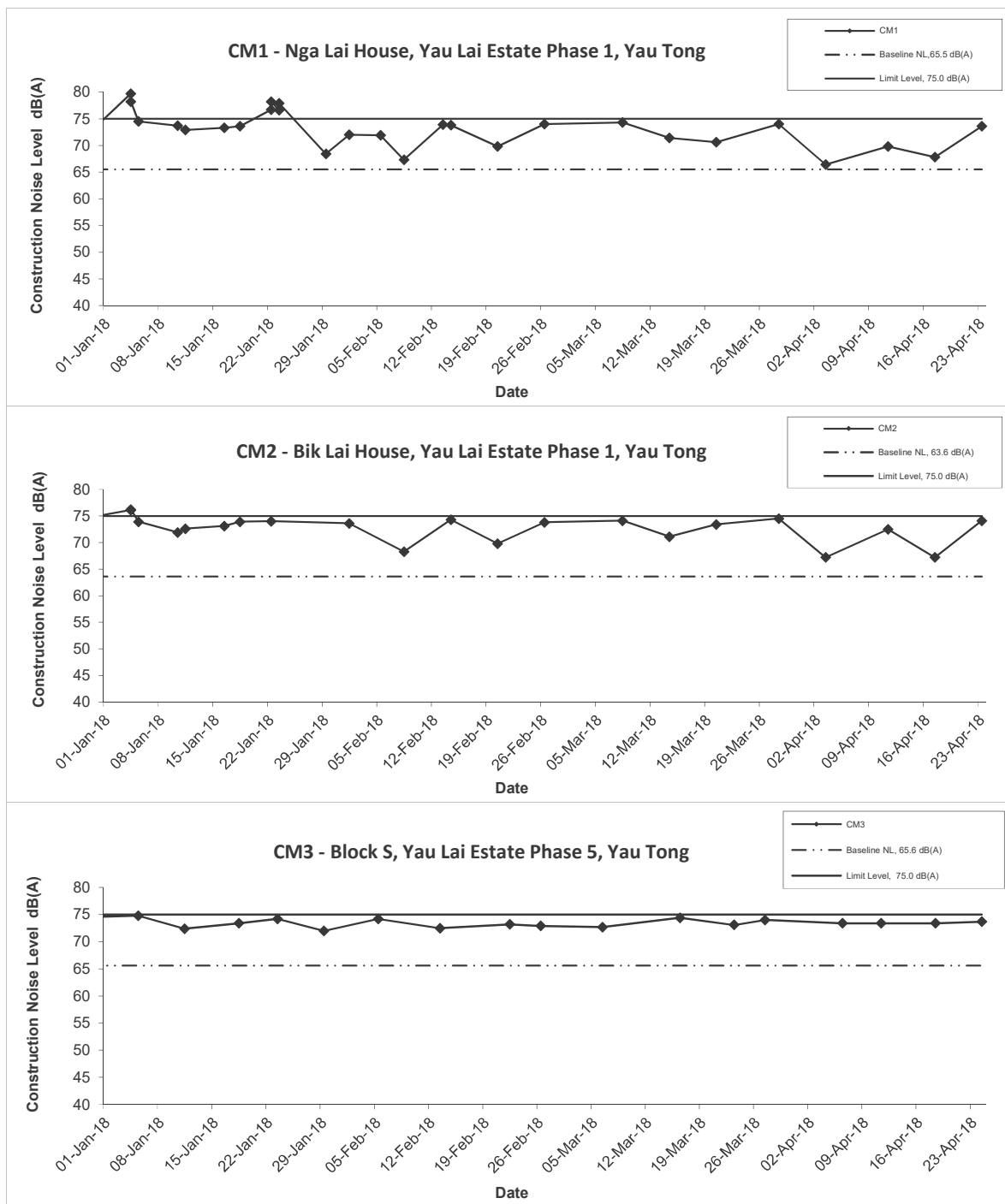
24-hr TSP Concentration Levels



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 Apr 18	Appendix	

**APPENDIX D
GRAPHICAL PRESENTATION OF
NOISE MONITORING RESULTS**

Noise Levels



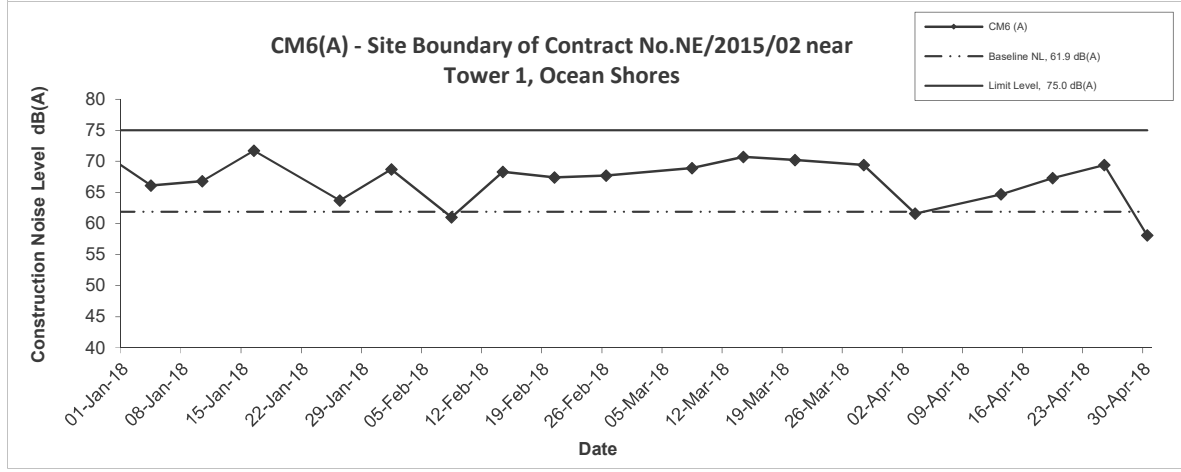
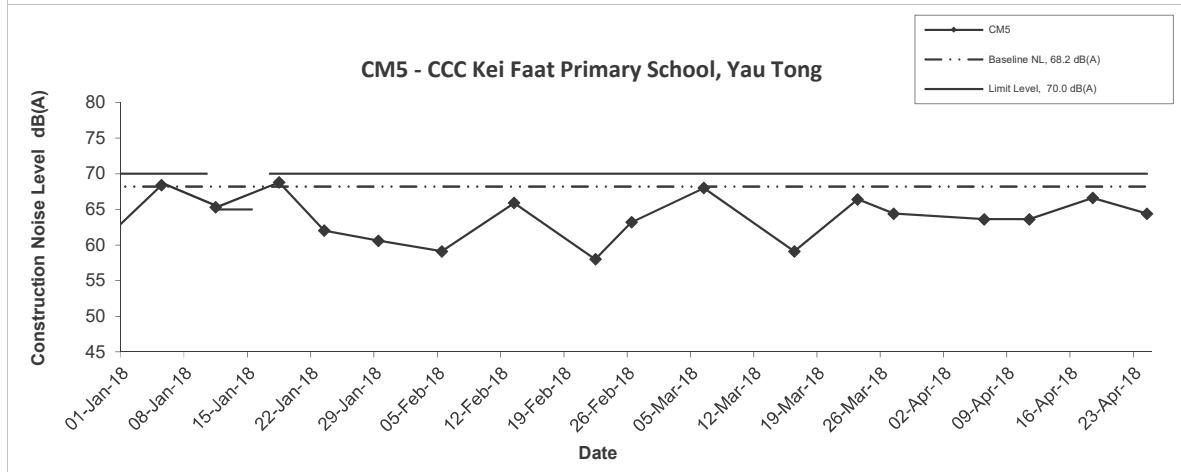
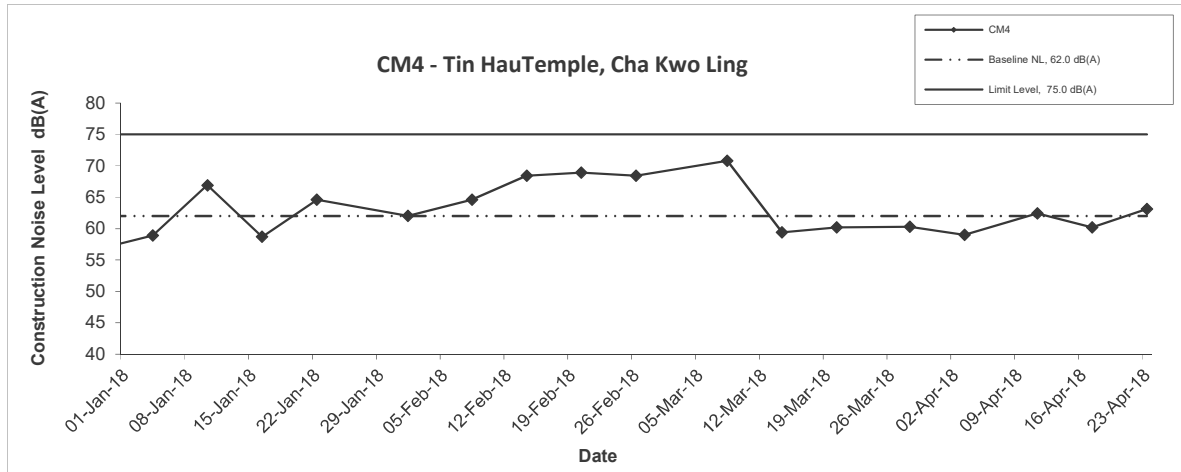
Title Agreement No. CE/59/2015 (EP)
 Environmental Team for Tseung Kwan O - Lam Tin Tunnel -
 Design and Construction
 Graphical Presentation of
 Construction Noise Monitoring Results

Scale N.T.S.
 Date Apr 18

Project No. MA16034
 Appendix

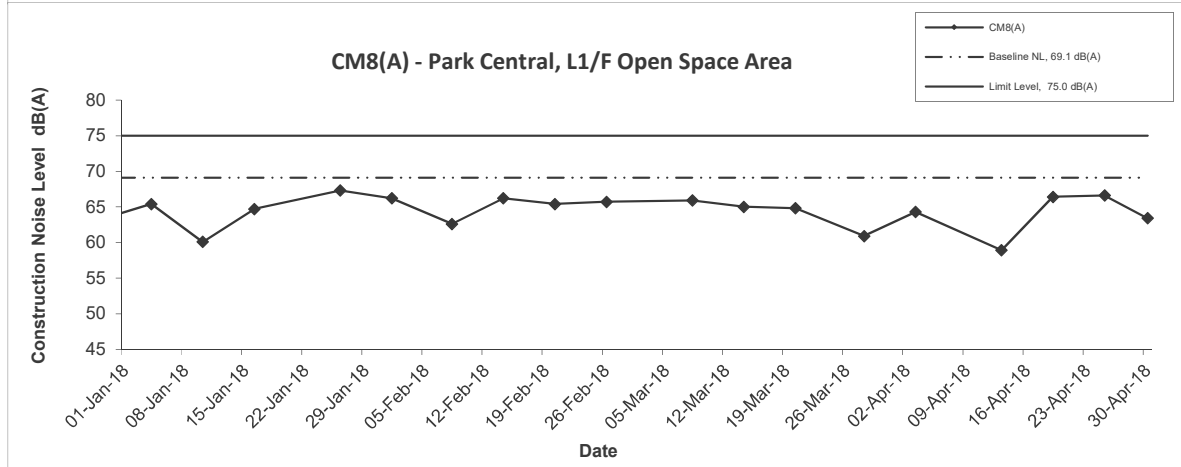
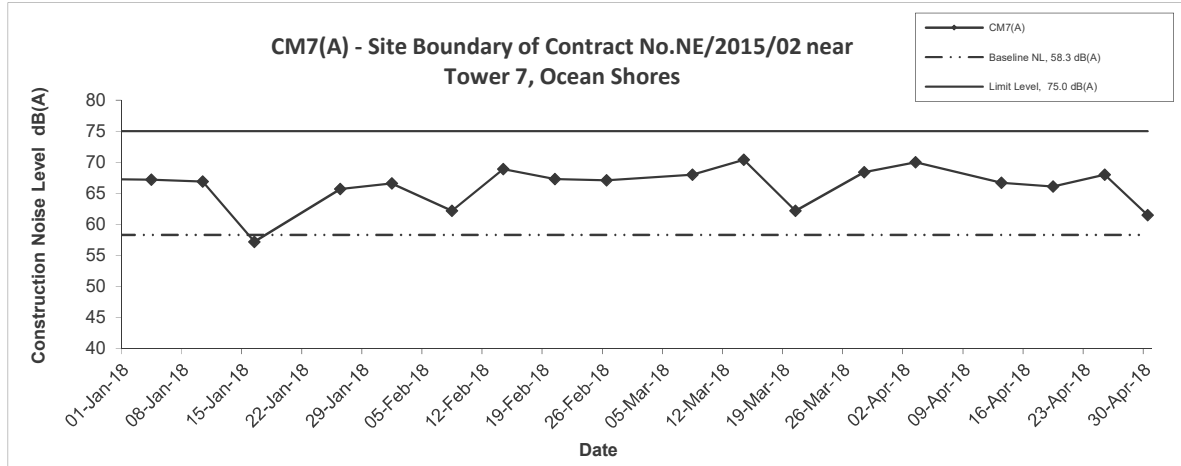


Noise Levels



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	Project No. MA16034	
	Date Apr 18	Appendix	

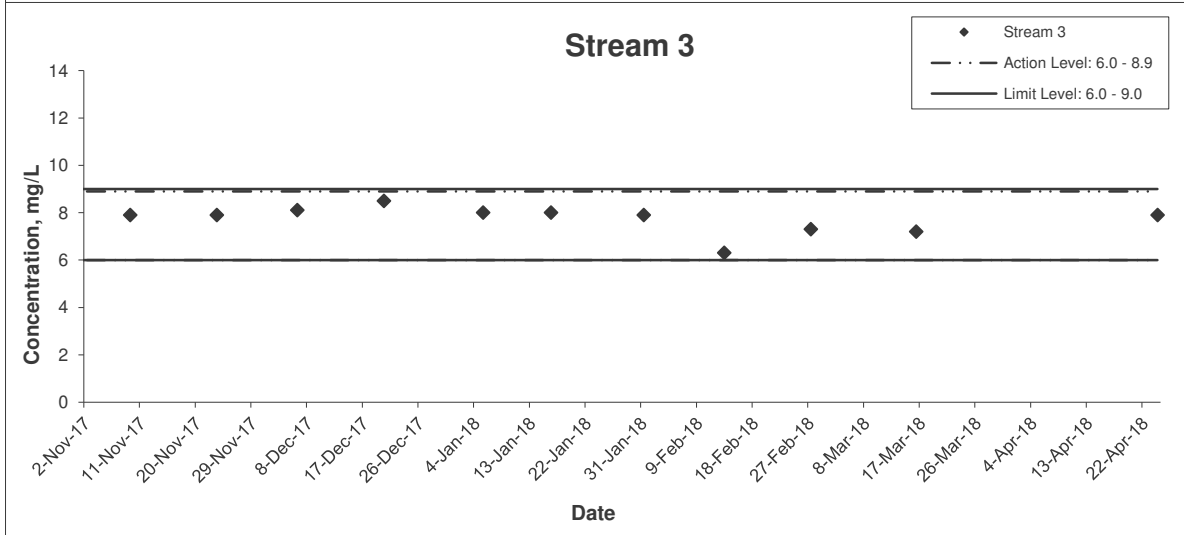
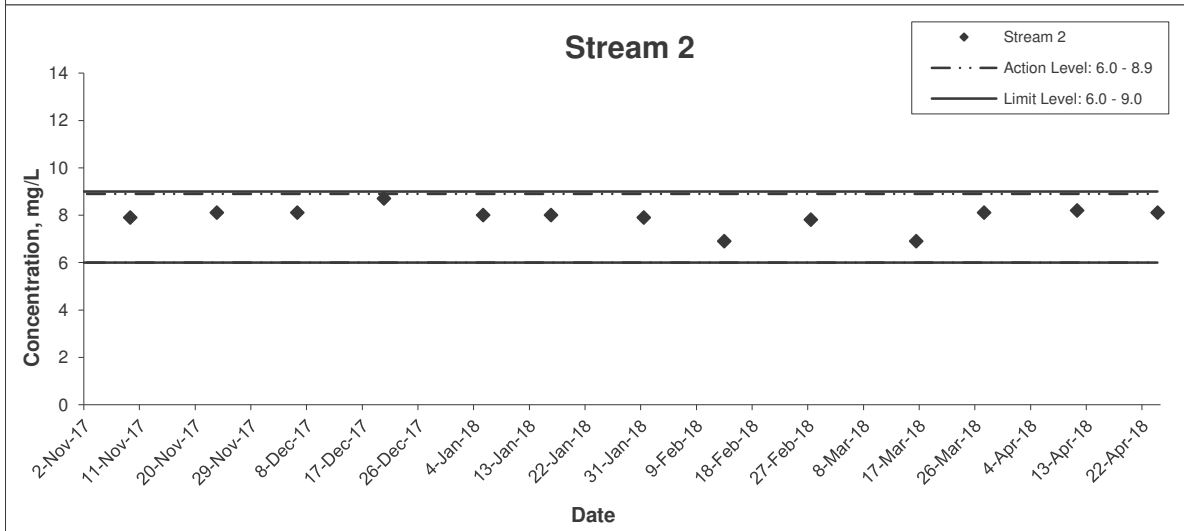
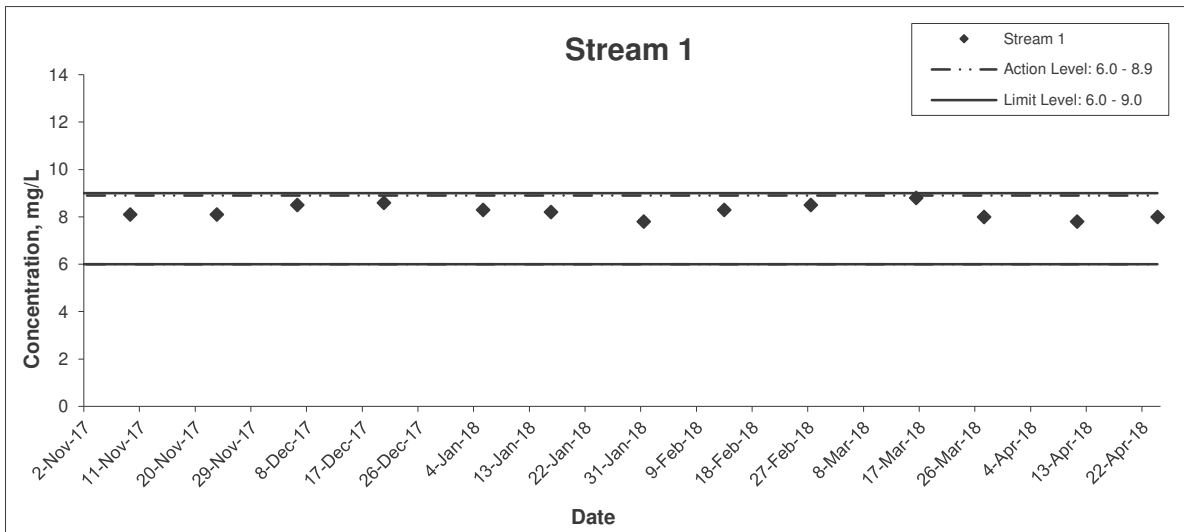
Noise Levels



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	Project No. MA16034	
	Date Apr 18	Appendix	

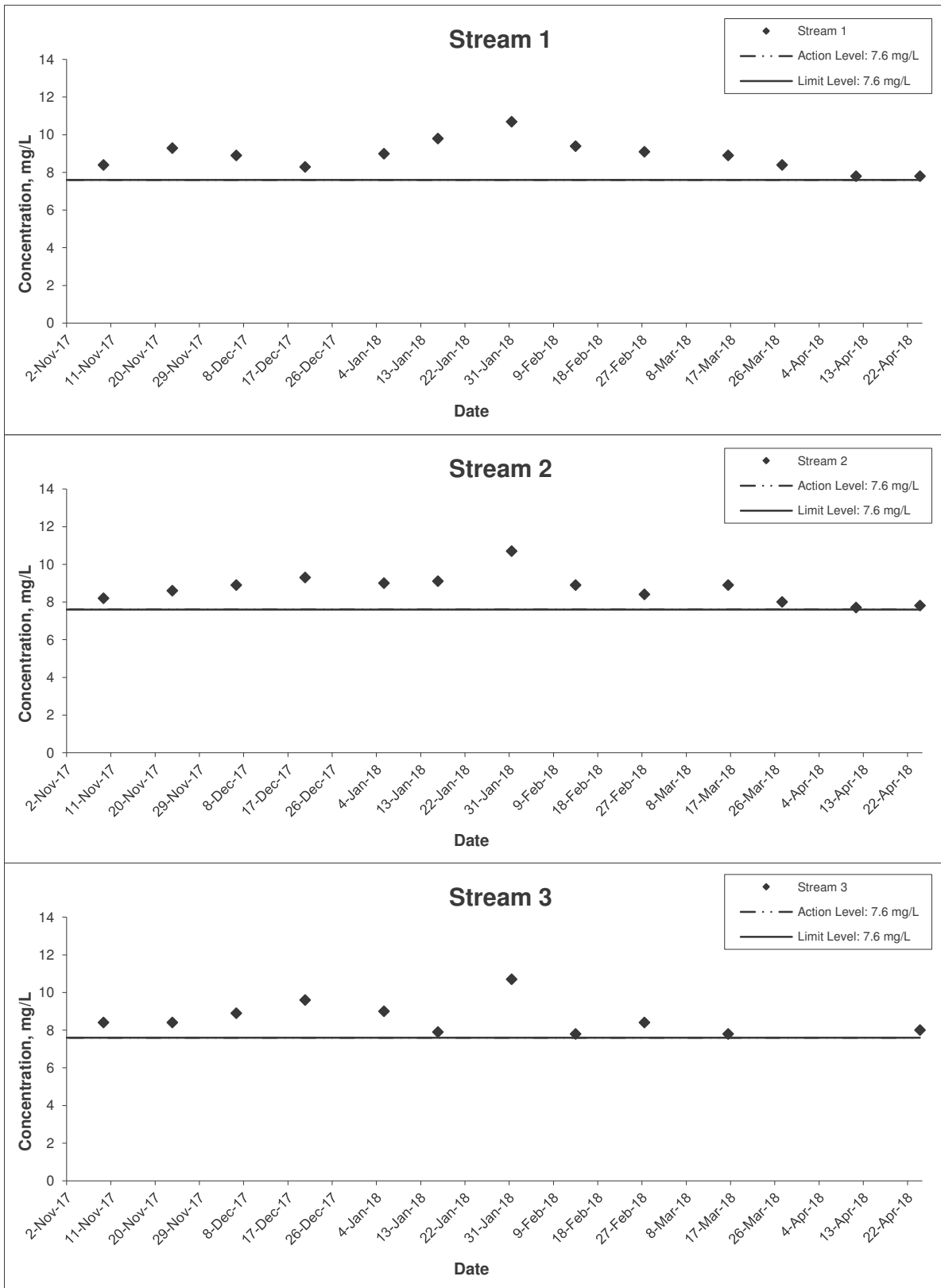
**APPENDIX E
GRAPHICAL PRESENTATION OF
GROUNDWATER QUALITY
MONITORING RESULTS**

pH



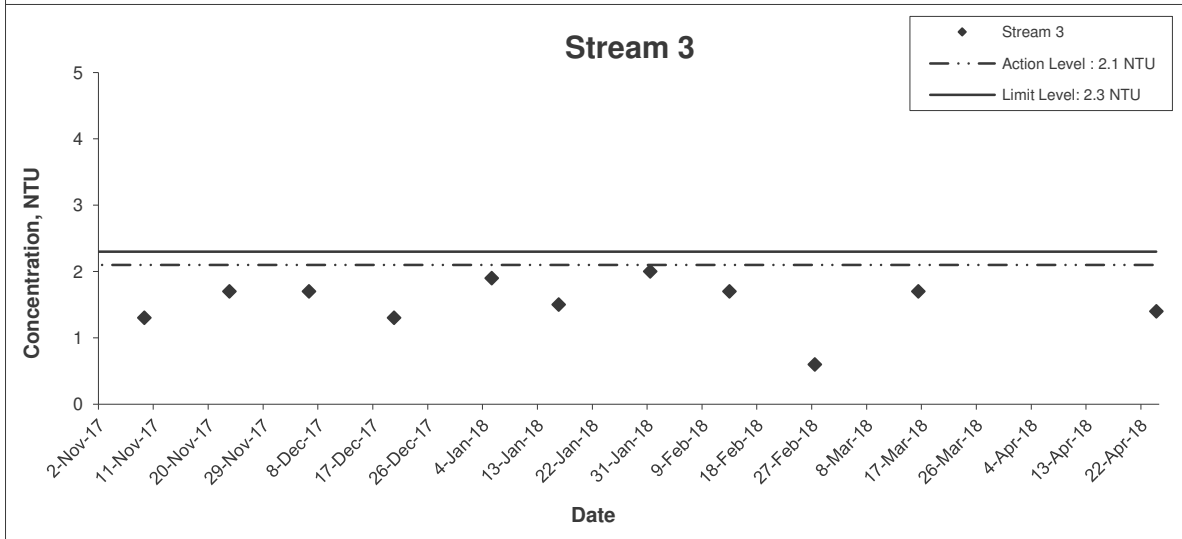
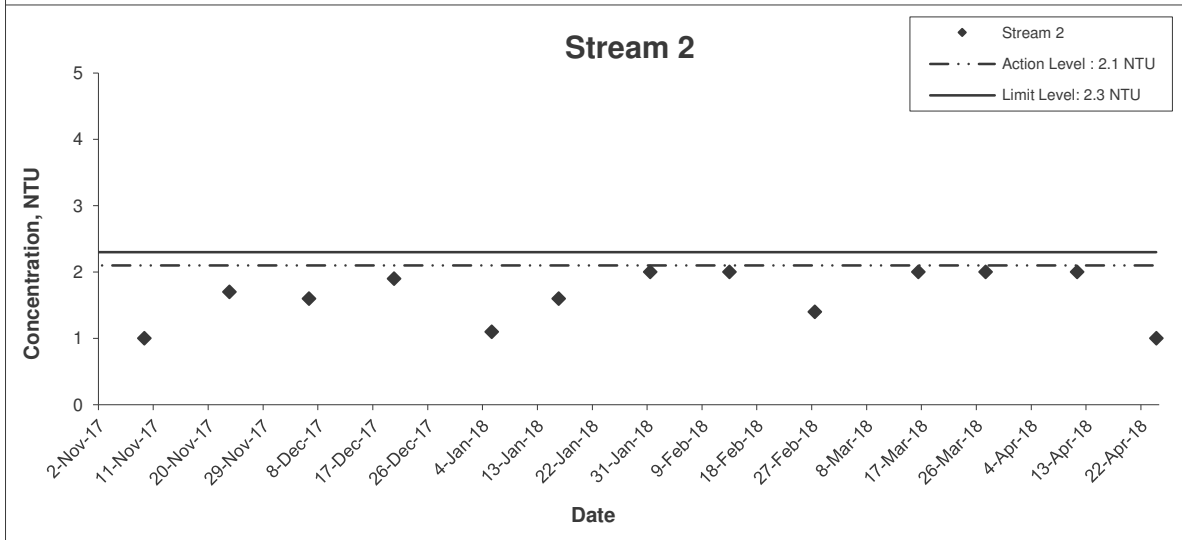
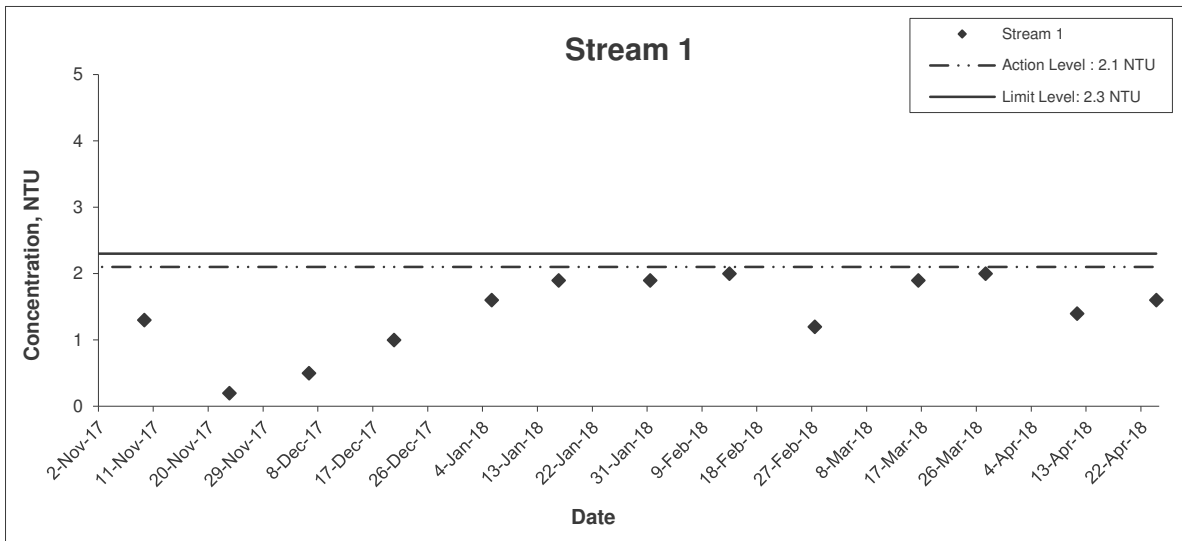
Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale N.T.S	Project No. MA16034	
	Date Apr 18	Appendix	

Dissolved Oxygen



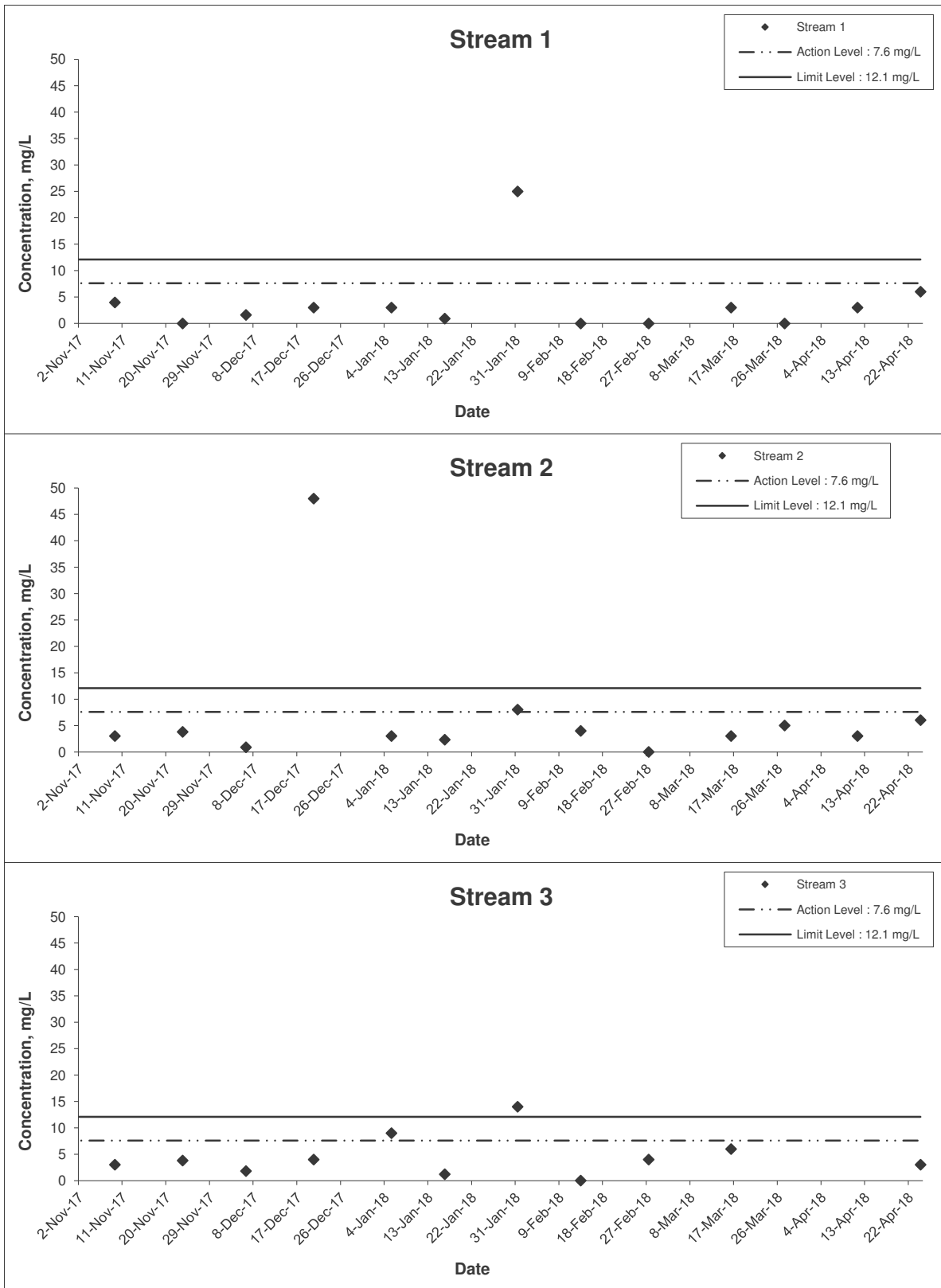
Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale N.T.S	Project No. MA16034	
	Date Apr 18	Appendix	

Turbidity



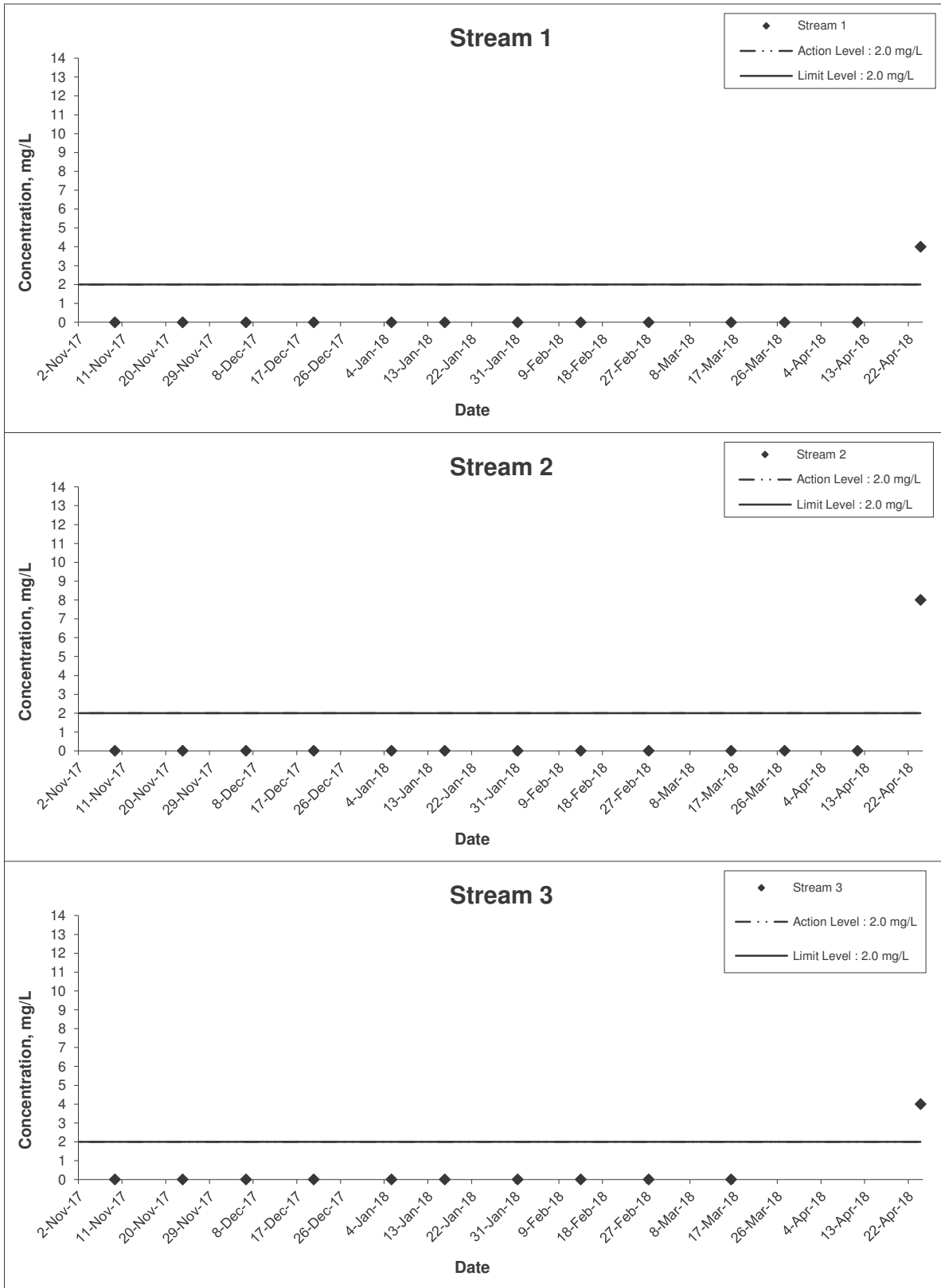
Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale N.T.S	Project No. MA16034	
	Date Apr 18	Appendix	

Suspended Solids



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	Project No. MA16034	
	Date Apr 18	Appendix	

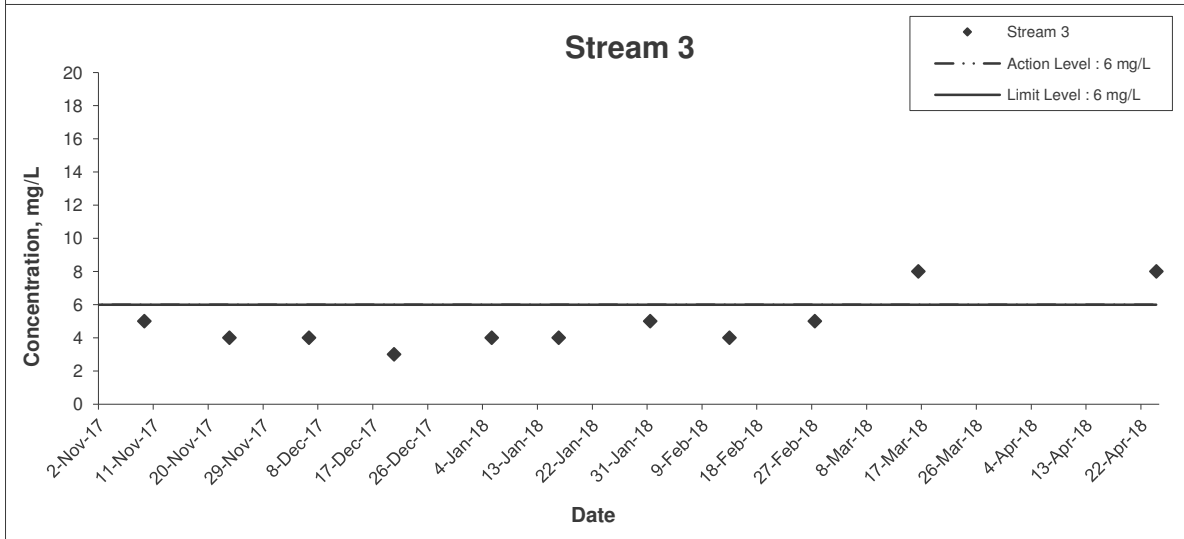
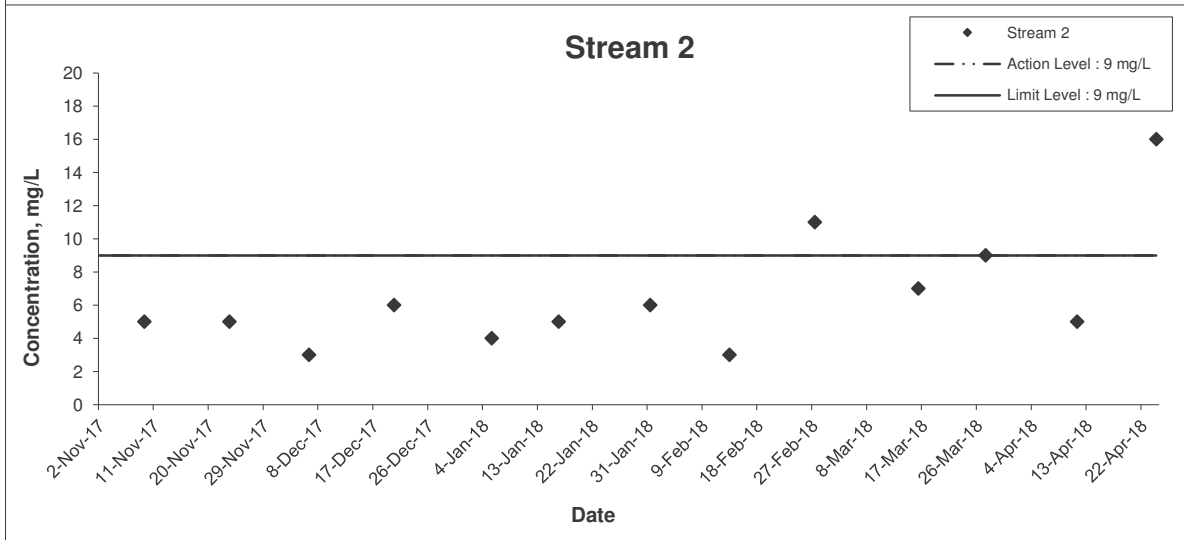
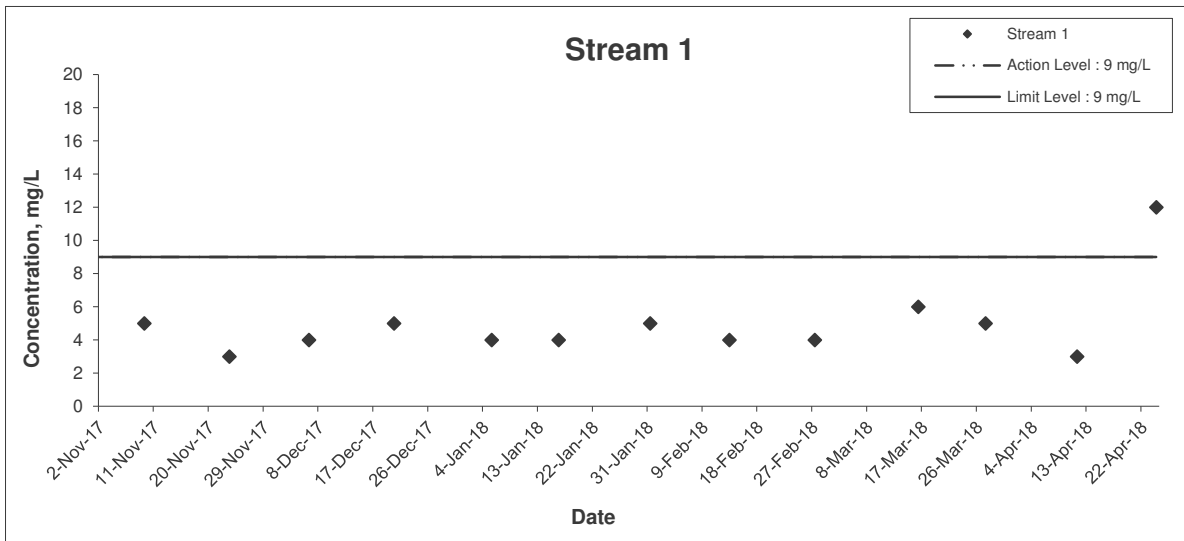
5-day Biochemical Oxygen Demand (BOD₅)



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

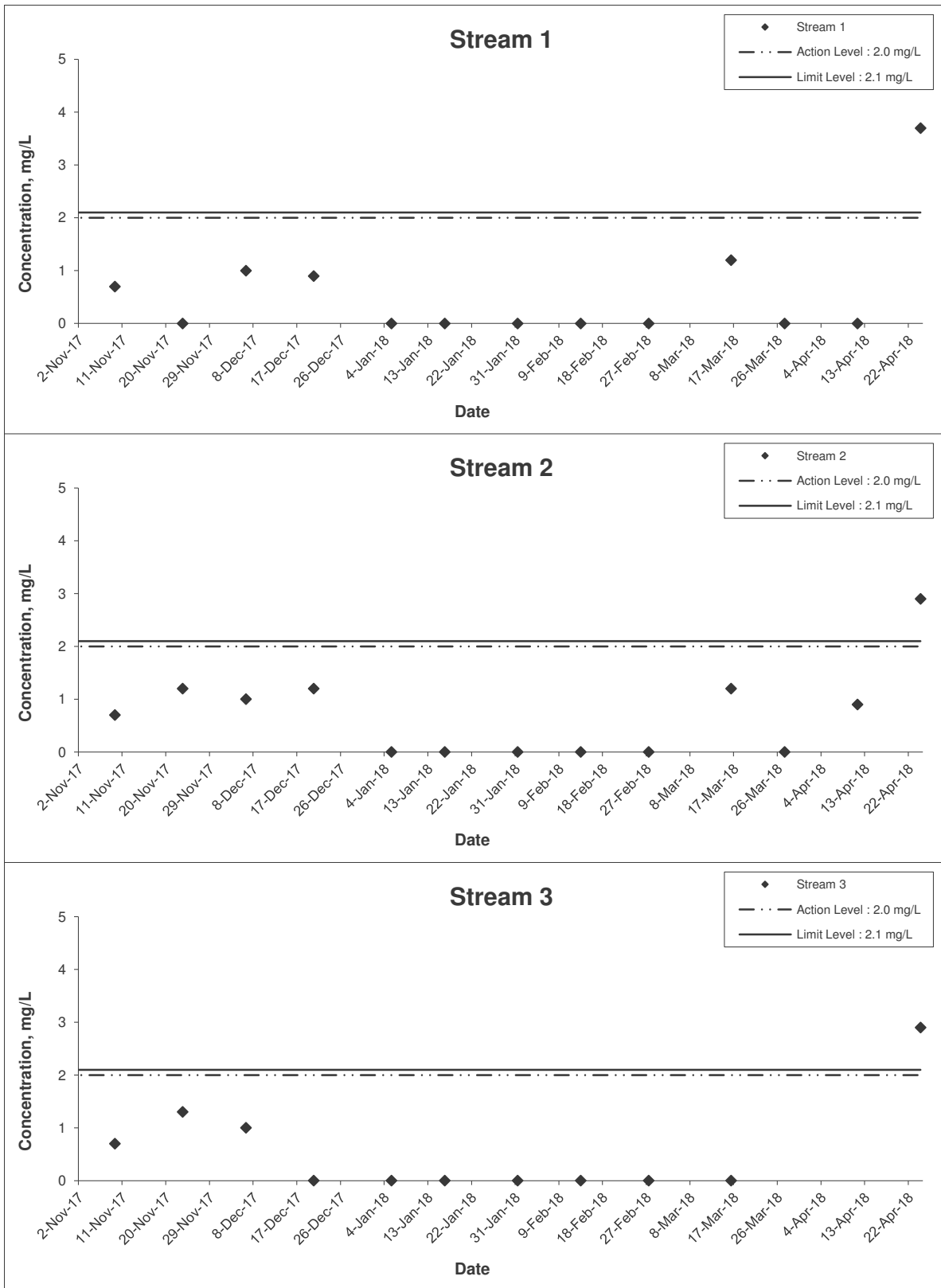
Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale N.T.S	Project No. MA16034	
	Date Apr 18	Appendix .	

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	Project No. MA16034	
	Date Apr 18	Appendix	

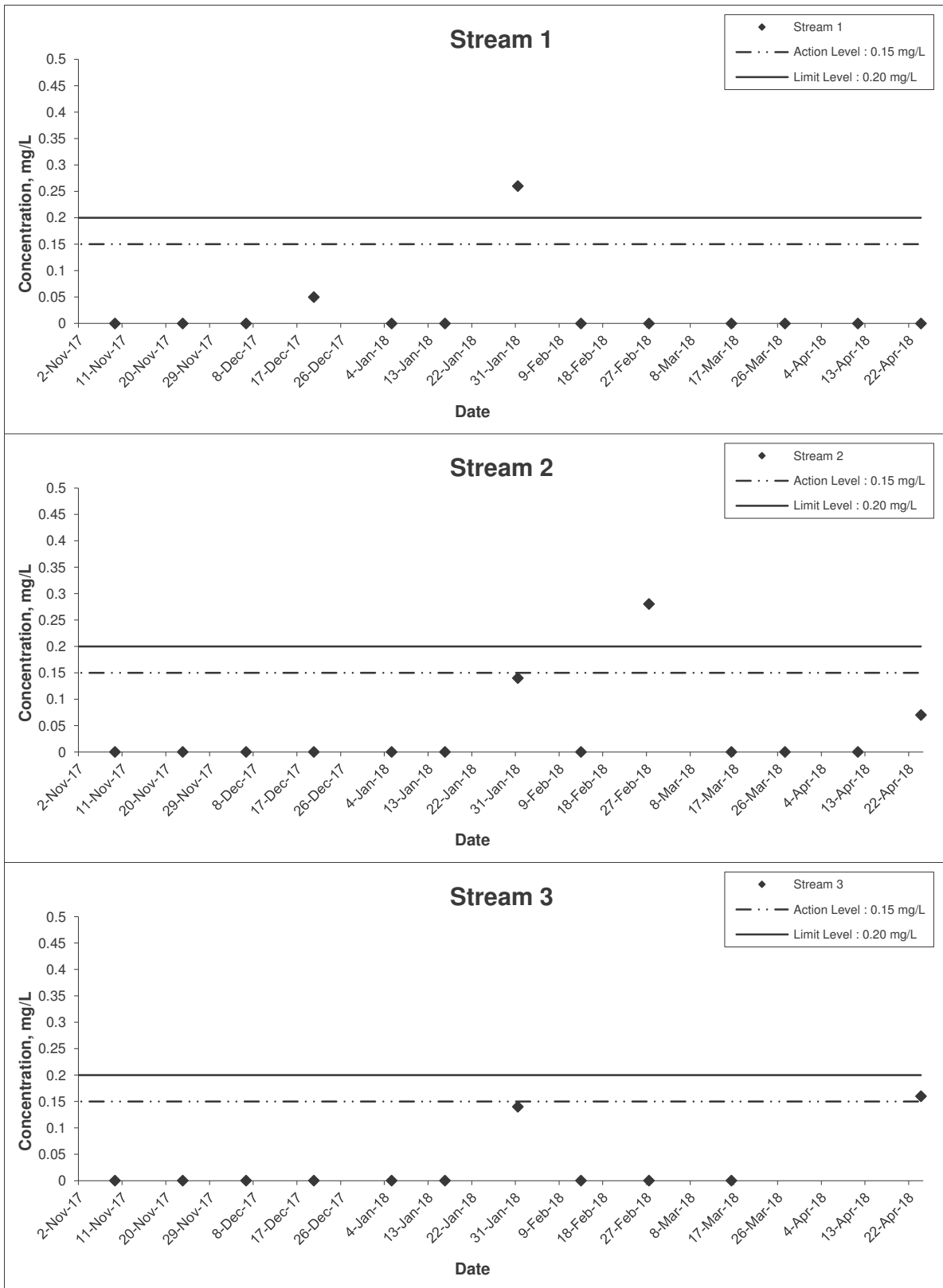
Total Nitrogen



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 Graphical Presentation of Groundwater Quality Monitoring Result	Scale N.T.S Date Apr 18	Project No. MA16034 Appendix	
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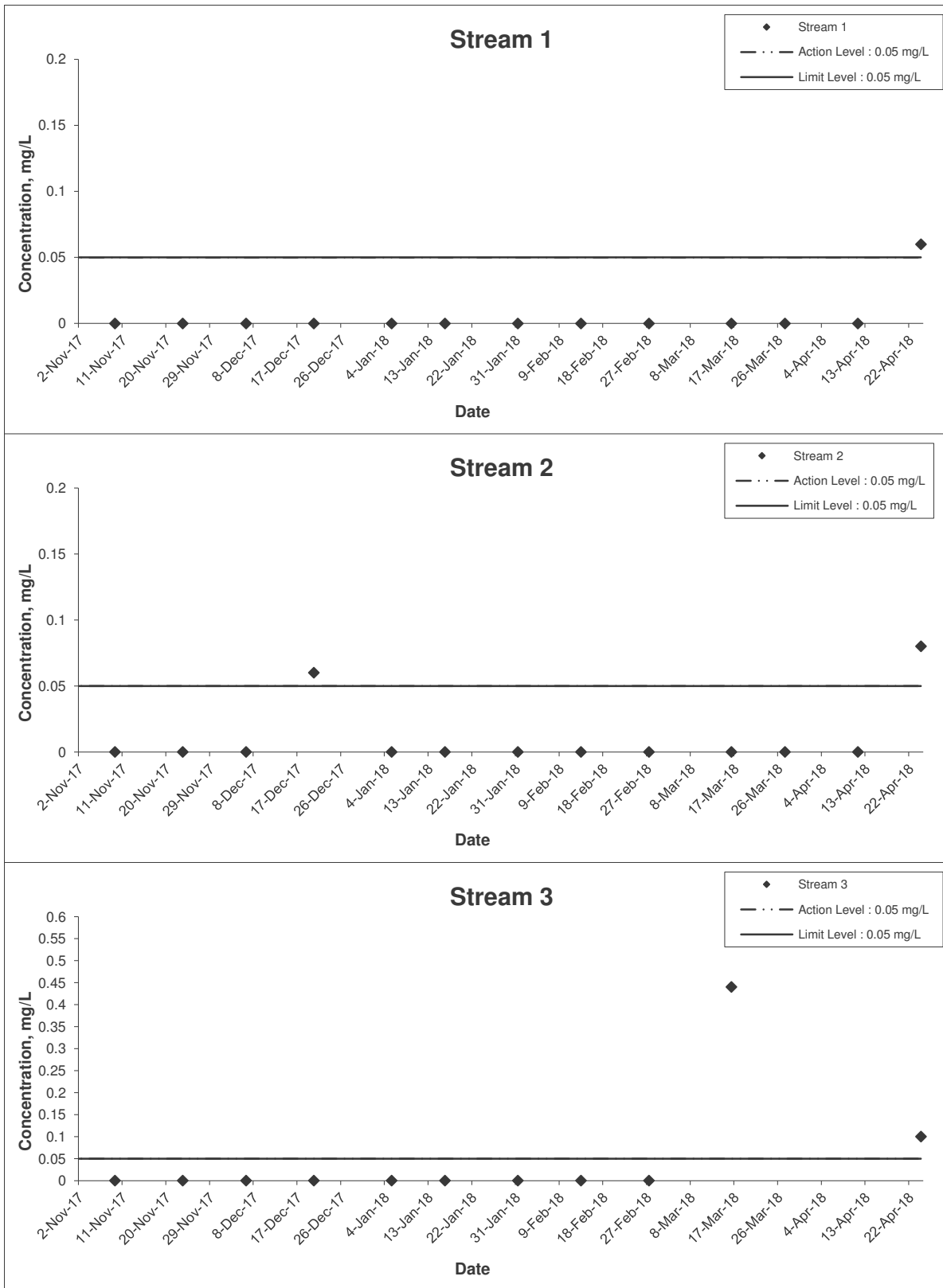
Ammonia-Nitrogen



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	Project No. MA16034	
	Date Apr 18	Appendix	

Total Phosphate

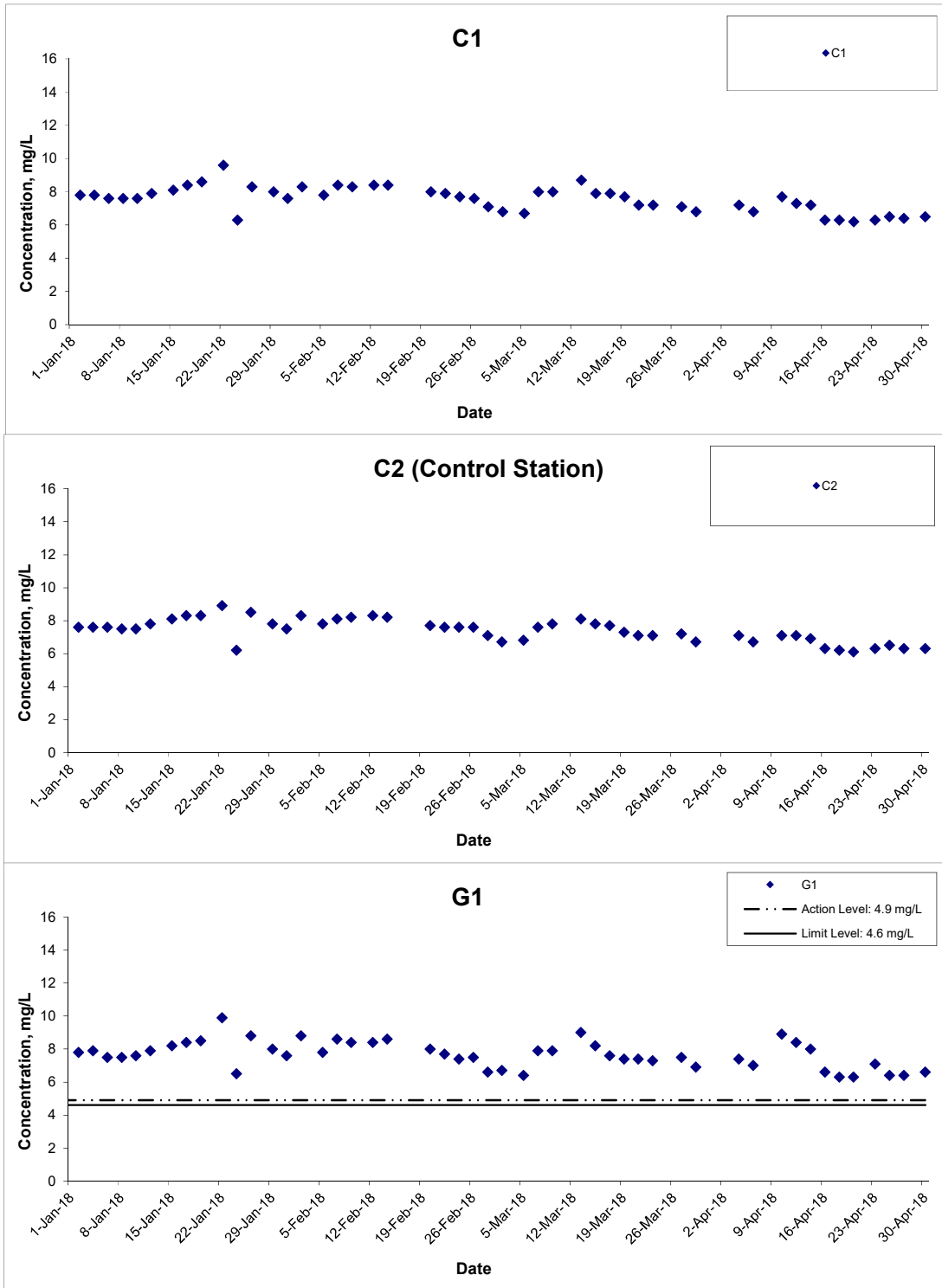


Remarks: The graphical point at zero concentration is presented as <0.05 mg/L

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

**APPENDIX F
GRAPHICAL PRESENTATION OF
MARINE WATER QUALITY
MONITORING RESULTS**

Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



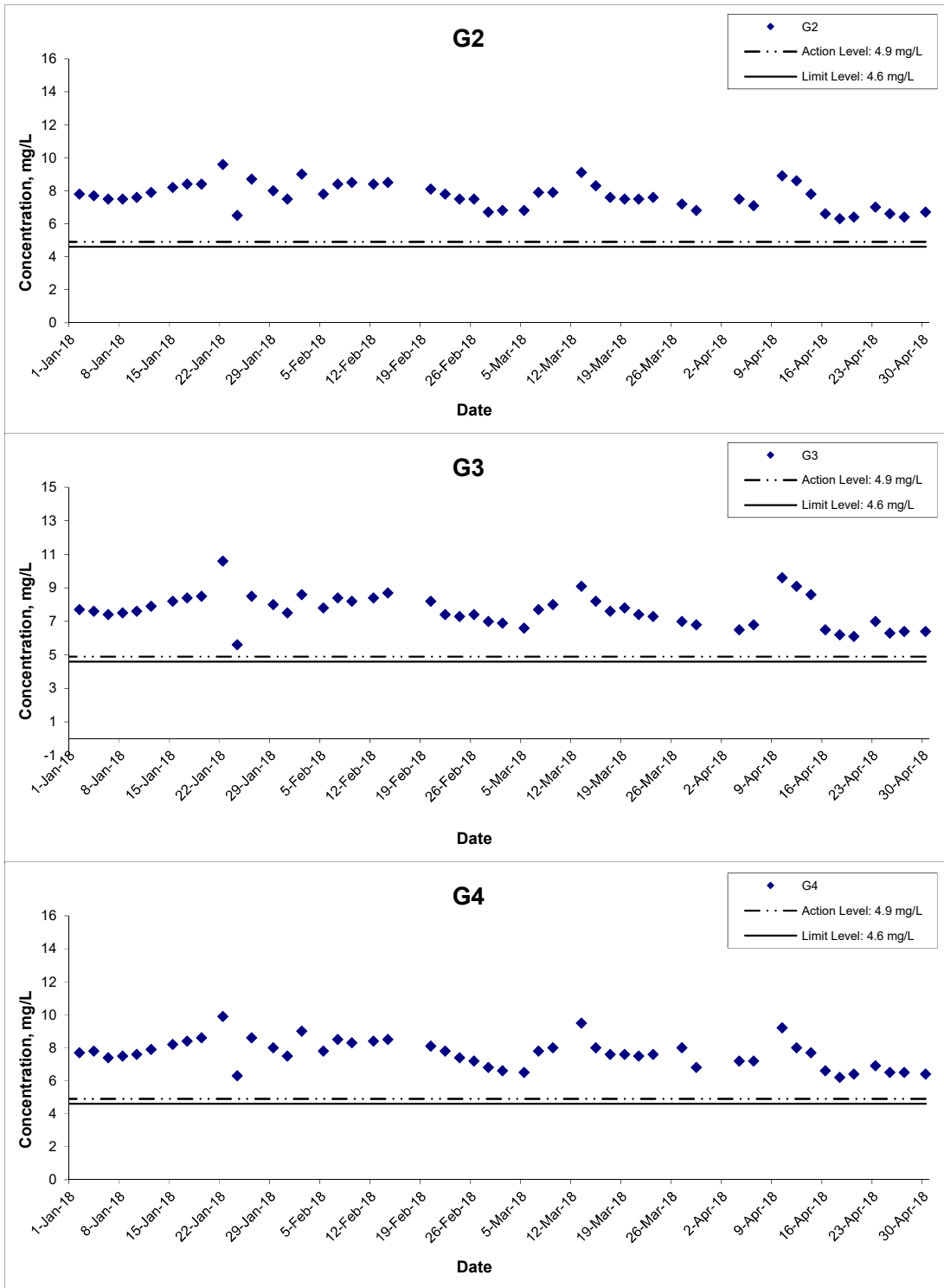
Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
 Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S
 Date Apr 18

Project No. MA16034
 Appendix I



Dissolved Oxygen (Depth-averaged) 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

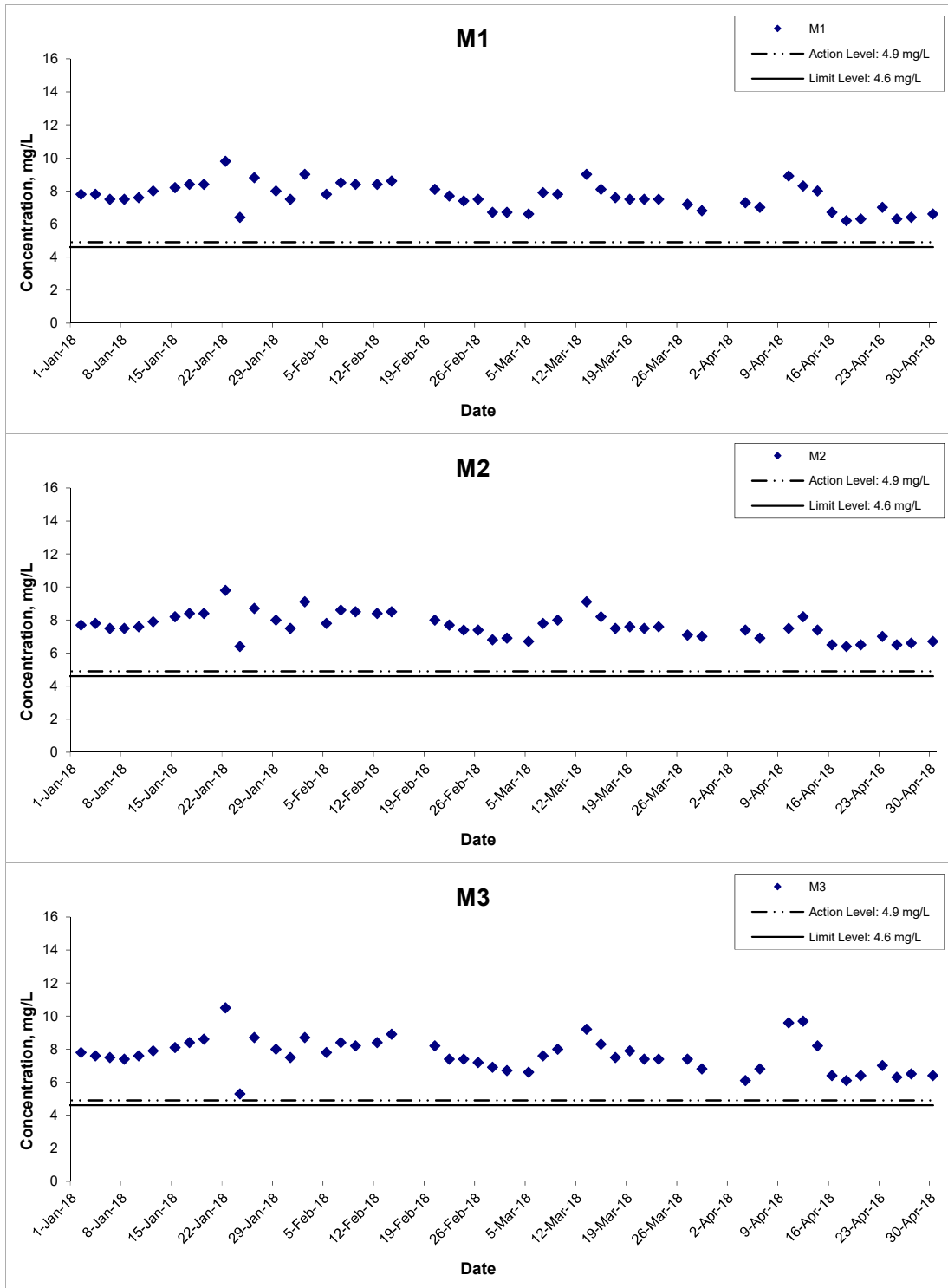
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (Depth-averaged) 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

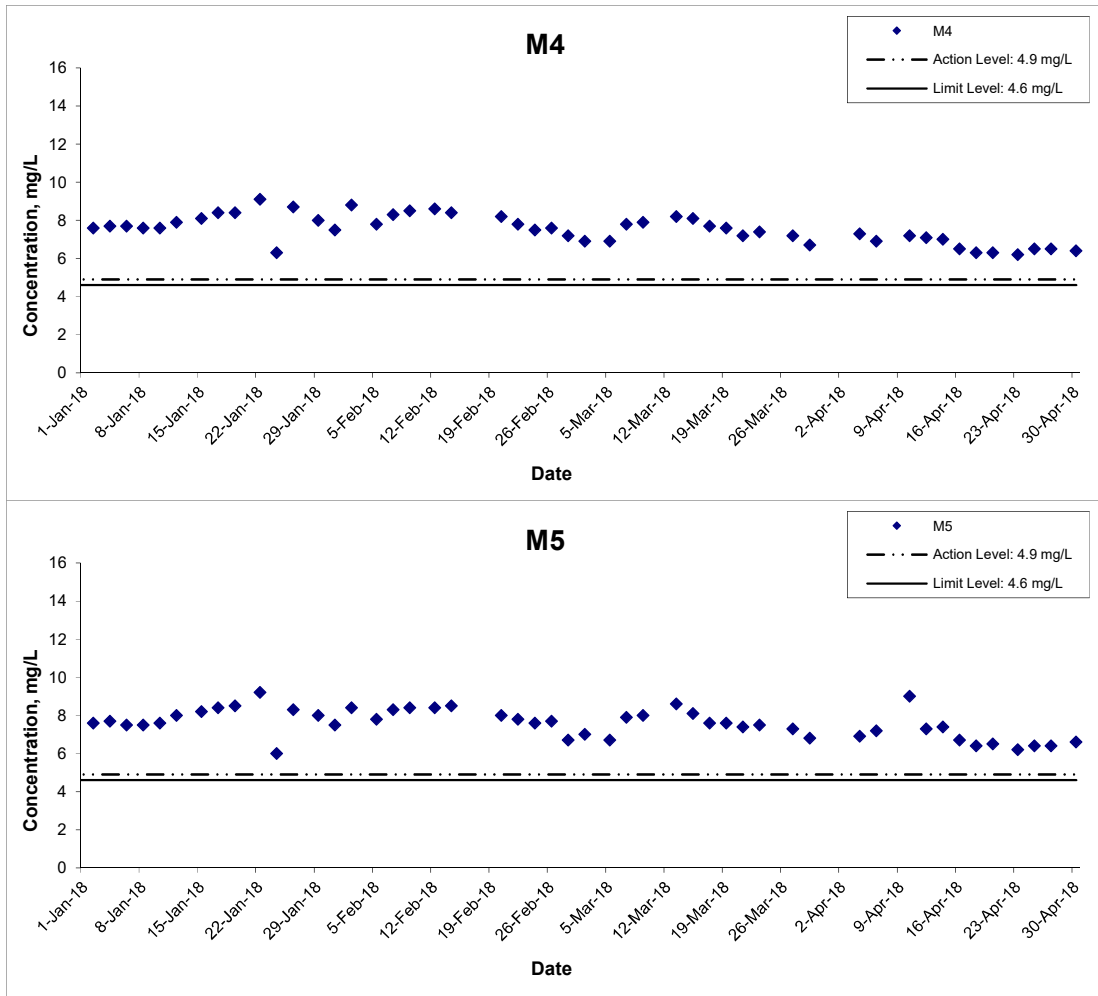
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (Depth-averaged) 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

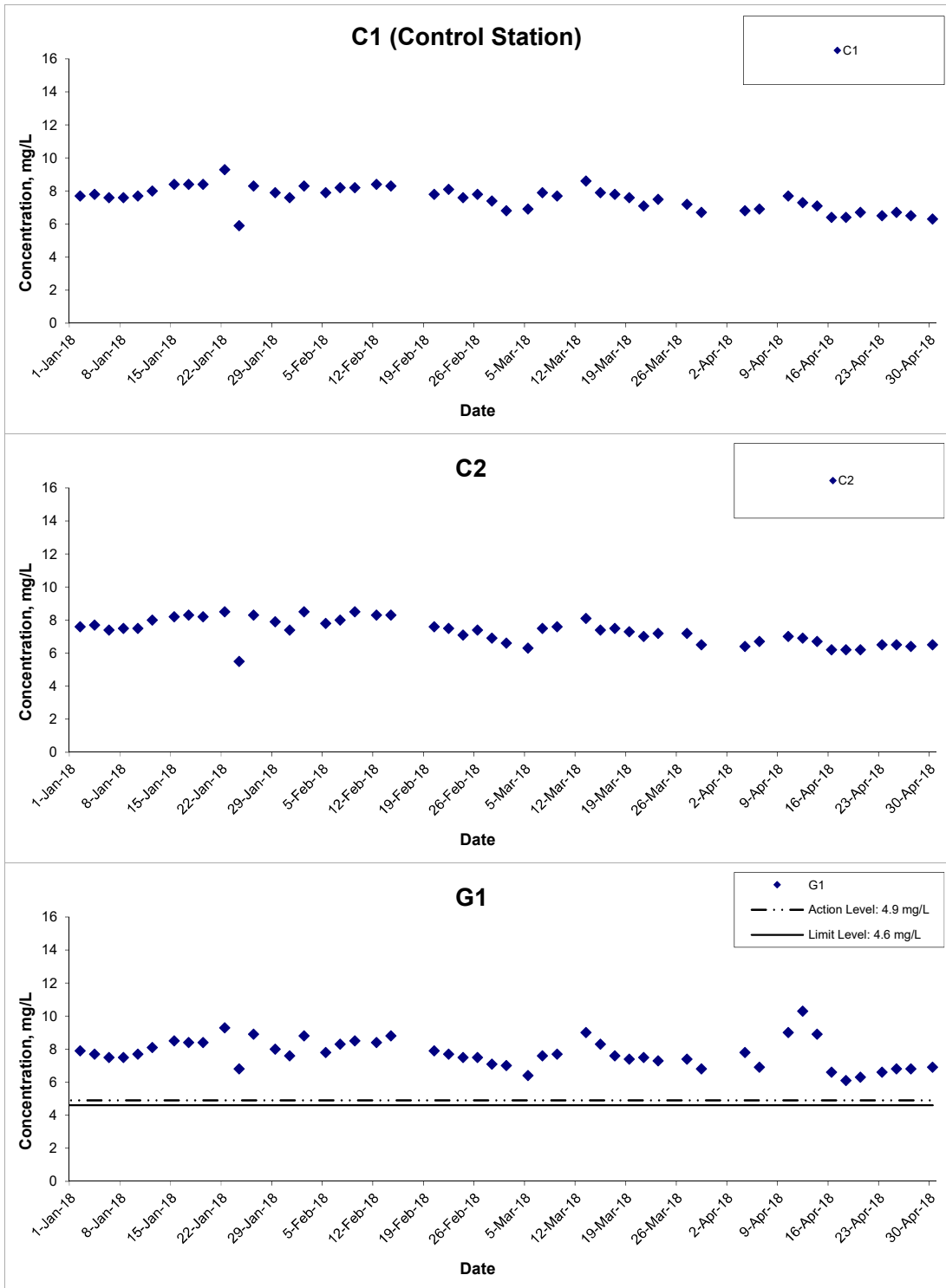
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (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

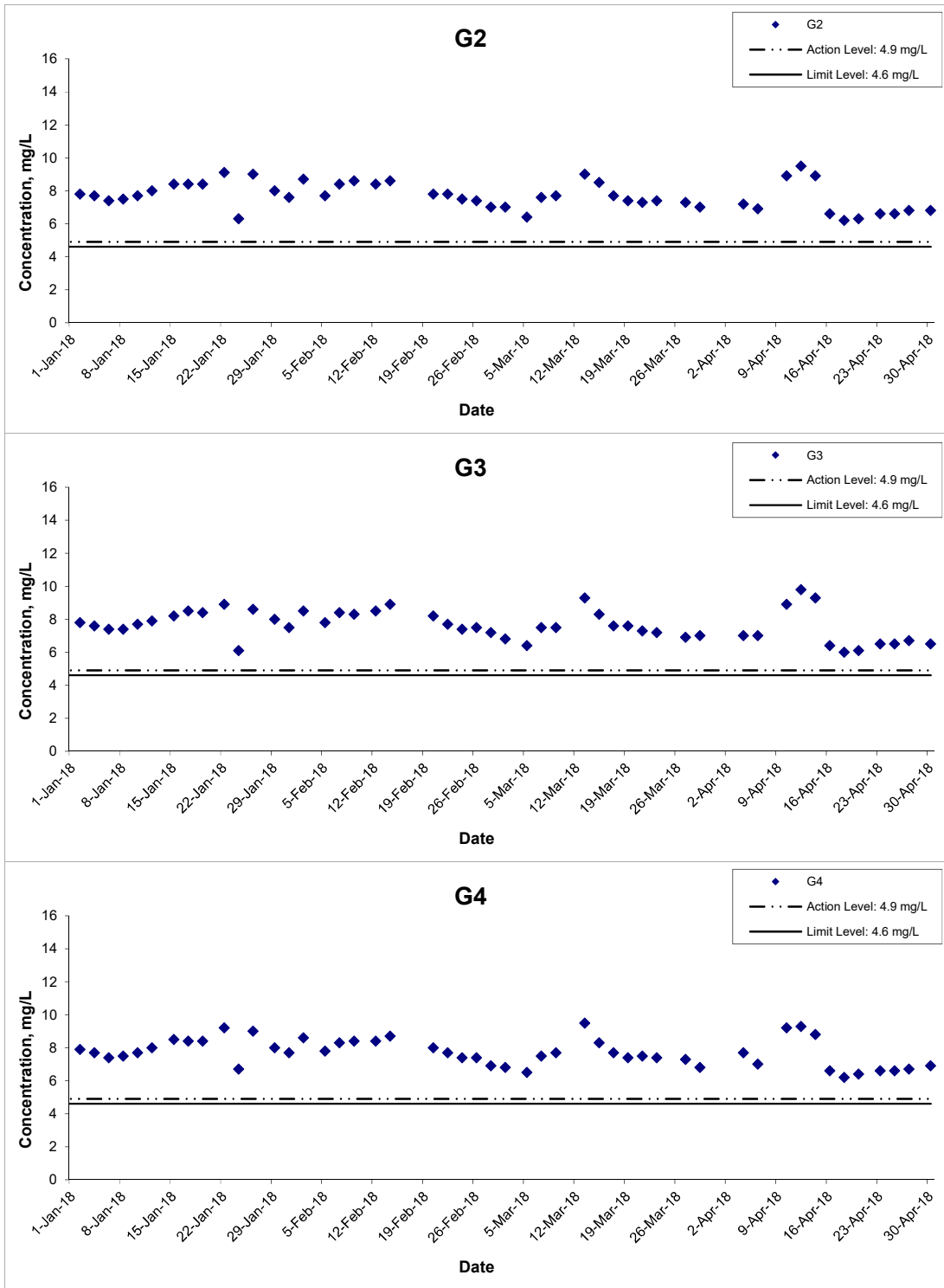
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (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

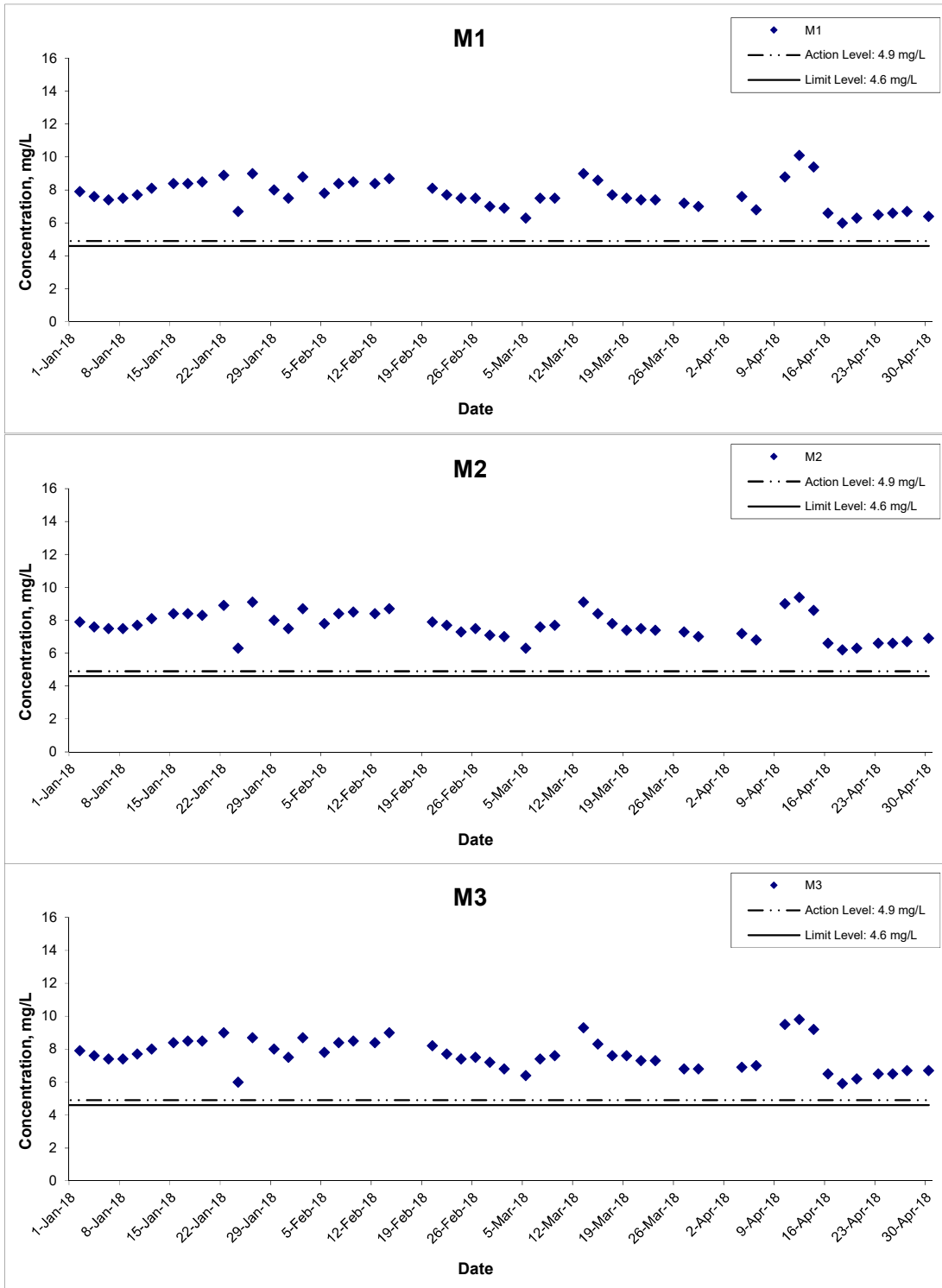
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (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

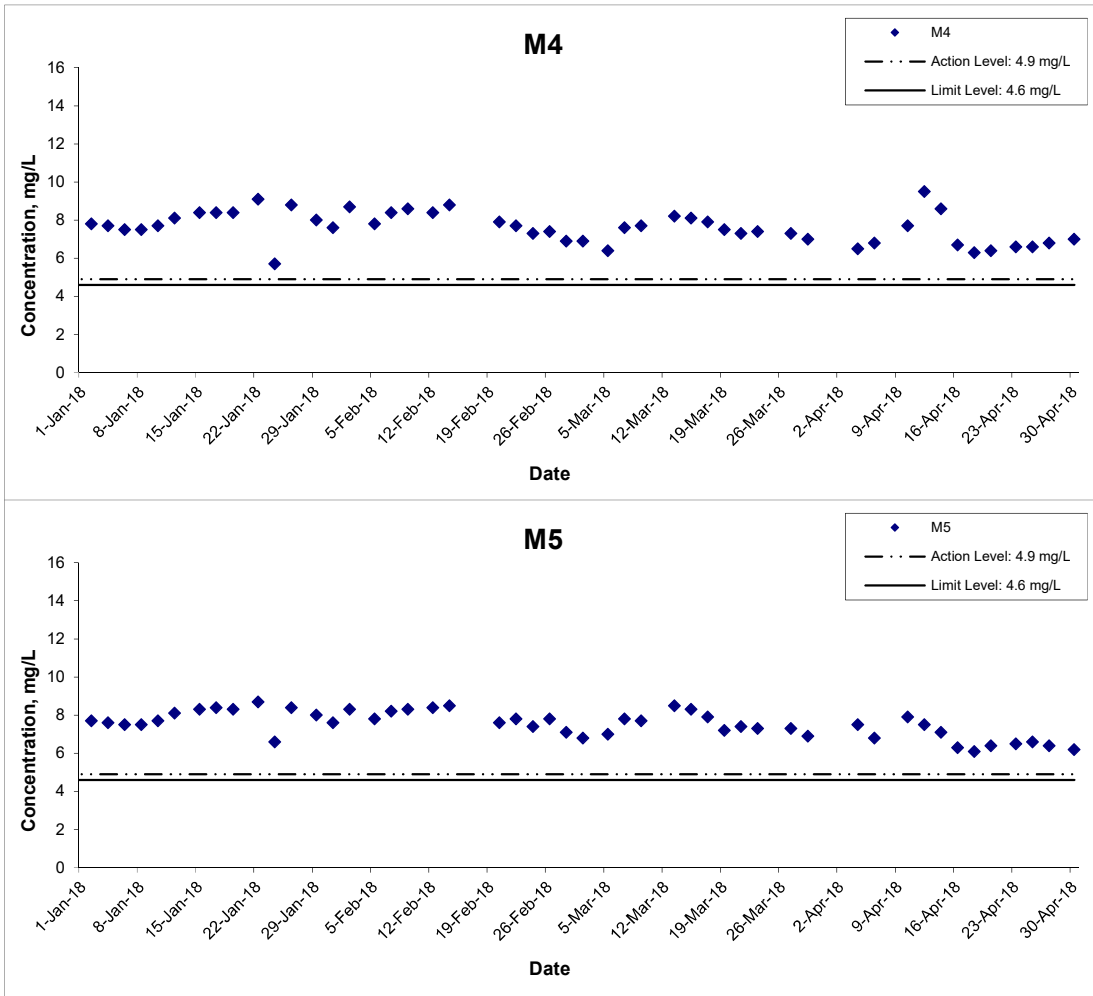
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (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

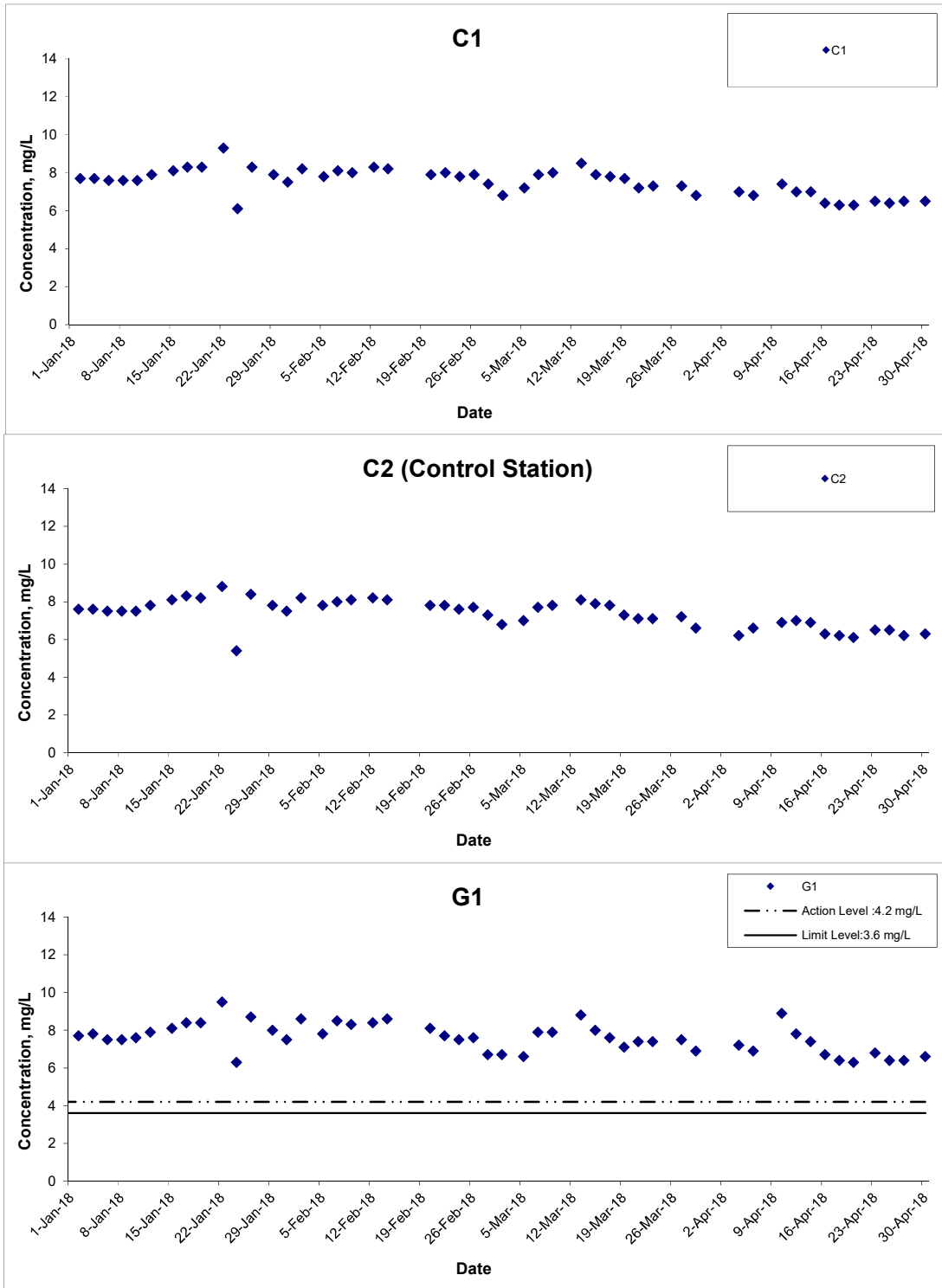
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (Bottom) at Mid-Ebb Tide

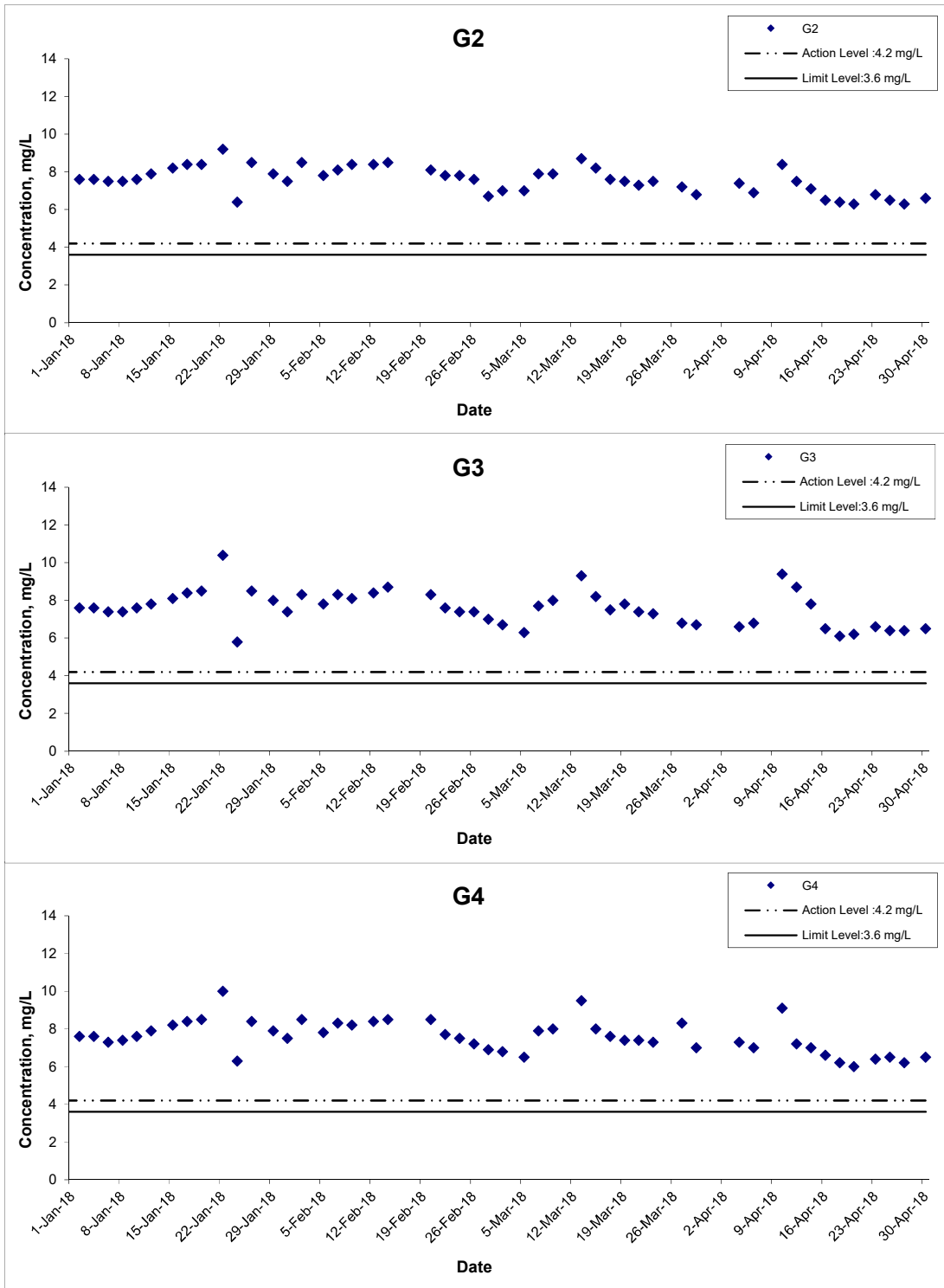


Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S
Date Apr 18
Project No. MA16034
Appendix I



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

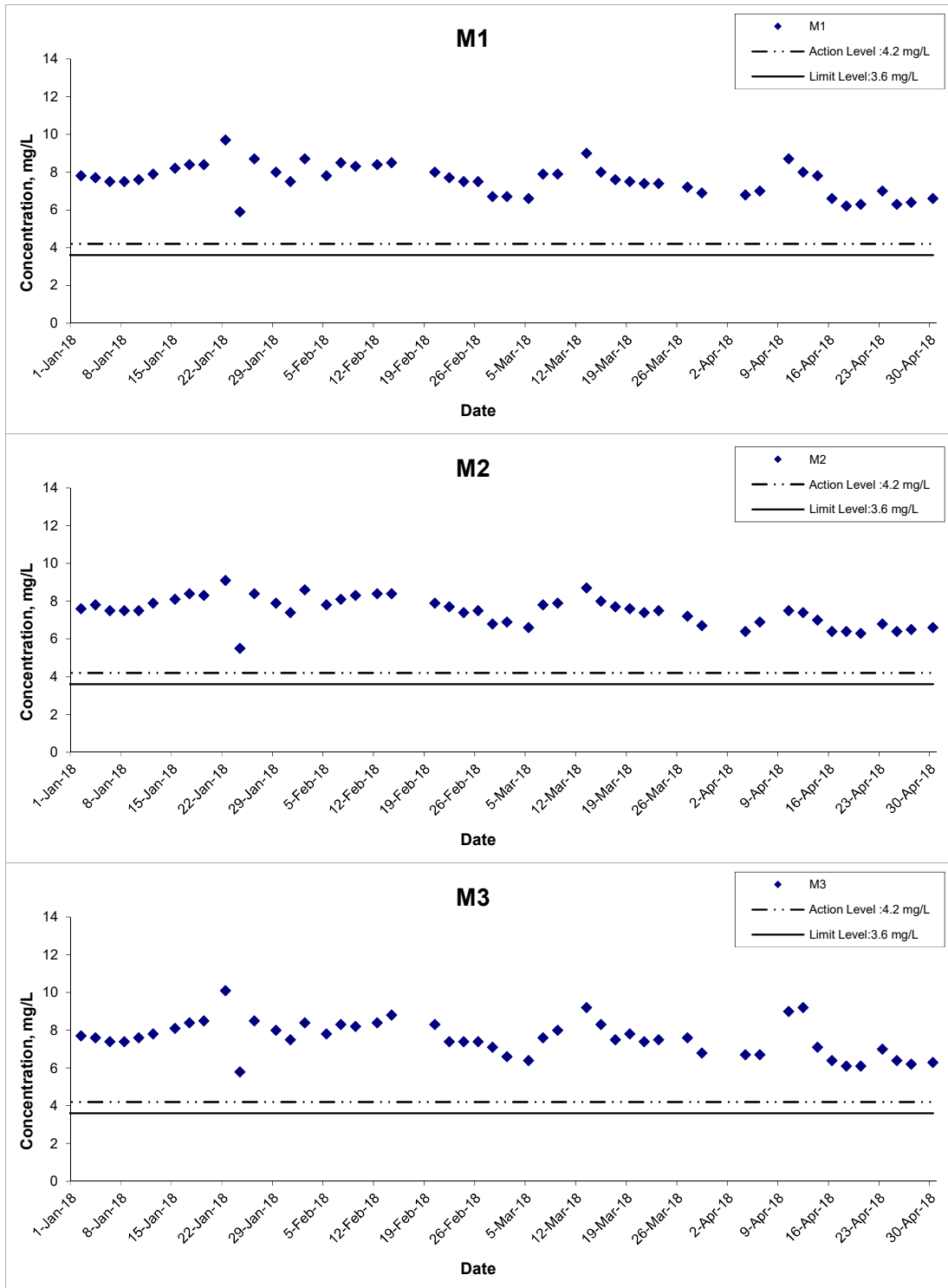
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (Bottom) at Mid-Ebb Tide

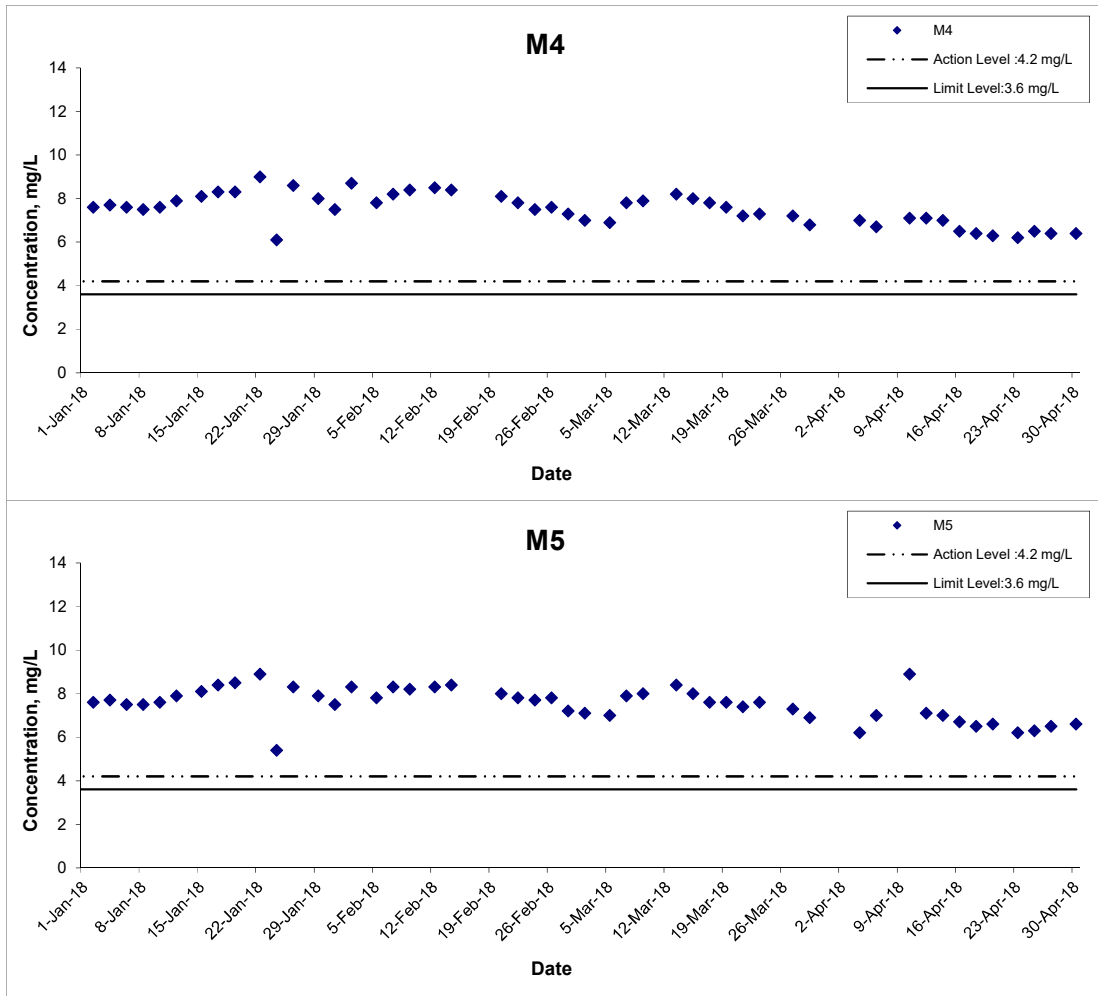


Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S
Date Apr 18
Project No. MA16034
Appendix I



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

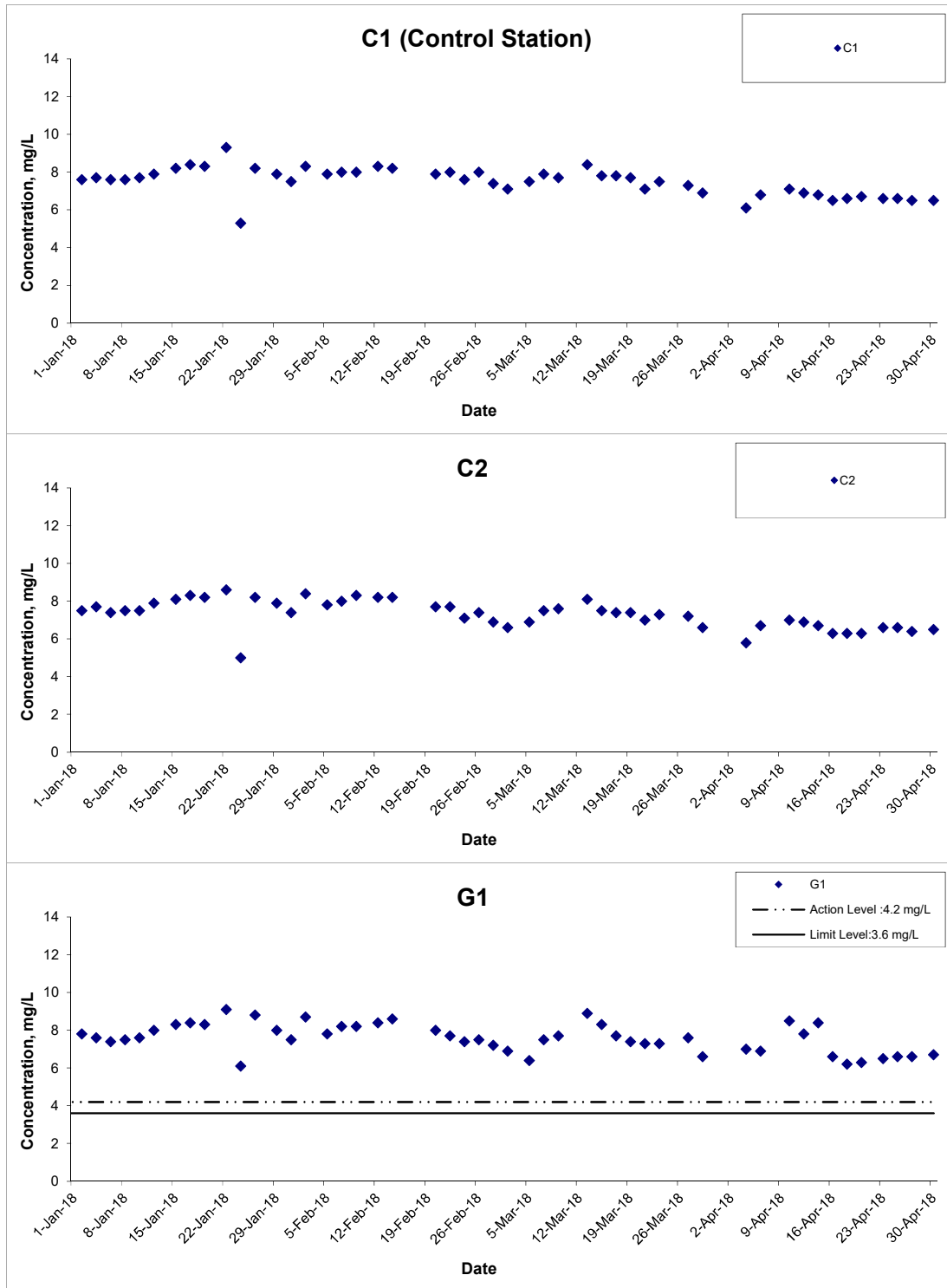
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (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

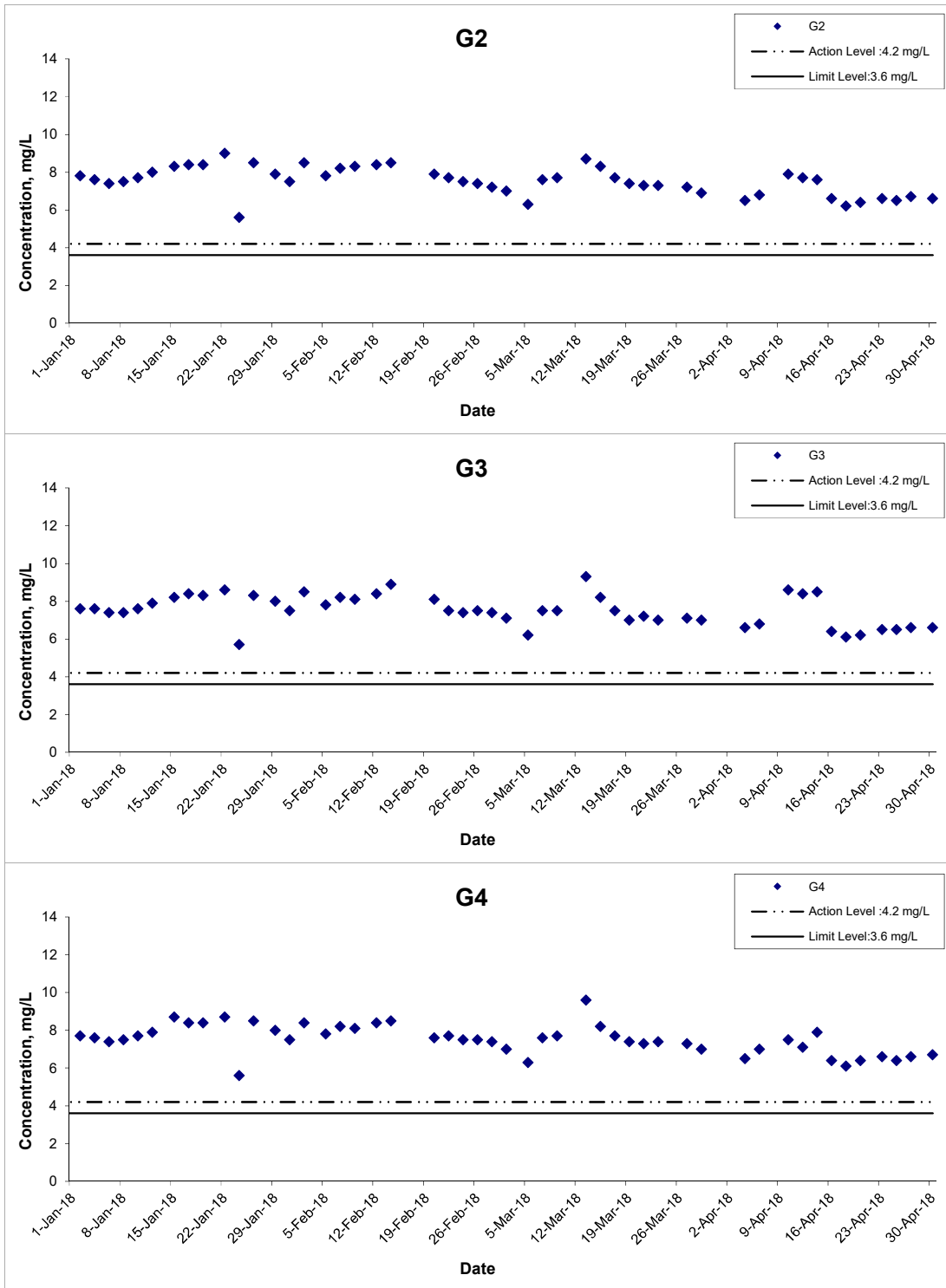
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (Bottom) at Mid-Flood Tide

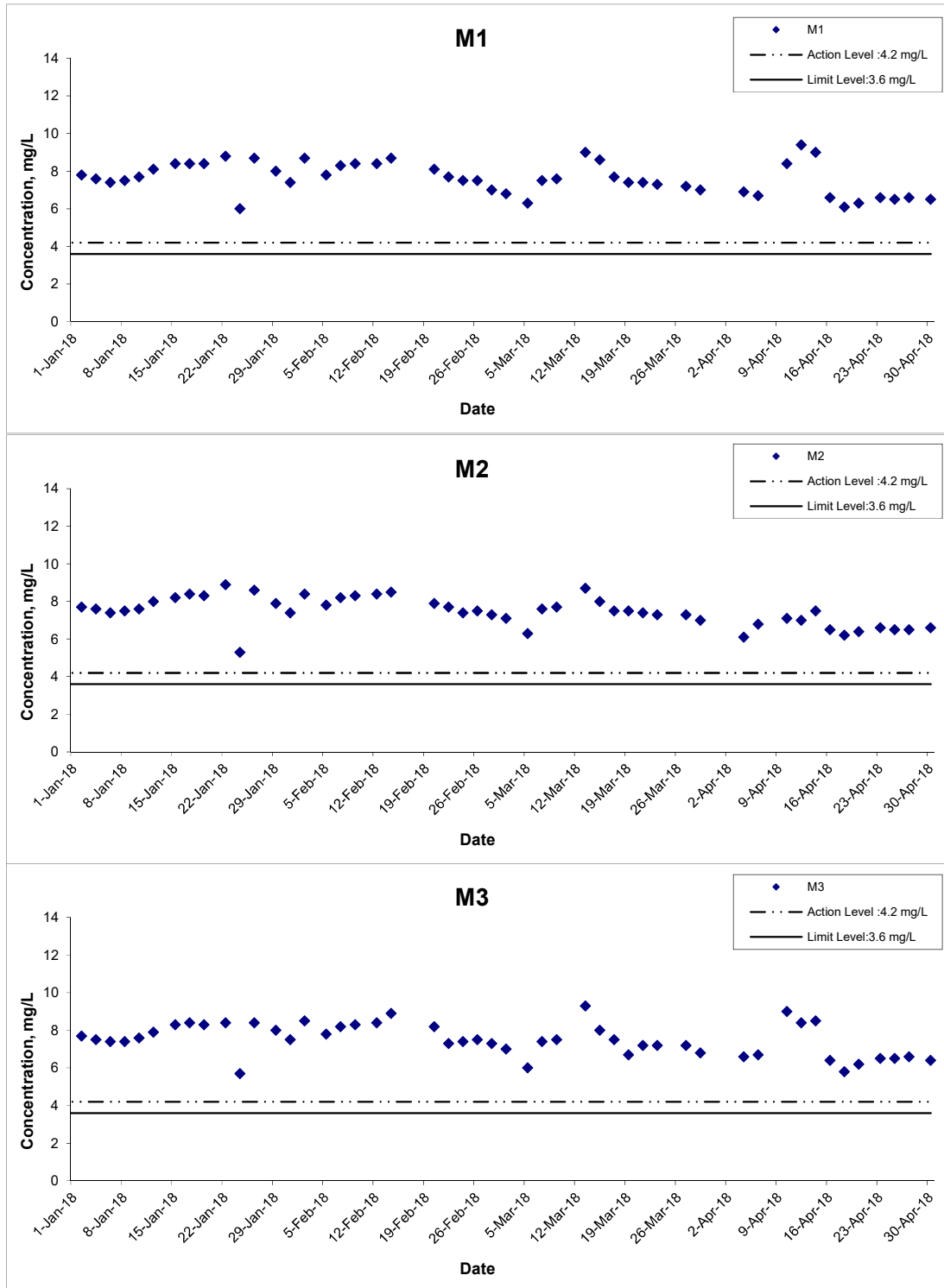


Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S
Date Apr 18
Project No. MA16034
Appendix I



Dissolved Oxygen (Bottom) at Mid-Flood Tide



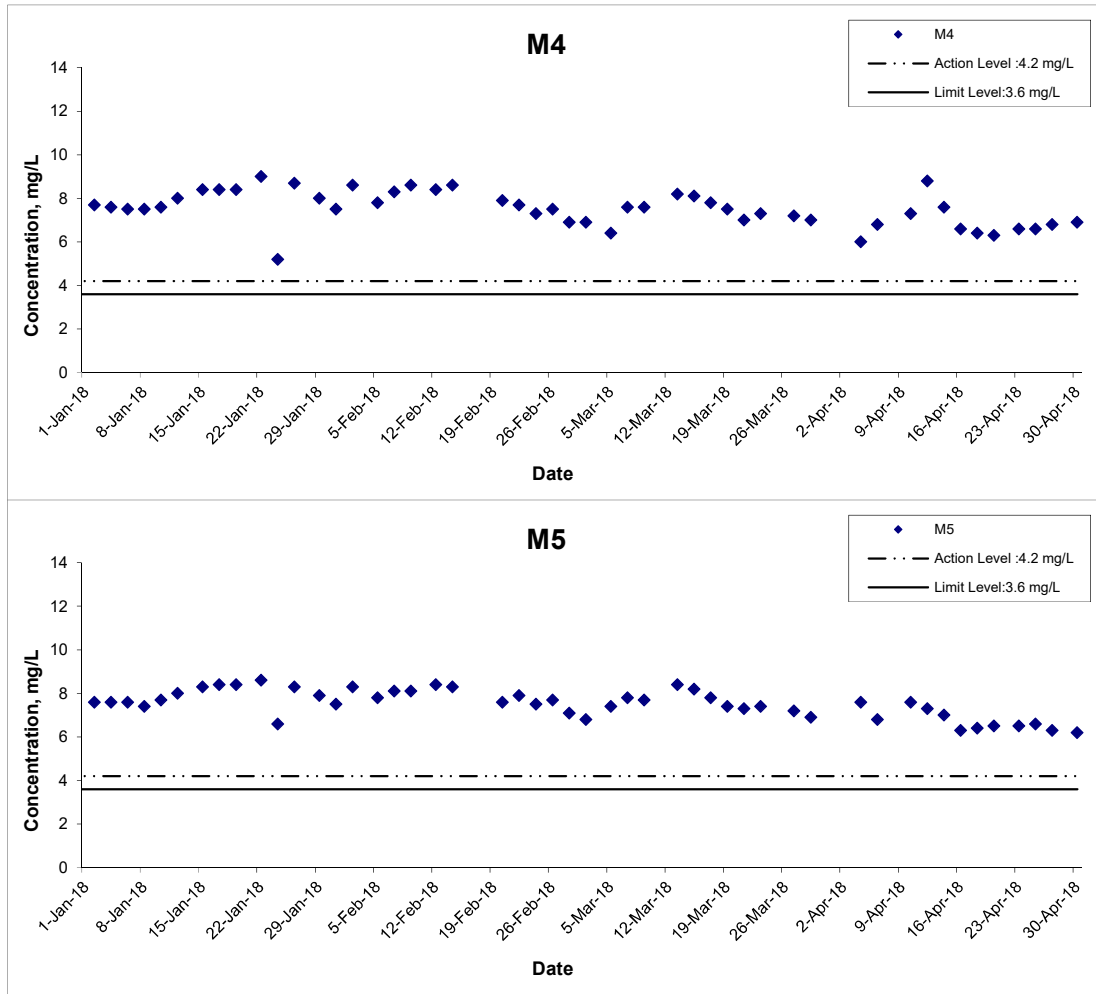
Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S
Date Apr 18

Project No. MA16034
Appendix I



Dissolved Oxygen (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

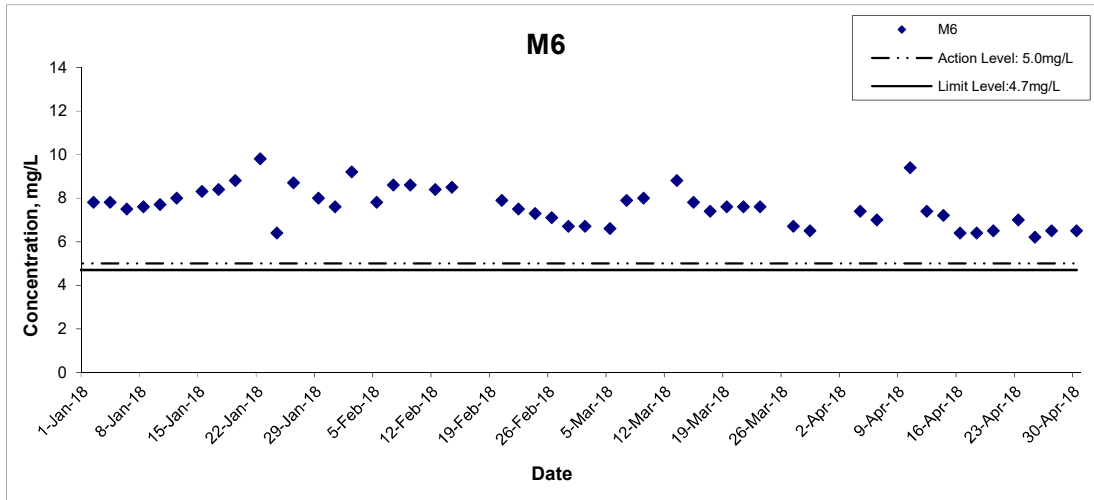
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (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

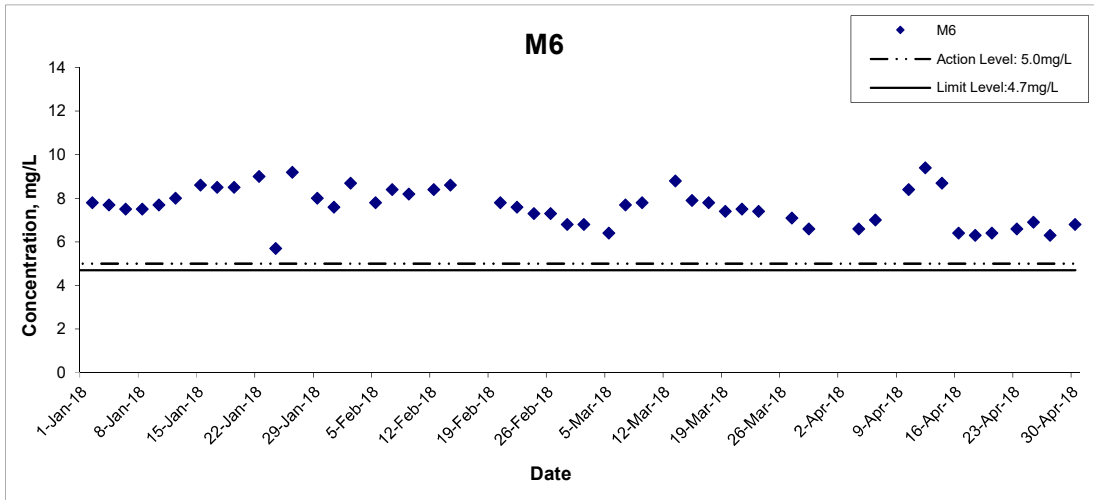
Date Apr 18

Project No. MA16034

Appendix I



Dissolved Oxygen (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

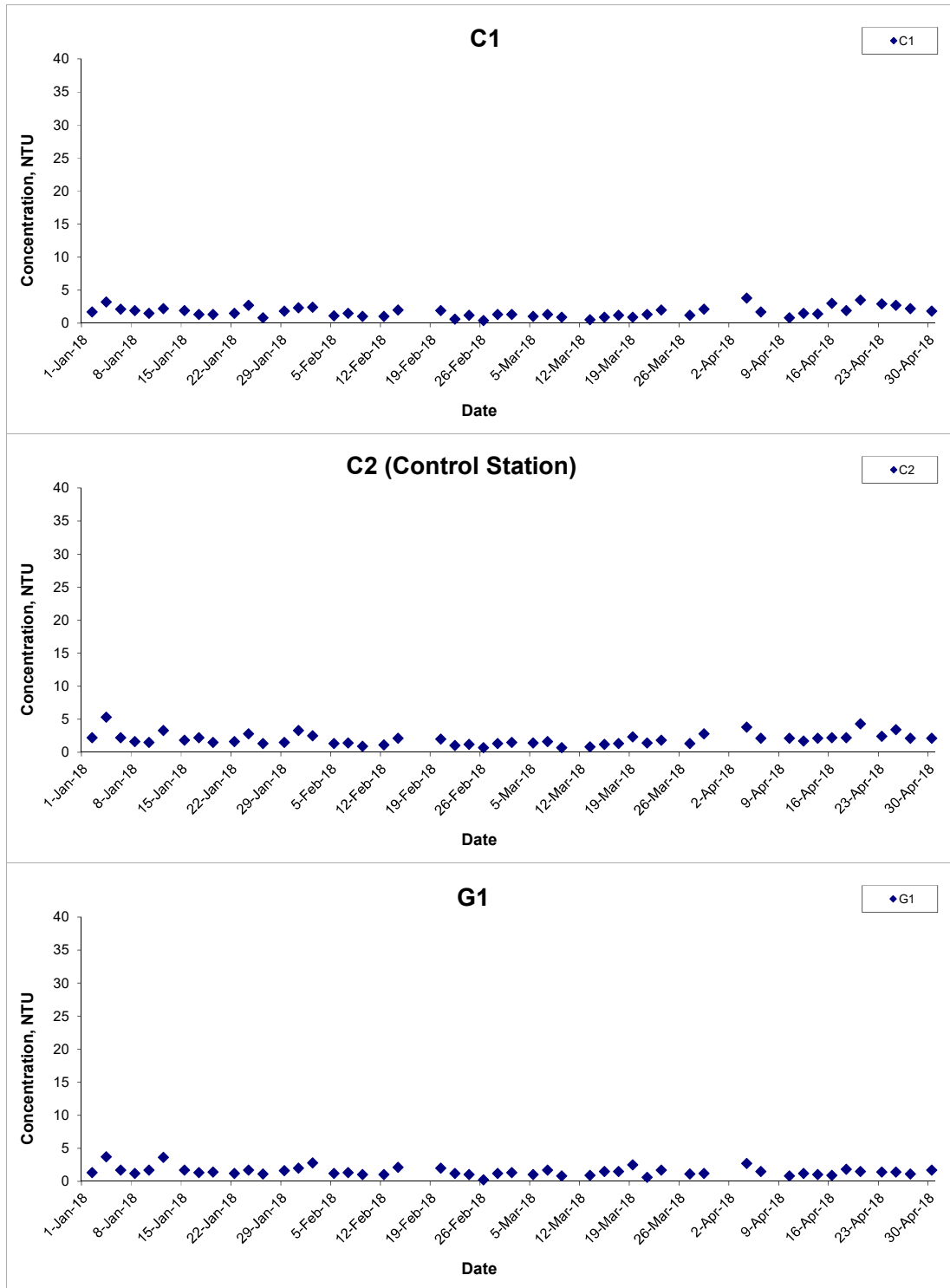
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (Depth-averaged) 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

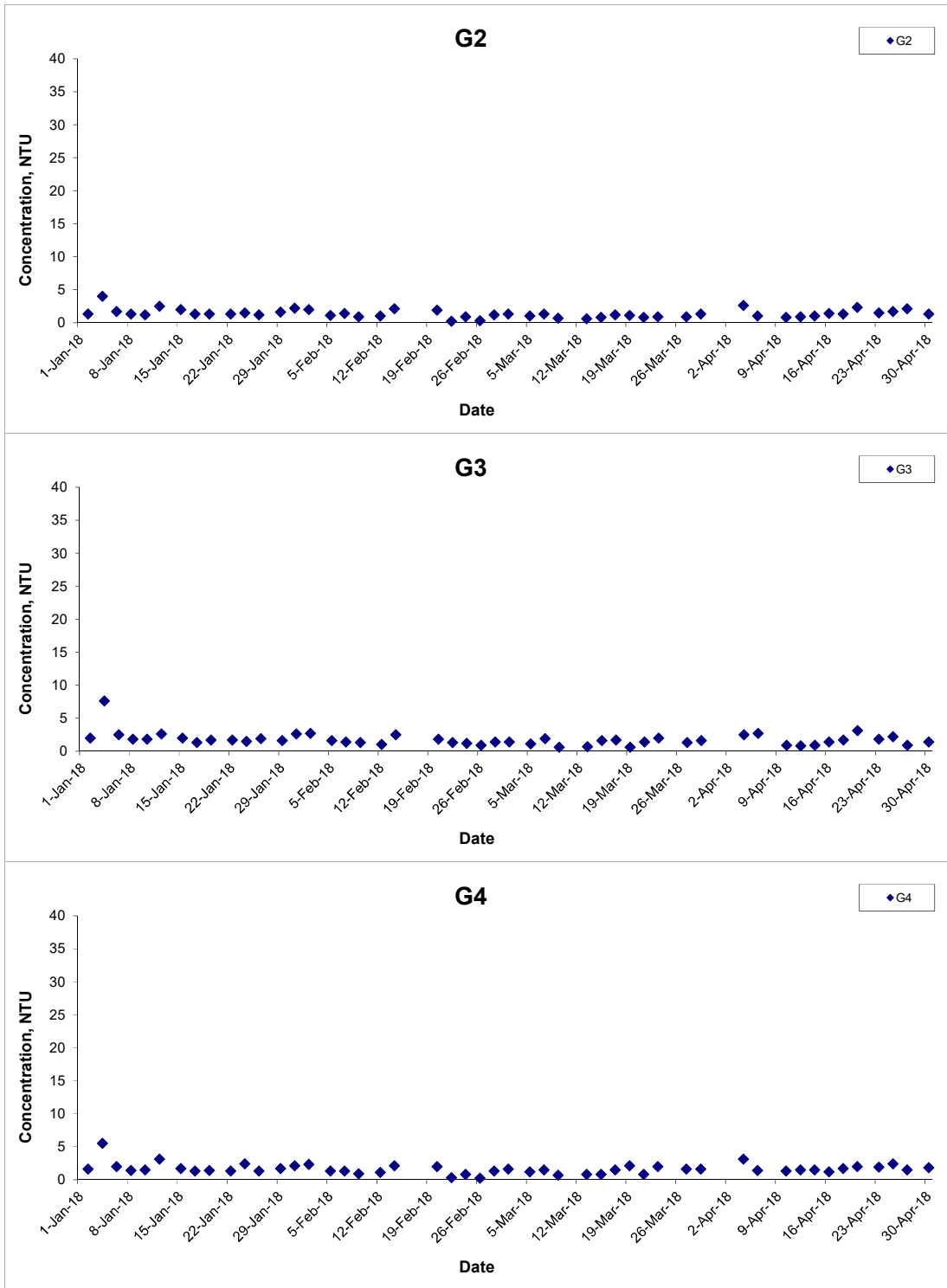
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (Depth-averaged) 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

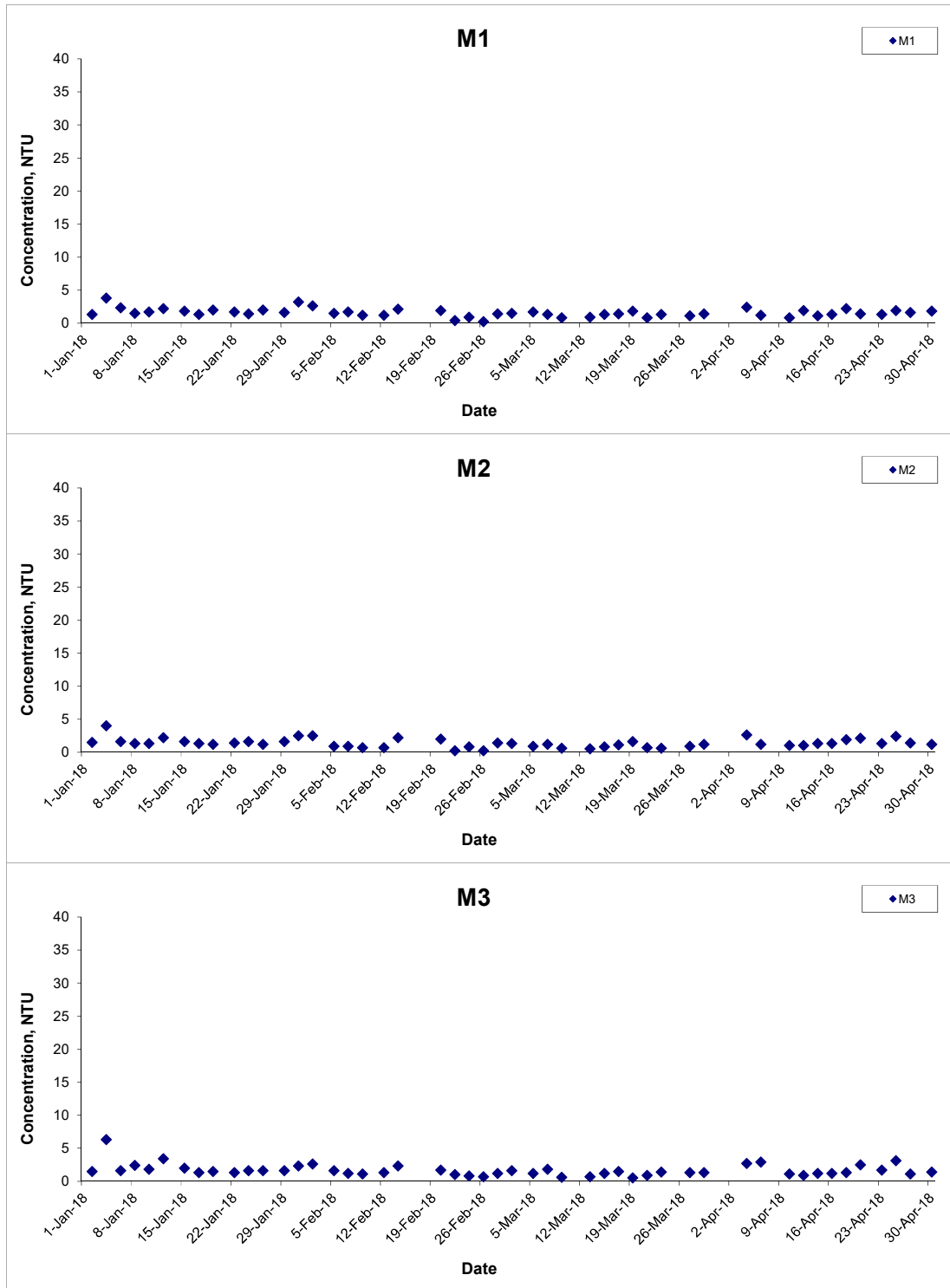
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (Depth-averaged) 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

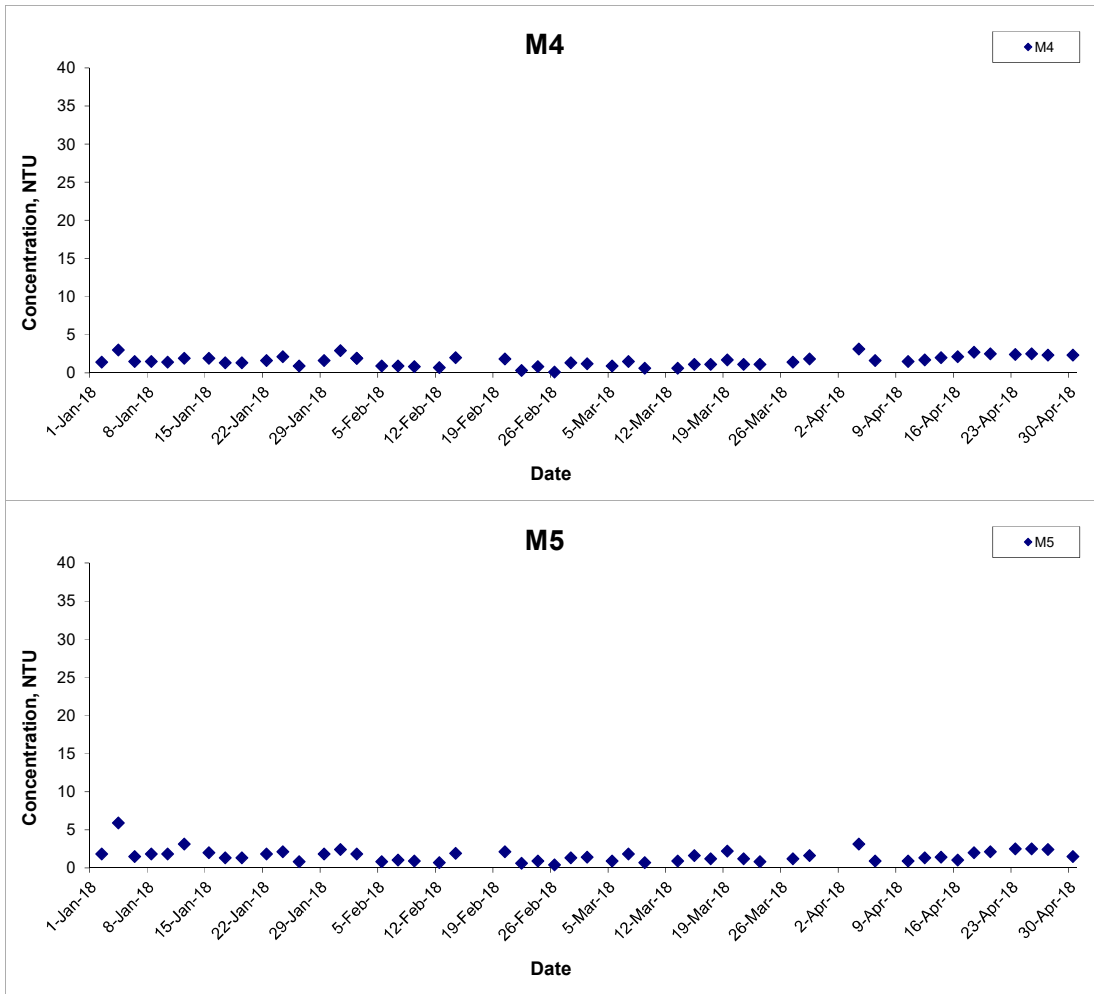
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (Depth-averaged) 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

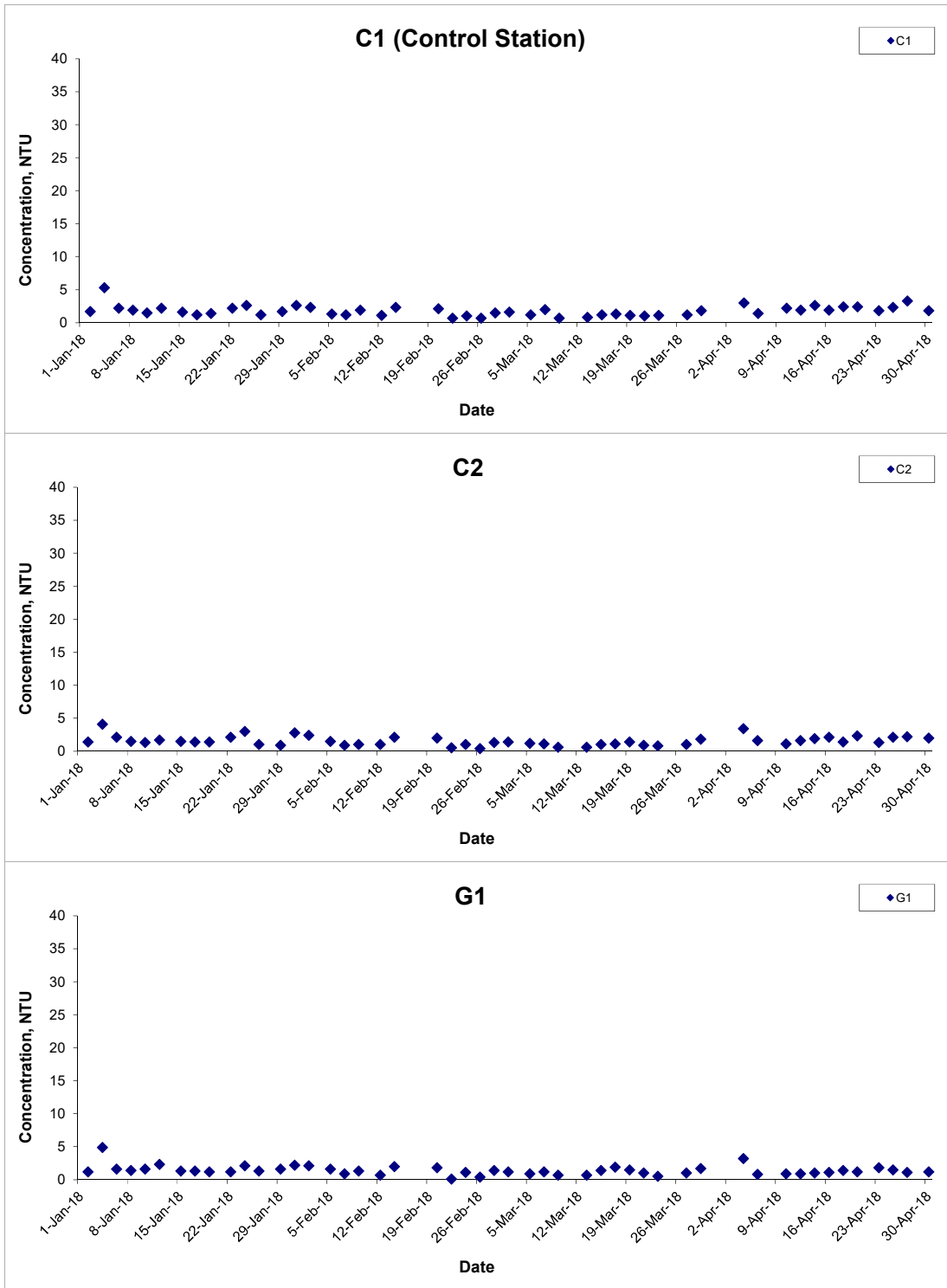
Date Apr 18

Project No. MA16034

Appendix I



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

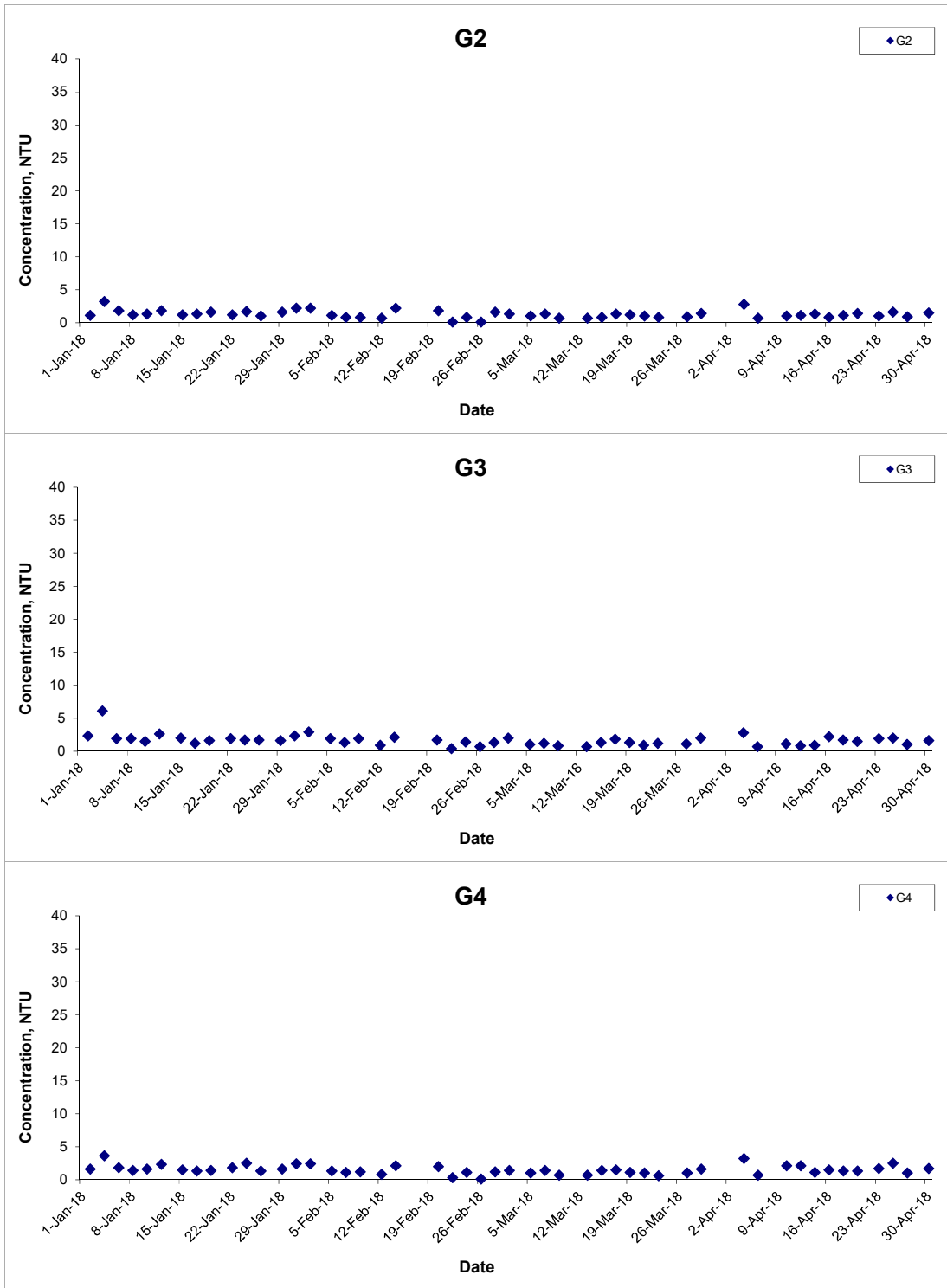
Date Apr 18

Project No. MA16034

Appendix I



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

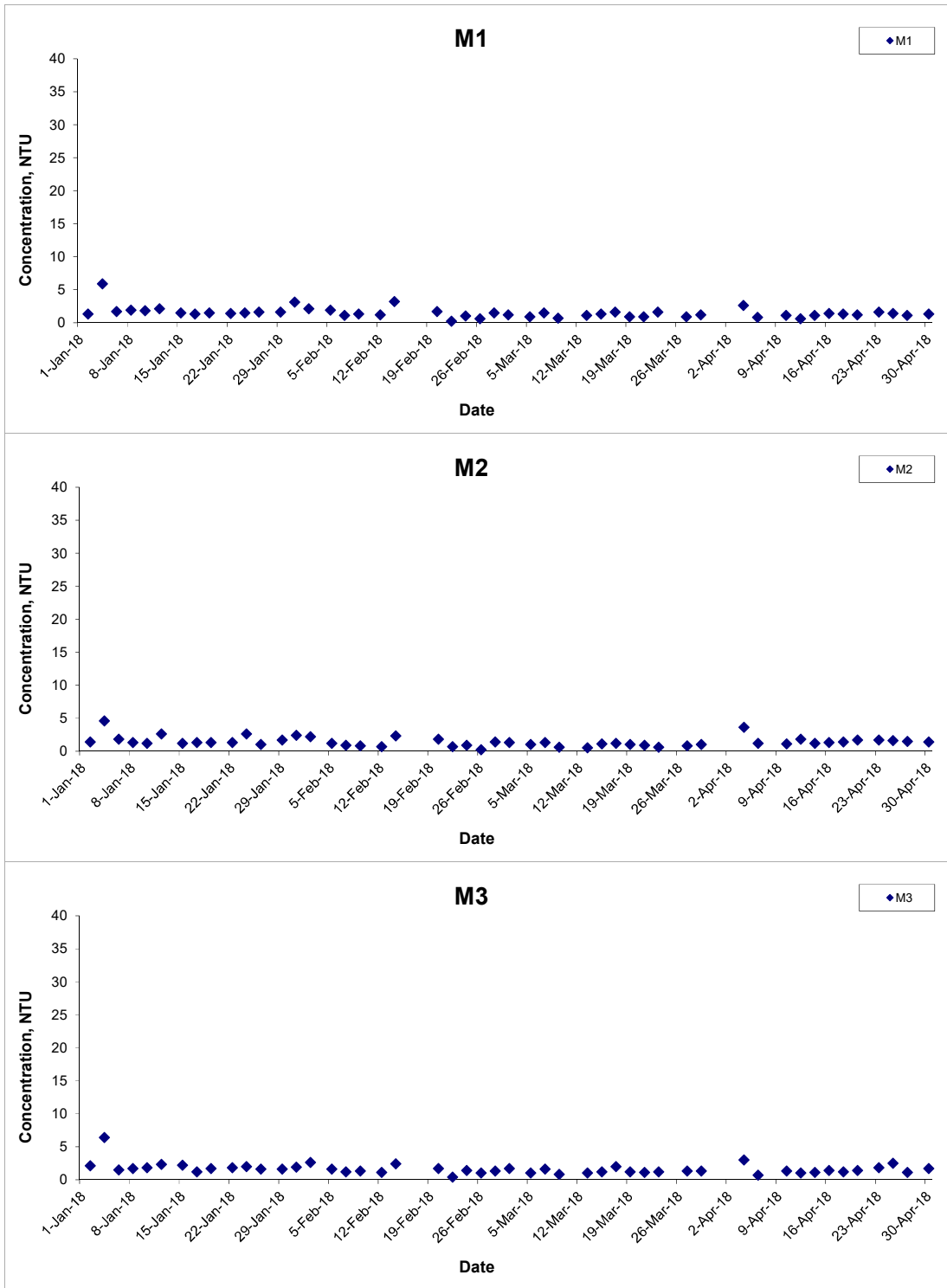
Date Apr 18

Project No. MA16034

Appendix I



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

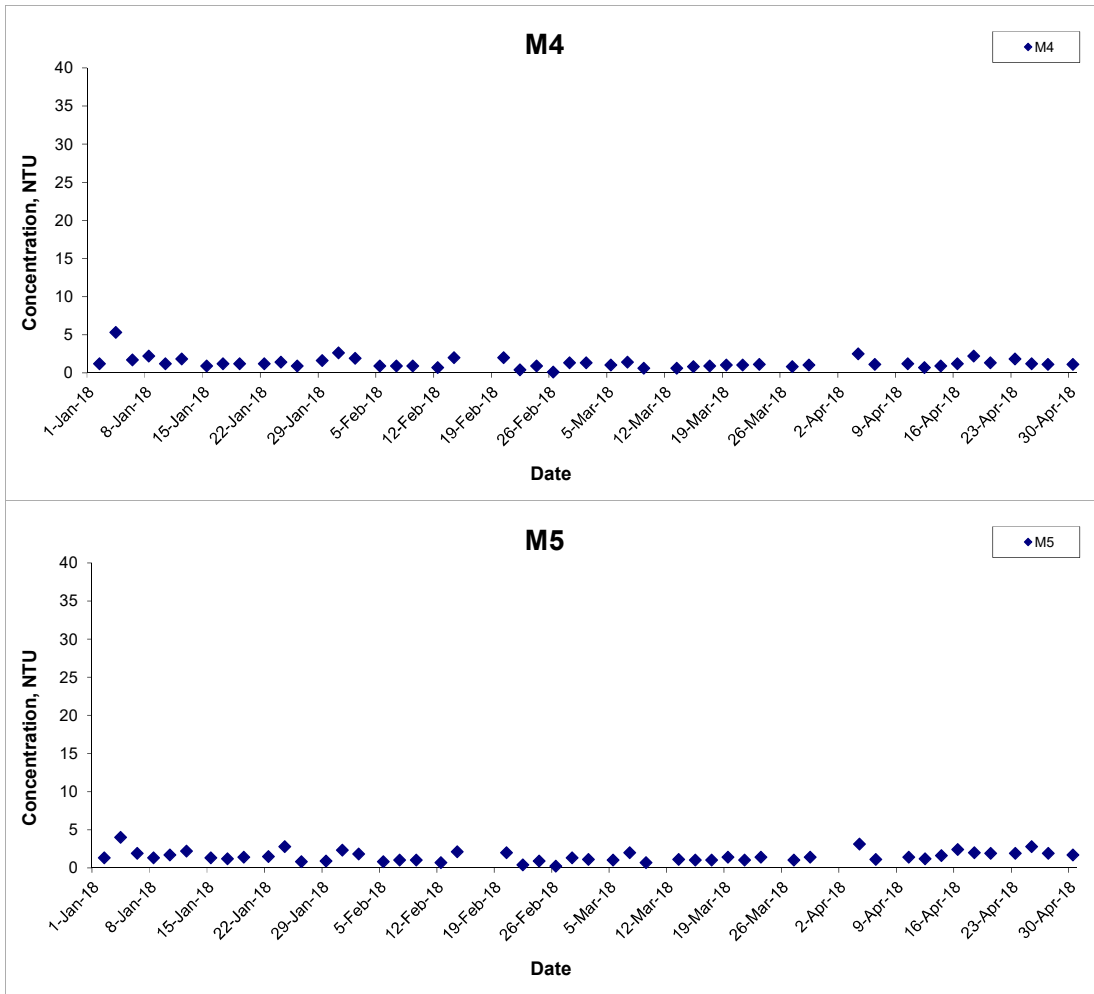
Date Apr 18

Project No. MA16034

Appendix I



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

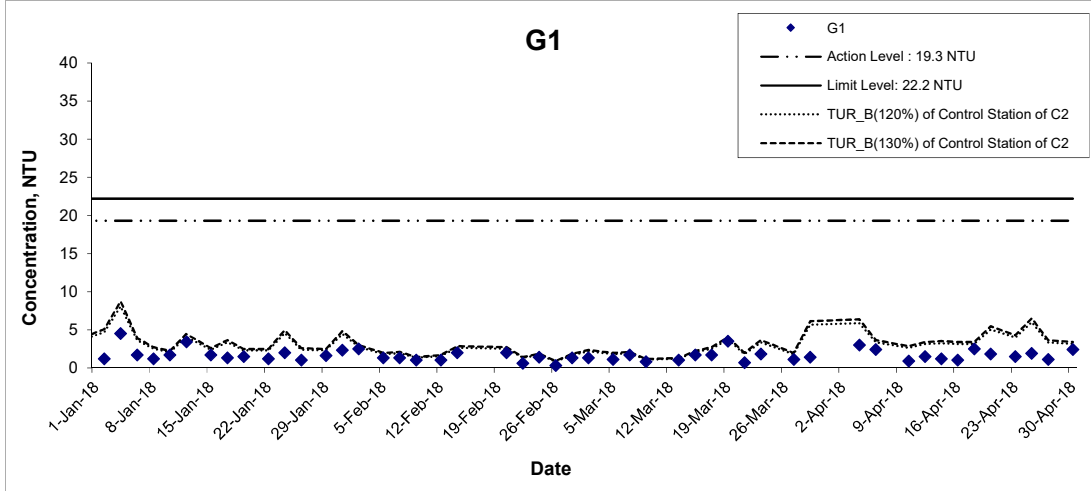
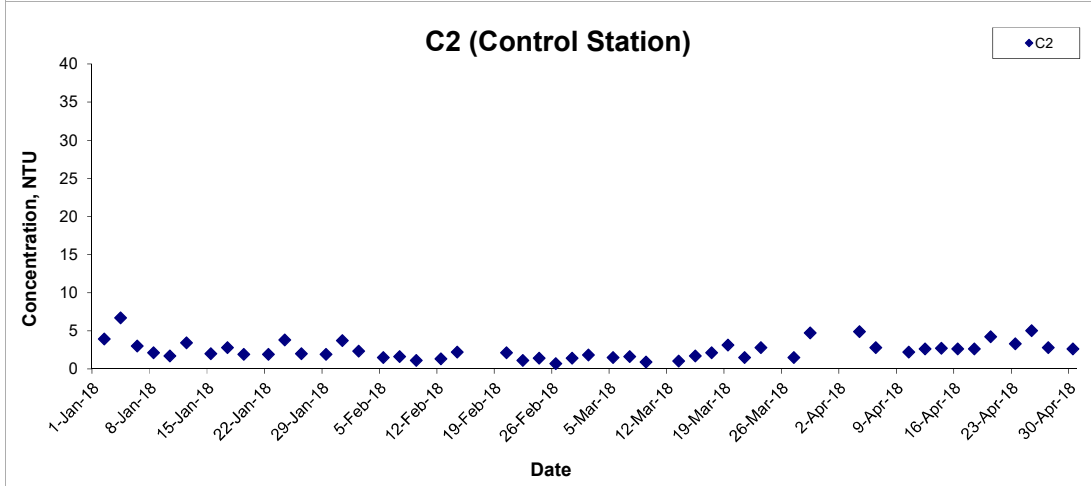
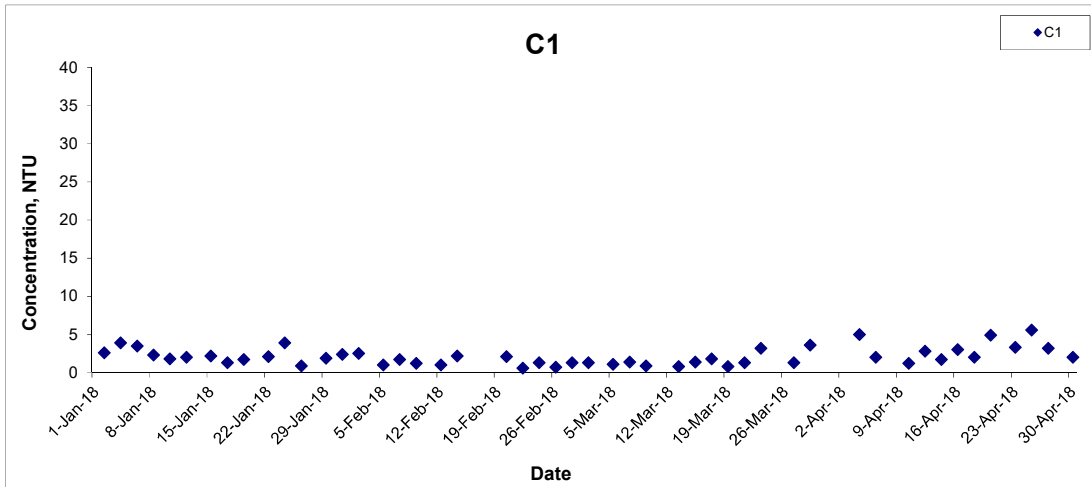
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

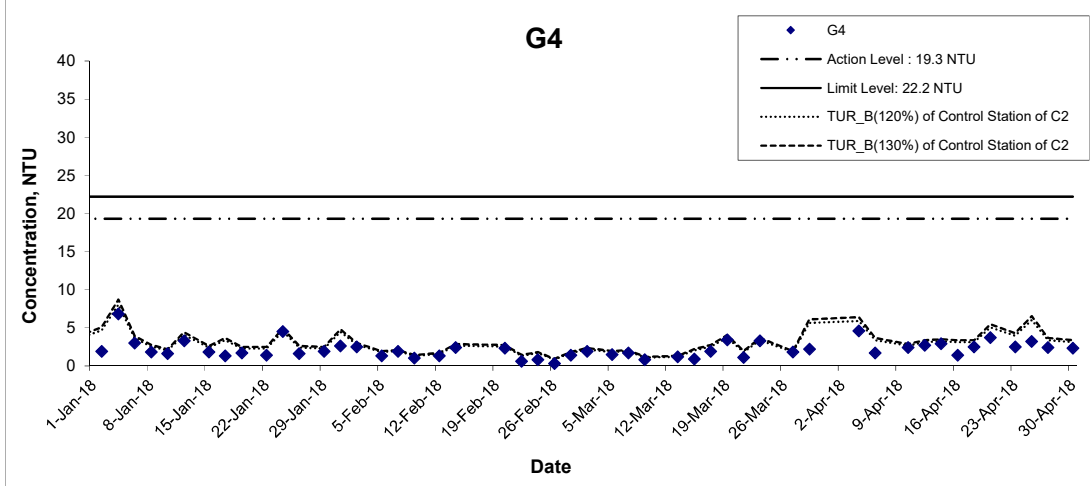
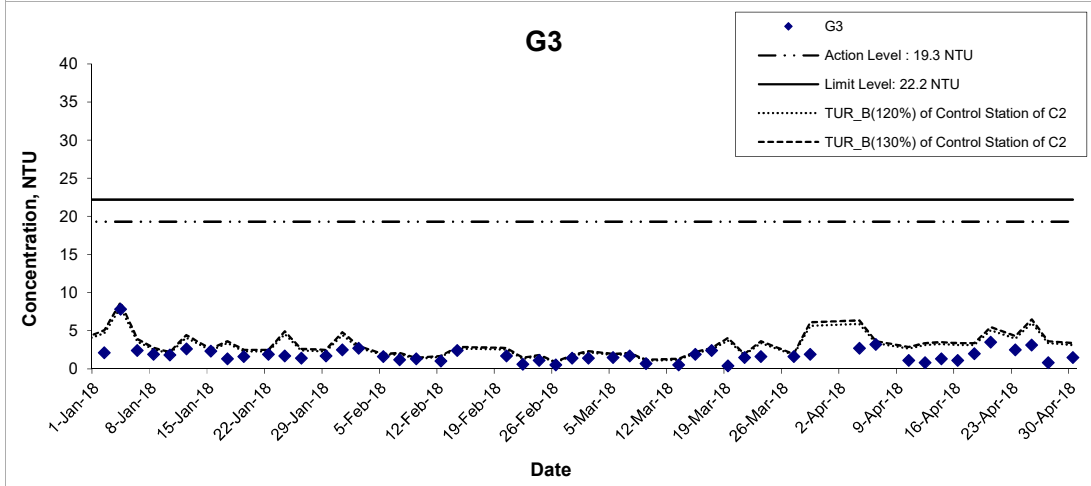
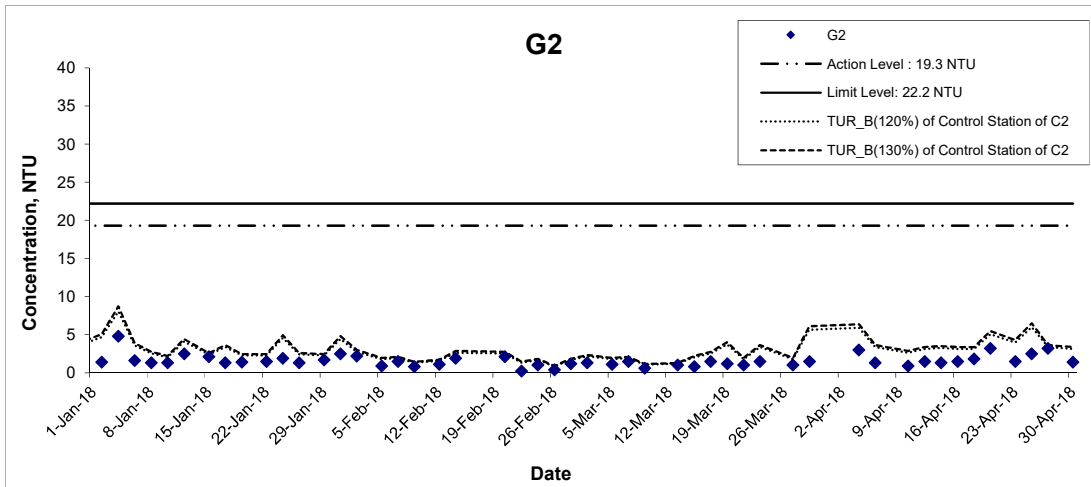
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

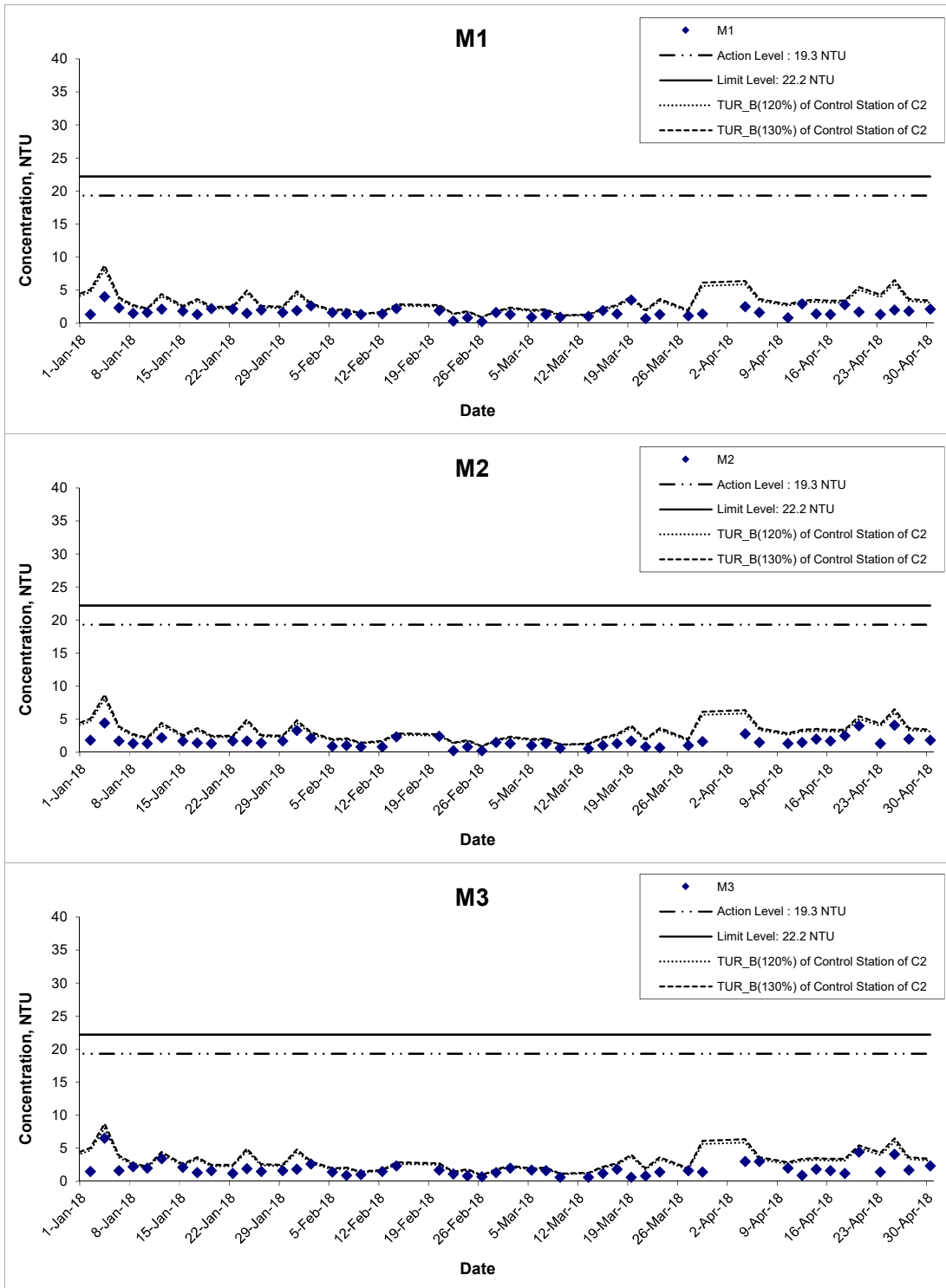
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

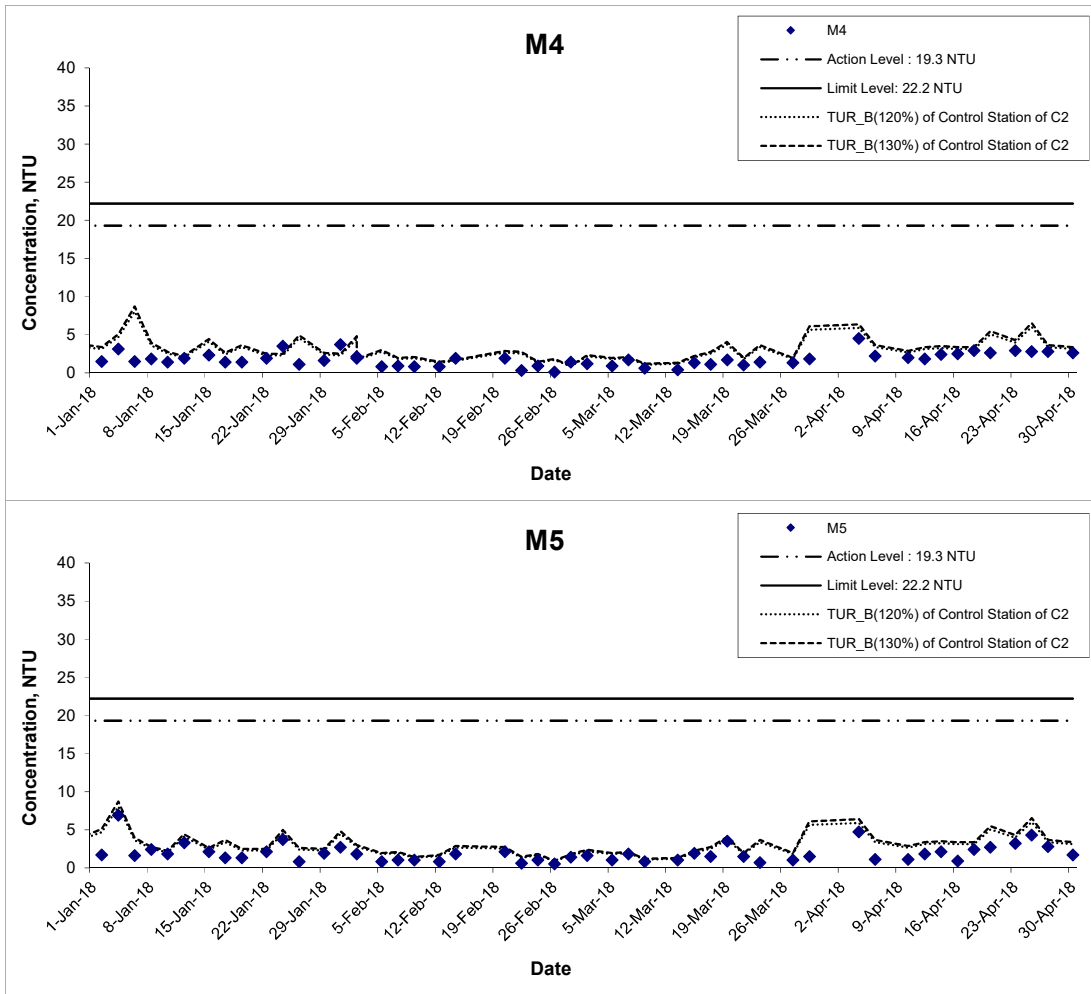
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

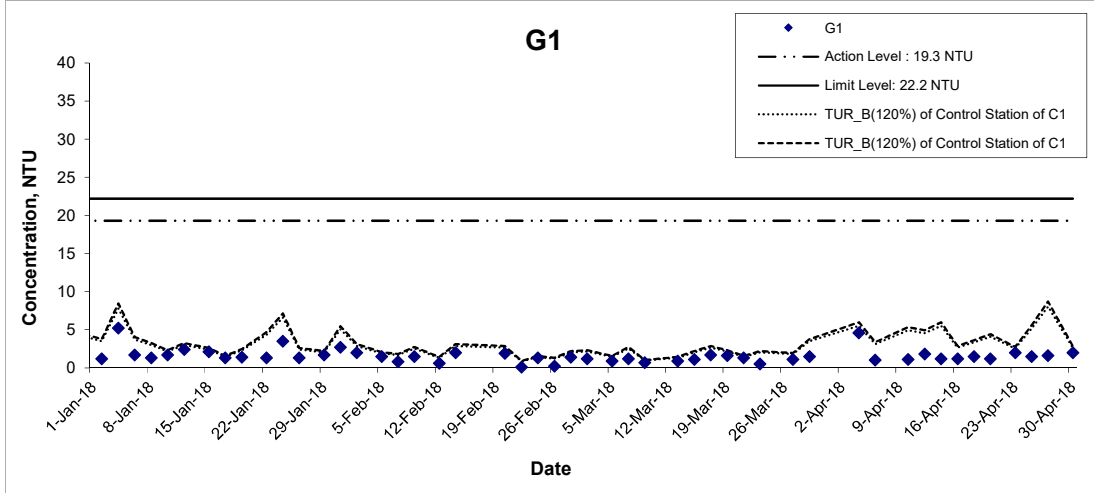
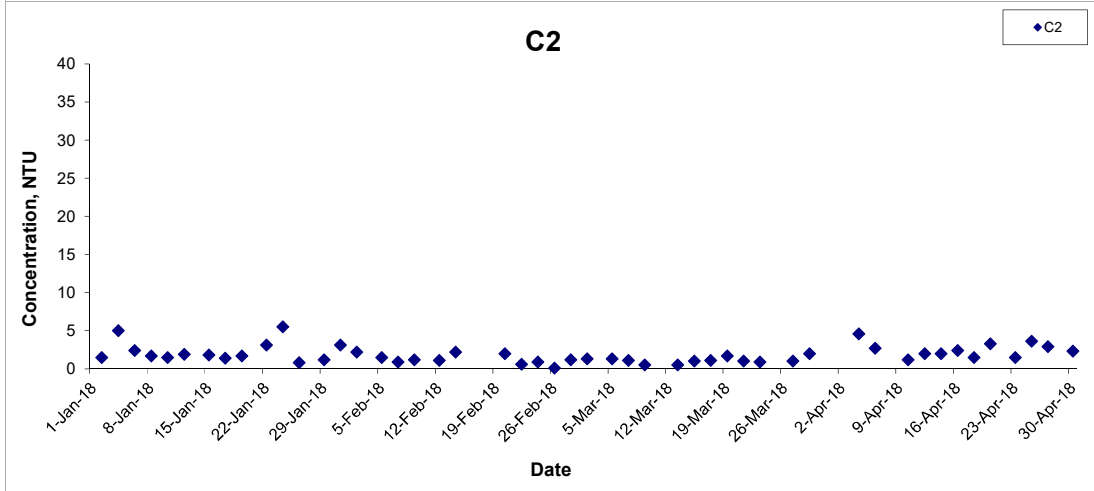
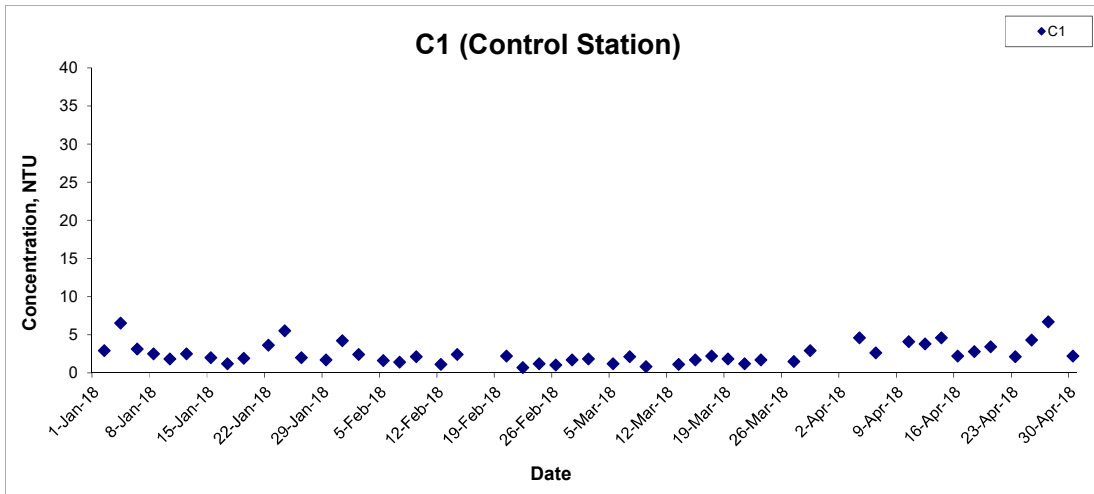
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

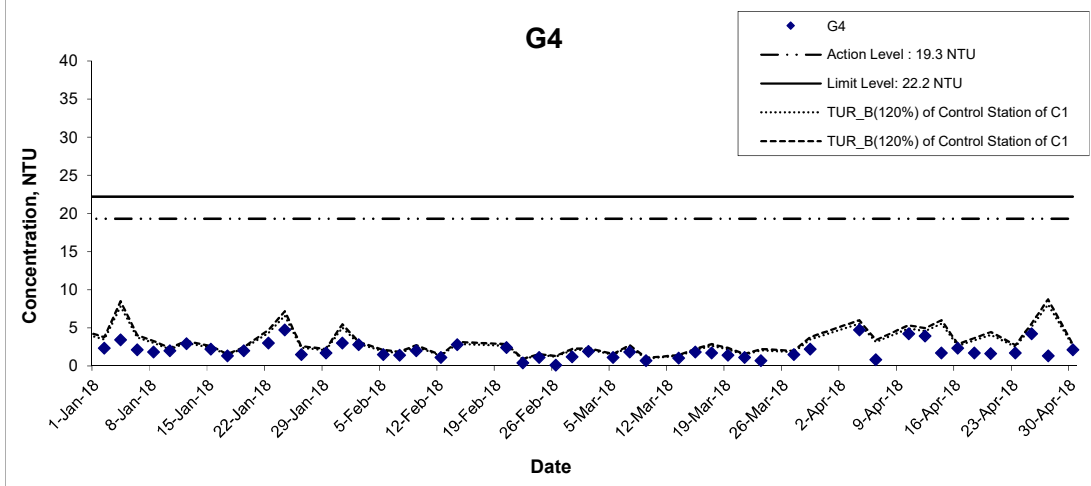
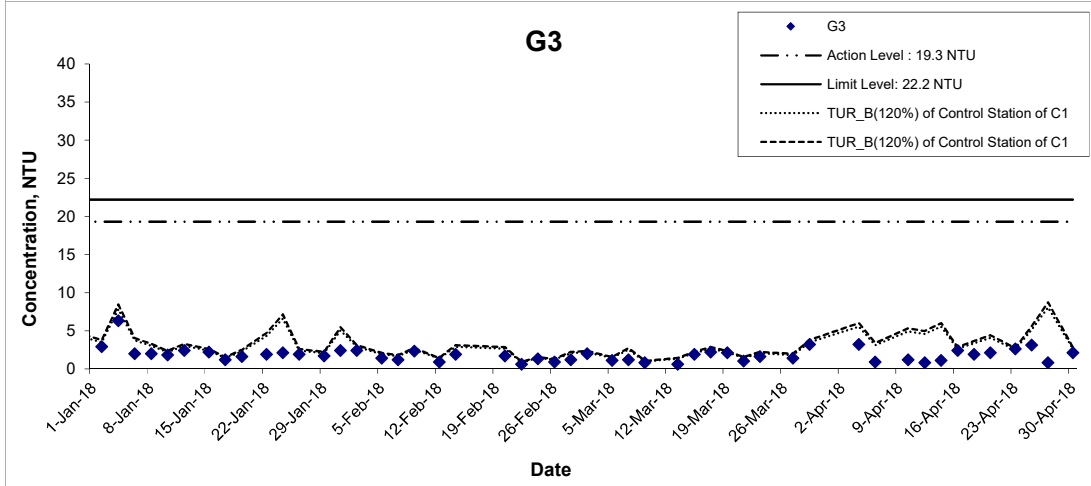
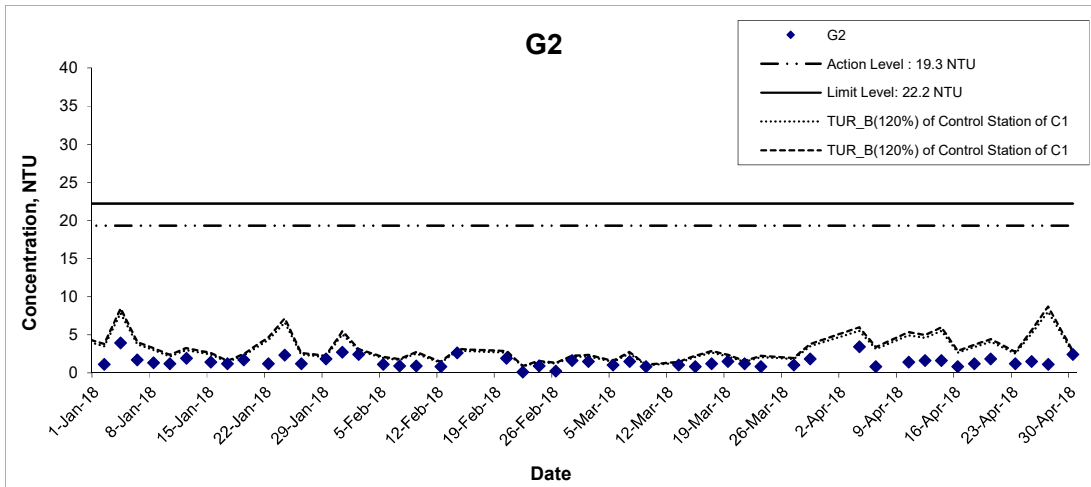
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

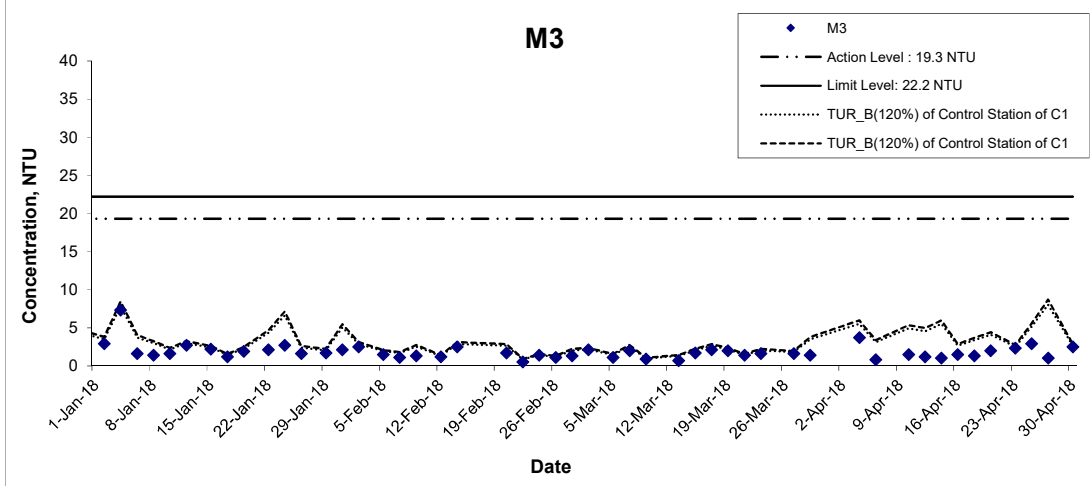
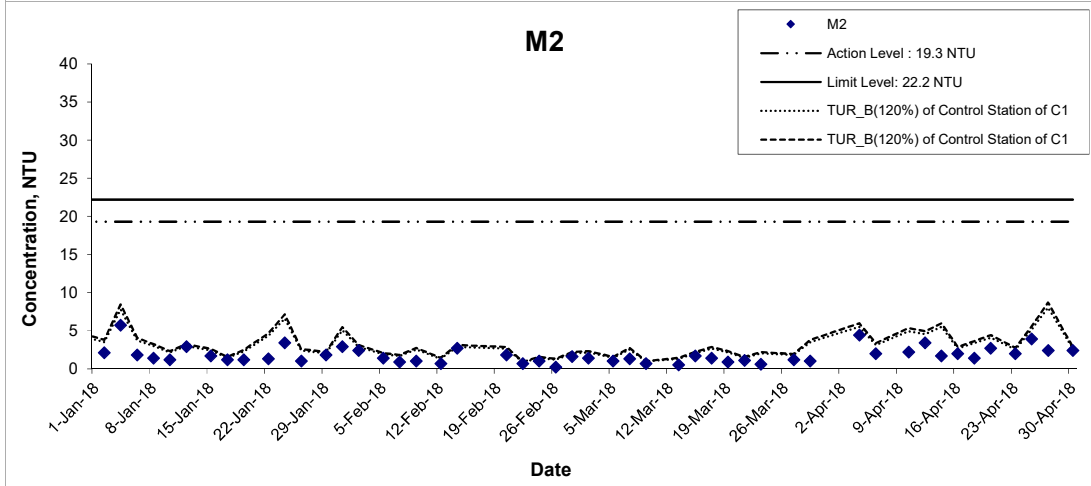
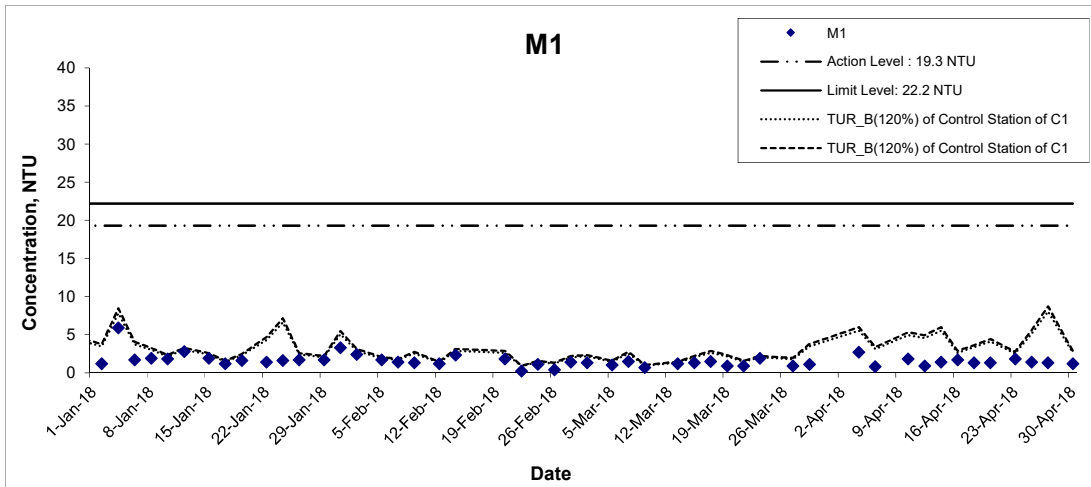
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

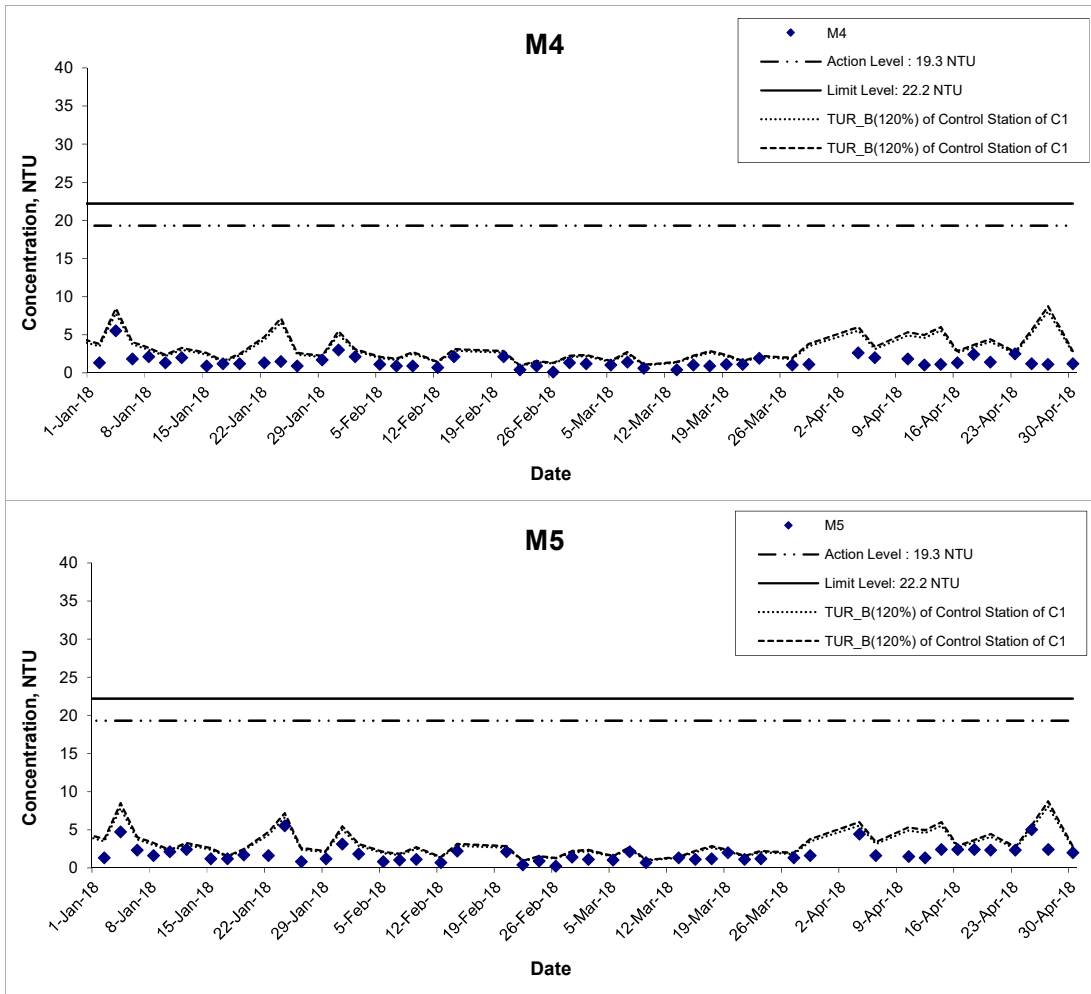
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

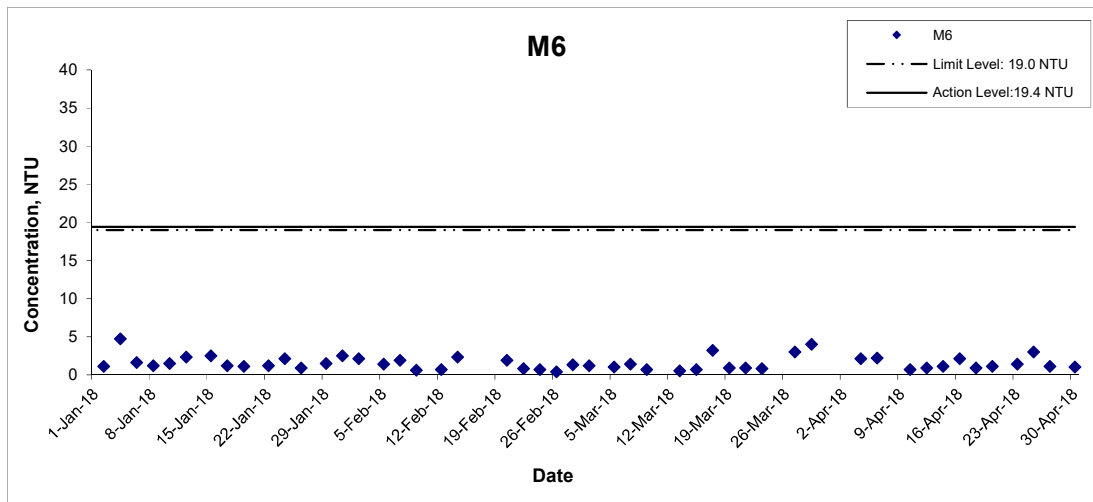
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

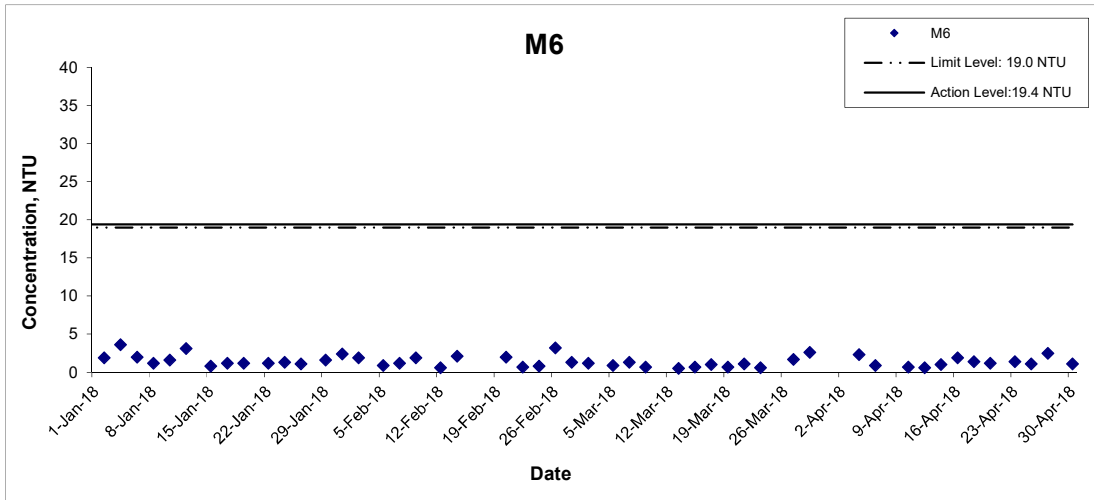
Date Apr 18

Project No. MA16034

Appendix I



Turbidity (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

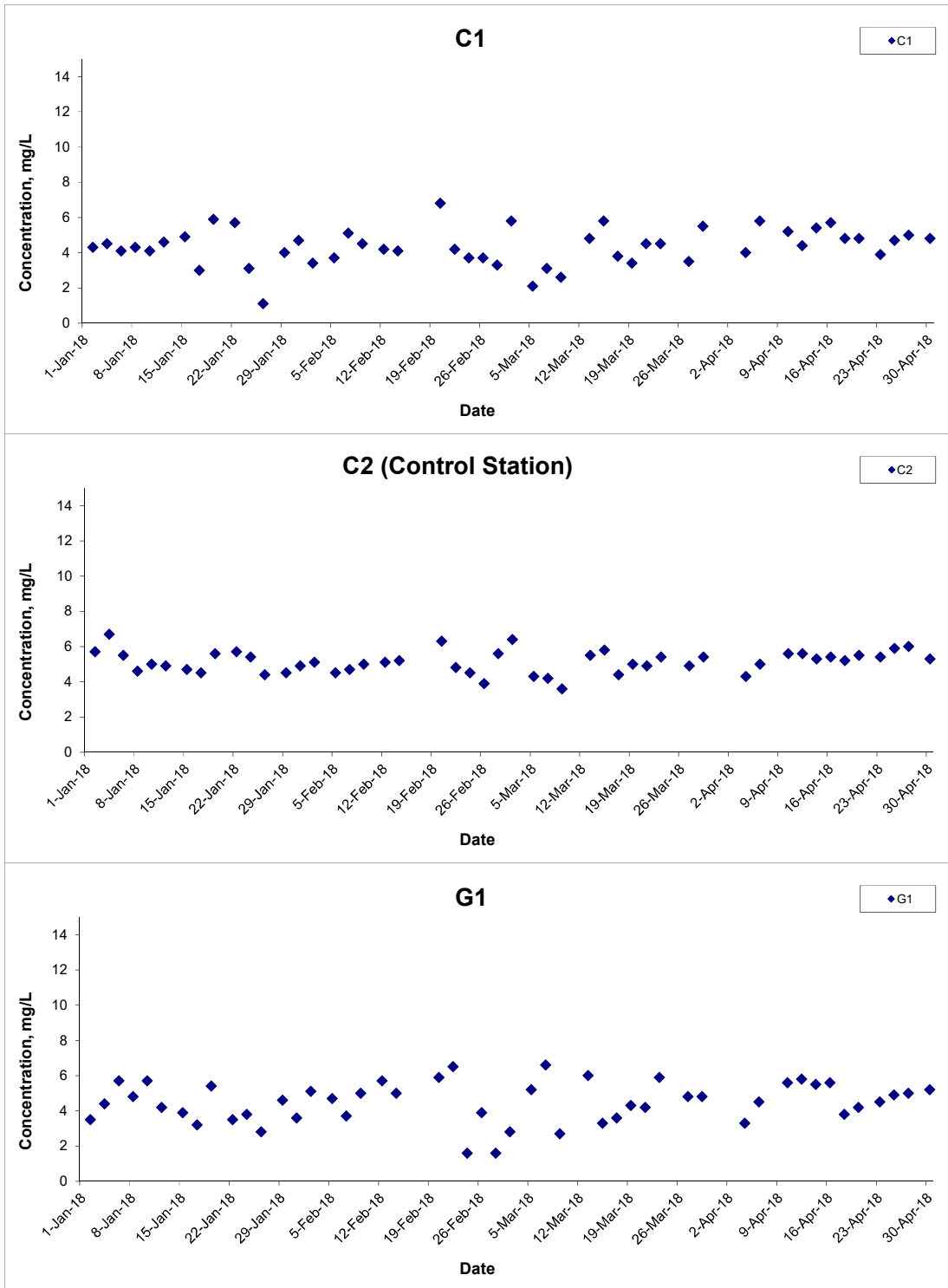
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Depth-averaged) 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

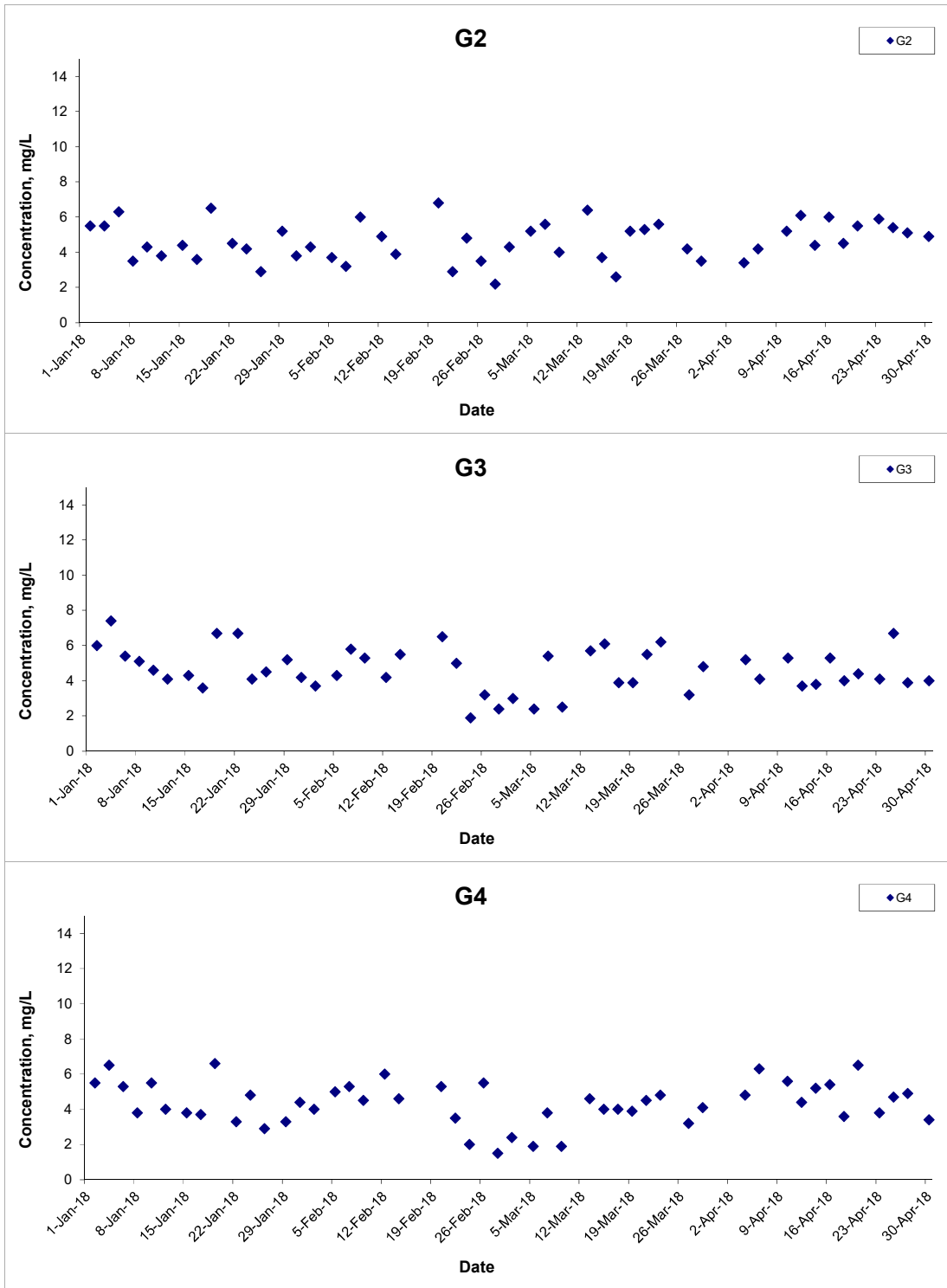
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Depth-averaged) at Mid-Ebb Tide



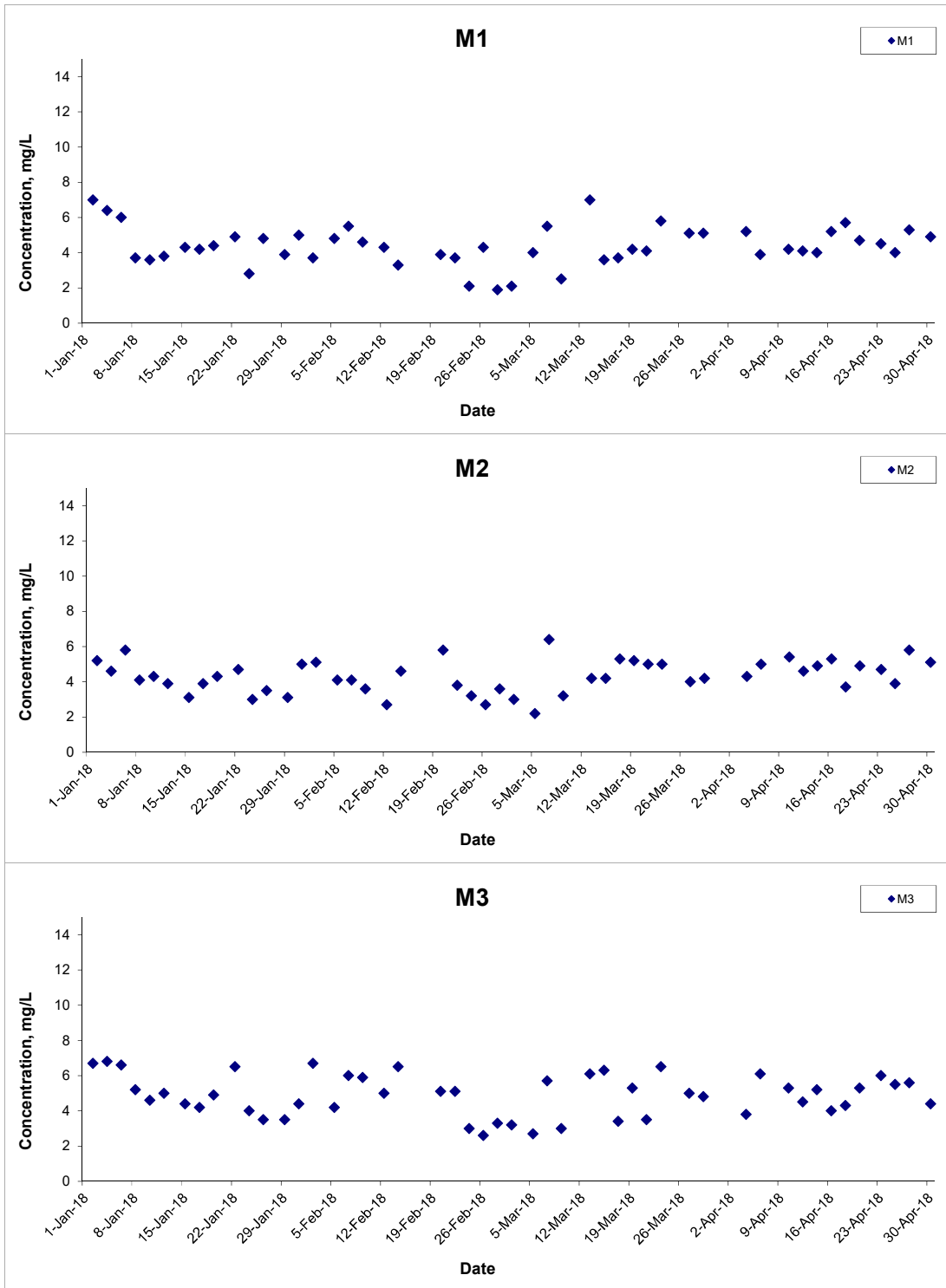
Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S
Date Apr 18

Project No. MA16034
Appendix I



Suspended Solids (Depth-averaged) 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

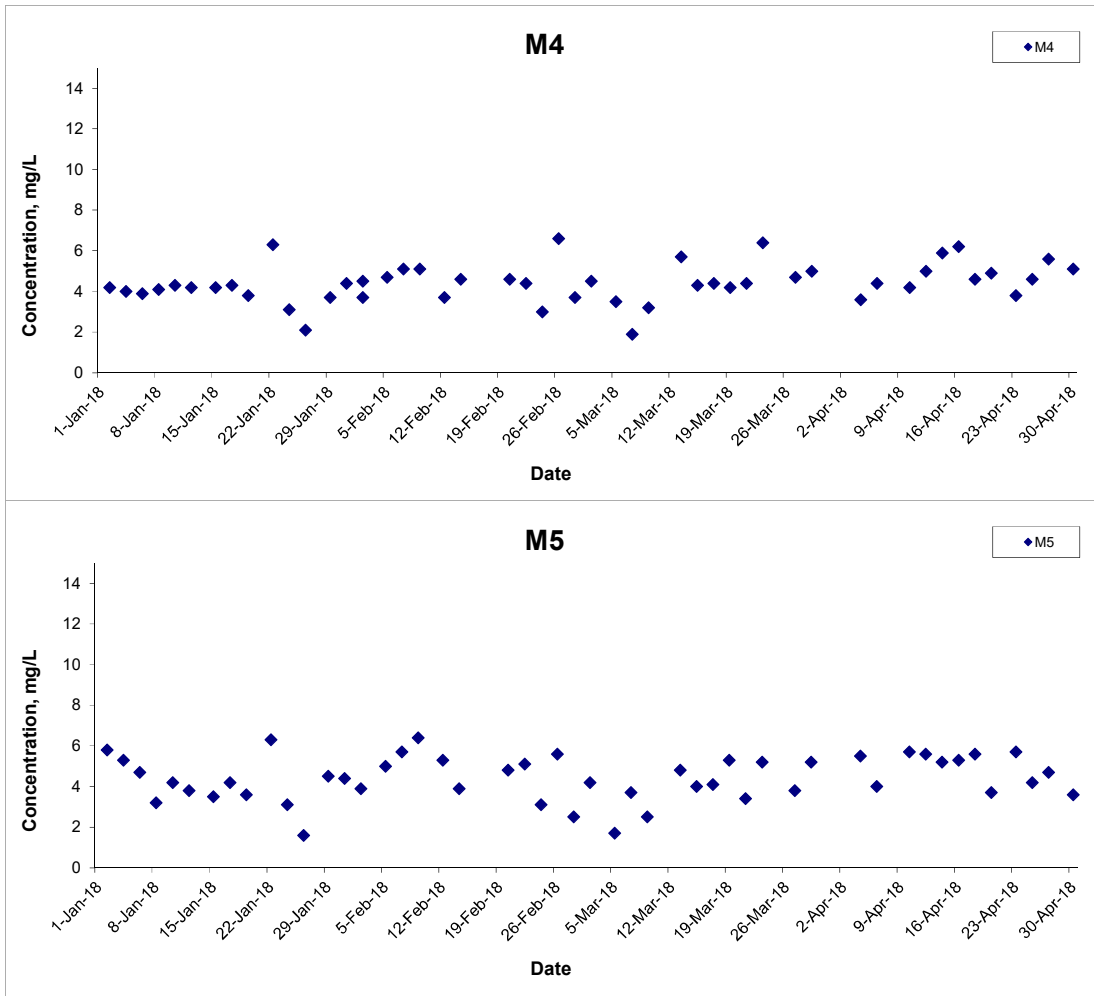
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Depth-averaged) 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

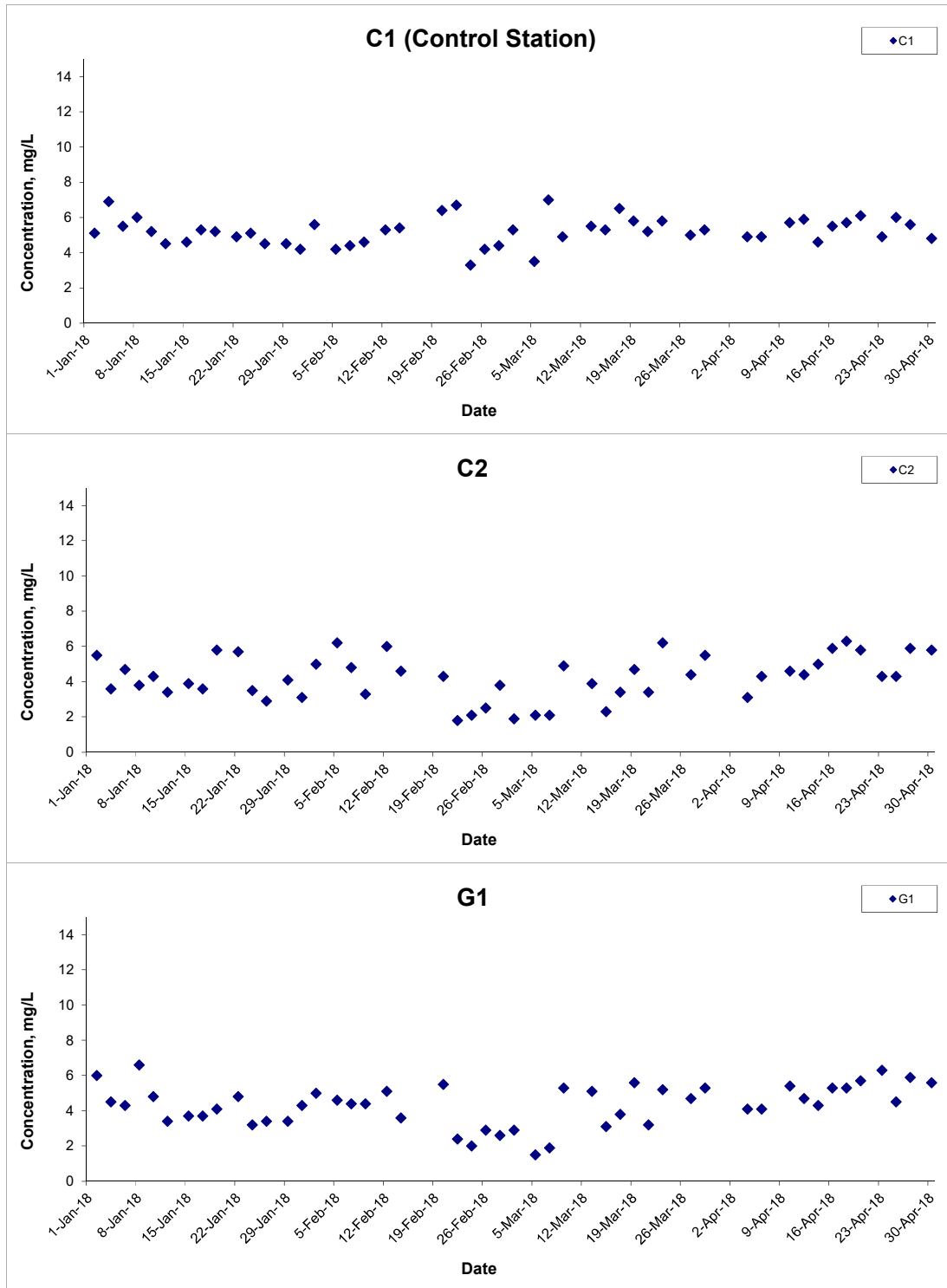
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (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

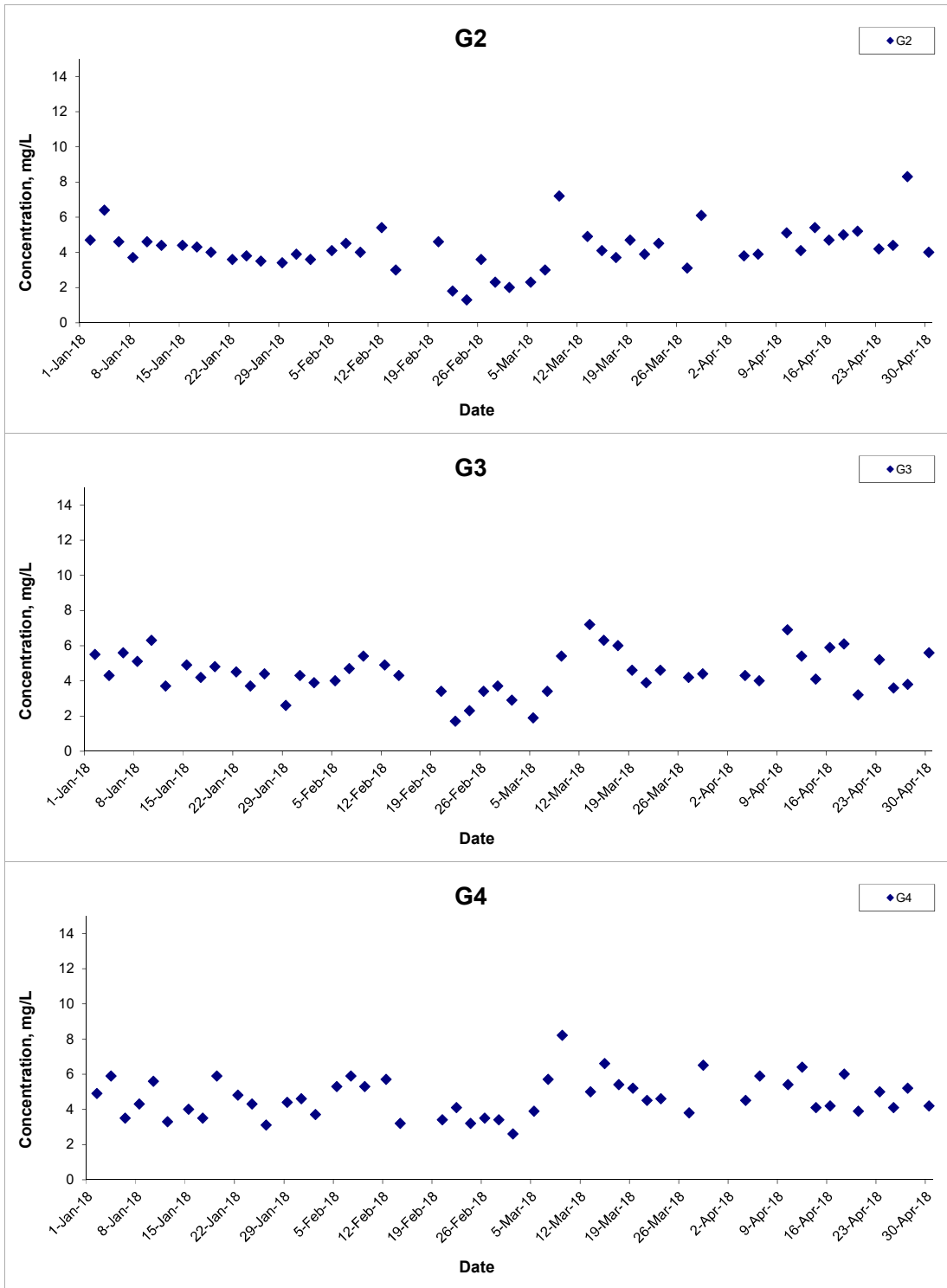
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Depth-averaged) at Mid-Flood Tide

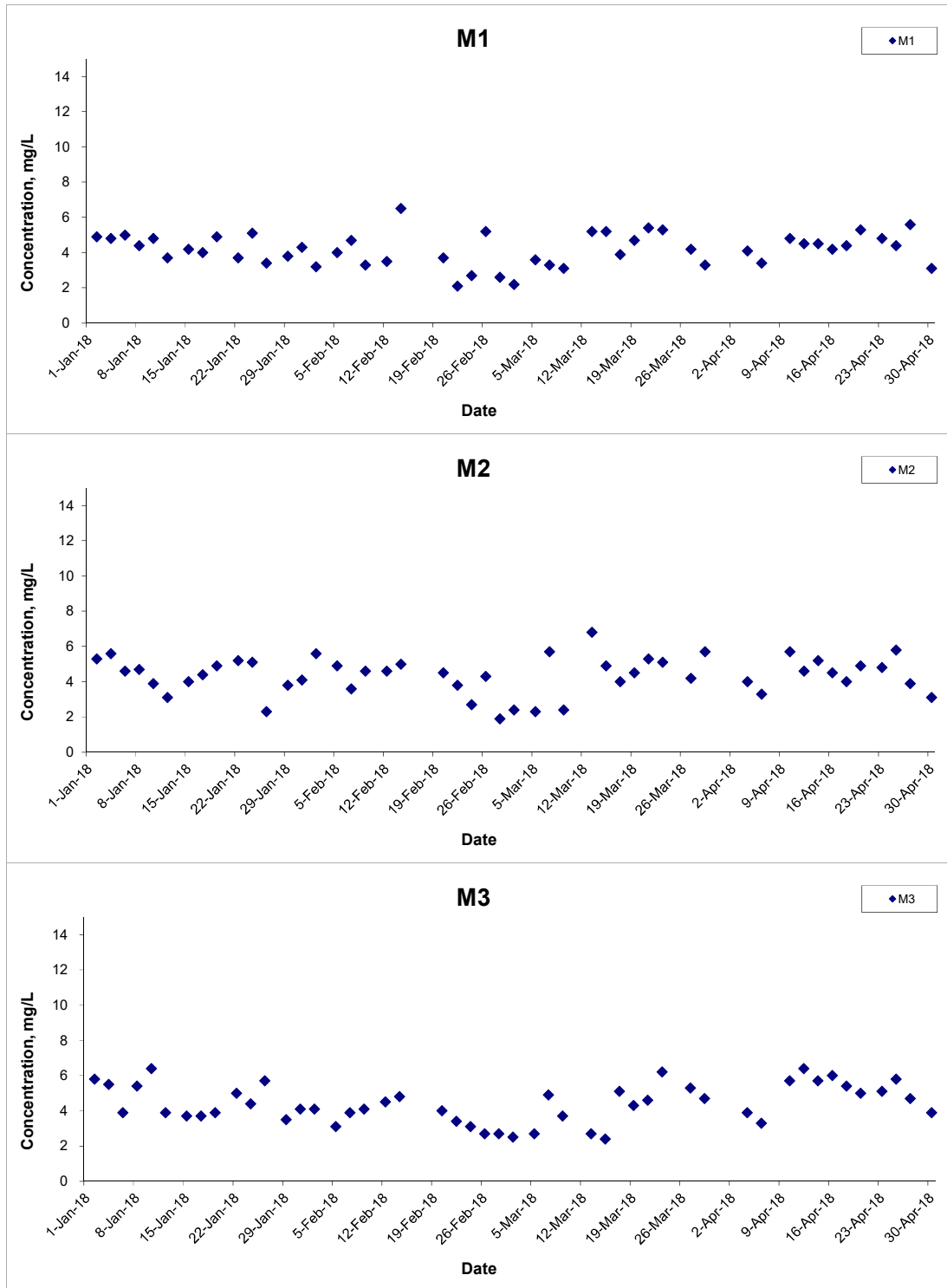


Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S
Date Apr 18
Project No. MA16034
Appendix I



Suspended Solids (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

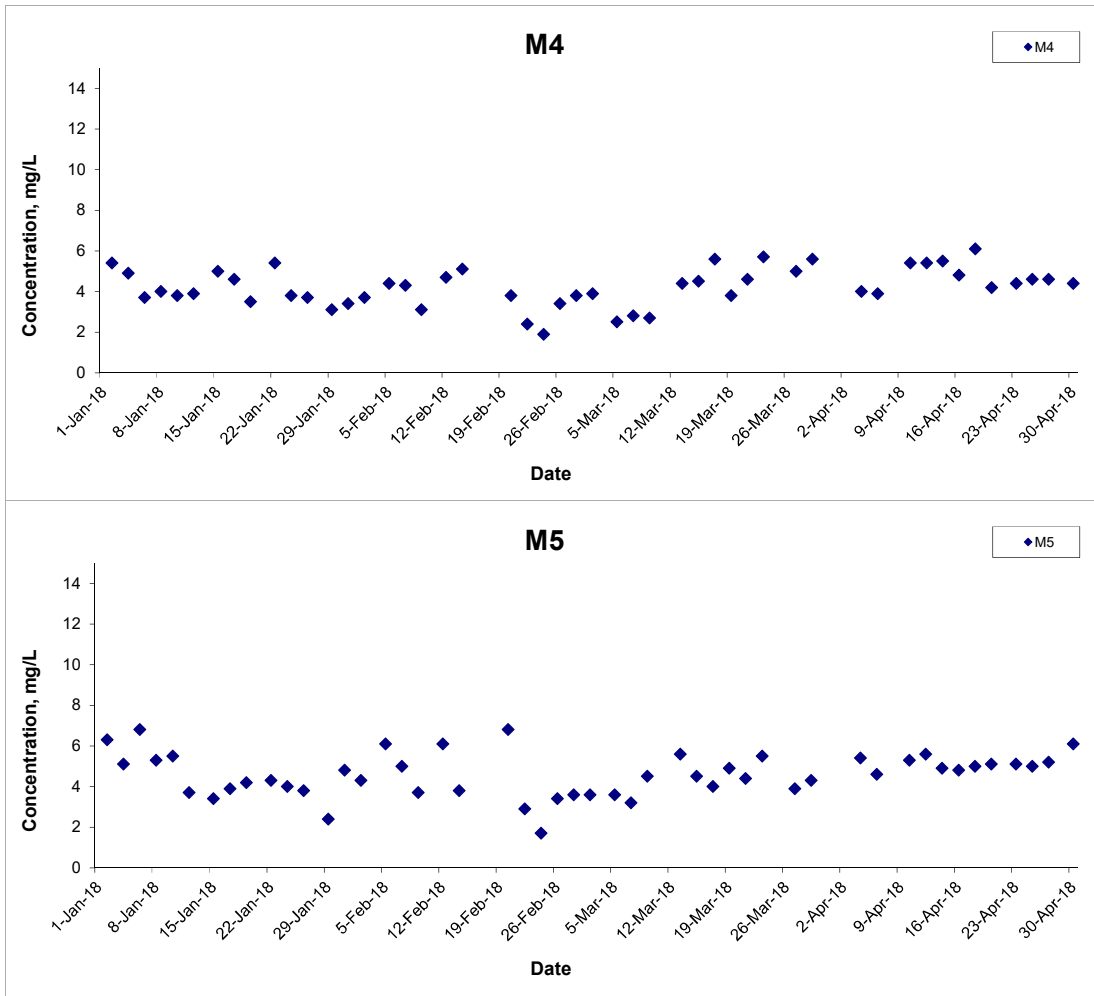
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (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

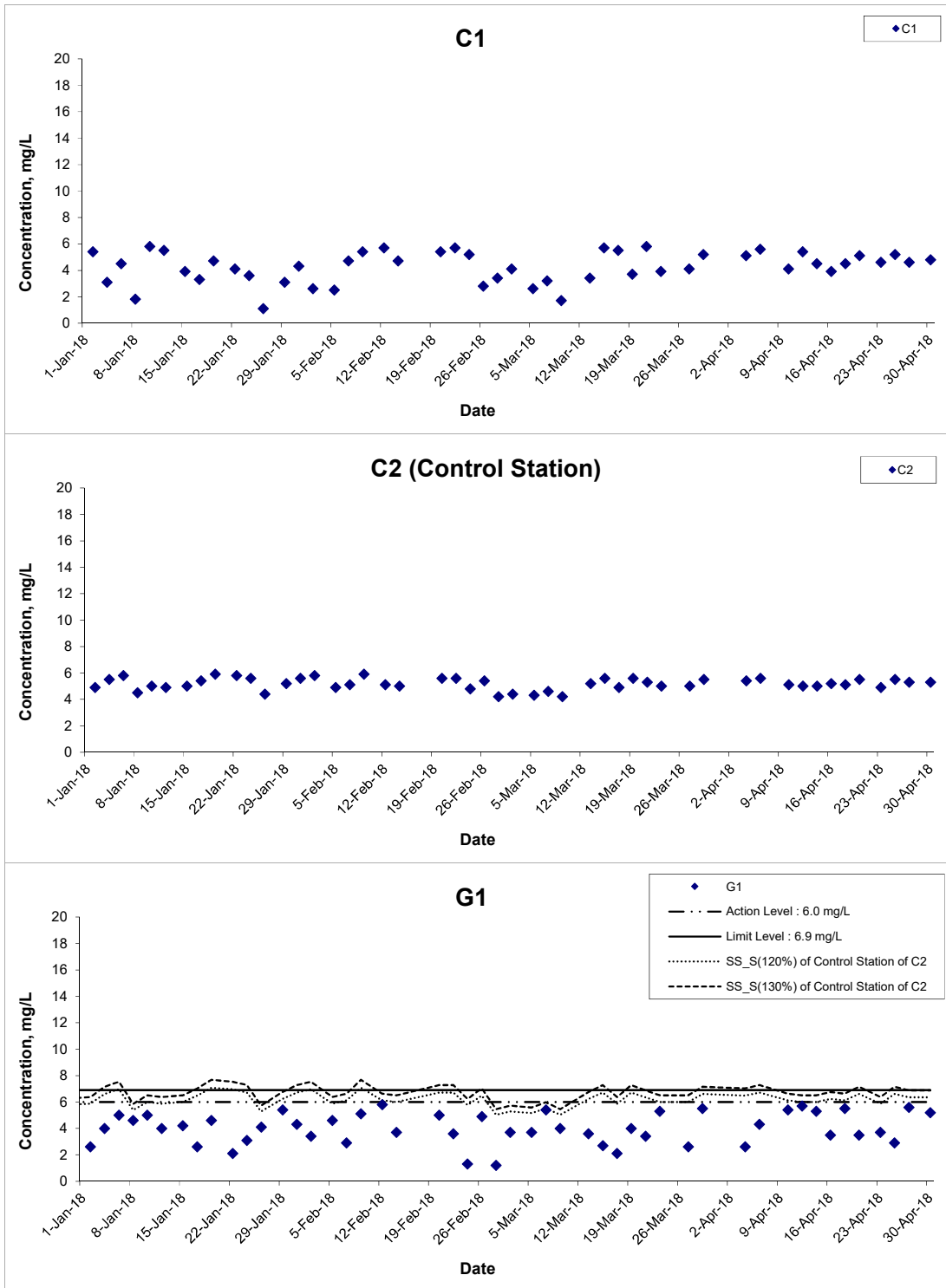
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Surface) 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

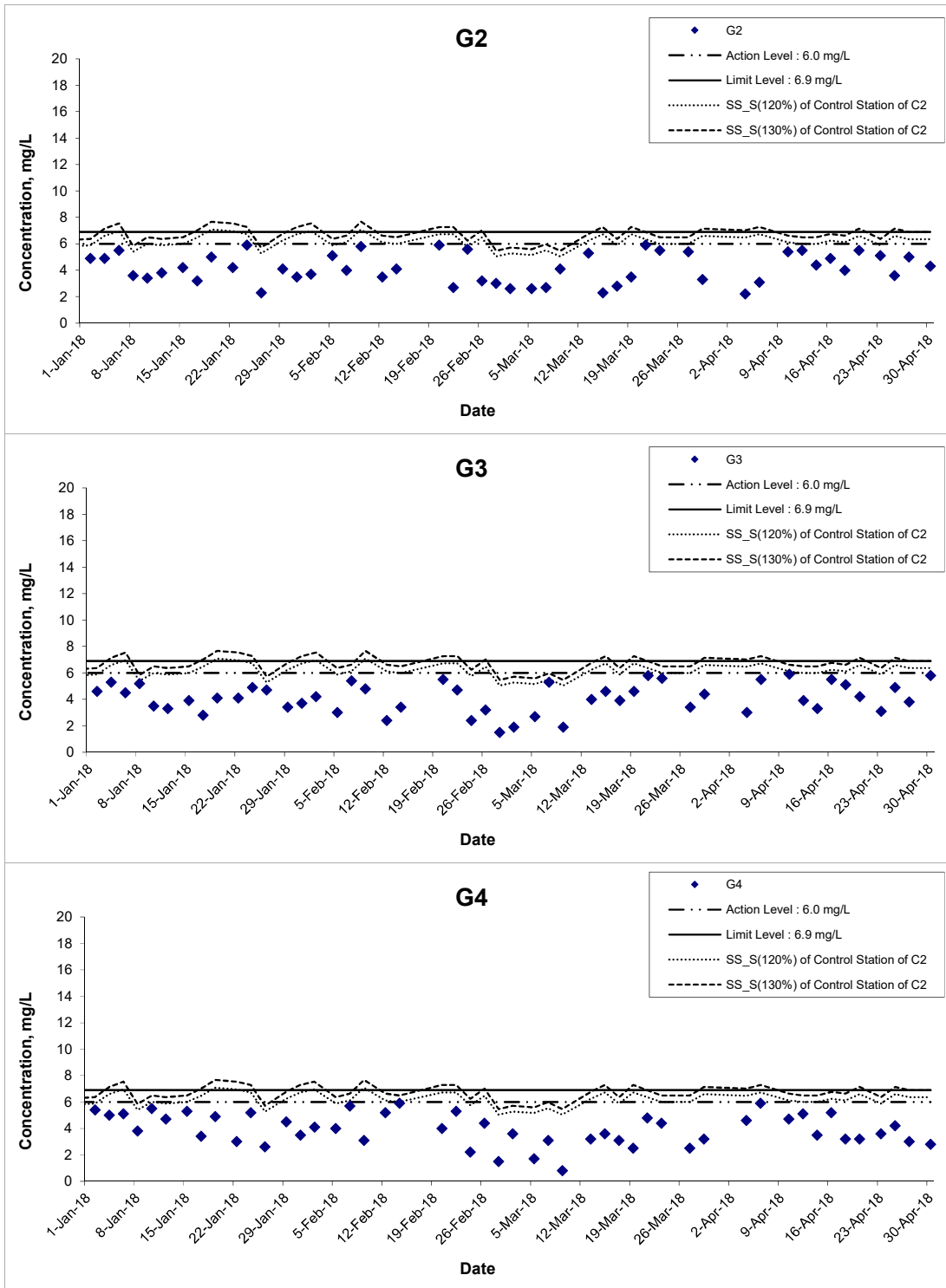
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Surface) 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

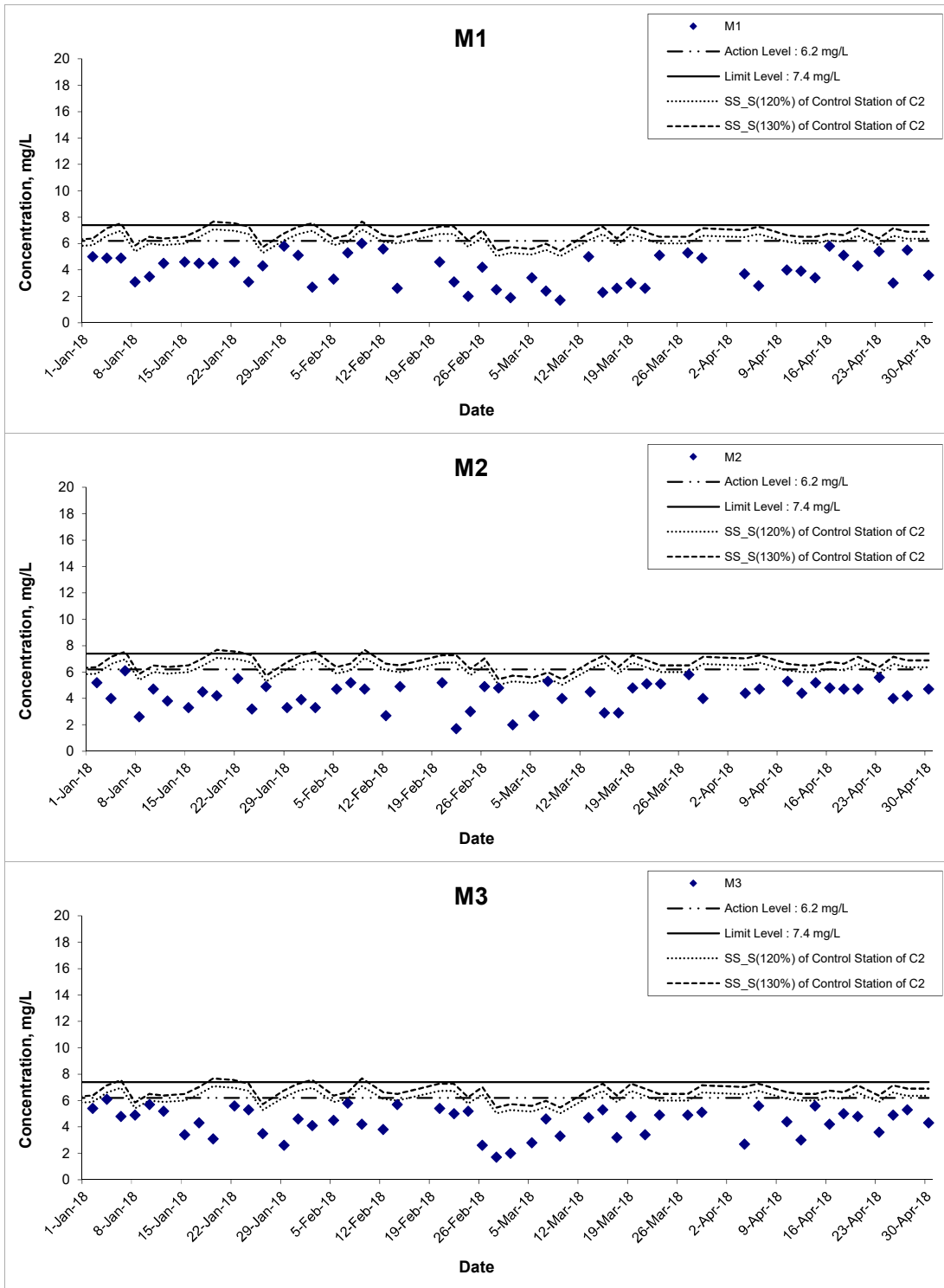
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Surface) at Mid-Ebb Tide

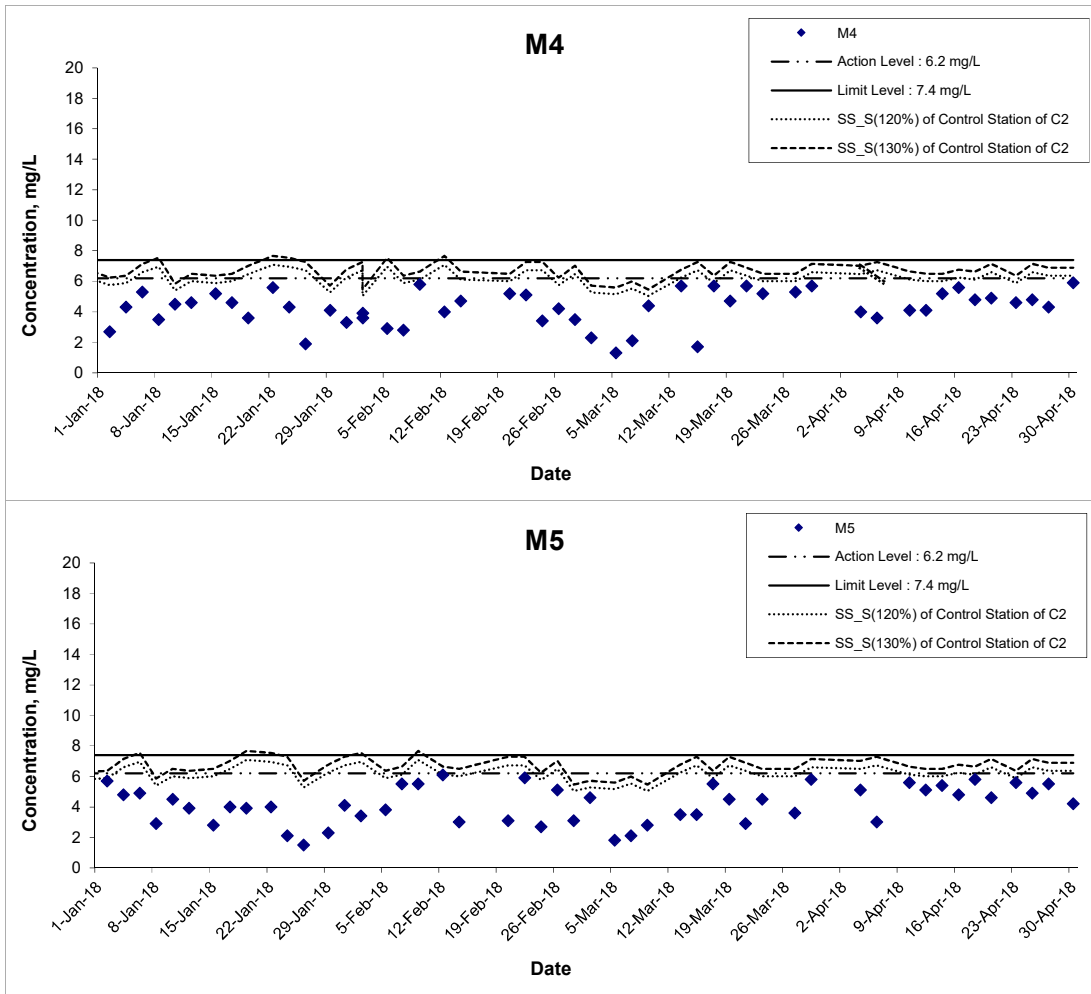


Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S
Date Apr 18
Project No. MA16034
Appendix I



Suspended Solids (Surface) 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

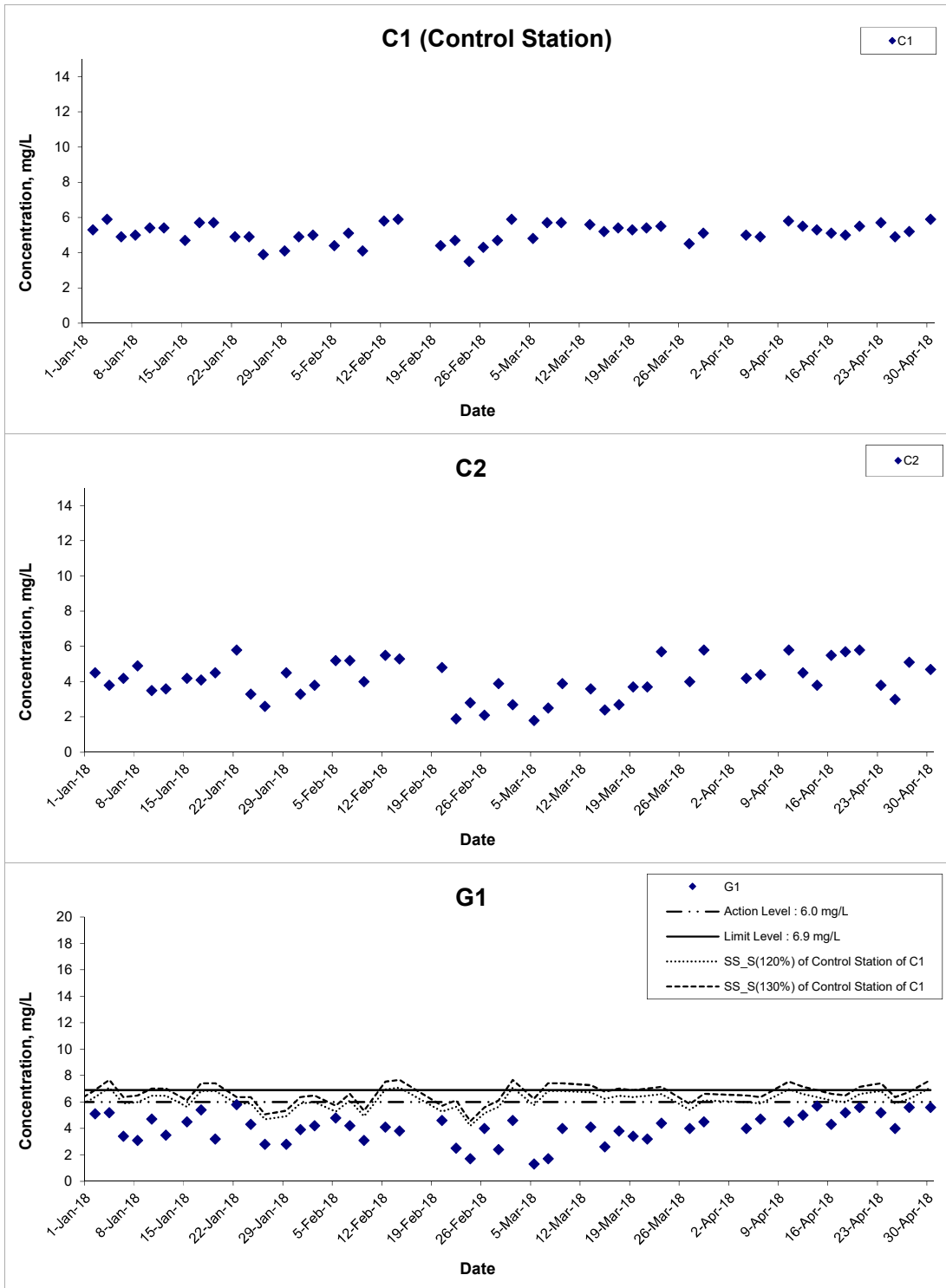
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Surface) 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

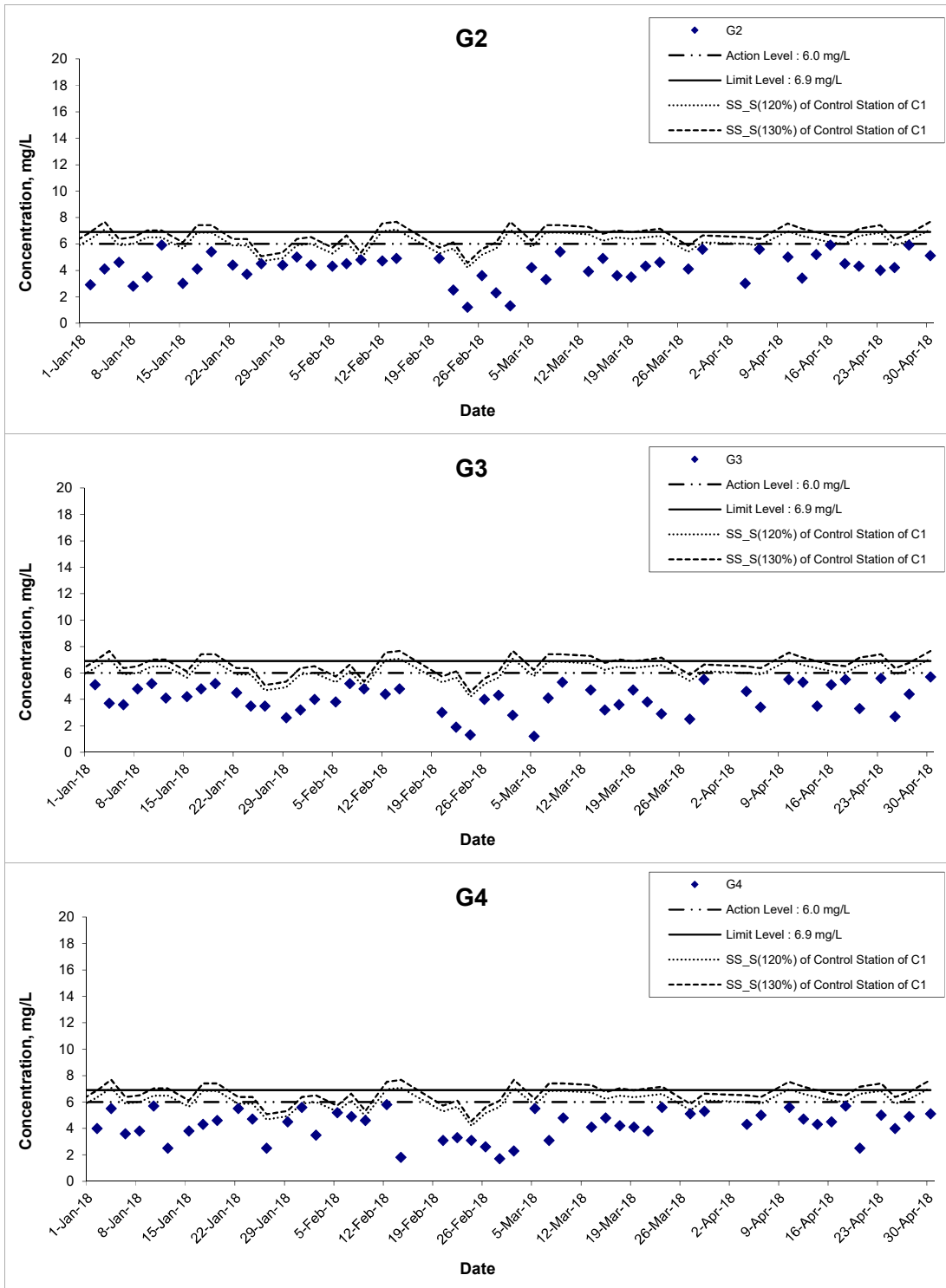
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Surface) 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

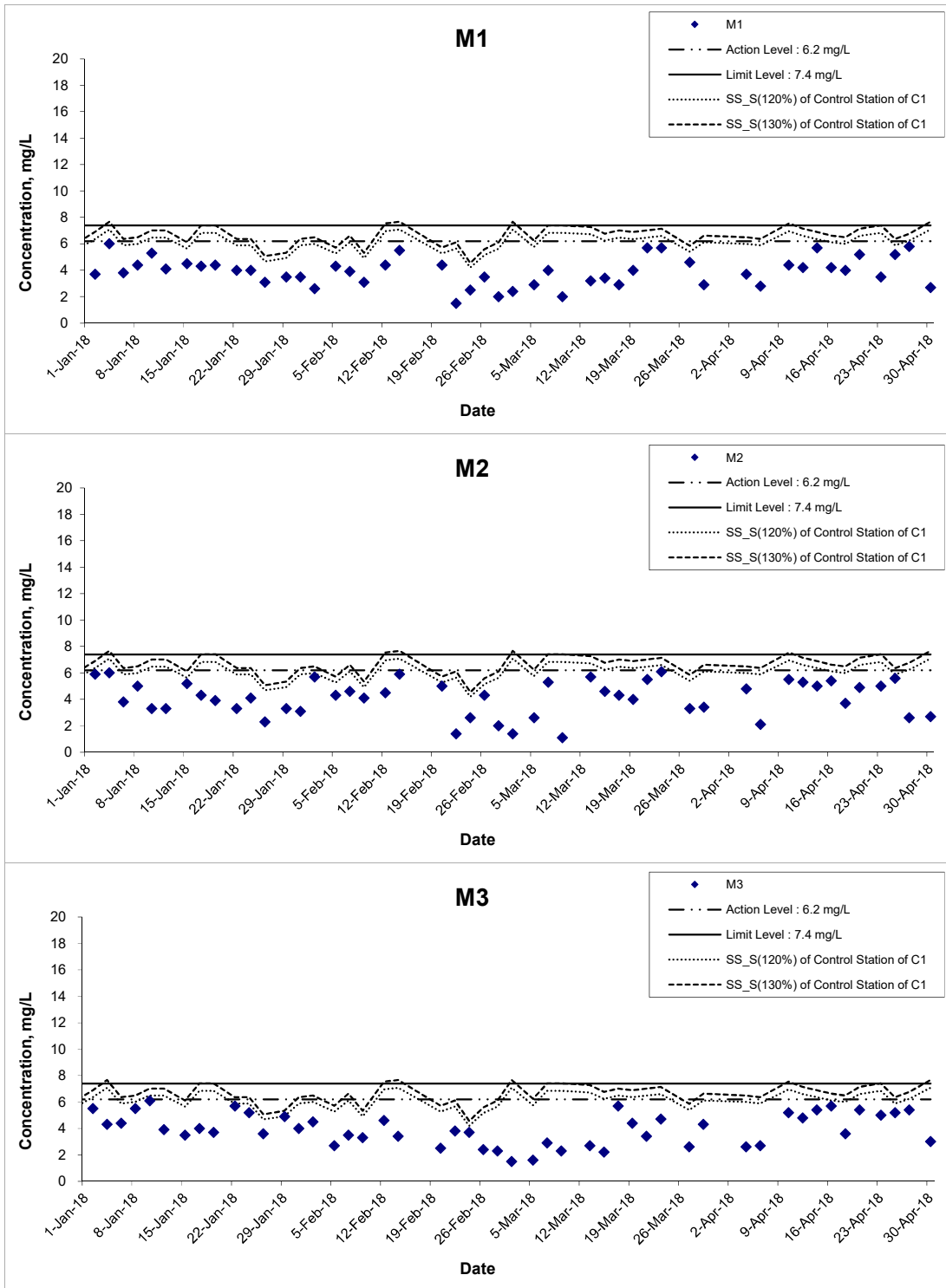
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Surface) 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

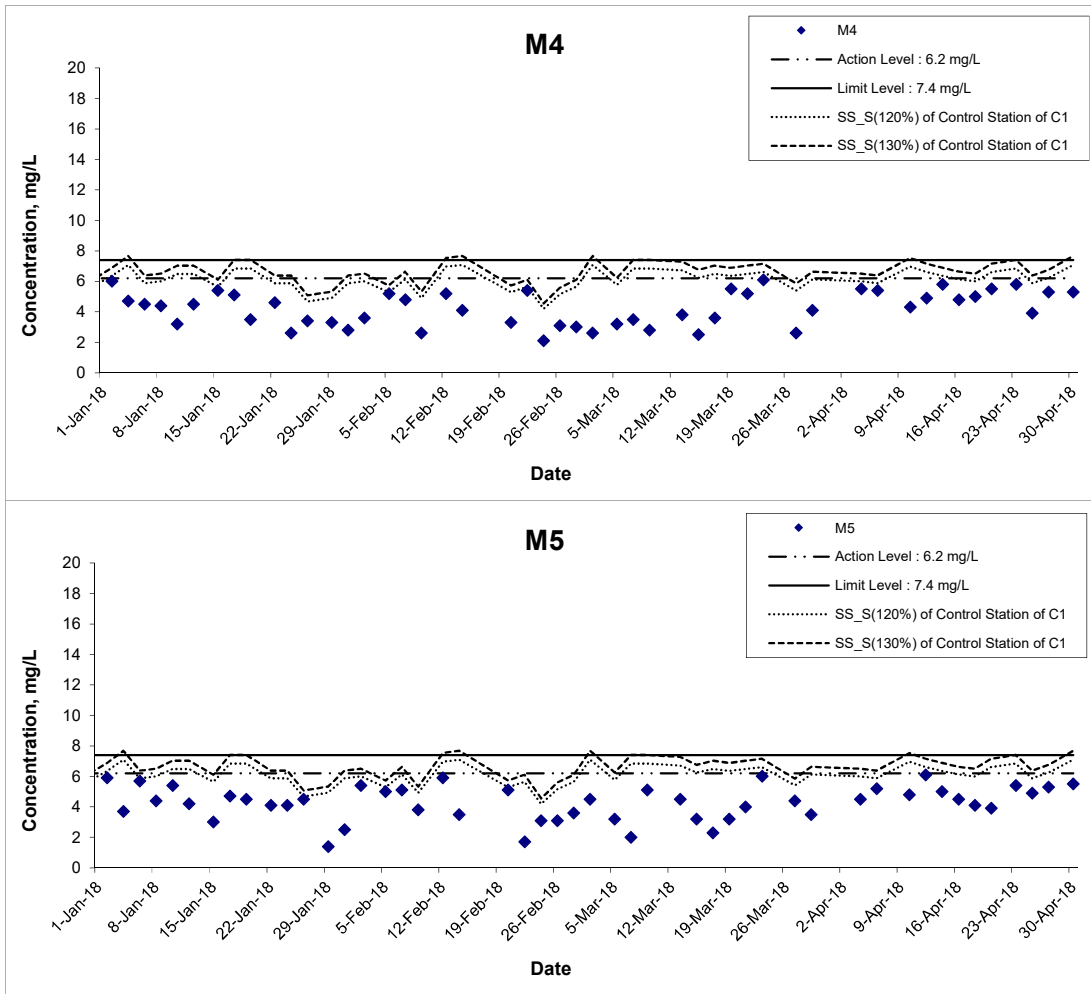
Date Apr 18

Project No. MA16034

Appendix I



Suspended Solids (Surface) 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

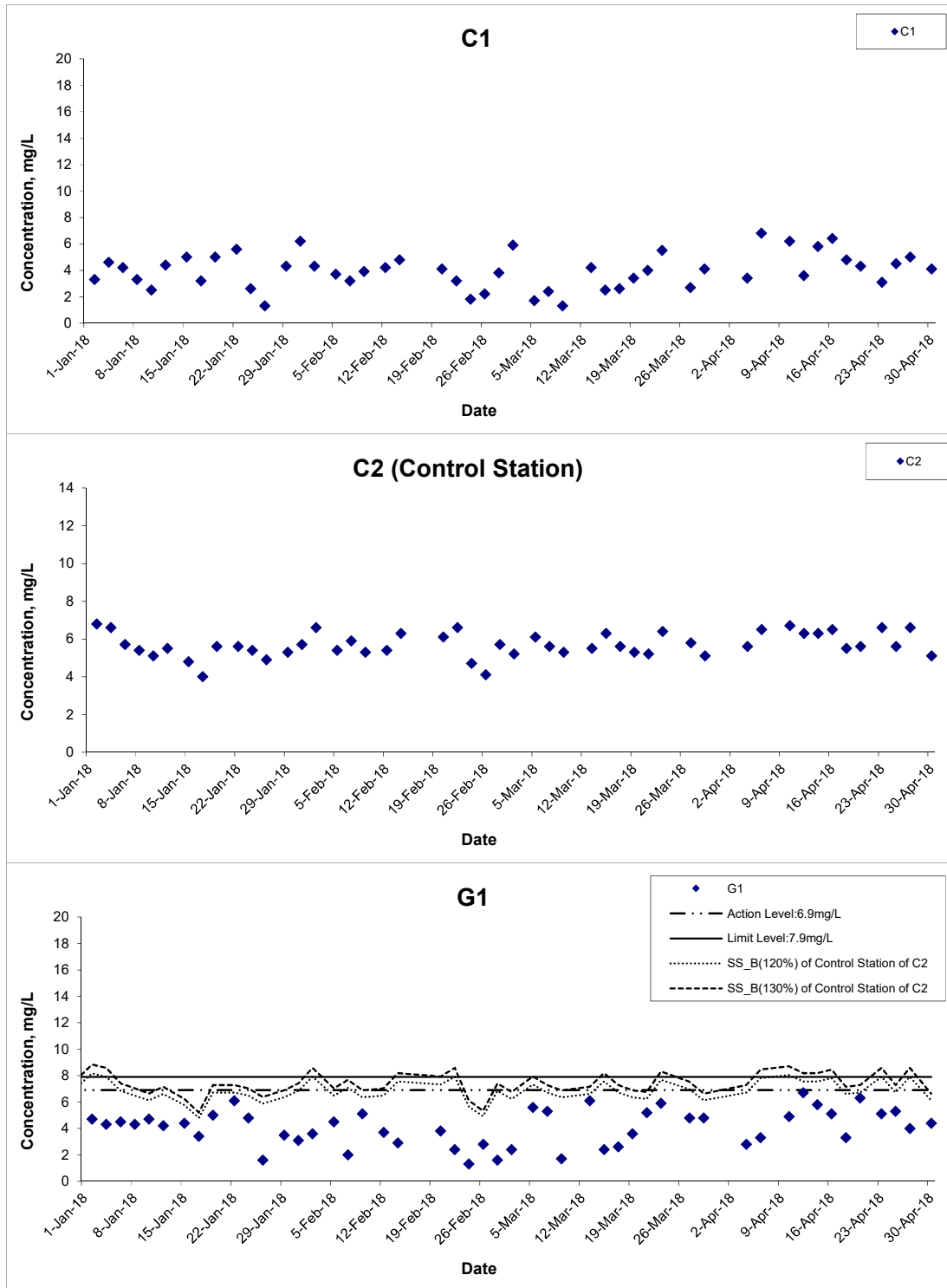
Date Apr 18

Project No. MA16034

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

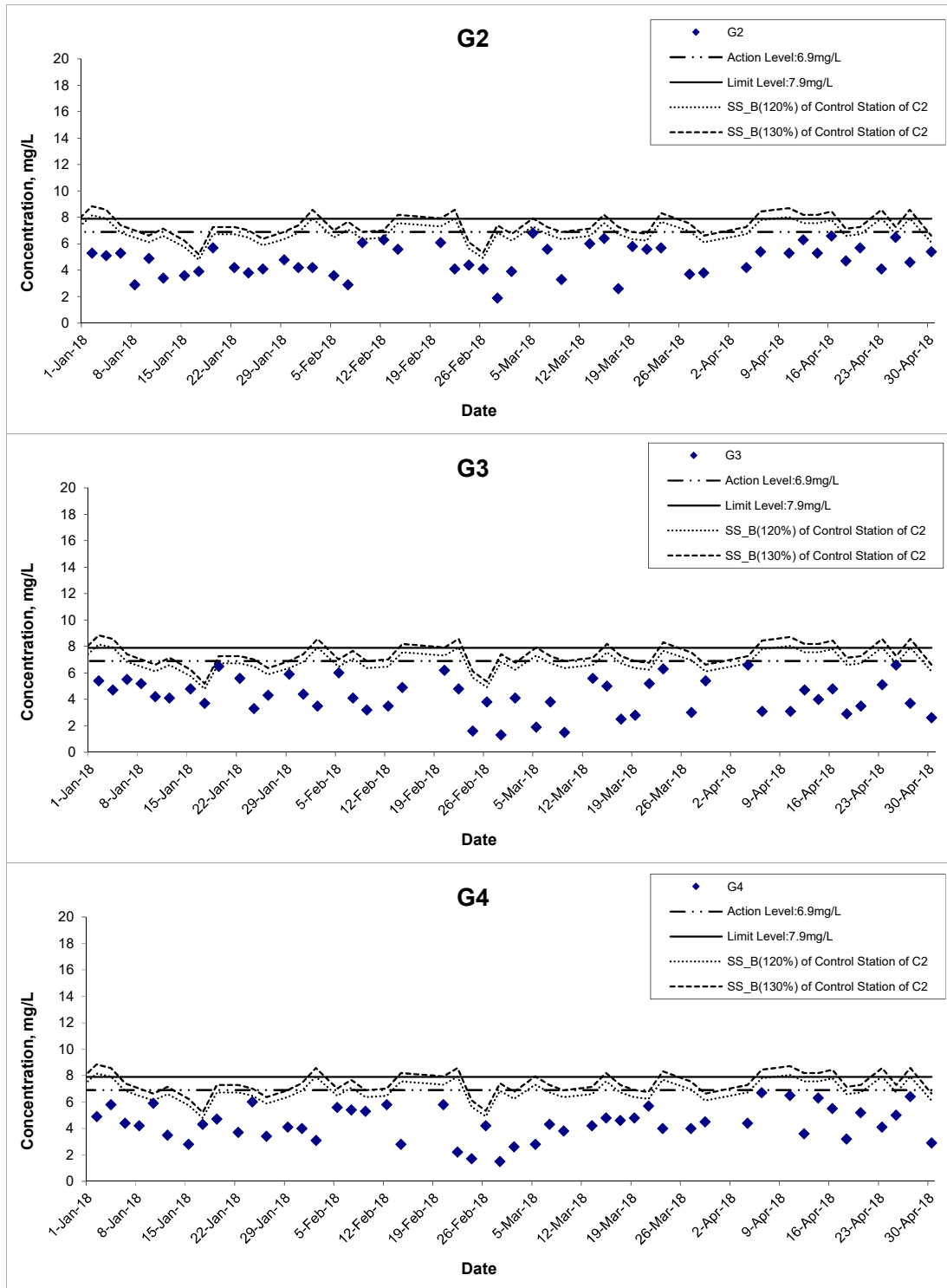
Date Apr 18

Project No. MA16034

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

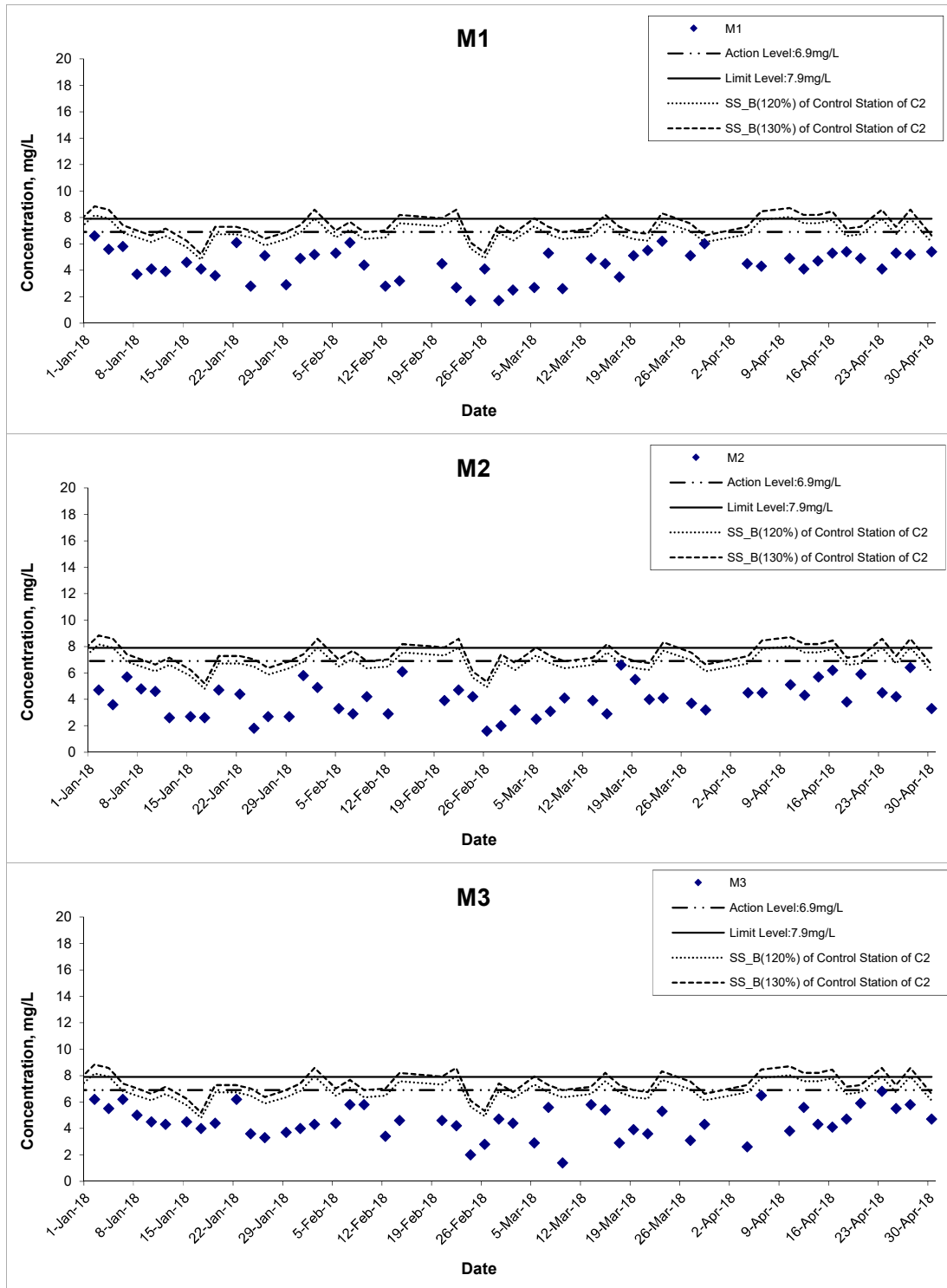
Date Apr 18

Project No. MA16034

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

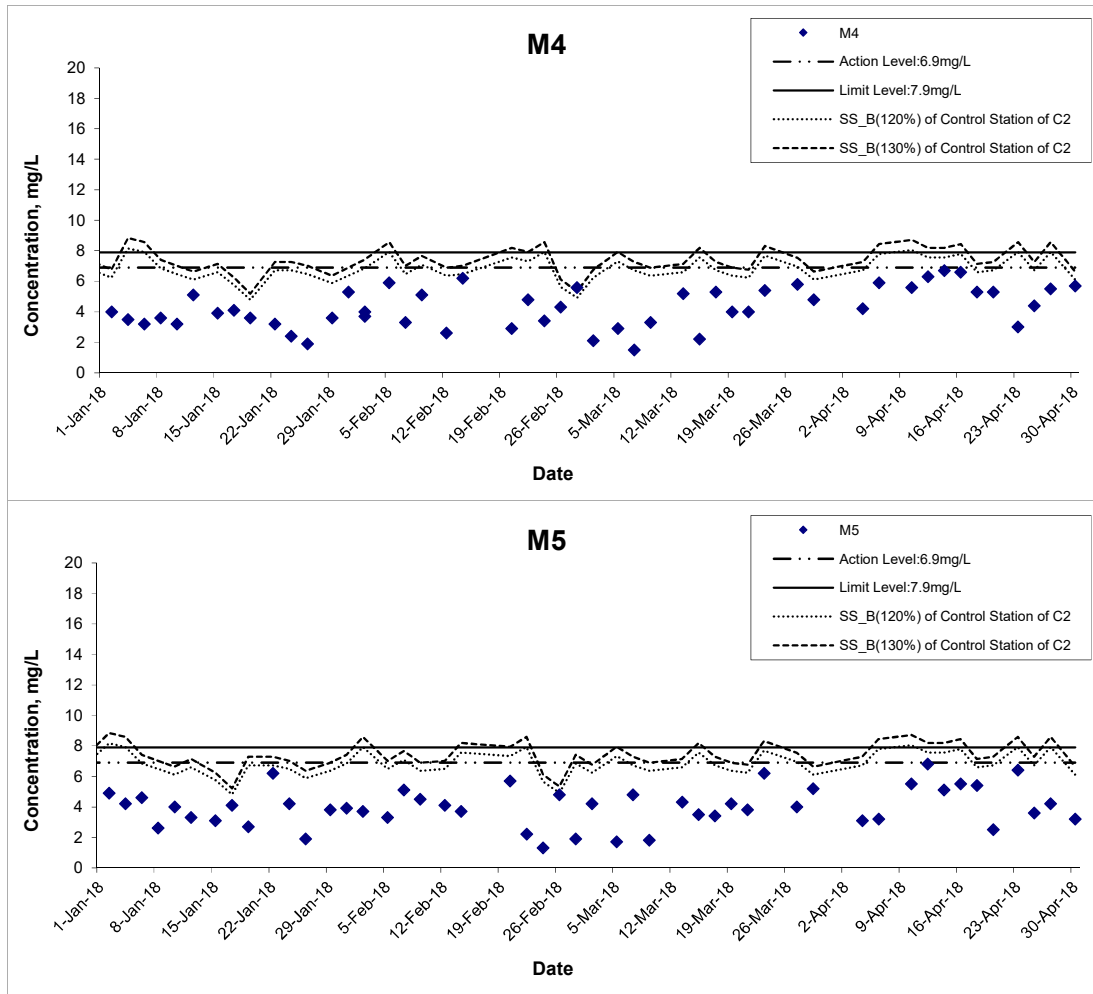
Date Apr 18

Project No. MA16034

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

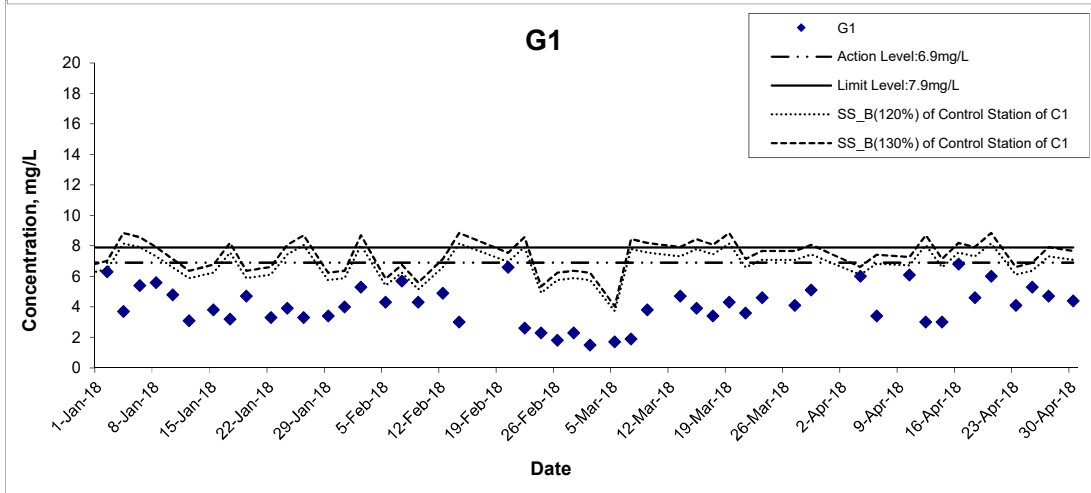
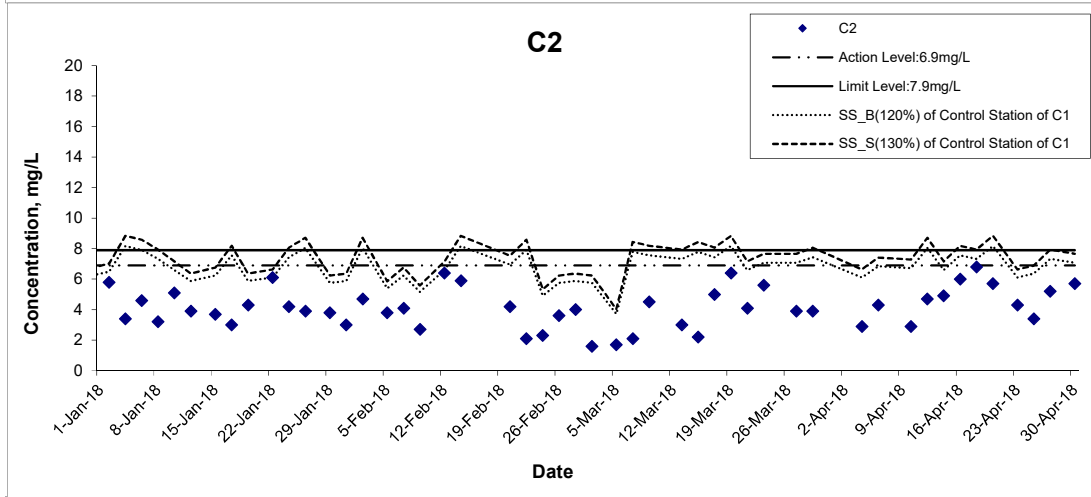
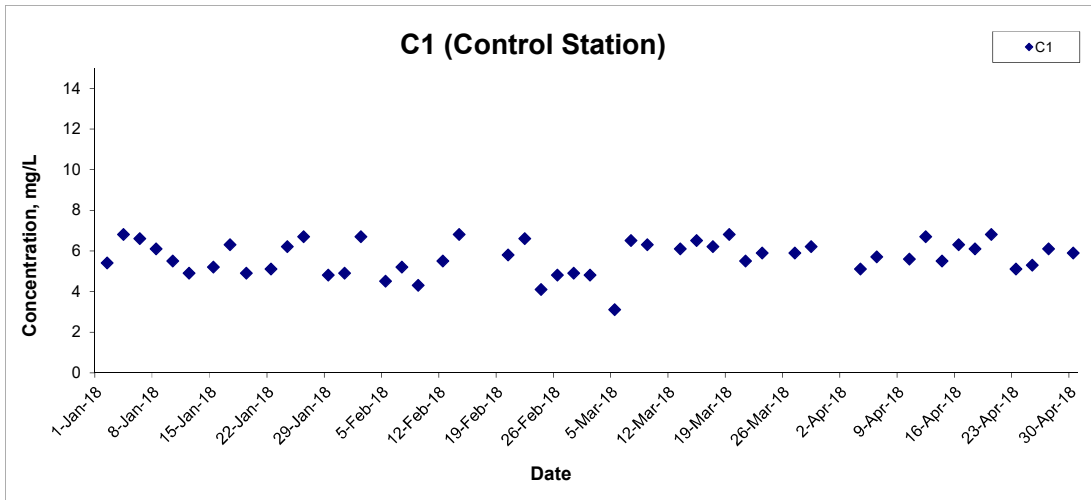
Date Apr 18

Project No. MA16034

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

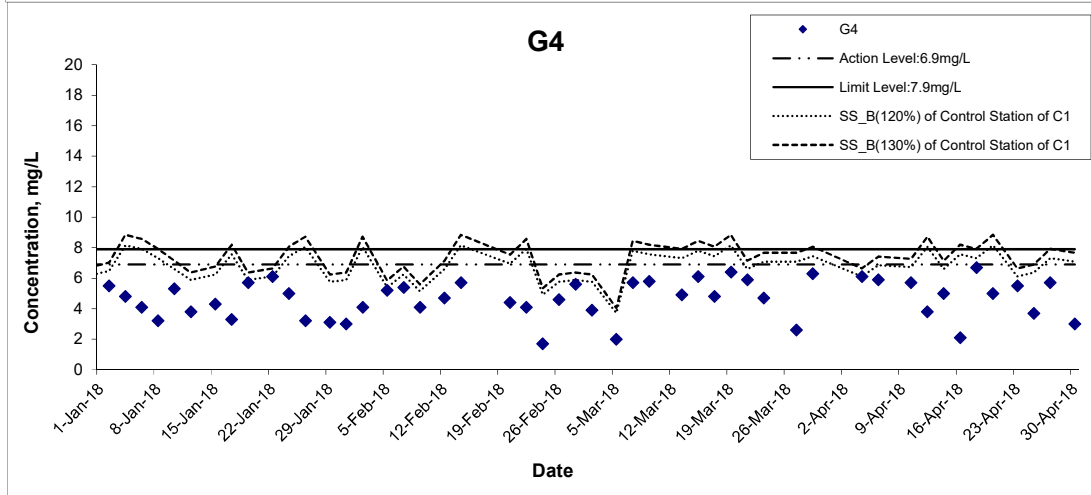
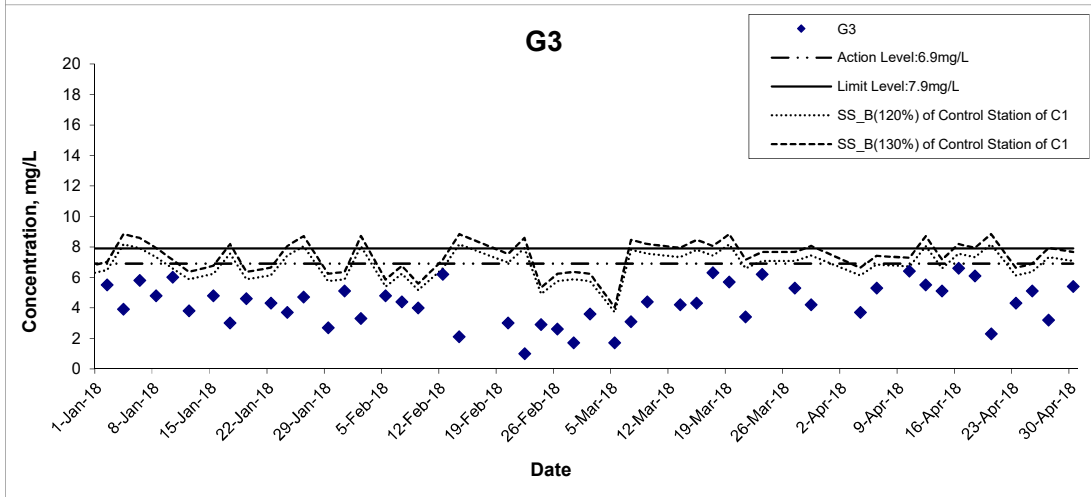
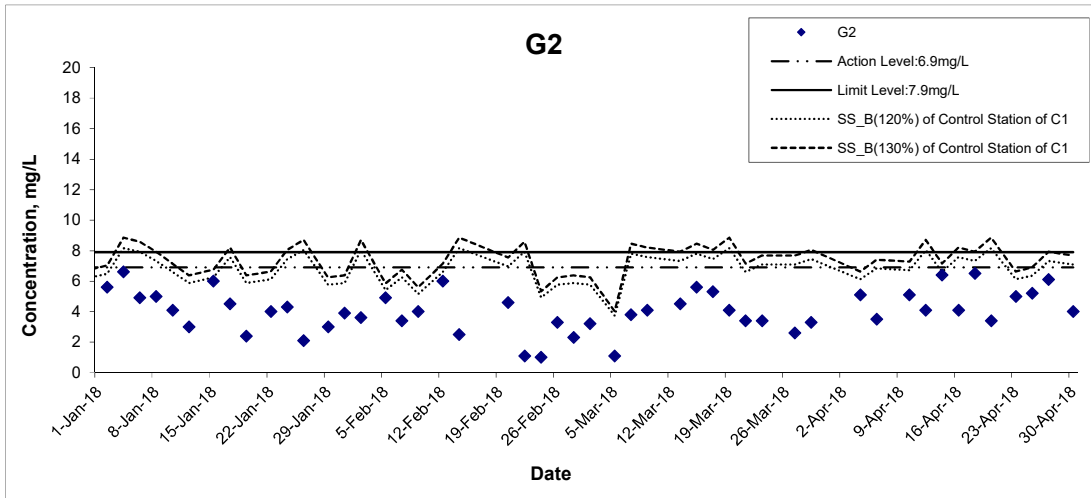
Date Apr 18

Project No. MA16034

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

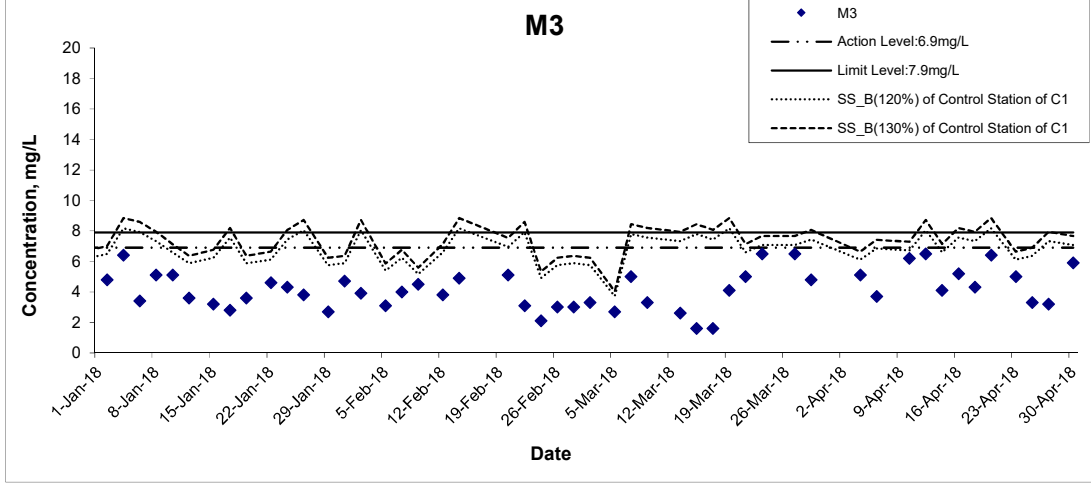
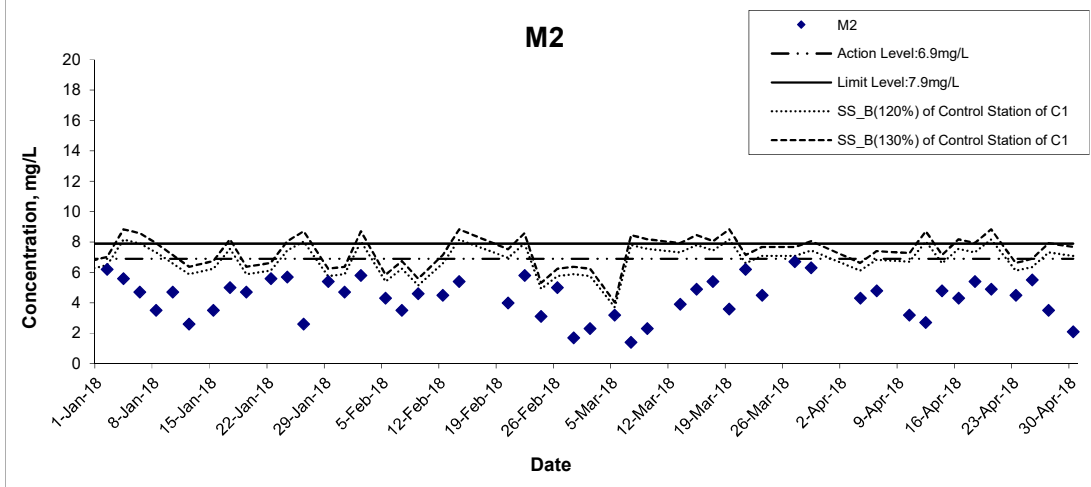
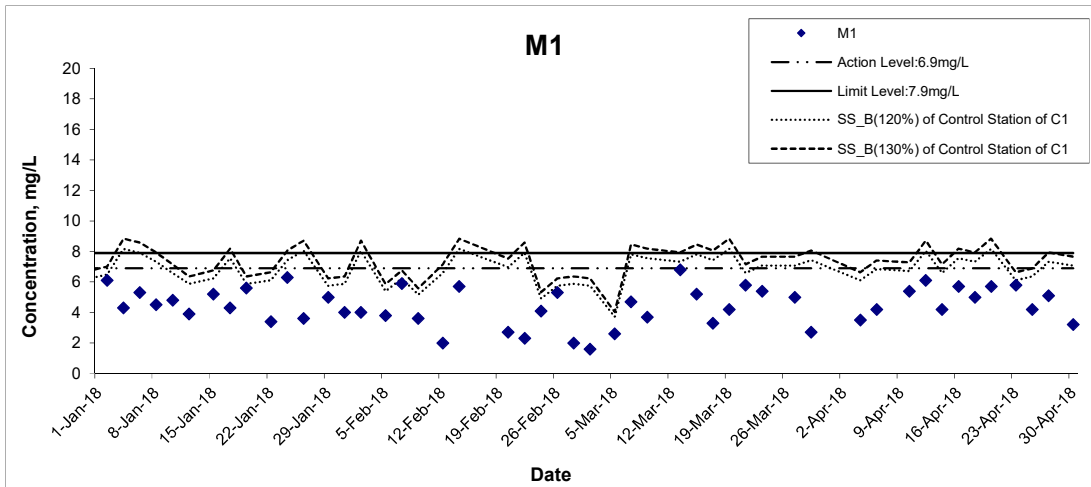
Date Apr 18

Project No. MA16034

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

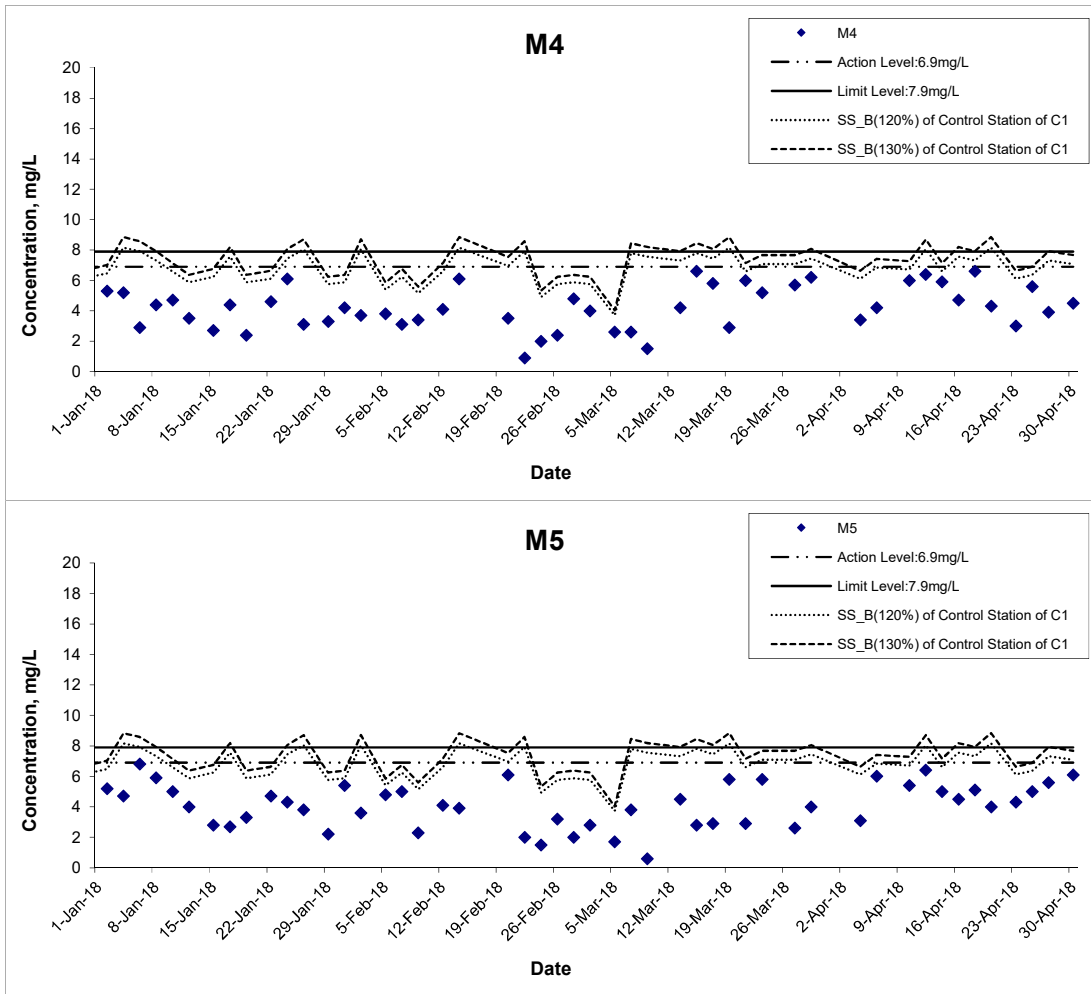
Date Apr 18

Project No. MA16034

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

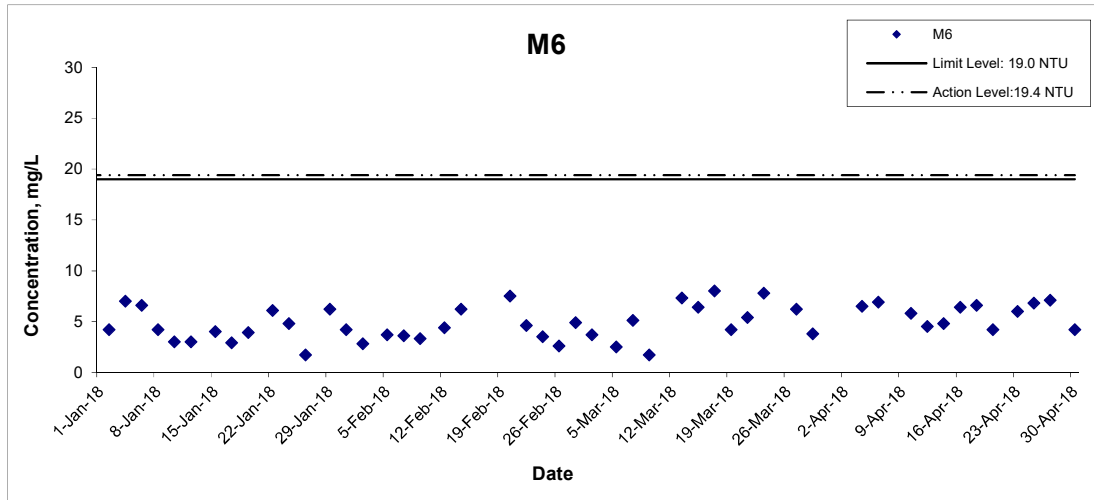
Date Apr 18

Project No. MA16034

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

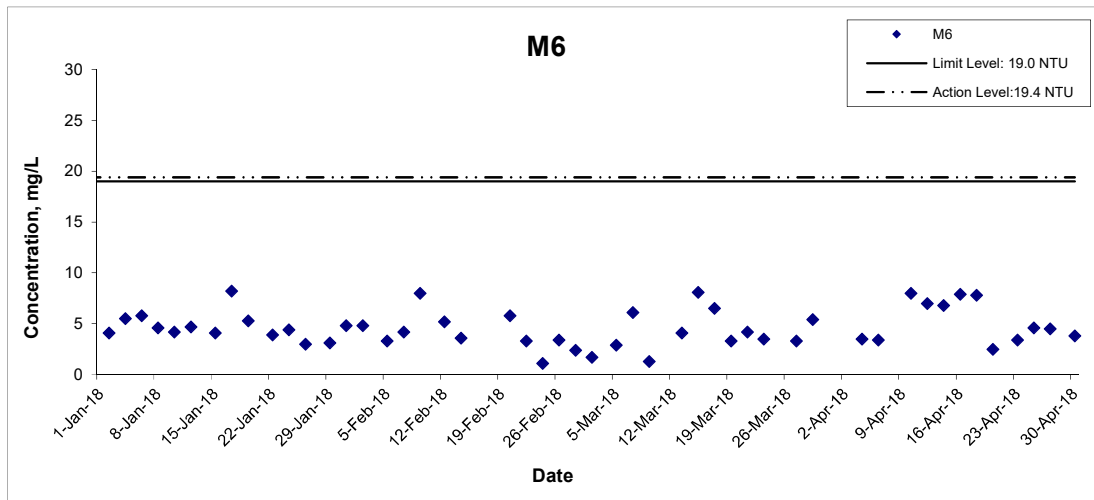
Date Apr 18

Project No. MA16034

Appendix I



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 Apr 18

Project No. MA16034

Appendix I



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*
1-Feb-18	Cloudy	Calm	13:39	Surface	1	16.2	16.2	8.2	8.2	34.5	34.5	94.1	94.0	7.5	7.5	7.5
						16.2		8.2		34.5		93.9		7.5		
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	2.4	16.2	16.2	8.2	8.2	34.5	34.5	93.8	93.9	7.5	7.5	
						16.2		8.2		34.5		93.9		7.5		
5-Feb-18	Sunny	Calm	15:48	Surface	1	15.2	15.2	8.4	8.4	32.3	32.3	90.4	90.3	7.5	7.5	7.5
						15.2		8.4		32.3		90.2		7.4		
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	4.5	15.2	15.2	8.5	8.5	32.3	32.3	90.0	90.0	7.4	7.4	
						15.2		8.5		32.3		90.0		7.4		
13-Feb-18	Cloudy	Calm	12:36	Surface	1	16.0	16.0	8.2	8.2	32.8	32.8	98.9	98.8	8.0	8.0	8.0
						16.0		8.2		32.8		98.7		8.0		
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	2.2	16.0	16.0	8.2	8.3	32.8	32.8	98.5	98.4	8.0	8.0	
						16.0		8.3		32.8		98.4		8.0		
22-Feb-18	Rainy	Calm	15:48	Surface	1	16.4	16.4	8.5	8.5	32.2	32.2	94.0	94.0	7.6	7.6	7.6
						16.4		8.5		32.2		93.9		7.6		
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.5	16.4	16.4	8.5	8.5	32.2	32.2	93.7	93.8	7.5	7.6	
						16.4		8.5		32.2		93.8		7.6		
27-Feb-18	Cloudy	Calm	09:54	Surface	1	16.8	16.8	8.4	8.4	32.2	32.2	91.6	91.3	7.3	7.3	7.3
						16.8		8.4		32.2		90.9		7.3		
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.2	16.8	16.8	8.4	8.4	32.2	32.2	90.8	90.8	7.3	7.3	
						16.8		8.4		32.2		90.7		7.3		

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

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)		DA*	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average		
1-Feb-18	Cloudy	Calm	17:15	Surface	1	16.2 16.2	16.2	8.2 8.2	8.2	34.5 34.4	34.5	93.8 93.9	93.9	7.5 7.5	7.5	7.5	
				Middle	-	-	-	-	-	-	-	-	-	-	-		-
				Bottom	2.4	16.2 16.1	16.2	8.2 8.2	8.2	34.5 34.5	34.5	93.7 93.6	93.7	7.5 7.5	7.5		7.5
5-Feb-18	Sunny	Calm	10:07	Surface	1	15.1 15.2	15.2	8.4 8.4	8.4	32.2 32.3	32.3	90.6 90.3	90.5	7.5 7.4	7.5	7.5	
				Middle	-	-	-	-	-	-	-	-	-	-	-		-
				Bottom	3.7	15.2 15.2	15.2	8.4 8.4	8.4	32.2 32.3	32.3	90.0 89.9	90.0	7.4 7.4	7.4		7.4
13-Feb-18	Cloudy	Calm	14:54	Surface	1	16.1 16.1	16.1	8.2 8.2	8.2	32.8 32.8	32.8	99.3 99.8	99.6	8.0 8.1	8.1	8.1	
				Middle	-	-	-	-	-	-	-	-	-	-	-		-
				Bottom	2.2	16.1 15.9	16.0	8.2 8.2	8.2	32.8 32.8	32.8	99.2 98.5	98.9	8.0 8.0	8.0		8.0
22-Feb-18	Cloudy	Calm	09:16	Surface	1	16.4 16.4	16.4	8.5 8.5	8.5	32.2 32.2	32.2	94.4 93.6	94.0	7.6 7.5	7.6	7.6	
				Middle	-	-	-	-	-	-	-	-	-	-	-		-
				Bottom	2.7	16.4 16.4	16.4	8.5 8.5	8.5	32.2 32.2	32.2	93.4 93.7	93.6	7.5 7.5	7.5		7.5
27-Feb-18	Cloudy	Calm	15:11	Surface	1	16.8 16.8	16.8	8.5 8.5	8.5	32.2 32.2	32.2	91.0 91.6	91.3	7.3 7.3	7.3	7.3	
				Middle	-	-	-	-	-	-	-	-	-	-	-		-
				Bottom	3.9	16.8 16.8	16.8	8.5 8.5	8.5	32.2 32.2	32.2	90.7 91.1	90.9	7.3 7.3	7.3		7.3

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

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-Mar-18	Cloudy	Calm	14:13	Surface	1	18.1 18.1	18.1	8.2 8.2	8.2	31.8 31.8	31.8	87.7 85.7	86.7	6.9 6.7	6.8	6.8
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3	18.1 18.1	18.1	8.2 8.2	8.2	31.9 31.9	31.9	84.0 84.1	84.1	6.6 6.6	6.6	
16-Mar-18	Fine	Calm	13:20	Surface	1	19.6 19.6	19.6	8.3 8.3	8.3	30.8 30.8	30.8	109.2 109.4	109.3	8.3 8.4	8.4	8.4
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	1.8	18.7 19.6	19.2	8.2 8.3	8.3	30.8 30.8	30.8	104.8 106.9	105.9	8.1 8.2	8.2	
23-Mar-18	Sunny	Calm	15:49	Surface	1	19.2 19.2	19.2	8.0 8.0	8.0	31.9 31.9	31.9	94.6 93.6	94.1	7.2 7.2	7.2	7.2
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	2.6	19.2 19.2	19.2	8.0 8.0	8.0	32.0 32.0	32.0	93.1 92.9	93.0	7.1 7.1	7.1	
27-Mar-18	Sunny	Moderate	10:16	Surface	1	20.1 20.1	20.1	7.9 7.9	7.9	32.3 32.3	32.3	88.2 88.3	88.3	6.6 6.6	6.6	6.6
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	4.5	20.1 20.1	20.1	7.9 7.9	7.9	32.4 32.4	32.4	87.7 87.7	87.7	6.6 6.6	6.6	

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-Mar-18	Cloudy	Calm	09:38	Surface	1	18.3 18.3	18.3	8.1 8.1	8.1	31.8 31.8	31.8	83.4 83.3	83.4	6.5 6.5	6.5	6.5
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	2.7	18.3 18.2	18.3	8.1 8.1	8.1	31.9 31.9	31.9	83.6 83.7	83.7	6.5 6.5	6.5	
16-Mar-18	Fine	Calm	16:10	Surface	1	19.5 19.5	19.5	8.3 8.3	8.3	30.8 30.8	30.8	109.2 109.3	109.3	8.4 8.4	8.4	8.4
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	2	19.2 19.2	19.2	8.3 8.3	8.3	30.8 30.8	30.8	107.6 107.7	107.7	8.3 8.3	8.3	
23-Mar-18	Sunny	Calm	09:50	Surface	1	19.2 19.2	19.2	8.0 8.0	8.0	31.9 31.9	31.9	93.7 93.8	93.8	7.2 7.2	7.2	7.2
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	2.6	19.2 19.2	19.2	8.0 8.0	8.0	31.9 31.9	31.9	93.3 93.2	93.3	7.1 7.1	7.1	
27-Mar-18	Sunny	Moderate	15:59	Surface	1	20.5 20.5	20.5	7.9 7.9	7.9	32.4 32.4	32.4	91.7 91.5	91.6	6.8 6.8	6.8	6.8
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	4.6	20.4 20.4	20.4	7.9 7.9	7.9	32.4 32.4	32.4	90.7 90.7	90.7	6.8 6.8	6.8	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

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-Apr-18	Cloudy	Calm	16:10	Surface	1	18.8 18.8	18.8	8.2 8.2	8.2	32.3 32.3	32.3	93.2 93.2	93.2	7.3 7.3	7.3	7.3
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.9	18.6 18.6	18.6	8.2 8.2	8.2	32.3 32.3	32.3	92.1 92.1	92.1	7.2 7.1	7.2	
11-Apr-18	Sunny	Calm	09:29	Surface	1	23.0 23.0	23.0	8.0 8.0	8.0	32.7 32.7	32.7	96.3 96.3	96.3	6.8 6.8	6.8	6.8
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.8	22.8 22.8	22.8	7.9 7.9	7.9	32.8 32.9	32.9	93.5 93.1	93.3	6.7 6.6	6.7	
19-Apr-18	Sunny	Calm	16:07	Surface	1	23.1 23.0	23.1	8.2 8.3	8.3	33.2 33.2	33.2	86.4 83.3	84.9	6.1 5.9	6.0	6.0
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	2.5	23.0 23.0	23.0	8.3 8.3	8.3	33.2 33.2	33.2	82.9 82.5	82.7	5.9 5.9	5.9	
24-Apr-18	Cloudy	Calm	08:52	Surface	1	23.7 23.7	23.7	7.9 7.9	7.9	33.0 33.0	33.0	86.5 86.5	86.5	6.1 6.1	6.1	6.1
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	3.6	23.7 23.7	23.7	7.9 7.9	7.9	33.0 33.0	33.0	86.3 86.2	86.3	6.1 6.0	6.1	

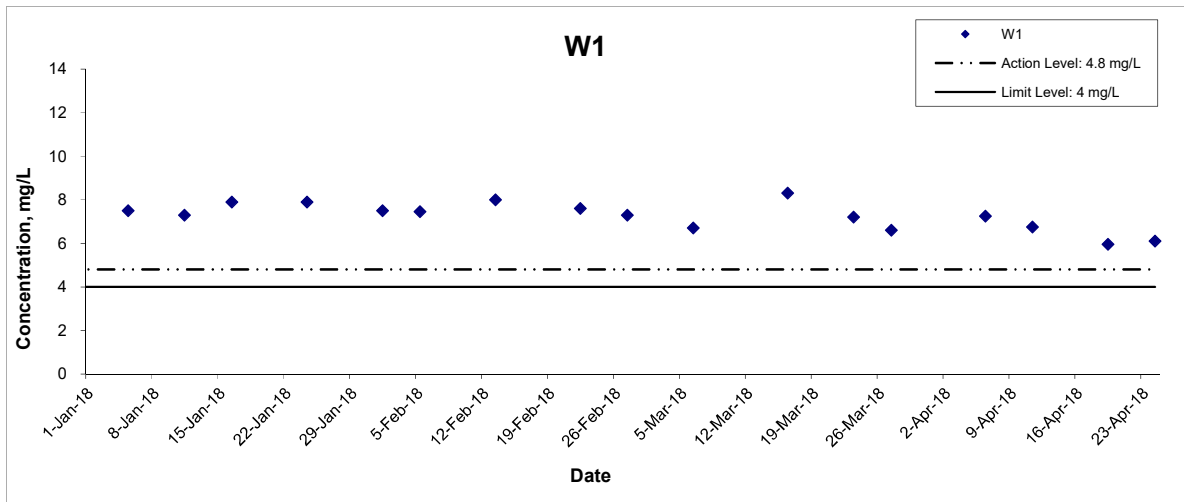
Water Quality Monitoring Results at W1 - Mid-Flood Tide

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-Apr-18	Cloudy	Calm	09:17	Surface	1	18.8 18.8	18.8	8.1 8.1	8.1	32.3 32.3	32.3	92.9 92.8	92.9	7.3 7.2	7.3	7.3
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	4	18.6 18.6	18.6	8.2 8.2	8.2	32.3 32.3	32.3	92.4 92.4	92.4	7.2 7.2	7.2	
11-Apr-18	Sunny	Calm	14:50	Surface	1	23.0 23.1	23.1	8.0 8.0	8.0	32.7 32.7	32.7	95.0 95.8	95.4	6.8 6.8	6.8	6.8
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	4	22.7 22.6	22.7	8.0 8.0	8.0	32.7 32.8	32.8	94.7 92.9	93.8	6.8 6.7	6.8	
19-Apr-18	Sunny	Calm	08:50	Surface	1	22.4 22.5	22.5	8.2 8.3	8.3	33.0 33.0	33.0	78.7 78.1	78.4	5.6 5.6	5.6	5.6
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	3.1	22.5 22.5	22.5	8.3 8.3	8.3	33.1 33.1	33.1	77.8 77.6	77.7	5.6 5.5	5.6	
24-Apr-18	Cloudy	Calm	12:42	Surface	1	23.7 23.7	23.7	7.9 7.9	7.9	33.0 33.0	33.0	86.7 86.7	86.7	6.1 6.1	6.1	6.1
				Middle	-	-	-	-	-	-	-	-	-	-		
				Bottom	3.8	23.7 23.7	23.7	7.9 7.9	7.9	33.0 33.0	33.0	85.7 85.6	85.7	6.0 6.0	6.0	

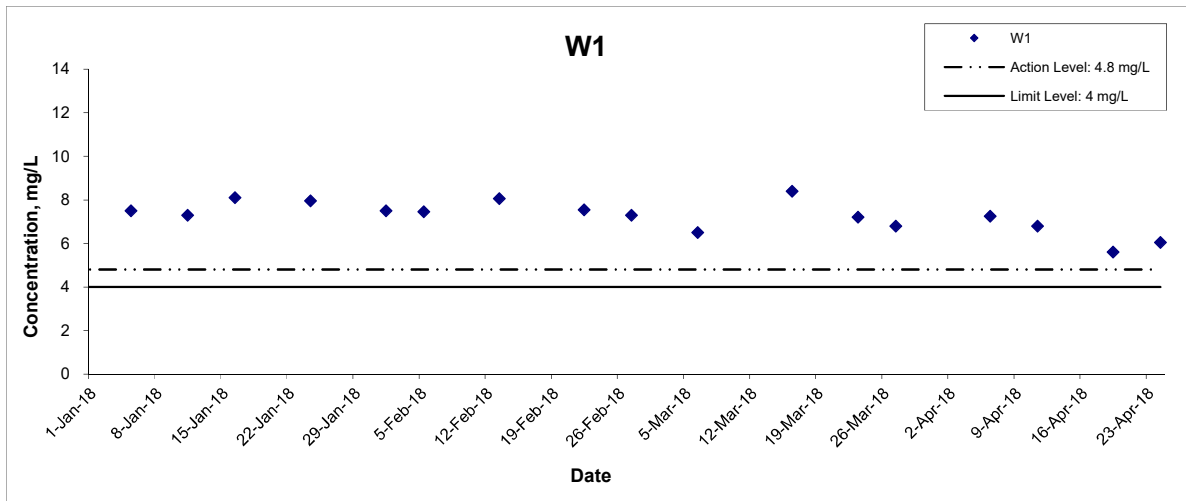
Remarks: *DA: Depth-Averaged

**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



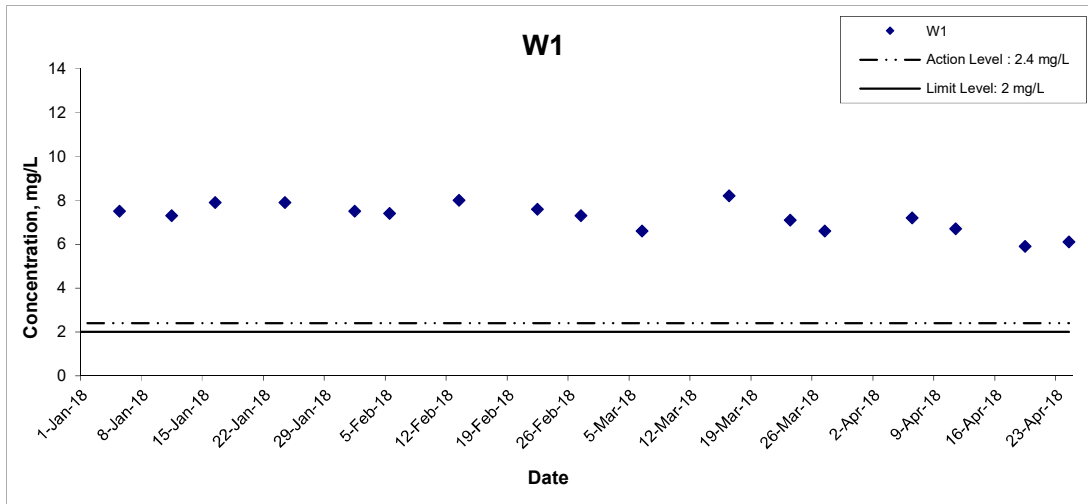
Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Graphical Presentation of Additional Water Quality Monitoring Results

Scale N.T.S
Date Apr 18

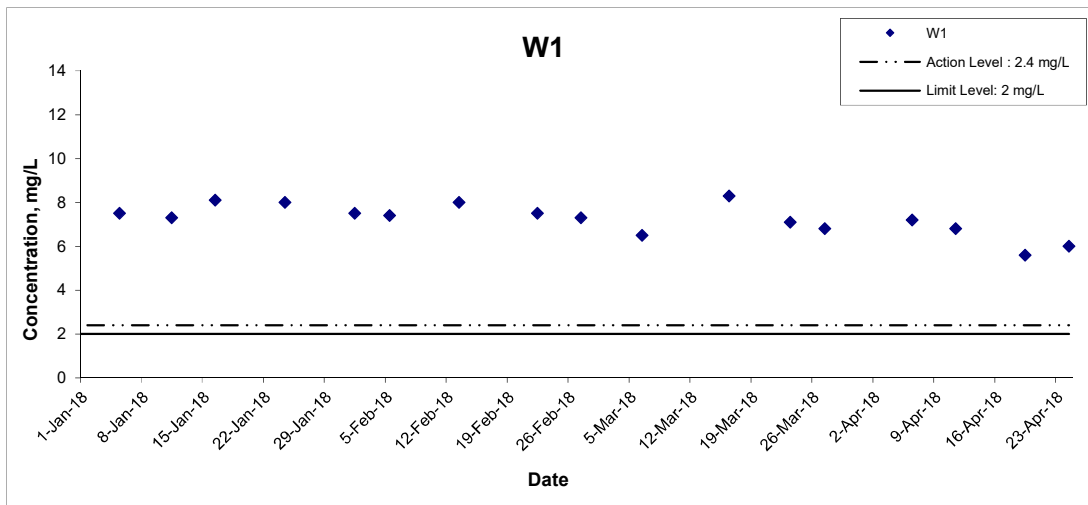
Project No. MA16034
Appendix I



Dissolved Oxygen (Bottom) at Mid-Ebb Tide



Dissolved Oxygen (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 Additional Water Quality Monitoring Results

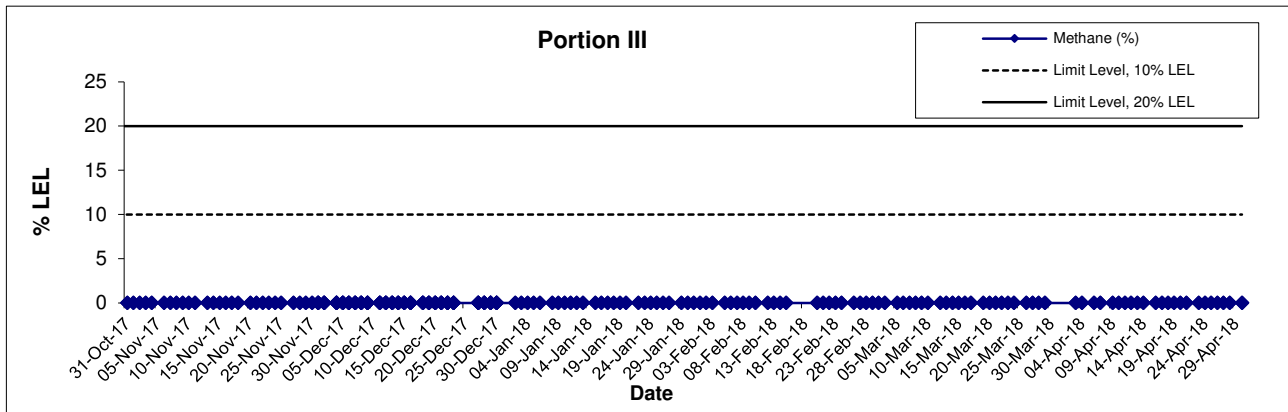
Scale N.T.S
Date Apr 18

Project No. MA16034
Appendix I

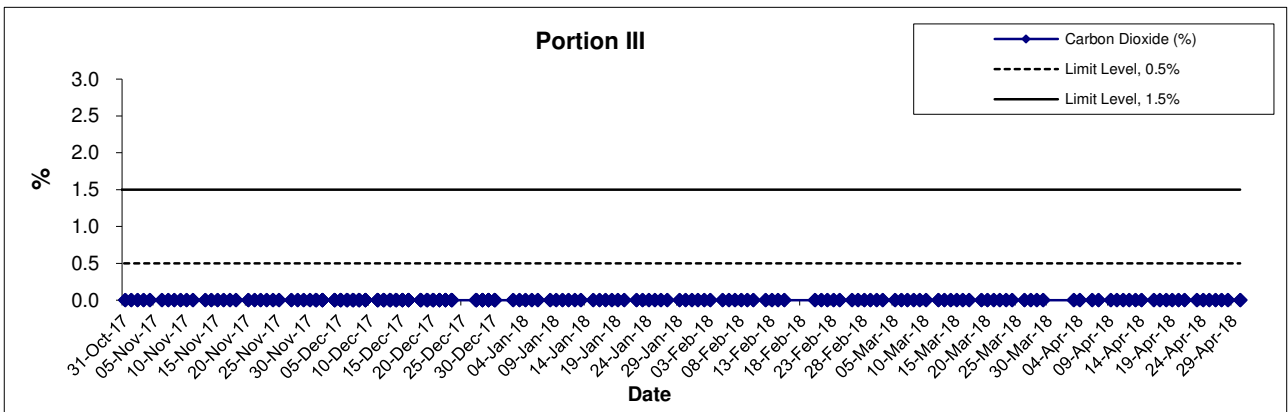


**APPENDIX G
GRAPHICAL PRESENTATION OF
LANDFILL GAS MONITORING
RESULTS**

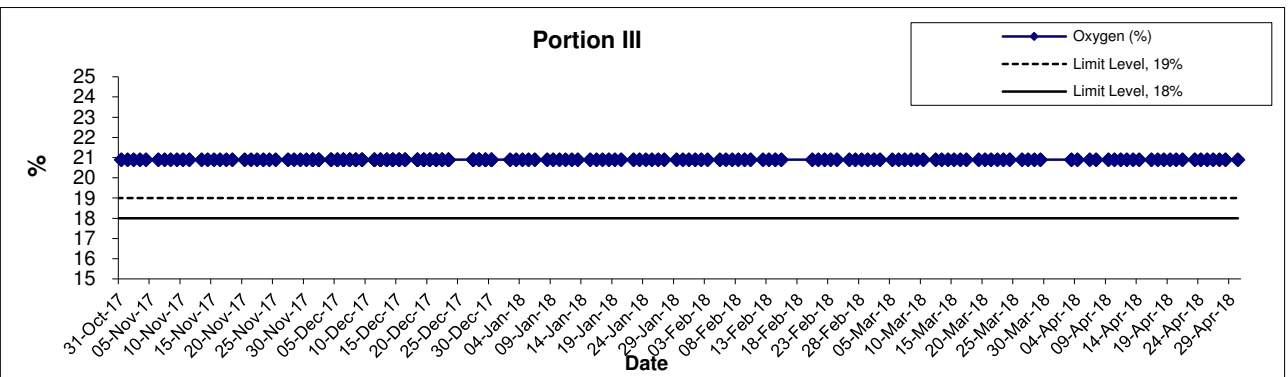
Methane



Carbon Dioxide



Oxygen



Title	Agreement No. CE 59/2015 (EP)	Scale	Project	CINOTECH
	Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction	N.T.S	No. MA16034	
Graphical Presentation of Landfill Gas Measurement	Date	Apr 18	Appendix R	

APPENDIX H
SITE AUDIT SUMMARY

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2015/01– (February)

Tseung Kwan O - Lam Tin Tunnel - Main Tunnel and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
Silt curtain should enclose the entire area of marine works at TKO site to prevent effluent discharge.	31 January 2018	✓	Improved/rectified on 7 February 2018.
Gaps between silt curtains at TKO site should be avoided.	31 January 2018	✓	Improved/rectified on 7 February 2018.
Gap was found between the two units of the silt curtain. The contractor was reminded to repair the silt curtain and ensure that the geotextile is extended from the sea surface to the seabed	21 February 2018	✓	Improved/rectified on 28 February 2018.
Noise			
Acoustic materials wrapped on breaker head of PMEs on Slope H in LTI should be kept well maintained.	24 January 2018	✗	Item remarked on 31 January 2018.
	31 January 2018	✗	Item remarked on 7 February 2018.
	7 February 2018	✓	Improved/rectified on 14 February 2018.
The Contractor was reminded to place noise barriers next to breakers to reduce noise nuisance to nearby NSRs.	24 January 2018	✗	Item remarked on 31 January 2018.
	31 January 2018	✗	Item remarked on 7 February 2018.
	7 February 2018	✓	Improved/rectified on 14 February 2018.
Noise mitigation measures at Portion IVC next to Nga Lai House should be enhanced to minimize noise nuisance to NSRs nearby.	31 January 2018	✗	Item remarked on 7 February 2018.
	7 February 2018	✗	Item remarked on 14 February 2018.
	14 February 2018	✗	Item remarked on 21 February 2018.
	21 February 2018	✓	Improved/rectified on 28 February 2018.
The Contractor should ensure the noise barrier mounted on PME faces the nearby NSRs during works.	31 January 2018	✓	Improved/rectified on 7 February 2018.
Gaps between noise barriers near Slope H in LTI should be avoided.	7 February 2018	✓	Improved/rectified on 14 February 2018.
Acoustic materials should be placed next to breaking works on slopes in LTI	28 February 2018	#	Follow up action will be reported in next reporting month
Cantilever facing Nga Lai House should be provided on noise barriers in Portion IVC to reduce noise nuisance to NSRs	28 February 2018	#	Follow up action will be reported in next reporting month
Landscape and Visual			
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Air Quality			
Air quality mitigation measures should be provided to slopes in TKO site and LTI for dust suppression	14 February 2018	✓	Improved/rectified on 21 February 2018.
Dust curtain should be provided at Cha Kwo Ling barging point for dust suppression	21 February 2018	✓	Improved/rectified on 28 February 2018.

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Items	Date	Status*	Follow up Action
<i>Waste / Chemical Management</i>			
General refuse at TKO site should be properly cleared.	31 January 2018	✓	Improved/rectified on 7 February 2018.
Drip tray should be provided to chemical containers at Portion 6 in TKO site	7 February 2018	✓	Improved/rectified on 14 February 2018.
Oil stain on the ground should be removed near the excavator at TKO site	21 February 2018	✓	Improved/rectified on 28 February 2018.
Drip tray should be provided to chemical containers on marine platform in TKO site	28 February 2018	#	Follow up action will be reported in next reporting month
<i>Impact on Cultural Heritage</i>			
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<i>Permits / Licenses</i>			
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- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2015/01 – (March)

Tseung Kwan O - Lam Tin Tunnel - Main Tunnel and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
Gaps between silt curtains in TKO site should be avoided.	28 March 2018	#	Follow up action will be reported in next reporting month
Noise			
Acoustic materials should be placed next to breaking works on slopes in LTI	28 February 2018	✓	Improved/rectified on 7 March 2018.
Cantilever facing Nga Lai House should be provided on noise barriers in Portion IVC to reduce noise nuisance to NSRs	28 February 2018	✓	Improved/rectified on 7 March 2018.
Noise barriers on Slope H should be repaired and properly erected.	21 March 2018.	✓	Improved/rectified on 28 March 2018.
Gaps between noise barriers in Portion IVC should be minimized to reduce noise nuisance to NSRs nearby.	21 March 2018.	✓	Improved/rectified on 28 March 2018.
Acoustic materials on noise barrier on Slope H in LTI and wrapped on breaker in Portion IVC should be repaired or maintained.	21 March 2018.	✓	Improved/rectified on 28 March 2018.
Landscape and Visual			
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Air Quality			
Appropriate NRMM labels should be displayed on PMEs in Portion IVC	7 March 2018	✓	Improved/rectified on 14 March 2018.
Water spraying should be provided to slopes in LTI for dust suppression.	28 March 2018	#	Follow up action will be reported in next reporting month
Waste / Chemical Management			
Drip tray should be provided to chemical containers on marine platform in TKO site	28 February 2018	✓	Improved/rectified on 7 March 2018.
General refuse on access road in TKO site should be removed	7 March 2018	✓	Improved/rectified on 14 March 2018.
Drip tray should be provided to chemical containers in Portion 6 in TKO site	7 March 2018	✗	Item remarked on 14 March 2018.
	14 March 2018	✓	Improved/rectified on 21 March 2018.
Impact on Cultural Heritage			
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Permits / Licenses			
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- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2015/01 – (April)

Tseung Kwan O - Lam Tin Tunnel - Main Tunnel and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
Gaps between silt curtains in TKO site should be avoided.	28 March 2018	✓	Improved/rectified on 4 April 2018.
Silt curtain near marine platform in TKO site should be maintained to prevent untreated discharge.	25 April 2018	#	Follow up action will be reported in next reporting month
Noise			
--	--	--	--
Landscape and Visual			
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Air Quality			
Water spraying should be provided to slopes in LTI for dust suppression.	28 March 2018	✓	Improved/rectified on 4 April 2018.
NRMM labels should be properly displayed on PMEs in Portion 6 in TKO site.	11 April 2018	✓	Improved/rectified on 18 April 2018
Water spraying should be provided to slopes in LTI more frequently for dust suppression.	18 April 2018	✓	Improved/rectified on 25 April 2018
Water sprinklers on Slope H should be provided to all breaking works for dust suppression.	25 April 2018	#	Follow up action will be reported in next reporting month
Waste / Chemical Management			
Drip tray should be provided to chemical containers in WA1.	4 April 2018	✓	Improved/rectified on 11 April 2018.
PME in Portion 6 in TKO site should be maintained regularly to avoid oil leakage.	11 April 2018	✓	Improved/rectified on 18 April 2018
Impact on Cultural Heritage			
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Permits / Licenses			
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- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2015/02 – (February)

Tseung Kwan O - Lam Tin Tunnel - Road P2 and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
The Contractor was reminded to keep the deck of hopper barge free of excess material before the vessel is moved.	25 January 2018	✓	Improved/rectified on 01 February 2018.
Minor gap was found between 2 units of silt curtain near Type 1 cofferdam. The Contractor was reminded to carry out maintenance regularly to ensure integrity of silt curtain at all time.	25 January 2018	✓	Improved/rectified on 01 February 2018.
The Contractor was reminded to remove the excess material from the deck of barge when vessel is moved	08 February 2018	✓	Improved/rectified on 13 February 2018.
Noise			
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Landscape and Visual			
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Air Quality			
Dust mitigation should be enhanced in Portion 4 and Work Area A.	16 January 2018	✗	Item remarked on 25 January 2018.
	25 January 2018	✓	Improved/rectified on 01 February 2018.
The Contractor was reminded to repair the tarpaulin cover of the cement mixing tank under the silo	13 February 2018	✓	Improved/rectified on 22 February 2018.
Waste / Chemical Management			
Oil stain was found under an idling drill rig in Portion 7.	25 January 2018	✓	Improved/rectified on 01 February 2018.
Oil stain was found under the drill rig in Portion 7. The Contractor was reminded to carry out maintenance as necessary	08 February 2018	✓	Improved/rectified on 13 February 2018.
Oil stain was found on the paved ground in Portion 4. The Contractor was reminded to clear the oil stain properly	22 February 2018	#	Follow up action will be reported in next reporting month
Impact on Cultural Heritage			
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Permits / Licenses			
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- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2015/02 – (March)

Tseung Kwan O - Lam Tin Tunnel - Road P2 and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
Silty water was found accumulated at the boundary of Portion 7. The Contractor should clear and treat the water properly.	01 March 2018	✓	Improved/rectified on 08 March 2018.
The Contractor was reminded to remove the accumulated silt from the drainage surround the outside of Work Area A more frequently.	08 March 2018	✓	Improved/rectified on 13 March 2018.
The Contractor was reminded to ensure the hopper barges are filled to a level that marine sediments would not spill over during loading or transportation.	08 March 2018	✓	Improved/rectified on 13 March 2018.
Water was found slightly opaque outside the frame type silt curtain. The Contractor was reminded to ensure the integrity of frame-type silt curtain at all time.	13 March 2018	✗	Item remarked on 22 March 2018.
	22 March 2018	✓	Improved/rectified on 29 March 2018.
Silt curtains near the double water gate are observed damaged. The Contractor should maintain the silt curtains properly and ensure the geotextile is extended to seabed.	22 March 2018	✗	Item remarked on 29 March 2018.
	29 March 2018	#	Follow up action will be reported in next reporting month
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
Haul road at Portion 4 was observed dry. The Contractor should provide sufficient water spraying for dust suppression.	29 March 2018	#	Follow up action will be reported in next reporting month
Waste / Chemical Management			
Oil stain was found on the paved ground in Portion 4. The Contractor was reminded to clear the oil stain properly	22 February 2018	✓	Improved/rectified on 01 March 2018.
Accumulation of waste should be avoided and housekeeping should be enhanced in Portion 7.	13 March 2018	✓	Improved/rectified on 22 March 2018.
To clear the oil stain found under the pre-boring machine in Portion 5.	29 March 2018	#	Follow up action will be reported in next reporting month
Impact on Cultural Heritage			
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Permits / Licenses			
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- ✗ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2015/02 – (April)

Tseung Kwan O - Lam Tin Tunnel - Road P2 and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
Silt curtains near the double water gate are observed damaged. The Contractor should maintain the silt curtains properly and ensure the geotextile is extended to seabed.	22 March 2018	✗	Item remarked on 29 March 2018.
	29 March 2018	✓	Improved/rectified on 6 April 2018.
To repair the damaged silt curtain at the double water gate and deploy silt curtains around the cofferdam properly without gaps.	26 April 2018	#	Follow up action will be reported in next reporting month
The Contractor was reminded to clear the sediment at the unloading area at Portion 7 regularly.	26 April 2018	#	Follow up action will be reported in next reporting month
Noise			
The Contractor was reminded to properly erect noise barriers for the drill rig in Portion 7 to reduce noise nuisance to nearby NSR.	17 April 2018	✓	Improved/rectified on 26 April 2018.
To place the acoustic box properly for breaking work in Portion 4.	26 April 2018	#	Follow up action will be reported in next reporting month
The Contractor was reminded to erect an effective acoustic mat for the derrick barge at the unloading area in Portion 7 and properly erect the noise barrier near the entrance of Portion 7.	26 April 2018	#	Follow up action will be reported in next reporting month
The Contractor was reminded to replace NRMM labels when needed.	26 April 2018	#	Follow up action will be reported in next reporting month
Landscape and Visual			
--	--	--	--
Air Quality			
Haul road at Portion 4 was observed dry. The Contractor should provide sufficient water spraying for dust suppression.	29 March 2018	✓	Improved/rectified on 6 April 2018.
The Contractor was reminded to repair the retractable tube of the drill rig in Portion 4 and ensure its integrity at all time.	12 April 2018	✓	Improved/rectified on 17 April 2018.
The Contractor was reminded to provide water spraying for unloading / loading activity at Portion 5	26 April 2018	#	Follow up action will be reported in next reporting month
The Contractor was reminded to maintain the construction vessels regularly to prevent black smoke emission.	26 April 2018	#	Follow up action will be reported in next reporting month
The Contractor was reminded to lower the level of stockpiles in Work Area A and cover them with impervious sheet.	26 April 2018	#	Follow up action will be reported in next reporting month
Waste / Chemical Management			
To clear the oil stain found under the pre-boring machine in Portion 5.	29 March 2018	✓	Improved/rectified on 6 April 2018.
The Contractor was reminded to properly clear the oil stain at the double water gate and Portion 4.	26 April 2018	#	Follow up action will be reported in next reporting month
Impact on Cultural Heritage			
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Appendix H - Site Audit Summary (February – April 2018)

Items	Date	Status*	Follow up Action
<i>Permits / Licenses</i>			
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- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2015/03 – (February 2018)

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			
Stagnant water was found in the drip tray in West Pier. The Contractor was reminded to check and clean it up regularly	02 February 2018	✓	Improved/rectified on 7 February 2018.
Impact on Cultural Heritage			
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Permits / Licenses			
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- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2015/03 – (March)

Tseung Kwan O - Lam Tin Tunnel - Northern Footbridge

Items	Date	Status*	Follow up Action
<i>Water Quality</i>			
--	--	--	--
<i>Noise</i>			
--	--	--	--
<i>Landscape and Visual</i>			
--	--	--	--
<i>Air Quality</i>			
--	--	--	--
<i>Waste / Chemical Management</i>			
--	--	--	--
<i>Impact on Cultural Heritage</i>			
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<i>Permits / Licenses</i>			
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- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2015/03 – (April)

Tseung Kwan O - Lam Tin Tunnel - Northern Footbridge

Items	Date	Status*	Follow up Action
<i>Water Quality</i>			
Water leakage was found in the sedimentation tank in West Pier. The Contractor was reminded to rectify immediately and check the performance regularly	27 April 2018	#	Follow up action will be reported in next reporting month
<i>Noise</i>			
--	--	--	--
<i>Landscape and Visual</i>			
--	--	--	--
<i>Air Quality</i>			
--	--	--	--
<i>Waste / Chemical Management</i>			
--	--	--	--
<i>Impact on Cultural Heritage</i>			
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<i>Permits / Licenses</i>			
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- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2017/01 – (April)

Tseung Kwan O - Lam Tin Tunnel – Tsueng Kwan O Interchange and Associated Works

Items	Date	Status*	Follow up Action
<i>Water Quality</i>			
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<i>Noise</i>			
--	--	--	--
<i>Landscape and Visual</i>			
--	--	--	--
<i>Air Quality</i>			
--	--	--	--
<i>Waste / Chemical Management</i>			
--	--	--	--
<i>Impact on Cultural Heritage</i>			
--	--	--	--
<i>Permits / Licenses</i>			

- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2017/02 – (March)

Tseung Kwan O - Lam Tin Tunnel – Road P2/D4 and Associated Works

Items	Date	Status*	Follow up Action
<i>Water Quality</i>			
--	--	--	--
<i>Noise</i>			
--	--	--	--
<i>Landscape and Visual</i>			
--	--	--	--
<i>Air Quality</i>			
--	--	--	--
<i>Waste / Chemical Management</i>			
--	--	--	--
<i>Impact on Cultural Heritage</i>			
--	--	--	--
<i>Permits / Licenses</i>			
The Environmental Permit should be displaced conspicuously outside the site area.	19 March 2018	✓	Improved/rectified on 26 March 2018.

- ✓ 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

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction
Quarterly EM&A Report

Appendix H - Site Audit Summary (February – April 2018)

Contract No. NE/2017/02 – (April)

Tseung Kwan O - Lam Tin Tunnel – Road P2/D4 and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
Dusty materials should be removed to prevent dust generation.	30 April 2018	#	Follow up action will be reported in next reporting month
Waste / Chemical Management			
General refuse should be collected and disposed regularly.	04 April 2018	✓	Improved/rectified on 9 April 2018.
Impact on Cultural Heritage			
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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 I
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)

- 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.	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	*(1)/#(1)
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, 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: <ul style="list-style-type: none"> - 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, watering shall be 	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	*(1)/#(1) *(1)/#(1) ^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	<p>applied to aggregate fines.</p> <ul style="list-style-type: none"> - 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 dusty conditions arise. 						<p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p> <p>*(1)/#(1)</p> <p>^</p>

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
/	Emission from Vehicles and Plants <ul style="list-style-type: none"> • 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)/#(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	^
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	N/A
Noise Mitigation Plan	Use of Temporary Noise Barriers 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)/#(2)

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
S4.9	<p>Good Site Practice</p> <ul style="list-style-type: none"> - 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 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	Control potential impacts from filling	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	including the installation of steel cellular caisson), silt curtain shall be employed around the active stone column installation points.	activities					
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
S5.8.3	<p>Other good site practices should be undertaken during filling operations include:</p> <ul style="list-style-type: none"> - 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; 	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)	<p>*(3)/#(3)</p> <p>^</p> <p>^</p> <p>*(3)/#(3)</p> <p>^</p>

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	<ul style="list-style-type: none"> - 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. 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>
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	<p>To minimize water quality impact arising from the dredging and filling works for Reclamation for Road P2, the following mitigation measures shall be implemented:</p> <ul style="list-style-type: none"> - 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 	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	<p>^</p> <p>^</p> <p>N/A</p>

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	<p>quality inside the enclosed barrier is comparable to the ambient or baseline levels prior to the removal of the fully enclosed barrier.</p> <p>- 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. The general of arrangement of silt curtain is shown in Figure 7 of the existing Environmental Permit (No. EP-458/2013/C).</p>						^
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	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	*(4)

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES
February – April 2018

EIA Ref.	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
	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	^
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	Control potential impacts from construction site	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	*(5)

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES
February – April 2018

EIA Ref.	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
	able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	runoff and land-based construction				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-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 runoff 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	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES
February – April 2018

EIA Ref.	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
S5.8.16	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
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	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES
February – April 2018

EIA Ref.	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
S5.8.20	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-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
S5.8.24	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
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

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
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-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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					
S5.8.35	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-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	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES
February – April 2018

EIA Ref.	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
S5.8.39	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
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	*(6)/#(6)
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.	Control potential impacts from construction site	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	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.	runoff and land-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	*(7)
S5.8.46	<p>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:</p> <ul style="list-style-type: none"> - 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	Control potential impacts from	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,	*(8)

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	and the neighbouring water free from rubbish.	floating refuse and debris					
Ecological Impact							
S6.8.4	<p>Measures to Minimize Disturbance</p> <ul style="list-style-type: none"> - 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	<p>Standard Good Site Practice</p> <ul style="list-style-type: none"> - 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 the 	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	*(9) ^ *(9) *(9) ^ ^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	nearby watercourses.						
S6.8.6	<p>Measure to Minimize Groundwater Inflow</p> <ul style="list-style-type: none"> - 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	<p>Measure to Minimize Impact on Corals</p> <p><u>Coral translocation</u></p> <ul style="list-style-type: none"> - It is recommended to translocate the affected coral colonies, except the locally common <i>Oulastrea crispata</i>, 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 	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	^ ^ ^ ^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	<p>exercises should be conducted by experienced marine ecologist(s) who is/are approved by AFCD prior to commencement of coral translocation.</p> <p><u>Post translocation Monitoring</u></p> <ul style="list-style-type: none"> - 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. 						<p>^</p> <p>^</p>
<p>S6.8.9</p> <p>S6.8.10</p>	<p>Measure to Control Water Quality Impact</p> <ul style="list-style-type: none"> - 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. 	<p>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</p>	<p>Design Team, contractor</p>	<p>Marine and landbased works area</p>	<p>Construction phase</p>	<p>WQO</p>	<p>N/A</p> <p>^</p> <p>^</p> <p>^</p>

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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	<p>Compensation for Vegetation Loss</p> <ul style="list-style-type: none"> - 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	<p>Measure to Control Water Quality Impact</p> <ul style="list-style-type: none"> - 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	<p>Good Site Practices and Waste Reduction Measures</p> <ul style="list-style-type: none"> - 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 	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ *(10)/#(10) ^ *(10)/#(10)

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	interceptors.						^
S8.6.4	<p>Good Site Practices and Waste Reduction Measures (con't)</p> <ul style="list-style-type: none"> - 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	<p>Good Site Practices and Waste Reduction Measures (con't)</p> <p>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.</p>	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^
S8.6.6	<p>Good Site Practices and Waste Reduction Measures (con't)</p> <ul style="list-style-type: none"> - 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	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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	<p><i>Storage, Collection and Transportation of Waste</i></p> <p>Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:</p> <ul style="list-style-type: none"> - 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	<p><i>Storage, Collection and Transportation of Waste (con't)</i></p> <ul style="list-style-type: none"> - 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; 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		*(10)/#(10) ^ ^ ^ ^ ^
S8.6.9	<p><i>Storage, Collection and Transportation of Waste (con't)</i></p> <ul style="list-style-type: none"> - 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 	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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 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.	impacts arising from waste collection and disposal					
S8.6.11 - S8.6.13	<p>Sorting of C&D Materials</p> <ul style="list-style-type: none"> - 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	<p>Sediments</p> <ul style="list-style-type: none"> - 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	contractor	All works areas with sediments concern	Construction Phase	RBRG	N/A

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	<p>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.</p> <ul style="list-style-type: none"> - 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	<p>Sediments (con't)</p> <ul style="list-style-type: none"> - 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. 	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase		N/A N/A N/A

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	<p>Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.</p> <ul style="list-style-type: none"> - 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	<p>Sediments (con't)</p> <ul style="list-style-type: none"> - 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	contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A
S8.6.23	<p>Sediments (con't)</p> <ul style="list-style-type: none"> - 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
S8.6.24 -	<p>Sediments (con't)</p>	To ensure	Contractor	All works	Construction	ETWB TC(W) No.	

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
S8.6.28	<ul style="list-style-type: none"> - The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The excavated 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 barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. 	handling of sediments are in accordance to statutory requirements		areas with sediments concern	Phase	34/2002 & Dumping at Sea Ordinance	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	<ul style="list-style-type: none"> - 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. 						<p>N/A</p> <p>N/A</p>
S8.6.26	<p>Chemical Wastes.</p> <ul style="list-style-type: none"> - 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 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. 	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	^
S8.6.27	General Refuse	To ensure proper	Contractor	All works	Construction	Public Health and	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES
February – April 2018

EIA Ref.	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
	<ul style="list-style-type: none"> - 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. 	management of general refuse		sites	Phase	Municipal Services Ordinance (Cap. 132)	
<i>Impact on Cultural Heritage (Construction Phase)</i>							
S9.6.4	Dust and visual impacts <ul style="list-style-type: none"> - 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 <ul style="list-style-type: none"> - 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.	^ ^ ^ ^
<i>Landscape and Visual Impact (Construction Phase)</i>							
Table 10.8.1	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	N/A	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES
February – April 2018

EIA Ref.	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 period		
Table 10.8.1	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. 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 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	* (11)
Table 10.8.1	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	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	Beginning of construction period	N/A	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES
February – April 2018

EIA Ref.	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 deck, TKO			
Table 10.8.1	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	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	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	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	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	CEDD (via Contractor)	Temporary reclamation for barging	Construction planning and reclamation	N/A	N/A

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
		existing coastlin		points at TKO and Lam Tin and permanent reclamation for TKO Interchange slip roads and Road P2	stages		
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 Zone, should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards.	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note Labour	^

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	<ul style="list-style-type: none"> - 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. - 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 						<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

EIA Ref.	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
	<ul style="list-style-type: none"> - periodically throughout the working day whilst workers are in the excavation. ● For excavations between 300mm and 1m deep, measurements should be carried out: <ul style="list-style-type: none"> - 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. ● 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. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S11.5.32	<p>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.</p>	<p>construction stage within the Sai Tso Wan</p> <p>Protect the workers from landfill gas hazards</p>	Contractor	<p>Project sites within the Sai Tso Wan Landfill Consultation Zone</p>	Construction phase	<p>EPD's Landfill Gas Hazard Assessment Guidance Note</p>	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					
* (1)	S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	NE/2015/01	Construction of Lam Tin Interchange	Air quality mitigation measures should be provided to slopes in TKO site and LTI for dust suppression.
	S3.8.7	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: <ul style="list-style-type: none"> - 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. - Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. - 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. 	NE/2015/01	Construction of Lam Tin Interchange	Dust curtain should be provided at Cha Kwo Ling barging point for dust suppression
			NE/2015/01	Construction of Lam Tin Interchange	Appropriate NRMM labels should be displayed on PMEs in Portion IVC
			NE/2015/01	Construction of Lam Tin Interchange	Water spraying should be provided to slopes in LTI for dust suppression.
			NE/2015/01	Construction of Lam Tin Interchange	Water spraying should be provided to slopes in LTI for dust suppression.
			NE/2015/01	Construction of TKO Portal	NRMM labels should be properly displayed on PMEs in Portion 6 in TKO site.
			NE/2015/01	Construction of	Water spraying should be provided to slopes in

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
				Lam Tin Interchange	LTI more frequently for dust suppression..
			NE/2015/02	Construction of Road P2	Dust mitigation should be enhanced in Portion 4 and Work Area A.
			NE/2015/02	Construction of Road P2	The Contractor was reminded to repair the tarpaulin cover of the cement mixing tank under the silo.
			NE/2015/02	Construction of Road P2	Haul road at Portion 4 was observed dry. The Contractor should provide sufficient water spraying for dust suppression.
			NE/2015/02	Construction of Road P2	The Contractor was reminded to repair the retractable tube of the drill rig in Portion 4 and ensure its integrity at all time.
			NE/2015/01	Construction of TKO Portal	Bagged cement on haul road at Portion 6 in TKO site should be covered or sheltered on top and three sides.
			NE/2015/02	Construction of Road P2	The Contractor was reminded to properly cover the bagged cement in Portion 7 to prevent dust emission.
# (1)			NE/2015/01	Construction of Lam Tin Interchange	Water sprinklers on Slope H should be provided to all breaking works for dust suppression.
			NE/2015/02	Construction of Road P2	The Contractor was reminded to provide water spraying for unloading/ loading activity at Portion 5.
			NE/2015/02	Construction of Road P2	The Contractor was reminded to maintain the construction vessels regularly to prevent black smoke emission.

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
			NE/2015/02	Construction of Road P2	The Contractor was reminded to lower the level of stockpiles in Work Area A and cover them with impervious sheet.
			NE/2017/02	Construction of Road P2/D4	Dusty materials should be removed to prevent dust generation.

Noise Impact (Construction Phase)

* (2)	Noise Mitigation Plan	Use of Temporary Noise Barriers or Full Enclosure for PME according to the approved Noise Mitigation Plan	NE/2015/01	Construction of Lam Tin Interchange	Acoustic materials wrapped on breaker head of PMEs on Slope H in LTI should be kept well maintained.
			NE/2015/01	Construction of Lam Tin Interchange	The Contractor was reminded to place noise barriers next to breakers to reduce noise nuisance to nearby NSRs.
			NE/2015/01	Construction of Lam Tin Interchange	Noise mitigation measures at Portion IVC next to Nga Lai House should be enhanced to minimize noise nuisance to NSRs nearby.
			NE/2015/01	Construction of Lam Tin Interchange	The Contractor should ensure the noise barrier mounted on PME faces the nearby NSRs during works.
			NE/2015/01	Construction of Lam Tin Interchange	Gaps between noise barriers near Slope H in LTI should be avoided.
			NE/2015/01	Construction of Lam Tin Interchange	Acoustic materials should be placed next to breaking works on slopes in LTI

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder			
			NE/2015/01	Construction of Lam Tin Interchange	Cantilever facing Nga Lai House should be provided on noise barriers in Portion IVC to reduce noise nuisance to NSRs			
			NE/2015/01	Construction of Lam Tin Interchange	Noise barriers on Slope H should be repaired and properly erected.			
			NE/2015/01	Construction of Lam Tin Interchange	Gaps between noise barriers in Portion IVC should be minimized to reduce noise nuisance to NSRs nearby.			
			NE/2015/01	Construction of Lam Tin Interchange	Acoustic materials on noise barrier on Slope H in LTI and wrapped on breaker in Portion IVC should be repaired or maintained.			
			NE/2015/02	Construction of Road P2	The Contractor was reminded to properly erect noise barriers for the drill rig in Portion 7 to reduce noise nuisance to nearby NSR.			
			NE/2015/02	Construction of Road P2	To place the acoustic box properly for breaking work in Portion 4.			
			NE/2015/02	Construction of Road P2	The Contractor was reminded to erect an effective acoustic mat for the derrick barge at the unloading area in Portion 7 and properly erect the noise barrier near the entrance of Portion 7.			
			NE/2015/02	Construction of Road P2	The Contractor was reminded to replace NRMM labels when needed.			
			# (2)					

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Water Quality Impact (Construction Phase)					
* (3)	S5.8.3	Other good site practices should be undertaken during filling operations include: <ul style="list-style-type: none"> - 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; - excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved; 	NE/2015/01	Construction of TKO Portal	Silt curtain should enclose the entire area of marine works at TKO site to prevent effluent discharge.
			NE/2015/01	Construction of TKO Portal	Gaps between silt curtains at TKO site should be avoided.
			NE/2015/01	Construction of TKO Portal	Gap was found between the two units of the silt curtain. The contractor was reminded to repair the silt curtain and ensure that the geotextile is extended from the sea surface to the seabed
			NE/2015/01	Construction of TKO Portal	Gaps between silt curtains in TKO site should be avoided.
			NE/2015/02	Construction of Road P2	The Contractor was reminded to keep the deck of hopper barge free of excess material before the vessel is moved.
			NE/2015/02	Construction of Road P2	Minor gap was found between 2 units of silt curtain near Type 1 cofferdam. The Contractor was reminded to carry out maintenance regularly to ensure integrity of silt curtain at all time.

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
			NE/2015/02	Construction of Road P2	The Contractor was reminded to remove the excess material from the deck of barge when vessel is moved
			NE/2015/02	Construction of Road P2	Silty water was found accumulated at the boundary of Portion 7. The Contractor should clear and treat the water properly.
			NE/2015/02	Construction of Road P2	The Contractor was reminded to ensure the hopper barges are filled to a level that marine sediments would not spill over during loading or transportation.
			NE/2015/02	Construction of Road P2	Water was found slightly opaque outside the frame type silt curtain. The Contractor was reminded to ensure the integrity of frame-type silt curtain at all time.
			NE/2015/02	Construction of Road P2	Silt curtains near the double water gate are observed damaged. The Contractor should maintain the silt curtains properly and ensure the geotextile is extended to seabed.
			NE/2015/01	Construction of TKO Portal	Silt curtain near marine platform in TKO site should be maintained to prevent untreated discharge.
			NE/2015/02	Construction of Road P2	To repair the damaged silt curtain at the double water gate and deploy silt curtains around the cofferdam properly without gaps.
			NE/2015/02	Construction of	The Contractor was reminded to clear the
			# (3)		

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
				Road P2	sediment at the unloading area at Portion 7 regularly.
* (4)	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	NE/2015/02	Construction of Road P2	The Contractor was reminded to remove the accumulated silt from the drainage surround the outside of Work Area A more frequently.

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
		TM-DSS.			
#(5)	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.	NE/2015/03	Construction of Northern Footbridge	Water leakage was found in the sedimentation tank in West Pier. The Contractor was reminded to rectify immediately and check the performance regularly
* (6)	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.	NE/2015/01	Construction of TKO Portal	Oil stain on the ground should be removed near the excavator at TKO site
			NE/2015/02	Construction of Road P2	PME in Portion 6 in TKO site should be maintained regularly to avoid oil leakage.
			NE/2015/02	Construction of Road P2	Oil stain was found under an idling drill rig in Portion 7
			NE/2015/02	Construction of Road P2	Oil stain was found under the drill rig in Portion 7. The Contractor was reminded to carry out maintenance as necessary
			NE/2015/02	Construction of Road P2	Oil stain was found on the paved ground in Portion 4. The Contractor was reminded to clear the oil stain properly
			NE/2015/02	Construction of Road P2	Oil stain was found on the paved ground in Portion 4. The Contractor was reminded to clear the oil stain properly
			NE/2015/02	Construction of Road P2	To clear the oil stain found under the pre-boring machine in Portion 5.
# (6)					NE/2015/02

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
* (7)	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.	NE/2015/01	Construction of TKO Portal	Drip tray should be provided to chemical containers at Portion 6 in TKO site
			NE/2015/01	Construction of TKO Portal	Drip tray should be provided to chemical containers at Portion IVC.
			NE/2015/01	Construction of TKO Portal	Drip tray should be provided to chemical containers on marine platform in TKO site
			NE/2015/01	Construction of TKO Portal	Drip tray should be provided to chemical containers in Portion 6 in TKO site
			NE/2015/01	Construction of TKO Portal	Drip tray should be provided to chemical containers in WA1.
			NE/2015/03	Construction of Northern Footbridge	Stagnant water was found in the drip tray in West Pier. The Contractor was reminded to check and clean it up regularly
			NE/2015/01	Construction of TKO Portal	Drip tray should be provided to chemical containers at Portion 6 in TKO site.

Ecological Impact

* (8)	S6.8.5	<p>Standard Good Site Practice</p> <ul style="list-style-type: none"> - Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. - General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. - Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner. 	NE/2017/02	Construction of Road P2/D4	Dusty materials should be removed to prevent dust generation.

Waste Management (Construction Phase)

App I - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

February – April 2018

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
* (9)	S8.6.3 /	Good Site Practices and Waste Reduction Measures	NE/2015/02	Construction of Road P2	Accumulation of waste should be avoided and housekeeping should be enhanced in Portion 7.
	S 8.6.8	<ul style="list-style-type: none"> - Provision of sufficient waste disposal points and regular collection of waste; - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. 	NE/2015/01	Construction of TKO Portal	General refuse on access road in TKO site should be removed
	<p>Storage, Collection and Transportation of Waste (con't)</p> <p>Remove waste in timely manner;</p>	NE/2015/01	Construction of TKO Portal	General refuse at TKO site should be properly cleared.	
	NE/2017/02	Construction of P2/D4	General refuse should be collected and disposed regularly.		
	NE/2015/03	Construction of Northern Footbridge	A proper label is needed for the "Tree Protection Zone" in West Pier.		

**APPENDIX J
WASTE GENERATED QUANTITY**

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											
June											
Sub-total	460.205	140.758	149.271	206.081	104.853	0.000	0.000	0.696	0.000	3.200	0.250
July											
August											
September											
October											
November											
December											
Total	460.205	140.758	149.271	206.081	104.853	0.000	0.000	0.696	0.000	3.200	0.250

Total inert C&D waste generated = c+d+e

Total inert C&D waste recycled = c+d

$$\% \text{ of recycled inert C\&D waste} = \frac{\text{Total C\&D waste recycled}}{\text{Total C\&D waste generated}}$$



- 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/m³; soil = 2.0 tonnes/m³
- (7) excavated: rock = 2.0 tonnes/m³; soil = 1.8 tonnes/m³; broken concrete and bitumen = 2.4 tonnes/m³, soil and rock = 1.9 tonnes/m³
- (8) C&D Waste = 0.9 tonnes/m³; bentonite slurry = 2.8 tonnes/m³
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"

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	10.46000	0.00000	0.00000	0.00000	0.04520
Apr	77.68090	0.00000	0.00000	0.00000	3.82690	73.85400	14.78000	0.00000	0.00000	0.00000	0.03010
May											
June											
SUB-TOTAL	85.61673	0.00000	0.16640	0.00000	11.38233	74.06800	57.28000	0.00000	0.00000	0.00000	0.20314
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
TOTAL	85.61673	0.00000	0.16640	0.00000	11.38233	74.06800	57.28000	0.00000	0.00000	0.00000	0.20314

Note: Conversion to 1000m³ for general refuse is weight in 1000kg multiply by 0.002

Conversion to 1000m³ 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



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	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
		(see Note 1)						(see Note 2)		
(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	0.143
Mar	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0.0975
May										
Jun										
Sub-total	0	0	0	0	0	0	0	0	0	0.2405
Jul										
Aug										
Sept										
Oct										
Nov										
Dec										
Total	0	0	0	0	0	0	0	0	0	0.2405

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 dumping truck being equivalent to 6.5m³ by volume.

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											
June											
Sub-total											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	1.225109	0	0.175365	0.427405	0.59179	0.03056	0	0	0	0	0.03693

- 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 ms.

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	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0
May											
Jun											
Sub-total	0	0	0	0	0	0	0	0	0	0	0
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0	0	0	0

- Notes:
1. Assume the density of soil fill is 2 ton/m³.
 2. Assume the density of rock and broken concrete is 2.5 ton/m³.
 3. Assume each truck of C&D wastes is 5m³.
 4. The inert C&D materials except slurry and bentonite are disposed at Tseung Kwan O Area 137 Fill Bank.
 5. The slurry and bentonite are disposed at Tseung Kwan O Area 137 Fill Bank.
 6. The non-inert C&D wastes are disposed at NENT.
 7. Assume the density of metal is 7,850 kg/m³.
 8. Assume the density of plastic is 941 kg/m³.

**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: February – April 2018

**(A) Exceedance Report for Air Quality
(NIL in the reporting quarter)**

(B) Exceedance Report for Construction Noise

Action Level for Construction Noise

(Twenty-seven (27) Action Level exceedance was recorded due to the documented complaints received from monitoring station in the reporting quarter. No Limit Level exceedance was recorded in the reporting quarter. Please refer to the complaint log in Appendix L.)

(C) Exceedance Report for Water Quality

Groundwater Quality

(One (1) Action and sixteen (16) Limit Level exceedance in groundwater quality monitoring was recorded in the reporting quarter.)

Date	Monitoring Location	Monitoring Parameter	Monitoring Results	Action Level	Limit Level
27 Feb 2018	Stream 2	Total Organic Carbon	11 mg-TOC/L	9	9
27 Feb 2018	Stream 2	Ammonia-N	0.28 mg NH ₃ -N/L	0.15	0.20
16 Mar 2018	Stream 3	Total Organic Carbon	8 mg-TOC/L	6	6
16 Mar 2018	Stream 3	Total Phosphorus	0.44 mg-P/L	0.05	0.05
24 April 2018	Stream 1	Biochemical Oxygen Demand	4 mg O ₂ /L	2.0	2.0
24 April 2018	Stream 1	Total Organic Carbon	12 mg-TOC/L	9	9
24 April 2018	Stream 1	Total Nitrogen	3.7 mg N/L	2.0	2.1
24 April 2018	Stream 1	Total Phosphorus	0.06 mg-P/L	0.05	0.05

Agreement No. CE 59/2015 (EP)

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

Appendix K – Summary of Exceedance

24 April 2018	Stream 2	Biochemical Oxygen Demand	8 mg O ₂ /L	2.0	2.0
24 April 2018	Stream 2	Total Organic Carbon	16 mg-TOC/L	9	9
24 April 2018	Stream 2	Total Nitrogen	2.9 mg N/L	2.0	2.1
24 April 2018	Stream 2	Total Phosphorus	0.08 mg-P/L	0.05	0.05
24 April 2018	Stream 3	Biochemical Oxygen Demand	4 mg O ₂ /L	2.0	2.0
24 April 2018	Stream 3	Total Organic Carbon	8 mg-TOC/L	6	6
24 April 2018	Stream 3	Total Nitrogen	2.9 mg N/L	2.0	2.1
24 April 2018	Stream 3	Ammonia-N	0.16 mg NH ₃ -N/L	0.15	0.20
24 April 2018	Stream 3	Total Phosphorus	0.1 mg-P/L	0.05	0.05

It is considered that the exceedance is not project-related based on the following reasons:

27 Feb 2018

- For Stream 2, there is no tunnel boring or tunnel construction works in Tseung Kwan O side in this reporting month.
- Also, the exceeded levels are within the maximum levels during baseline monitoring at Stream 2 (17 mg-TOC/L for TOC and 0.41 mg NH₃-N/L for NH₃-N). It is considered that the exceedances were due to natural fluctuations, rather than the project works.)

16 Mar 2018

- For Stream 3, there is no tunnel boring or tunnel construction works in Tseung Kwan O side in this reporting month.

24 Apr 2018

- For Stream 3, the exceedances are considered probably due to non-project factors, such as domestic sewage and adverse weather.

Marine water Quality

(NIL in the reporting quarter)

(D) Exceedance Report for Ecology

(NIL in the reporting quarter)

Agreement No. CE 59/2015 (EP)

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

Appendix K – Summary of Exceedance

(E) Exceedance Report for Cultural Heritage

(NIL in the reporting quarter)

(F) Exceedance Report for Landfill Gas

(NIL in the reporting quarter)

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

- Investigation Report for Environmental Quality Action & Limit Exceedances

Monitoring Parameter: Ground Water Quality

Date of Monitoring: 24 April 2018

Part A Investigation of Exceedances

1. Summary of Exceedance Records

Date	Monitoring Parameter	Exceedance Level		Exceedance Records at		
		Action	Limit	Stream 1	Stream 2	Stream 3
24-Apr-18	5-day Biochemical Oxygen Demand (BOD ₅) (mg O ₂ /L)	2	2	4	8	4
	Total Organic Carbon (TOC) (mg-TOC/L)	6	6	12	16	8
	Total Nitrogen (TN) (mg N/L)	2	2.1	3.7	2.9	2.9
	Ammonia-N (NH ₃) (NH ₃ -N/L)	0.15	0.2	NA	NA	0.16
	Total Phosphate (TP) (mg-P/L)	0.05	0.05	0.06	0.08	0.1

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

2. Summary of Construction Activities in the Vicinity of the Monitoring Locations

Stream 1	According to the Contractor, main tunnel face excavation was the major construction works conducted on 24 April 2018. The construction activities for main tunnel excavation included blasting, mucking, scaling, shotcrete and blast hole drilling (please refer to Photo 1 & Photo 2). The blasting time was 01:44am on 24 April 2018. The vertical distance between Stream 1 and the tunnel construction site is more than 44 meters. Therefore, Stream 1 will not be affected by any tunnel construction works as its elevation is above the tunnel construction site (Figure 1 & 2).
Stream 2	No construction activity
Stream 3	No construction activity



Photo 1



Photo 2

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

- Investigation Report for Environmental Quality Action & Limit Exceedances

3. Justification of Exceedances

Location	Monitoring Parameter	Exceedance Level (Action/Limit)	Justification	Exceedances due to the Project
Stream 1	BOD ₅	Limit	1. The vertical distance between Stream 1 and tunnel construction works is more than 44 meters. 2. No exceedance of major concern of parameters from construction sites, including pH, dissolved oxygen, turbidity and suspended solids, were recorded on 24 April, 2018.	No
	TOC			
	TN			
	TP			
Stream 2	BOD ₅	Limit	No tunnel construction activities in the vicinity of the monitoring location.	No
	TOC			
	TN			
	TP			
Stream 3	BOD ₅	Limit	No tunnel construction activities in the vicinity of the monitoring location.	No
	TOC			
	TN			
	NH ₃	Action		
	TP	Limit		

Part B – Conclusions:

- There is no direct evidence to show that the exceedances at the 3 streams were due to the Project, based on the justification in the above table. The exceedances are considered probably due to non-project factors, such as domestic sewage (as observed and reported in the EIA Report) and adverse weather (rainfall recorded before and on 24 April 2018 (Ref.: Daily Rainfall Distribution extracted from HKO)).
- No increase in monitoring frequency for groundwater quality monitoring and no further action are required.

Part C – Recommendations

The ET has reminded the Contractor to implement the recommended mitigation measures in the “Implementation Schedule and Recommended Mitigation Measures” of the EM&A Manual for the control of potential impacts from the following concerns:

- Groundwater drawdown and contamination; and
- Construction site runoff and land-based construction.

In accordance with the above investigation, the exceedance(s) for the stream water quality are not project related and 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). It is considered that no or minimal interaction between the surface of streams and the main tunnel construction directly.

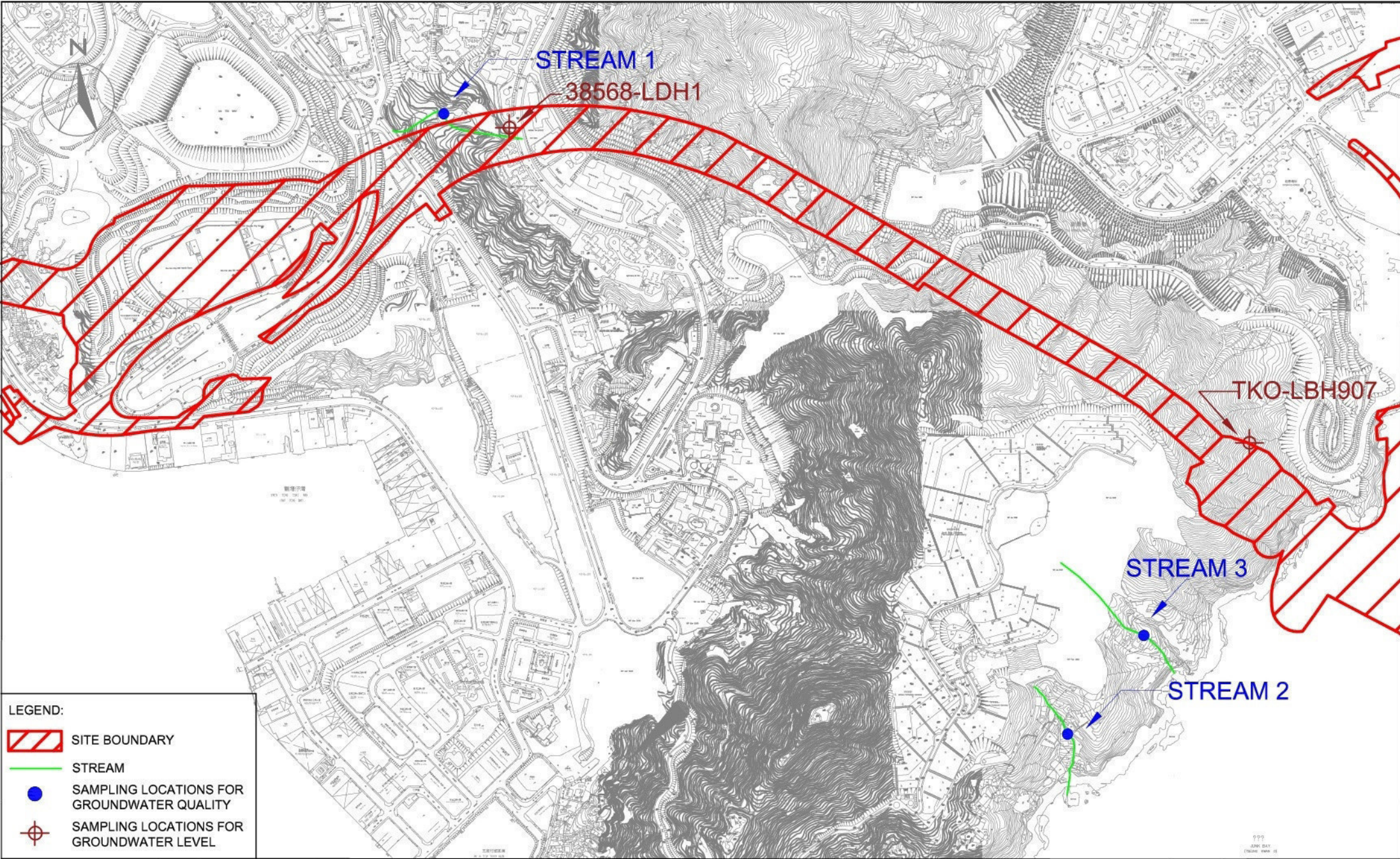
Therefore, ET recommend to terminate the water quality monitoring for the streams in accordance with the EM&A Manual, Section 4. For details, please refer to the separate proposal for termination of monitoring for stream water.





Reviewed by: Dr. Priscilla Choy
 (Environmental Team Leader)

Date: 17 May 2018

Signature: 

FIGURE

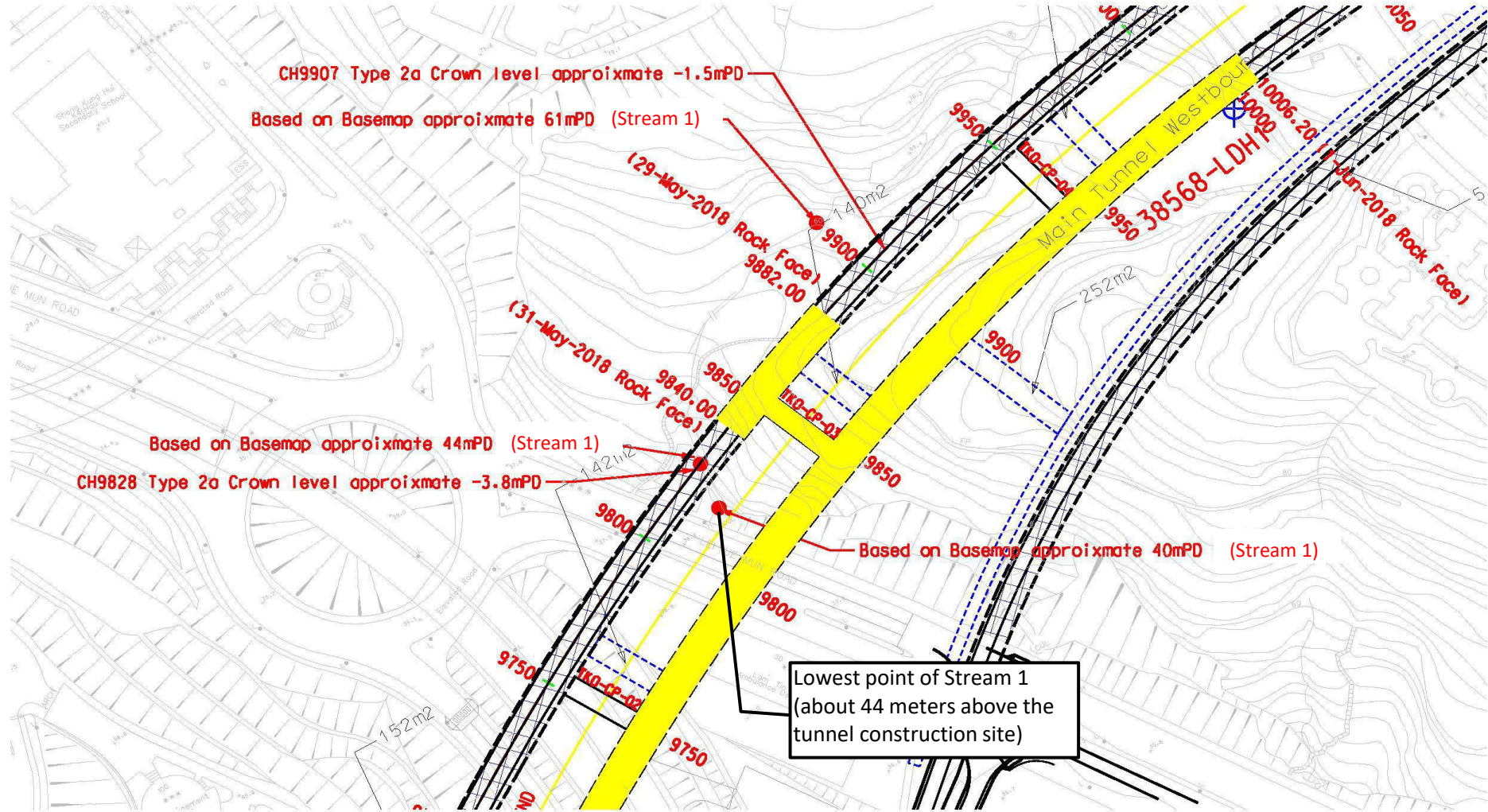


- LEGEND:**
-  SITE BOUNDARY
 -  STREAM
 -  SAMPLING LOCATIONS FOR GROUNDWATER QUALITY
 -  SAMPLING LOCATIONS FOR GROUNDWATER LEVEL



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

SCALE	1:10000 @ A4	DATE	APR 2017	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	1	REV
				-



Title Agreement No. CE/59/2015 (EP)
 Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
 Location of Stream 1 and the Main Tunnel Construction

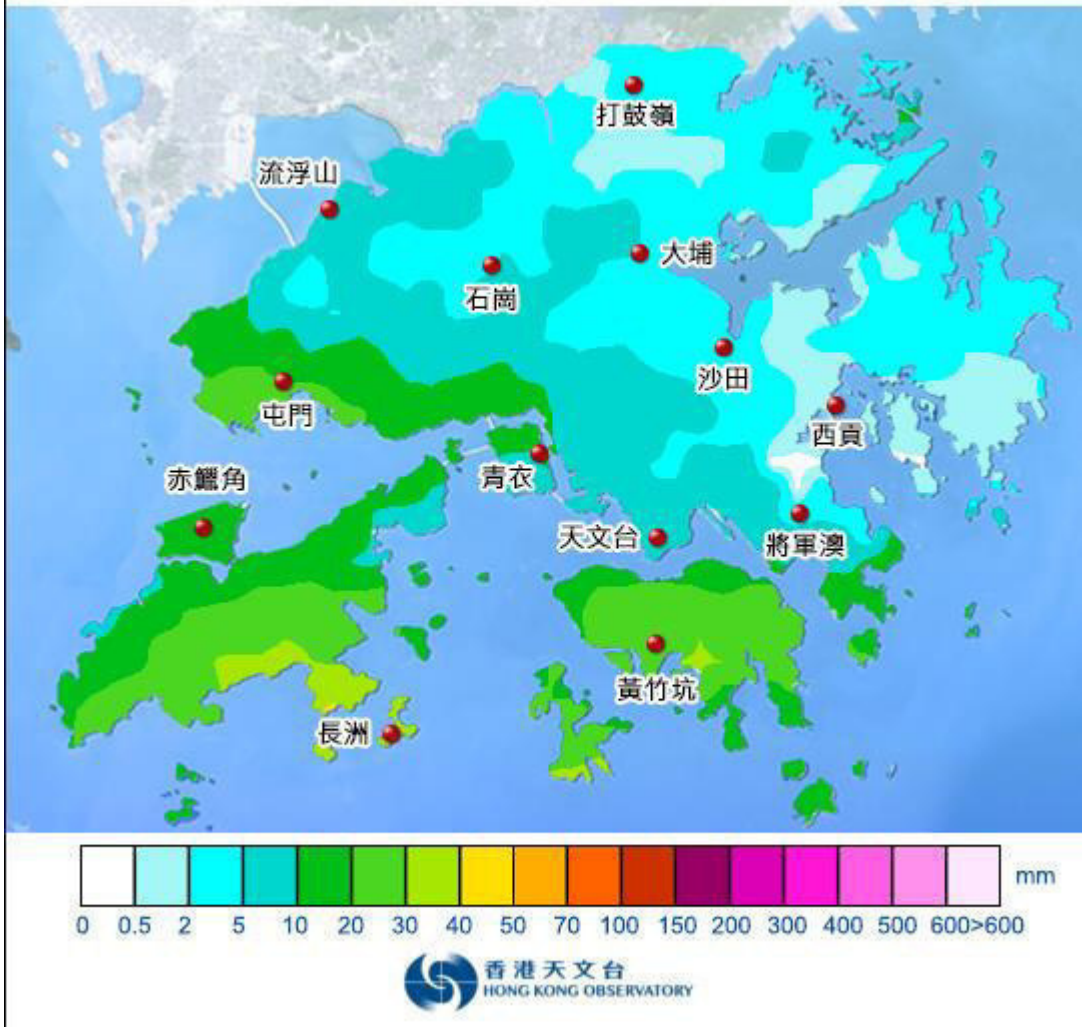
Scale	N.T.S	Project No.	MA16034
Date	May-18	Figure	2



**APPENDIX A
DAILY RAINFALL DISTRIBUTION
EXTRACTED FROM HKO**

Daily Rainfall Distribution:

2018年 4月 24日的總雨量 (基於雨量計及雷達數據)



Rainfall recorded in Sai Kung region on 24 April 2018			
Time	Rainfall (mm)	Amber Rainstorm Warning Signal	Thunderstorm Warning
23:45-00:45	0-1mm	-	-
00:45-01:45	-	-	-
01:45-02:45	-	-	-
02:45-03:45	-	-	-
03:45-04:45	-	-	-
04:45-05:45	-	-	-
05:45-06:45	-	-	-
06:45-07:45	-	-	-
07:45-08:45	-	-	-
08:45-09:45	-	-	✓
09:45-10:45	0-1mm	-	✓
10:45-11:45	0-10mm	-	✓
11:45-12:45	0-1mm	-	✓
12:45-13:45	-	-	✓
13:45-14:45	-	-	-
14:45-15:45	-	-	-
15:45-16:45	-	-	-
16:45-17:45	-	-	-
17:45-18:45	-	-	-
18:45-19:45	-	-	-
19:45-20:45	-	-	-
20:45-21:45	-	-	-
21:45-22:45	-	-	-
22:45-23:45	-	-	-

**APPENDIX B
GROUNDWATER QUALITY
MONITORING RESULTS**

TEST REPORT

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

Report No.:	28772
Date of Issue:	2018-05-04
Date Received:	2018-04-24
Date Tested:	2018-04-24
Date Completed:	2018-05-04

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Sample Description : 3 liquid samples as received from client said to be groundwater
Laboratory No. : 28772
Project No. : MA16034 (Groundwater)
Project Name : Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O –
Lam Tin Tunnel – Design and Construction
Custody No. : MA16034(Groundwater)/20180424
Sampling Date : 2018-04-24

Tests Requested & Methodology:

Item	Parameters	Ref. Method	Limit of reporting
1	Total Suspended Solids	APHA 17ed 2540 D	*0.5 mg/L
2	Biochemical Oxygen Demand	APHA 19ed 5210B	2 mg O ₂ /L
3	Total Organic Carbon	In-house method SOP020 (Wet Oxidation)	1 mg-TOC/L
4	Nitrogen (Total Kjeldahl + nitrate + nitrite)	In-house method SOP063 (FIA)	0.6 mg N/L
5	Ammonia	In-house method SOP057 (FIA)	0.05 mg NH ₃ -N/L
6	Total Phosphorus	In-house method SOP055 (FIA)	0.05 mg-P/L

Results:

Sample ID	Stream 1	Stream 2	Stream 3
Sampling Depth	S	S	S
Sample No.	28772-1	28772-2	28772-3
Total Suspended Solids (mg/L)	6	6	3
Biochemical Oxygen Demand (mg O ₂ /L)	4	8	4
Total Organic Carbon (mg-TOC/L)	12	16	8
Nitrogen (Total Kjeldahl + nitrate + nitrite) (mg N/L)	3.7	2.9	2.9
Ammonia (mg NH ₃ -N/L)	<0.05	0.07	0.16
Total Phosphorus (mg-P/L)	0.06	0.08	0.10

Remarks: 1) <= less than
2) S = Surface, M = Middle, B = Bottom
3) * Limit of Reporting is reported as Detection Limit

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

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

**APPENDIX L
SUMMARIES OF ENVIRONMENTAL
COMPLAINT, WARNING, SUMMON
AND NOTIFICATION OF SUCCESSFUL
PROSECUTION**

Appendix L - 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
1	7 th December 2016	Not Specified / construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	Air Quality & Noise	The complainant complained about the construction noise and dust near Yau Lai Estate. (EPD Reference No.: K15/RE/00032001-16)	Y	<p>According to information provided by the Contractor, powered Mechanical Equipment being operated for construction of Lam Tin Interchange on 7 and 9 December 2016 include breaker, dump truck, backhoes, drilling rig and small bulldozer. They were operated on and off with some idling time. It is considered that noise nuisance during the time of complaint was mainly due to high noise level emission during the use of breaker for rock breaking.</p> <p>The Contractors had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual to reduce construction dust and noise nuisance to the vicinity.</p>	Closed
2	9 th December 2016	Not Specified / construction of Lam Tin Interchange	Resident of Yau Lai Estate Block A Nga Lai House	Noise	The complainant complained about the construction noise near Yau Lai Estate. (EPD Reference No.: K15/RE/00032317-16)	Y	<p>According to the regular air quality monitoring conducted at Air Quality Monitoring Stations AM3, no Action or Limit Level Exceedance was recorded from 6 – 14 December 2016. Similarly, no Limit Level Exceedance was recorded at Noise Monitoring Station CM1, Station CM2 and Station CM3 from 6 – 16 December 2016. With the implementation of environmental mitigation measures by Contractor on site, it is considered that no adverse air quality and noise impact was brought to the nearby sensitive receivers by the works of this Project.</p>	Closed
3	9 th December 2016	Not Specified / Construction of Road P2	Sai Kung District Council Member Mr. Chan Kai Wai	Air Quality & Noise	The complainant complained about the noise nuisance during transportation of construction materials on haul road and dust generation during construction activities.	Y	<p>No construction activities were carried out for both construction of Road P2 and TKO portal during night time or at about 7am. Therefore, no construction noise nuisance were generated during night-time or at about 7am under this Project and it is considered that these noise nuisance is not project- related.</p> <p>The Contractors of this Project had implemented environmental mitigation measures for air quality, noise and visual impact (night-time lighting) in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual.</p>	Closed
4	20 th December 2016	Not Specified / Construction of Road P2	Resident of Ocean Shore	Noise	The complainant complained about the lighting and noise nuisance on construction vessels moored near Ocean Shores during night time.	Y	<p>The Contractors had taken the initiative to provide additional noise mitigation measures to works since the complaints were received</p>	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
5	22nd December 2016	21 Dec 2016 at night / Construction of TKO portal	Resident of Block 3, Ocean Shores	Noise	The complainant concerned the noise generated by the construction works at hillside near Block 3 of Ocean Shores in daytime.	Y	<p>including:</p> <ul style="list-style-type: none"> - Temporary noise barrier had been installed to reduce noise nuisance from piling works in construction of Road P2 Provision of noise enclosure to cover generators for reducing its noise nuisance in TKO portal; and - Provision of portable noise enclosures at breakers and generators to reduce noise emission from works in TKO portal <p>According to the regular air quality and noise monitoring for this Project, no Action or Limit Level Exceedance was recorded in December 2016. With the implementation of environmental mitigation measures by Contractors on site, it is considered that no adverse air quality and noise impact was brought to the nearby sensitive receivers by the works of this Project.</p> <p>According to the ET's ad-hoc site inspection during night-time, no unacceptable noise nuisance from this Project was heard. No strong light emission from all the construction vessels near Ocean Shores was observed yet minimum lighting for marine safety purpose was observed from the construction vessel and anchors.</p>	Closed
6	22nd December 2016	Not specified / Construction of TKO portal	Public	Noise	The complainant complained about the noise generated by the construction works at hillside in daytime.	Y		Closed
7	22nd December 2016	Not specified / Construction of Road P2	Resident from Ocean Shore	Noise	The complainant complained about the noise nuisance of broadcast on construction vessel near Ocean Shores at 7am and the noise generated by the construction works outside Tseung Kwan O Chinese Permanent Cemetery.	Y		Closed
8	22nd December 2016	Not specified / Construction of Road P2 and TKO portal	Resident from Ocean Shore	Noise	The complainant complained about the noise nuisance generated by construction works of Tseung Kwan O portal in daytime and noise nuisance of "loud speaker" on construction vessel near Ocean Shores.	Y		Closed
9	16 th December 2016	Not Specified / near Ocean Shores	DC member	Noise & (Light)	The complainant complained that they noticed about 2 work vessels were being used at 00:00-01:00 and also moored there overnight which caused light pollution and affecting the residents.	Y		<p>According to the findings of investigation, minimum lighting on the construction vessel was required for guard watching the works site. Adverse night-time light and noise nuisance from the marine works area near Ocean Shores as alleged by the complainant are considered not caused by this Project.</p> <p>The Contractor had continuously implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed</p>

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
10	17 th January 2017	5 January 2017 / near Ocean Shores	DC member	Noise & (Light)	The complainant complained that marine vessels were used at about 22:00 and around 01:00 on 5 Jan 2017, again causing noise and light nuisance to the residents.	Y	<p>Mitigation Measures” of EM&A Manual. To avoid strong light emission towards the sensitive receivers, night-time lighting is properly controlled by hooding all lights (except necessary lighting for safety purpose and guard watching);</p> <p>According to the ET’s ad-hoc site inspection during night-time, no unacceptable noise nuisance from this Project was heard. No strong light emission from all the construction vessels near Ocean Shores was observed yet minimum lighting for marine safety and guard watching purpose was observed from the construction vessel and anchors.</p> <p>The Contractor was recommended to continuously implement the following visual impact mitigation measures:</p> <ul style="list-style-type: none"> necessary lighting on construction vessels should be oriented as much as possible such that direct strong lighting towards the sensitive receivers is avoided. Strong lighting that may be in intermittent use should be shut down between works periods 	Closed
11	23 rd December 2016	Not Specified / near Cha Kwo Ling Tsuen	Cha Kwo Ling Tsuen	Water	The complainant complaint about the Soil/muddy water from construction site near Cha Kwo Ling Tsuen. (EPD Reference No.: K15/RE/00033951-16)	N	No construction works were being carried out on 23 rd December 2016 at Portion WA1, which is the site portion near Cha Kwo Ling Tsuen. Despite, it was recorded that some muddy water was flowing from the Contractor’s wheel washing facility to the gullies within the site boundary.	Closed
12	29 th December 2016	23 rd December 2016 / near Cha Kwo Ling Tsuen	Cha Kwo Ling Tsuen	Water	The complainant complaint that some muddy water flowing from the wheel washing facility to the gullies within the site boundary.	N	For complaint of muddy water on 23 rd December 2016, the Contractor has fixed the clear water hose for wheel washing on 24 th December 2016 early morning. During the recent weekly site inspections to Site Portion WA1, no muddy water was observed leaked out of the Site Boundary.	Closed
13	6 th January 2017	Not Specified / construction of Lam Tin Interchange	Resident of Yau Lai Estate Block A Nga Lai House	Noise	The complainant complained about the noise nuisance during rock breaking at the Eastern Harbour Crossing (EHC) portal and lack of noise mitigation measures during the works.	Y	<p>After investigation, it was found out that necessary rock breaking works by hydraulic or pneumatic breakers was conducted during excavation for tunnel adit at Lam Tin Interchange. Noise nuisance from the works area is considered due to the high noise level emission during use of hydraulic or pneumatic breakers.</p> <p>The Contractor had implemented environmental mitigation measures in</p>	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
14	6 th January 2017	Not Specified / Cha Kwo Ling Road	Resident of Yau Lai Estate	Noise	The complainant complained about the noise nuisance generated by the excavation works at Cha Kwo Ling Road on 6 January 2017 just after 7 a.m.	Y	accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual as below: <u>Air Quality</u> Use of frequent watering during construction of Lam Tin Interchange, including watering of eight times a day on active work area, exposed area and paved haul roads to mitigate air quality impacts to the nearby Air Sensitive Receivers (ASRs)	Closed
15	6 th January 2017	Not Specified / Construction site near Yau Lai Estate	Resident of Yau Lai Estate Bik Lai House	Air Quality & Noise	The complainant complained about the noise nuisance during the construction works near Yau Lai Estate at 7:15am. He requested to erect noise barriers and set up water spraying system to minimize the noise and air nuisances to the nearby residents.	Y	<u>Noise</u> <ul style="list-style-type: none"> ● Provision of portable noise enclosures to head of breakers to reduce noise emission during rock breaking works in Lam Tin Interchange; ● Provision of portable noise enclosures to reduce noise nuisance from drilling works and generator in Lam Tin Interchange; and ● Use of Quiet PME on-site including generator and hydraulic excavator. <p>The Contractor has taken the initiative to implement additional noise mitigation measures in order to further minimize noise nuisance to the nearby sensitive receivers, including the followings:</p> <ul style="list-style-type: none"> ● Provision and installation of additional temporary noise barrier during rock breaking works for construction of Lam Tin Interchange; ● Commencement time of daily construction works for construction of Lam Tin Interchange has been postponed from 7am to 8am each day. 	Closed
16	6 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate Cheuk Lai House	Noise	The complainant the construction noise generated from this Project (EPD Reference No.: K15/RE/00000564-17)	Y	<ul style="list-style-type: none"> ● Provision and installation of additional temporary noise barrier during rock breaking works for construction of Lam Tin Interchange; ● Commencement time of daily construction works for construction of Lam Tin Interchange has been postponed from 7am to 8am each day. 	Closed
17	6 th January 2017	Not Specified / Construction site near Yau Lai Estate	Resident of Yau Lai Estate Bik Lai House	Noise	The Yau Lai Estate Property Services Management Office mentioned that one of the resident of Yau Lai Estate had complained to Hong Kong Housing Authority (HKHA) about the noise generated by the construction works.	Y	According to the regular air quality and noise monitoring for this Project, no Action or Limit Level Exceedance was recorded from 16 December 2016 to 19 January 2017. With the implementation of environmental mitigation measures by Contractors on site, it is considered that no adverse air quality and noise impact was brought to the nearby sensitive receivers by the works of this Project.	Closed
18	10 th January 2017	Not Specified	Anonymous	Noise	The complainant the construction noise generated (EPD Reference No.: K15/RE/00000967-17)	Y	Nevertheless, the Contractor was recommended to continue to properly implement and strictly follow the air quality and noise mitigation measures as recommended in the Environmental Monitoring & Audit Manual and approved Noise Mitigation Plan to minimize environmental impact on the construction site.	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
19	12 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained the noise generated from rock breaking at Lam Tin Interchange. He requested concrete actions to improve the situation.	Y		Closed
20	12 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	Noise	The complainant complained the noise generated from rock breaking at Lam Tin Interchange.	Y		Closed
21	13 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	Noise	The complainant complained the construction noise generated at Lam Tin Interchange at 7am in the morning.	Y		Closed
22	13 th January 2017	Not Specified / Construction Works near Eastern Harbour Crossing tunnel portal	Anonymous	Noise	The complainant complained about the noise generated by the construction works near the toll plaza of the Eastern Harbour Crossing (EHC). The complainant complained again on 24 Jan 2017 and mentioned the noise problem still affected the daily life of residents	Y		Closed
23	16 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained the construction noise generated at Lam Tin Interchange at 7am in the morning.	Y		Closed
24	17 th January 2017	Not Specified / construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	Noise	The complainant complained the construction noise generated 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
25	26 th January 2017	Not Specified / Construction Works near Eastern Harbour Crossing tunnel portal	黃國健議員 及 何啟明議員	Noise	LC members referred complaints about the noise generated by the construction works near the EHC tunnel portal. They mentioned that the noise generated by the construction works had greatly affected the daily life of nearby residents, especially occupants of Block 5 of Yau Lai Estate and those who lived at the upper floors.	Y	<p>After investigation, it was found out that necessary rock breaking works by hydraulic or pneumatic breakers was conducted during excavation for tunnel adit at Lam Tin Interchange. Noise nuisance from the works area is considered due to the high noise level emission during use of hydraulic or pneumatic breakers.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual.</p> <p>The Contractor has taken the initiative to implement additional noise mitigation measures in order to further minimize noise nuisance to the nearby sensitive receivers, including the followings:</p> <ul style="list-style-type: none"> ➤ Provision and installation of additional temporary noise barrier during rock breaking works for construction of Lam Tin Interchange; ➤ Commencement time of daily construction works for construction of Lam Tin Interchange has been postponed from 7am to 8am each day. 	Closed
26	27 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	Noise	The complainant complained the construction noise generated at Lam Tin Interchange at 7am in the morning. (EPD Ref No. K15/RE/00002945-17)	Y	<p>According to information provided by the Contractor, powered Mechanical Equipment being operated on site during the time of complaint include breaker, dump truck, backhoes, drilling rig, mobile crane and small bulldozer. They were operated on and off with some idling time. It is considered that noise nuisance during the time of complaint was mainly due to high noise level emission during the use of breaker for rock breaking.</p>	Closed
27	9 th February 2017	Not Specified / construction of Lam Tin Interchange	Resident of Yat Lai House, Yau Lai Estate	Noise	The complainant complained about the noise nuisance during the construction works of Lam Tin Interchange at 8:10am. (EPD Reference No.: K15/RE/00003855-17)	Y	<p>In addition to the the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual, the Contractor has implemented the following additional noise mitigation measures since late including:</p> <ul style="list-style-type: none"> ● Provision and installation of additional temporary noise barrier during rock breaking works for construction of Lam Tin Interchange; ● Sound absorptive materials with 50mm thickness were hanged on 	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
28	13 th February 2017	Not Specified / construction of Lam Tin Interchange	Resident of Yat Lai House, Yau Lai Estate	Noise	The complainant complained about the noise nuisance during the construction works of Lam tin Interchange.	Y	<p>rock mountain wall as well as temporary noise barrier containers; and</p> <ul style="list-style-type: none"> ● Adoption of alternative rock breaking method such as partial rock breaking by rock splitter. <p>In addition, the Contractor has taken the initiative to explore measures to further reduce construction noise nuisance such as:</p> <ul style="list-style-type: none"> ● Installation of cantilever barrier on top of the containers; ● Installation of tuned mass dampers on breaker head; and ● Use of acoustic mat cover and a retractable noise barrier where feasible. <p>According to the regular noise monitoring no Limit Level Exceedance was recorded at Noise Monitoring Station CM1, Station CM2 and Station CM3 from 2 – 15 February 2017. With the implementation of environmental mitigation measures by Contractors on site, it is considered that no adverse air quality and noise impact was brought to the nearby sensitive receivers by the works of this Project.</p>	Closed
29	23 rd February 2017	18 Feb 2017 / Slope Works at Lei Yue Mun Road	Anonymous	Air Quality	The complainant complained about the dust generated by the slope works opposite to Lam Tin Ambulance Depot on 18 February 2017 afternoon. He mentioned that the dust greatly affected the pedestrian.	N	<p>The major source of construction dust nuisance was construction of a temporary storage area.</p> <p>As per investigation, the Contractor has provided environmental mitigation measures to prevent dust generation for the slope works. Water spray was prepared and provided next to the works for dust suppression during the use of handheld breaker.</p>	Closed
30	23 rd February 2017	Not Specified / BMCPC Footpath	Sai Kung District Council Member Mr. Chan Kai Wai	(Safety)	Mr. Chan complained that some of the excavated materials fell from the dump trucks on the BMCPC footpath affecting the safety of pedestrian and hikers.	N	<p>The major source of construction dust nuisance was formation of temporary site haul road.</p> <p>As per investigation, the following environmental mitigation measures are implemented by the Contractor:</p> <ul style="list-style-type: none"> ➤ Water truck was provided for dust suppression at least 8 times per day along the footpath within our site boundary; 	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
31	2 nd March 2017	Not Specified / Construction Works near BMCPCC Footpath	A resident of Ocean Shores	Air Quality	The complainant complained about the dust generated by the construction works near the existing BMCPCC footpath	N	<ul style="list-style-type: none"> ➤ Wheel washing were provided for all dump trucks once loaded; ➤ All the dump trucks were covered properly with a mechanical cover once loaded. ➤ The dump trucks were loaded in a specific area (off the footpath) near the formation works area. 	Closed
32	8 th March 2017	7 Mar 2017 / Slope works near Sin Fat Road Tennis Court	Public	Air Quality & Noise	The complainant complained the dust and noise generated by the slope works near Sin Fat Road Tennis Court	Y	<p>The major source of construction dust and noise nuisance was shotcreting of slope surface, and drilling for soil nail.</p> <p>As per investigation, the following environmental mitigation measures are implemented by the Contractor:</p> <ul style="list-style-type: none"> ➤ Tarpaulin sheets were provided along the slope adjacent to the tennis court during shotcreting; 	Closed
33	10 th March 2017	4 Mar 2017 / Slope works near Sin Fat Road Tennis Court	Anonymous	Air Quality	The complainant complained the dust generated by the slope works near Sin Fat Road Tennis Court.	N	<ul style="list-style-type: none"> ➤ After the complaint was received, the dust screen for tennis court has been enhanced immediately with additional tarpaulin along the fencing of tennis court; ➤ Additional acoustic sheets were also provided to minimize construction noise nuisance to users of the tennis courts; ➤ At the location of shotcreting / drilling of slope works, additional tarpaulin sheet was placed at source to minimize dust generation due to the works 	Closed
34	13 th March 2017	27 Feb – 12 Mar 2017 / Barging point in front of Ocean Shore	Public	Noise	The complainant complained about noise from the loading / unloading activities at the barging point in front of Ocean Shore for material delivery to the LT-TKO Tunnel work site during 3:00 am and 4:00am over the past 2 weeks.	Y	<p>According to information provided by the Contractors, no works, including any loading / unloading works, was carried out during the restricted hours at site area near Ocean Shores in early March 2017. The complaint is concluded to be non-Project related.</p> <p>The Engineer and the Environmental Team have reminded the contractor(s) not to carry out any works, especially loading/unloading activities near the Ocean Shores during restricted hours to minimize noise nuisance to the nearby residents.</p>	Closed
35	21 st March 2017	Not Specified / Construction Works near Cha Kwo Ling Village	茶果嶺鄉民聯誼會書記鍾先生	Water & Waste/Chemical Management	The complainant stated that villagers concerned about the waste water produced by car washing in construction site will flow into the sea/ existing drainage system directly	N	In accordance with the information provided by the Contractor of the Project, vehicle wheel washing near Cha Kwo Ling Village was carried out site access of Portion 1 and Portion WAI. At Portion 1, a 'WetSep' wastewater treatment system was installed to treat wastewater from vehicle washing washing. For Portion WAI, surface runoff collection system is also installed near the site access. Also, concrete sand bag bunds are provided near seafront of Portion WAI to prevent wastewater	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
					and requested the contractors to improve the situation.		<p>flowing into the sea.</p> <p>Despite, the Contractor was reminded to fully implement the relevant water quality mitigation measures according to the EM&A Manual on site. The Contractor was also recommended to provide training for all workers again to increase awareness of their environmental responsibilities and properly collect and treat all wastewater generated due to construction works.</p>	
36	25 th March 2017	Not Specified / Construction Works of TKO Portal	Public	Air Quality	The complainant complaint about the construction dust impact due to marine works and construction of tunnel of this Project.	N	<p>The major source of construction dust and noise nuisance was site formation works for TKO Portal and marine works for construction of temporary barging facilities</p> <p>As per investigation, the following environmental mitigation measures are implemented by the Contractor:</p> <ul style="list-style-type: none"> ➤ Provision of frequent watering including watering of eight times a day on active work area, exposed area and paved haul roads; ➤ Installation of automatic sprinklers for water spray to minimize dust generation; ➤ Shotcreting or hydroseeding to surface of TKO Portal site formation; ➤ Provision of wheel washing to vehicles out of site; ➤ Covering of dusty slope surface by impervious material such tarpaulin sheets. <p>During the weekly site inspections by the Environmental Team (ET), no deficiencies about exhaust gas or black smoke generation was observed from the Powered Mechanical Equipment (PME) on site of construction of TKO Portal. Air quality impact due to exhaust gas or black smoke emission from PME is considered insignificant from the Project.</p>	Closed
37	6 th April 2017	1 Apr 2017 / Slope works near Sin Fat Road Tennis Court	Public	Air Quality	The complainant complained the smell and dust generated by the slope works near Sin Fat Road Tennis Court on 1 April 2017. He suspected that the shotcrete may contain toxic substances and may affect the health.	N	See Investigation / Mitigation Action for Complaint No. 32 and 33.	Closed

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38	4 th May 2017	Not Specified / Construction site near Nga Lai House, Yau Lai Estate	Kwun Tong District Council Member Mr. Lai Shu Ho	Noise	The complainant complained about construction noise nuisance near Nga Lai House, Yau Lai Estate and lack of noise mitigation measures during construction works.	Y	<p>According to information provided by the Contractor, necessary rock breaking work was carried out in May 2017 by excavator-mounted breakers and drill rig at Portion IVC, which is in close vicinity of the complainant. Also, 2 nos. of excavator / drill rig were operated in May 2017 for excavation and drilling and rock hill. Noise nuisance concerned by the complainant is considered due to the high noise level emission during use of these Powered Mechanical Equipment (PME).</p> <p>The Contractors had implemented environmental mitigation measures on site according to the EM&A Manual to reduce air quality impact and noise nuisance to the vicinity. Weekly Environmental Site Inspection has been on-going in May 2017. Recommendations was made on site by the Engineer and the ET to increase the effectiveness of the noise mitigation measures.</p>	Closed
39	8 th May 2017	Not Specified / Construction site near Yau Lai Estate	Kwun Tong District Council Member Mr. Lai Shu Ho	Air Quality & Noise	The complainant complained about construction noise nuisance and air pollution generated by this Project.	Y	<p>According to the regular air quality monitoring conducted at Air Quality Monitoring Stations AM3, no Action or Limit Level Exceedance was recorded from 4, 10 and 16 May 2017. Similarly, no Limit Level Exceedance was recorded in May 2017 at Noise Monitoring Station CM1 and CM2. With the implementation of environmental mitigation measures by Contractors on site, it is considered that no adverse air quality and noise impact was brought to the nearby sensitive receivers by the works of this Project.</p>	Closed
40	9 th May 2017	Not Specified / Construction of Road P2 near Ocean Shores	Public	Noise	The complainant complained about noise and environmental nuisance resulting from the piling works.	Y	<p>Major construction activities near Ocean Shores in early May included sheetpiling works and pre-boring works for construction of Road P2. Powered Mechanical Equipments (PME) operated included drilling rigs and piling rigs (vibration hammer), which are considered to be the source of noise nuisance resulting from piling work.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual and the approved Noise Mitigation Plan. Movable temporary noise barrier is erected on ground in vicinity of the piling areas to reduce noise emission during piling works. Acoustic material are also hanged on the piling rigs to shield noise from the Powered Mechanical Equipment (PME) to nearby noise sensitive receivers.</p> <p>According to the regular noise monitoring conducted at Noise Monitoring Stations CM6(A) and CM7(A), no Limit Level Exceedance was recorded from 1- 14 May 2017. With the implementation of</p>	Closed

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							environmental mitigation measures by Contractors on site, it is considered that no adverse noise impact was brought to the nearby sensitive receivers by the works of this Project.	
41	10 th May 2017	Not Specified / Construction of Road P2 near Ocean Shores	Public	Noise	The complainant complained about noise nuisance from the use of the generators until midnight.	Y	During evening time, two generators were operated between 7pm - 11pm for site office use only. No generators were used until midnight according to the Contractor. Additional temporary noise barrier is installed by the Contractor to screen noise due to use of generators during evening time	Closed
42	10 th May 2017	Not Specified / Slope works near Sin Fat Road Tennis Court	Public	Air Quality	The complainant complained about the generation of construction dust from this Project	N	See Investigation / Mitigation Action for Complaint No. 32 and 33.	Closed
43	15 th May 2017	Not Specified / Construction site at Lei Yue Mun Road	Kwun Tong District Council Member Mr. Lai Shu Ho	Noise	The complainant complained about construction noise nuisance during construction works at work site at Lei Yue Mun Road.	Y	See Investigation / Mitigation Action for Complaint No. 38 and 39.	Closed
44	16 th May 2017	Not Specified / Construction site near Nga Lai House, Yau Lai Estate	Public	Noise	The complainant complained about construction noise nuisance during construction works at work site near Nga Lai House, Yau Lai Estate from 8 am to 7 pm.	Y	See Investigation / Mitigation Action for Complaint No. 38 and 39.	Closed
45	17 th May 2017	3 rd May 2017 / Marine Works Area in TKO Side	Public	Noise	The complainant complained about the noisy ongoing construction works on a public holiday.	Y	No marine works was carried out under Contract No. NE/2015/01 on public holidays on 30 April, 1 May and 3 May 2017. While marine construction works was carried out on public holiday under Contract No. NE/2015/02 on 3 May 2017 between 9am to 5pm. One derrick barge was operated for the marine works during this period.no violation of CNP (No. GW-RE0317-17) conditions is observed during the time of complaint. The Engineer and the Environmental Team have reminded the contractor(s) to minimize construction works during public holidays or restricted hours to minimize noise nuisance 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
46	25 th May 2017	Not Specified / Construction site near Tin Hau Temple	茶果嶺鄉民聯誼會主席羅悅屏	Noise	The complainant complaint about the noisy rock breaking works near Tin Hau Temple and poor efficiency of vehicle wheel washing on site.	Y	<p>According to information provided by the Contractor of the Project, excavation and rock breaking by 1 no. of excavator/excavator-mounted breaker was carried out intermittently during daytime of the time of complaint near Tin Hau Temple. The tip of the breaker is wrapped with acoustic blanket and followed by erection of noise barrier.</p> <p>A wheel washing bay had been installed at the site entrance on Cha Kwo Ling Road to construction of Lam Tin Interchange. A 'WetSep' wastewater treatment system was installed to treat wastewater from vehicle washing washing.</p> <p>The Contractor was reminded to fully implement on site the relevant noise and water quality mitigation measures according to the EM&A Manual and the approved Noise Mitigation Plan.</p>	Closed
47	27 th May 2017	Not Specified / Construction site at Lei Yue Mun Road	Public	Noise	The complainant complained about construction noise nuisance during construction works at work site at Lei Yue Mun Road.	Y	See Investigation / Mitigation Action for Complaint No. 38 and 39.	Closed
48	1 st June 2017	Not Specified / Construction site near Yung Lai House, Yau Lai Estate	Public	Noise	The complainant complained about construction dust and noise nuisance during construction works at work site near Yung Lai House, Yau Lai Estate (EPD Reference No.: K15/RE/00016902-17)	Y	<p>According to the information provided by the Contractor, the major construction activities performed in June and mid-July included excavation and drilling in Portion IVC near Lei Yue Mun Road, excavation and rock breaking at Lam Tin Interchange and rock breaking next to Yau Tong Site Office.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as below:</p> <p><u>Air Quality:</u></p> <ul style="list-style-type: none"> Water spraying was provided during breaking works at Portion IVC, slope G of Lam Tin Interchange and works area near Yau Tong Site Office to minimize dust generation due to the works. <p><u>Noise:</u></p> <ul style="list-style-type: none"> Operating PMEs at Portion IVC, slope G of Lam Tin Interchange and works area near Yau Tong Site Office were on and off with idling time. Excavator-mounted breakers were mounted with acoustic sheets. Noise barriers were erected during the breaking works at Portion IV, 	Closed

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							slope G of Lam Tin Interchange and works area near Yau Tong Site Office to minimize construction noise nuisance. 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.	
49	7 th June 2017	7 th June 2017 / Construction site near Sin Fat Road Tennis Courts	Correspondent of Sin Fat Road Tennis Courts	Air Quality	The complainant complained about construction dust nuisance near the tennis courts.	N	In accordance with the information provided by the Contractor of the Project, the major construction activities at the location of complaints were shotcreting of slope surface and drilling for soil nail near Sin Fat Road Tennis Court. The Contractor immediately stopped the shotcreting works adjacent to the tennis courts upon the complaint, and re-schedule the works such that the shotcreting works near the tennis court are performed only when the tennis courts are not in use. The Contractor also cleared the dust brought by the construction in the tennis courts on the same day of the complaint. the Contractor was reminded to fully implement the relevant air quality mitigation measures according to the EM&A Manual on site.	Closed
50	8 th June 2017	30 th May 2017 / marine works area inside the cofferdam installed under the Project	Sai Kung District Council Member Mr. Chan Kai Wai	Noise	The complainant complained about marine construction work being carried out on 30 May 2017 (a public holiday) within the reclamation area near Ocean Shore under this Project (EPD Reference No.: N08/RE/019540-17)	Y	According to information provided by the Contractor and confirmation by the Engineer, no marine construction activities were conducted on public holiday on 30th May 2017 within the cofferdams installed in the reclamation area under this Project. The complaint on 30th May 2017 therefore considered to be non-Project related.	Closed
51	15 th June 2017	Not Specified / Construction site near Nga Lai House, Yau Lai Estate	Public	Air Quality & Noise	The complainant complained about construction dust and noise nuisance during construction works at work site near Nga Lai House, Yau Lai Estate. (EPD Reference No.: K15/RE/00018656-17)	Y	See Investigation / Mitigation Action for Complaint No. 48.	Closed
52	21 st June 2017	Not Specified / Construction	Public	Noise	The complainant complained about construction noise	Y	See Investigation / Mitigation Action for Complaint No. 48.	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
		site near Yau Lai Estate			nuisance from work site near Yau Lai Estate.			
53	24 th June 2017	24 th June 2017 / land-based works area near Ocean Shores	Resident of Ocean Shores	Noise	The complainant complained about construction noise nuisance from land-based works area near Ocean Shores	Y	<p>According to the information provided by the Contractor, the major construction activities during the time of complaint includes breaking of hard material.</p> <p>Upon received of the complaint, the Contractor has taken the initiative to minimize construction noise nuisance by erecting temporary noise barrier during rock breaking works.</p> <p>Nonetheless, the Contractor was recommended to implement and strictly follow the noise mitigation measures as recommended in the EM&A Manual and Noise Mitigation Plan in order to reduce construction noise impact on site.</p>	Closed
54	26 th June 2017	26 th June 2017 / marine works area near Ocean Shores	Public	Waste/ Chemical Management	The complainant complained about oil spill on sea near marine works site near Ocean Shores	N	<p>According to the information provided by the Contractor, marine works were conducted on 26 June 2017, including lifting operation for the concrete block from water gate to derrick barge. 3 derrick barges and 3 sampan were in operation for the marine works.</p> <p>According to records of the Contractor, no report of oil spill from the derrick barges was received from the site foremen. Oil spillage was not found in the afternoon on 26 June 2017. Therefore, the complaint is considered to be non-Project related.</p>	Closed
55	27 th June 2017	25 th June 2017/ marine works area near Ocean Shores	Sai Kung District Council Member Mr. Chan Kai Wai	Noise	The complainant complained about marine construction work being carried out on public holidays within the marine works area near Ocean Shore under this Project	Y	<p>Minor marine construction activities was conducted on public holiday 25th June 2017 within the reclamation area under this Project. Removal of damaged parts of steel cofferdam, which are damaged under adverse weather conditions in June 2017.</p> <p>The Engineer and the Environmental Team reminded the Contractor(s) not to conduct any works near Ocean Shores during public holidays (including Sundays) to avoid noise nuisance to the nearby residents. Also, no use of PME will be allowed for general holidays (including Sundays) at marine works area under this Contract according to the latest CNP granted to the Contractor.</p>	Closed
56	6 th July 2017	Not Specified / Construction site near Yau Lai Site Office	Resident of Yat Lai House, Yau Lai Estate	Noise	The complainant complained about construction noise nuisance from work site near Yau Tong Site Office.	Y	See Investigation / Mitigation Action for Complaint No. 48.	Closed

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57	14 th July 2017	Not Specified / Construction sites near Cha Kwo Ling Road	Kwun Tong District Council Member Mr. Mok Kin Shing	Air Quality	The complainant complained about construction dust nuisance due to works and vehicles on Cha Kwo Ling Road	N	<p>The Contractor had implemented the following to reduce dust nuisance caused by construction vehicles on Cha Kwo Ling Road:</p> <ul style="list-style-type: none"> ➤ Mobilize water trucks to perform water spraying along Cha Kwo Ling Road to suppress dust generation due to movement of vehicles ➤ Dispatch workers to clear dust near vehicle exits from the construction site on Cha Kwo Ling Road. ➤ Performing frequent water spraying by water trucks on Cha Kwo Ling Road; ➤ Frequent clearance of dust near site exits on Cha Kwo Ling Road; ➤ Provision of wheel washing for site vehicles at paved site exits to reduce vehicle tracking of soil on Cha Kwo Ling Road; <p>Despite, the Contractor was reminded to fully implement the relevant air quality mitigation measures according to the EM&A Manual on site, including:</p> <ul style="list-style-type: none"> ➤ Maintenance of wheel washing machines on a regular basis to ensure sand and silt settled out in wash-water; ➤ Reminding all site vehicles to perform wheel washing before leaving the site; and ➤ To ensure materials on construction trucks are covered by impervious materials before leaving the site to prevent fugitive emission. 	Closed
58	18 th July 2017	Not Specified / Construction sites near Yau Lai Estate	Yau Lai Estate Property Services Management Office	Noise	The complainant complained about construction noise nuisance from work site near Yau Lai Estate.	Y	See Investigation / Mitigation Action for Complaint No. 48.	Closed
59	2 nd August 2017	2 nd August 2017 / construction site under this Project in Tseung Kwan O	Drainage Services Department	Water Quality	<p>Muddy flow was noted in Tseung Kwan O DSD desilting compound.</p> <p>Muddy discharge should be flow down along the western one / two cell(s) of the DSD box culvert</p>	N	According to information provided by the Contractor, no discharge of muddy water was reported and wastewater treatment system were functioned properly on the day of event. No muddy effluent discharge was recorded from the weekly site inspection reports in July. The site effluent was appeared visually acceptable in reference to the results of daily visual checking by the Contractor and the weekly site inspection	Closed

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					<p>underneath the desilting compound.</p> <p>The complainant suspected that TKO-LT Tunnel project should be the major construction site discharging into the cell(s).</p>		<p>conducted on 3rd August, 2017.</p> <p>The Contractor has taken initiatives to ensure the quality of the wastewater discharge from the construction site as followed:</p> <ul style="list-style-type: none"> ➤ Temporary drainage system were developed on site and number of sub-drains were distributed within the site area to divert wastewater and allow longer settling time for surface runoff prior to further treatment before discharging ➤ Daily visual checking was conducted to check the physical appearance of treated effluent and to ensure proper performance of the wastewater treatment system. ➤ Manholes were adequately covered and temporarily sealed to prevent silt, construction materials or debris being washed into the drainage system ➤ Apart from visual checking, inspection of effluent was provided by the Contractor on rainy days to make sure the quality of treated wastewater discharge is in compliance of the discharge license requirements. <p>It is considered that the wastewater generated from the construction activities of the Project was collected and treated properly before discharging to the designated discharge point on 2nd August, 2017. As the same discharge point is shared by other box culverts, it is considered that the source of silty discharge at location of complaint was runoff or effluent collected from other upstream sources such as that collected by drainage systems in Tseung Kwan O town centre and other construction sites in vicinity.</p>	
60	2 nd August 2017	Not Specified / construction site at Lei Yun Mun Road	Anonymous	Landscape and Visual Impact	The complainant complained the long tree branches and weeds and request proper trimming.	N	<p>According to the information provided by the Contractor, clearance of weeds adjacent to Lam Tin Ambulance Depot and pruning of overgrown trees within the Site area have been undertaken by the Contractor.</p> <p>Upon received of the complaint, the Contractor has taken the initiative to remove weeds adjacent to Lam Tin Ambulance Depot. In addition, the Contractor has performed pruning of excess branches of trees on Lei Yue Mun Road and established fencing of tree protection zones for</p>	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
							existing trees.	
61	11 th August 2017	Not Specified / construction site in Green Cross-hatched Black Area near Ocean Shores	Sai Kung District Council Member Mr. Chan Kai Wai	Landscape and Visual Impact	The complainant complained the poor health and condition of trees and lack of tree protection facility.	N	Based on the information gather in the investigation, it is considered that retained trees adjacent to the construction area of Portion IV are carefully managed and properly fenced off within the tree protection zone. No heavy vehicles or equipment stationed in the vicinity of retained tree and tree protection zone are observed free from storage and dumping. Tree Survey and Tree Assessment Reports are conducted by qualified Arborist (ISA Certified Arborist) to monitor the performance of the retained trees throughout the construction period. Advance tree survey works were done and consent was granted from the Engineer for the removal of defective trees.	Closed
62	11 th August 2017	9 th August 2017 / construction site in Green Cross-hatched Black Area near Ocean Shores	Sai Kung District Council Member Mr. Chan Kai Wai	Landscape and Visual Impact	The complainant complained the poor health and condition of trees; and that they were felled.	N		
63	11 th August 2017	Not Specified / construction site near Ocean Shores near the BMCPC footpath	Sai Kung District Council Member Mr. Chan Kai Wai	Landscape and Visual Impact	The complainant complained that trees within the Project Site were felled.	N		
64	14 th August 2017	Not Specified / construction site near Ocean Shores near the BMCPC footpath	Sai Kung District Council Member Mr. Chan Kai Wai	Landscape and Visual Impact	The complainant complained that trees within the Project Site were felled.	N		
65	15 th August 2017	15 th August 2017 / marine works site at TKO side	Sai Kung District Council Member Mr. Chan Kai Wai	Water Quality	Muddy discharge from the marine works site (near the Type 2 cofferdam) at TKO side occurred in the morning.	N	It is considered that the muddy discharge was caused by the overflowing of coarse material within the steel tank and the sediment being disturbed by the cofferdam during the reinstatement of the position of steel tank. The Contractor did not stop the works immediately and which contributed to the large spreading area of sediment. The Contractor did not provide proper deployment of the silt curtain system to stop the muddy discharge generated from the abovementioned work to the surrounding water. The Contractor is advised to implement the following measures to	Closed

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							avoid/ minimize the generation of muddy discharge from marine works: 1. Marine works should be stopped immediately when the silt curtain system is found malfunctioned or when sediment dispersion is observed. 2. Deterioration of cofferdam or silt curtain, as the mitigation measures to water quality, should be repaired immediately or at a reasonable time. 3. Cofferdams should be designed and installed properly in order to withstand any conceivable adverse weather conditions and precautions measure should be taken in advance particularly during typhoon season. 4. Materials with high silt content should be avoided to use as filling materials in the steel tanks for cofferdams. They should be replaced with materials with minimal silt content, such as pebbles, rocks and etc. to reduce pollution to the marine environment when spill over. 5. The steel tanks filled with finer aggregate materials should be securely covered or locked in the tank, so that no materials will be spilled over the sea. 6. Silt curtain should be deployed properly before commencement of works. 7. Regular inspection should be performed to examine the integrity of the cofferdam and performance of silt curtains.	
66	17 th August 2017	Not Specified / construction site at Lei Yun Mun Road	Anonymous	Landscape and Visual Impact	The complainant complained the long tree branches and lack of tree protection facilities on site.	N	See Investigation / Mitigation Action for Complaint No. 60.	Closed
67	1 st September 2017	Not Specified / near Eastern Harbour Crossing	Anonymous	Landscape and Visual Impact	The complainant complained poor tree health and lack of tree protection facilities on site.	N	According to the information provided by the Contractor and confirmed by the Engineer, the Contractor had implemented environmental mitigation measures on site as confirmed by the Engineer to minimize the deterioration of existing landscape and visual quality by construction works under this Contract. The Contractor was reminded to provide proper tree management and adequate tree protection measures toward retained trees on site, including the measures 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
							<ul style="list-style-type: none"> • Regular site inspection shall be conducted to verify whether all tree protection measures are in place during construction work; • Temporary protective fencing shall be well-maintained to ensure the integrity of the tree protection zone; • No materials or machinery shall be stored or placed within the area of a tree's crown to avoid soil compaction or pollution; and • Any foreseeable damage to trees and fencings shall be reported and rectified as soon as practicable. 	
68	4 th September 2017	Not Specified / Construction site near Sin Fat Road Tennis Courts	Public	Air Quality	The complainant complained the construction dust and odour nuisance	N	<p>According to the information provided by the Contractor, the major construction activities during the time of complaint included excavation, rock breaking.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as below:</p> <ul style="list-style-type: none"> ➤ Breaking works were provided with water spraying to reduce fugitive emission; ➤ Tarpaulin sheets were provided along Sin Fat Road Tennis Court; ➤ Frequent water spraying on unpaved area and haul roads at Lam Tin Interchange; ➤ Wheel washing facility at exits of Lam Tin Interchange to prevent mud trailing of vehicles and dust generation. <p>According to the regular air quality monitoring, no Action or Limit Level Exceedance was recorded at Air Quality Monitoring Station AM2 and AM3 in September 2017. With the implementation of environmental mitigation measures by Contractors on site, it is considered that no adverse air quality impact was brought to the nearby sensitive receivers by the works of this Project.</p> <p>The following recommendations were given by the ET to further enhance effectiveness of the mitigation measures:</p> <ul style="list-style-type: none"> ➤ To provide a hard-surfaced road between any cleaning facility and the public road ➤ To treat exposed earth by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen or other suitable surface stabilizer within six months after the last construction activity within the site; ➤ Where practicable, to provide sheltered area on the top and three sides for stockpiles of dusty materials, or perform frequent water 	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
							spraying so as to maintain the entire surface wet.	
69	5 th September 2017	Not Specified / near Eastern Harbour Crossing	Anonymous	Landscape and Visual Impact	The complainant complained poor tree health and lack of tree protection facilities on site.	N	See Investigation / Mitigation Action for Complaint No. 67.	Closed
	19 th September 2017	Not Specified / near Eastern Harbour Crossing	Anonymous	Landscape and Visual Impact	The complainant complained poor tree health and lack of tree protection facilities on site.	N		
70	9 th September 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Ping Tin Estate	Noise	The complainant complained daytime noise nuisance that commenced early in the morning	Y	<p>According to the information provided by the Contractor, the major construction activities at the location of complaint recorded included excavation, rock breaking and drilling during September 2017.</p> <p>Operated PME during the time of complaints are consistent with the proposed quantities in the latest Construction Noise Assessment.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual as below:</p> <ul style="list-style-type: none"> ➤ Erected noise barriers with acoustic mats facing Ping Tin Estate and along breaking works at Portion IVc; ➤ Powered mechanical equipment (PME) for rock breaking were equipped with TMD and SilentMat. 	Closed
	22 nd September 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Ping Tin Estate	Noise	The complainant complained daytime construction noise nuisance.	Y	<p>According to the regular noise monitoring, no Limit Level Exceedance was recorded at Noise Monitoring Station CM1, Station CM2 and Station CM3 in September 2017. With the implementation of environmental mitigation measures by Contractors on site, it is considered that no adverse noise impact was brought to the nearby sensitive receivers by the works of this Project.</p> <p>The following recommendations were given by the ET to further enhance effectiveness of the mitigation measures:</p> <ul style="list-style-type: none"> ➤ Frequent checking and repair the gaps or broken tarpaulin sheets and acoustic sheets; ➤ To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; ➤ To continue to properly implement noise mitigation measures as 	

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							<p>recommended in the Environmental Monitoring & Audit Manual and approved Noise Mitigation Plan;</p> <ul style="list-style-type: none"> ➤ To continue to strictly follow the requirements in the approved Noise Mitigation Plan; and ➤ To reschedule operation time and reduce operation duration of each PME. 	
71	11 th September 2017	3 rd September 2017 / Construction of Lam Tin Interchange	Anonymous	Noise	The complainant complained the noise nuisance during night time blasting works at the Lam Tin Interchange	Y	<p>The Contractor had taken the initiative to implement environmental mitigation measures specified to blasting as below:</p> <ul style="list-style-type: none"> ➤ Installed steel-type blasting door mounted with sound absorptive lining to absorb noise from blasting in the tunnel; ➤ Ensured blasting doors were fully closed when blasting works were undertaken ➤ Erected noise barriers with TMD and SilentMAT adjacent to blasting door facing Yau Lai Estate ➤ Placed acoustic materials on slopes adjacent to blasting door 	Closed
	21 st September 2017	19 th September 2017 / Construction of Lam Tin Interchange	Anonymous	Noise	The complainant complained the noise nuisance during night time blasting works at the Lam Tin Interchange	Y	<p>With the implementation of environmental mitigation measures by Contractors on site, it is considered that blasting noise impact to the nearby sensitive receivers has been brought to a minimum.</p>	
72	11 th September 2017	Not Specified / Construction of Tseung Kwan O Portal	Resident of Ocean Shores	Air Quality	The complainant complained the construction dust nuisance	N	<p>According to the information provided by the Contractor, the major construction activities at the location of complaint recorded included breaking works and shotcreting works from 0830 hrs to 1800 hrs during early September 2017.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual as below:</p>	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
	12 th September 2017	Not Specified / Construction of Tseung Kwan O Portal	Resident of Ocean Shores	Air Quality	The complainant complained the construction dust nuisance	N	<ul style="list-style-type: none"> ➤ Water spraying on unpaved or exposed area for dust suppression; ➤ Breaking of rocks was provided with water spraying to reduce fugitive emission; ➤ Automatic water sprinklers were provided and in operation; ➤ Manual water spraying was provided to haul roads to reduce dust generation due to movement of construction vehicles; ➤ Tarpaulin sheets were erected along the access road to reduce dust nuisance to pedestrians. 	
73	12 th September 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Nga Lai House, Yau Lai Estate	Air Quality / Noise	The complainant complained the construction dust and noise nuisance from works	Y	See Investigation / Mitigation Action for Complaint No. 68 and 70.	Closed
74	15 th September 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Laguna City	Noise	The complainant complained the construction noise nuisance from works	Y	See Investigation / Mitigation Action for Complaint No. 70.	Closed
75	18 th September 2017	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 LamTin Interchange	Y	See Investigation / Mitigation Action for Complaint No. 71.	Closed
76	21 st September 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yung Lai House, Yau Lai Estate	Noise	The complainant complained about the construction noise nuisance from the construction of Lam Tin Interchange and tunnel blasting at nights. He also stated there were construction works near Lam Tin Interchange on public holidays.	Y	See Investigation / Mitigation Action for Complaint No. 70 and 71.	Closed
77	26 th September 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Cheuk Lai House, Yau Lai Estate	Noise	The complainant complained about the night time construction noise nuisance	Y	See Investigation / Mitigation Action for Complaint No. 70.	Closed
78	26 th September	Not Specified / Construction	Resident of Laguna City	Noise	The complainant complained the blasting	Y	See Investigation / Mitigation Action for Complaint No. 71.	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
	2017	of Lam Tin Interchange			noise nuisance during works at the Lam Tin Interchange			
79	27 th September 2017	17 th , 20 th , 23 rd September 2017 / Construction of Lam Tin Interchange	Public	Noise	The complainant complained about the construction noise nuisance due to road works near Lam Tin Interchange.	Y	See Investigation / Mitigation Action for Complaint No. 70.	Closed
80	28 th September 2017	Not Specified / Construction of Lam Tin Interchange	Property Management Office of Laguna City	Noise	The complainant complained the noise nuisance during night time blasting works at the LamTin Interchange	Y	See Investigation / Mitigation Action for Complaint No. 71.	Closed
81	3 rd October 2017	30 th September 2017 / Construction of Road P2	Sai Kung District Council Member Mr. Chan Kai Wai	Noise	The complainant complained that construction works starts too early between 8-9 am on 30 September 2017 (Saturday).	Y	<p>As confirmed by the Engineer, construction work including excavation work was carried out on the morning of 30 September 2017. One unit of backhoe was in operation during the time of complaint for such work in Portion VIII. The operated powered mechanical equipment (backhoe) was considered as the source of noise nuisance resulting from such work.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual and the approved Noise Mitigation Plan to reduce noise nuisance brought to nearby noise sensitive receivers as follows:</p> <p>Additional acoustic mat was hung closely to the powered mechanical equipment to minimize noise impact to the nearby sensitive receivers</p> <p>In addition, other good site practices recommended in the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual and the approved Noise Mitigation Plan of this Contract had been implemented by the Contractor, including the following:</p> <ul style="list-style-type: none"> • 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 as possible from noise sensitive receivers; • Machines and plants that may be in intermittent use should be shut down between works periods or should be throttled down to minimum; 	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
							and <ul style="list-style-type: none"> Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby noise sensitive receivers. 	
82	3 rd October 2017	Not Specified / CRE Site Office	Anonymous	Landscape and Visual Impact	The complainant complained the long tree branches and weeds and lack of tree protection facilities.	N	See Investigation / Mitigation Action for Complaint No. 67.	Closed
83	6 th October 2017	6 th October 2017 / Construction of TKO Portal	Public	Waste Management	The complainant complained that construction waste was disposed on slope near O King Road.	N	In accordance with the information provided by the Contractor of the Project and confirmed by the AECOM (hereinafter called “the Engineer”), the major construction activities undertaken at the location of complaint included breaking works in early October 2017. Inert C&D including concrete debris, rubble and sand were the major types of waste derived from the abovementioned works activity in October 2017. The Contractor has immediately removed the concerned construction waste in the vicinity of O King Road. In addition, the Contractor has taken initiatives to maintain the environmental conditions in the works area as shown below: <ul style="list-style-type: none"> Provided waste skips at Portion 6 for collection of construction waste; Provided recycle bins for sorting and recycling of general refuse generated by workforce; Placed more enclosed rubbish bins to reduce the occurrence of ‘windblown’ light general refuse; and Removed C&D waste from the site by a reputable waste collector on a regular basis. 	Closed
84	17 th October 2017	17 th October 2017 / Marine Works Area for Road P2	Public	Water Quality	The complainant concerns marine water pollution in Tseung Kwan O on 17 Oct 2017, which might due to construction activities of this Project.	N	Based on the information gathered in the investigation, it is considered that muddy water recorded by the complainant was not caused by the construction activities (land-based and marine-based) carried out during the time of complaint. Also, wastewater generated from the construction activities of the Project was collected and treated properly before discharging as the site effluent was appeared visually acceptable and the wastewater treatment systems were preformed properly. As the location of the muddy water was appeared adjoining the Tseung	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
							<p>Kwan O DSD Desilting Compound, a high volume of upstream discharge collected from rain events (3-4 am of 17 October 2017) is a possible cause of muddy water.</p> <p>Based on the above observations and findings, this complaint is considered to be non-Project related.</p>	
85	18 th October 2017	Not Specified / Construction of Lam Tin Interchange	Public	Noise	The complainant complained about the noise nuisance due to construction of Lam Tin Interchange	Y	<p>According to the Engineer's Site Diaries, the major construction activities performed in October 2017 and early November 2017 included rock breaking and excavation at Lam Tin Interchange and Portion IVC near Lei Yue Mun Road.</p> <p>In addition to 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:</p> <ul style="list-style-type: none"> ● 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; ● 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; and ● Plants known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSR ● Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	Closed
86	25 th October 2017	24 th October 2017 / Construction of Lam Tin Interchange	Public	Air & Noise	The complainant complained about the noise nuisance due to blasting works at nighttime and request water spraying on breakers.	Y	<p>The Contractor had implemented environmental mitigation measures to minimize the noise nuisance to the nearby noise sensitive receivers:</p> <ul style="list-style-type: none"> • Ensured blasting doors were fully closed when blasting works were undertaken • Installed steel-type blasting door mounted with sound absorptive lining to absorb noise from blasting in the tunnel • Erected noise barriers with TMD and SilentMAT adjacent to blasting door facing Yau Lai Estate • Placed acoustic materials on slopes adjacent to blasting door <p>The following recommendations were made to further enhance the</p>	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
							<p>mitigation measures</p> <ul style="list-style-type: none"> • To frequently check and maintain the acoustic materials on slopes, absorptive lining adhered on blasting doors on a regular basis; • To ensure no gaps between noise barriers adjacent to the blasting doors <p>For air quality impact during the use of breakers, the Contractor has provided breaking works with water spraying to reduce fugitive emission</p>	
87	26 th October 2017	23 th October 2017 / Construction of marine works outside Ocean Shores	Public	Noise	The complainant complaint about noise nuisance which may due to construction of marine work outside Ocean Shores at nighttime.	Y	<p>According to the site diaries provided by the Engineer, marine construction works carried out near the Ocean Shores on 23 October 2017 and 1 November 2017 included the reinstatement of cofferdams. One unit of derrick lighter was in operation on both days. The working period of the remedial works for cofferdam were between 0800 – 2100 hours on 23 October 2017 and 0800 – 2030 hours on 1 November 2017.</p> <p>As confirmed by the Engineer, the marine works on 1 November 2017 were stopped at 2030 hours. Potential marine traffic noise from the movement of nearby vessels might have contributed to the noise after 2030 hours on 1 November 2017.</p> <p>The Contractor had covered noise source on the barge with acoustic materials to minimize the noise nuisance from marine works to the nearby noise sensitive receivers during night time. The following recommendations were made to further enhance the mitigation measures</p> <ul style="list-style-type: none"> ● To frequently check and maintain the acoustic materials on a regular basis; ● To ensure no visible gaps between units of noise barriers for effective noise shielding; ● To schedule site operations in such a way to avoid working in the sensitive hour as far as practicable; ● For unavoidable night works with a CNP, carefully schedule noisy works at locations close to any sensitive receiver so as to reduce noise disturbance. 	Closed
88	27 th , 30 th October 2017 / 6 th	Not Specified / Construction of Lam Tin	Resident of Bik Lai House, Yau	Noise	The complainant complained about noise nuisance as it is observed	Y	<p>For blasting works at night, see Investigation / Mitigation Action for Complaint No. 86.</p> <p>For construction noise impacts due to use of breakers, the Contractor</p>	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
	November 2017	Interchange	Lai Estate		that no acoustic materials are provided to breaker. She also complained about the noise nuisance due to blasting works at nights. (EPD Reference No.: K15/RE/00035946-17)		has implemented the following to minimize the impacts: <ul style="list-style-type: none"> Powered mechanical equipment (PME) for rock breaking were equipped with TMD and SilentMat at Slope H in Lam Tin Interchange; Erected movable cantilevered noise barriers next to breaking works at Portion IVC 	
89	1 st November 2017	Not Specified / Construction of marine works outside Ocean Shores	Resident of Ocean Shore	Noise & Light	The complainant complained about the lighting and noise nuisance on construction vessels near Ocean Shores.	Y	<p>According to the Engineer's Site Diaries, the major construction activities performed including Reinstatement of Type 2 Cofferdam. One unit of derrick barge was in operation for such works from 0800 – 2030 hours on 1 November 2017. Therefore, no violation of CNP is found.</p> <p>The Contractor had implemented environmental mitigation measures to minimize the nuisance from marine works to the nearby noise sensitive receivers during night time as follows:</p> <ul style="list-style-type: none"> Noise source on the barge was covered with acoustic materials; To avoid strong light emission towards the sensitive receivers, night-time lighting was properly controlled by hooding all lights (except necessary lighting for safety and guard watching purpose). 	Closed
90	2 nd November 2017	1 st November 2017 night-time / Portion IX outside Tower 1, Ocean Shore	Public	Noise	The complainant complained about the construction noise nuisance due to the marine works at night. He claimed that the noise lasted until 8:50 pm.	Y	See Investigation / Mitigation Action for Complaint No. 87.	Closed
91	13 th November 2017	Not Specified / Lam Tin Interchange	Resident of Ping Tin Estate	Noise	The complainant complained about the noise nuisance due to construction works at Lam Tin Interchange at about 7 am.	Y	<p>According to the Engineer's Site Diaries, the major construction activities performed in November 2017 included drilling and excavation at Lam Tin Interchange and Portion IVC near Lei Yue Mun Road. Also, night time construction works including Mucking out of spoil after blasting works was carried out during 21 – 23 November 2017 (0400-0500 hours).</p> <p>According to Construction Noise Assessment of this Contract, operated PME during the time of complaints are consistent with the proposed quantities in the latest Construction Noise Assessment. Also, no violation of CNP (No. GW-RE0838-17) conditions was observed during the time</p>	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
92	14 th November 2017	Not Specified / Lam Tin Interchange	Resident of Hong Nga Court	Noise	The complainant complained about the noise nuisance due to construction works at Lam Tin Interchange. He requested to erect noise barriers and used low noise construction equipment to minimize the noise nuisances to the nearby residents.	Y	<p>of complaint.</p> <p>The following had been implemented by the Contractor to minimize noise impact :</p> <ul style="list-style-type: none"> ➤ Powered mechanical equipment (PME) for rock breaking were equipped with TMD and SilentMat at Slope H in Lam Tin Interchange; ➤ Erected movable cantilevered noise barriers next to breaking works at Portion IVC. <p>According to the regular noise monitoring conducted at Noise Monitoring Stations CM1, CM2 and CM3, no Limit Level Exceedance was recorded in 18 October – 30 November 2017. With the implementation of environmental mitigation measures by the Contractor, it is considered that no adverse noise impact was brought to the nearby sensitive receivers.</p>	Closed
93	14 th November 2017	14 th November 2017 / Construction of TKO Portal	Public	Noise	The complainant complained about the continuous noise (started from 7:13 am) made by a worker by hitting / kicking a truck.	Y	<p>As confirmed by the Engineer, construction activity including excavation works was conducted in Portion VIII at the time of complaint. Removing mud from dump truck container was carried out during the course. The excessive sound from kicking/ hitting the dump truck to remove mud from its container is considered the source of noise nuisance. The use of concerned dump truck in Portion VIII conformed to the approved Noise Mitigation Plan.</p> <p>The Contractor had implemented additional control measures to prevent similar noise disturbance as follows:</p> <ul style="list-style-type: none"> • Training sessions had been provided to the workers from subcontractors to improve their awareness of proper handling of equipment. • Site supervision had been enhanced to promote good site practice so as to avoid any unnecessary disturbance created from on-site activities. <p>The Engineer and the Environmental Team have reminded the Contractor to keep implementing noise mitigation measures as stated in the approved Noise Mitigation Plan to further reduce the noise impact from construction site to nearby sensitive receiver.</p>	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
							<p>The following recommendations were made to further enhance the mitigation measures:</p> <ul style="list-style-type: none"> • To maintain equipment in good condition to ensure quietest operation possible. • To repair any loosen and worn parts of the equipment, as soon as possible, to reduce excessive noise disturbance. • To provide training to the workers regularly on proper operation or appropriate use of equipment to avoid unnecessary noise impact. • To take care when loading and unloading materials in order to attenuate undesired noise. 	
94	15 th November 2017	Not Specified / Construction of marine works outside Ocean Shores	Sai Kung District Council Member Mr. Chan Kai Wai	Air Quality	The complainant complained the odour nuisance from the construction vessels near Ocean Shore.	N	<p>According to the Engineer's Site Diaries, the major marine construction activities included dredging operations. PME used included tug boat, dredging and hopper barge.</p>	Closed
95	15 th November 2017	9 th November 2017 / Construction of marine works outside Ocean Shores	Sai Kung District Council Member Mr. Chan Kai Wai	Air Quality	The complainant complained the black smoke generation from the construction vessels and affected to the nearby sensitive receivers.	N	<p>The Contractor had implemented environmental mitigation measures to minimize the nuisance from marine works to the nearby noise sensitive receivers during night time as follows:</p> <ul style="list-style-type: none"> • Ultra-low sulphur diesel was used to reduce emission of sulphur emission to nearby sensitive receivers. • Odour suppressant will be applied to dredged sediment when unpleasant smell is detected. • Visual assessment with Ringelmann chart was conducted in a regular interval to monitor dark smoke emission; • In addition, odour patrol was conducted twice a day by the Engineer's qualified odour panel member to identify any odour nuisance due to marine works; 	Closed
96	16 th November 2017	Not Specified / Ocean Shore Emergency Vehicular Access	Public	Landscape and Visual Impact	The complainant complained that trees near the Ocean Shore Emergency Vehicular Access were felled.	N	<p>According to the information provided and confirmed by the Engineer, tree removal application for the concerned area has granted approval from District Lands Office on 1 August 2017. The felling of a total of 59 trees at the concerned area as recommended in the Tree Assessment Schedule was approved by the District Lands Office. None of them are registered Old and Valuable Tree and neither of them are rare nor endangered species.</p> <p>The following was implemented by Contractor:</p>	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
							<ul style="list-style-type: none"> Tree protection zones were established and surrounded by fences to protect retained trees adjacent to the construction area of Portion IV. Tree protection zones at Portion IV 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. 	
97	23 rd November 2017	21 st & 23 rd November 2017 / Lam Tin Interchange	Resident of Yau Lai Estate Block A Nga Lai House	Noise	The complainant complained about the noise nuisance due to construction works at Lam Tin Interchange on 21 st & 23 rd November 2017 at about 4am. She claimed that the noise lasted for 1 hours.	Y	See Investigation / Mitigation Action for Complaint No. 91-92.	Closed
98	28 th November 2017	Not Specified / Lam Tin Interchange	Resident of Yung Lai House, Yau Lai Estate	Noise	The complainant complained about the construction noise nuisance at Lam Tin Interchange.	Y	See Investigation / Mitigation Action for Complaint No. 91-92.	Closed
99	28 th November 2017	Not Specified / Construction of TKO Portal	Resident of Ocean Shore	Noise	The complainant complained about the noise nuisance due to construction works near the Ocean Shore.	Y	Based on the gathered information, construction works including removal of armour rock seawall and excavation were conducted in Portion V at the time of complaint. The operated powered mechanical equipment and the noise from loading/ unloading were considered the sources of noise nuisance. As confirmed by the Engineer, the type and quantity of operated derrick lighter and backhoe were in compliance with the approved Noise Mitigation Plan.	Closed
100	30 th November 2017	28 th and 30 th December 2017 / Marine works site	Public	Noise	The complainant complained about the daytime construction noise from the marine works. He said about the loud noise from the dropping of materials from the dredgers into the barges which caused annoyance to nearby residents on 28 and 30 November morning till noon.	Y	<p>The Contractor had implemented environmental mitigation measures to minimize the noise nuisance from construction works to the nearby noise sensitive receivers as follows:</p> <ul style="list-style-type: none"> A soil layer was placed over the basin of barge to act as a cushion when loading hard materials into barge. The grab bucket was kept at the lowest level, as far as practicable, when loading hard materials into the barge. Noise source on the barge was covered with acoustic materials. 	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
101	2 nd , 14 th , 16 th , 20 th and 23 rd December 2017	2 nd December 2017 / Construction of Road P2	Resident of Ocean Shore	Noise	The complainant complained the noise nuisance due to the operation of the excavator on the beach near Ocean Shore on 2 Dec 2017 at about 8am.	Y	<ul style="list-style-type: none"> To erect additional noise barriers in Portion V <p>According to the regular noise monitoring conducted at Noise Monitoring Station CM6(A) and CM7(A), it is considered that no adverse noise impact was brought to the nearby sensitive receivers with the implementation of noise mitigation measures.</p>	Closed
102	6 th , 11 th December 2017	Not Specified / Construction site near Cha Kwo Ling Road	茶果嶺鄉民 聯誼會黃添 財先生	Air Quality	The complainant complained the construction dust near Cha Kwo Ling Road. He requested water spraying to the site entrance for dust suppression.	N	<p>In accordance with the information provided by the Contractor of the Project and confirmed by the Engineer, no construction activity was carried out adjacent to Cha Kwo Ling Road during the time of complaint. A steel bridge was set up for dump trucks heading to Barging Facility to avoid dust generation due to vehicle movement of dump trucks on Cha Kwo Ling Road.</p> <p>The Contract has undertaken the following measures near Cha Kwo Ling Road after the complaint to reduce the dust nuisance to nearby air sensitive receivers, including:</p> <ul style="list-style-type: none"> mobilized water trucks to perform water spraying along Cha Kwo Ling Road to suppress dust generation due to movement of vehicles; water spraying at the exit of Contractor Office on a regular basis for dust suppression due to entry and leaving of vehicles; wheel washing for site vehicles at paved site exits for Lam Tin Interchange work site to reduce vehicle tracking of soil on Cha Kwo Ling Road 	On-going
103	16 th December 2017	16 th December 2017 / Marine works site	Sai Kung District Council Member Mr. Chan Kai Wai	Noise	The complainant complained the noise nuisance from construction site at nighttime and call 999.	Y	<p>According to the information provided and confirmed by the Engineer, no construction activities were conducted before 0700 hour on 16 December 2017. The sound of waves lapping against the steel cofferdam and from the loose or worn part of barges are likely the sources of noise nuisance.</p> <p>According to information provided by Engineer, the following is implemented immediately on the following day to minimize noise nuisance due to the construction vessels:</p> <ul style="list-style-type: none"> Apply lubricants to the vessels and the joints; Replace Steel Cable by Ropes; Regular noise barrier for winch at barges; Cofferdams were reinforced with armour rock to bring down 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
							<p>impact sound when water waves hitting the steel tanks;</p> <ul style="list-style-type: none"> Breakwater was installed to reduce the intensity of wave action and thus, reducing the noise when waves lap against the cofferdams. 	
104	18 th December 2017	Not Specified / Lam Tin Interchange	Resident of Ping Ting Estate	Noise	The complainant complained about the construction noise nuisance at Lam Tin Interchange at about 7 am.	Y	<p>According to the Engineer's Site Diaries, the major construction activities on 18 December 2017 included rock breaking excavation at Lam Tin Interchange.</p> <p>According to Construction Noise Assessment of this Contract, operated PME during the time of complaints are consistent with the proposed quantities in the latest Construction Noise Assessment.</p> <p>The Contractor had implemented environmental mitigation measures to minimize noise nuisance as followed:</p> <ul style="list-style-type: none"> 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; Erected movable noise barriers next to breaking works at Lam Tin Interchange; Cantilevered noise barriers were erected next to breakers wrapped with TMD and SilentMat at Portion IVC. <p>According to routine noise monitoring of this Project, no limit level exceedance was recorded at monitoring stations in Yau Lai Estate in December 2017. With the implementation of environmental mitigation measures by Contractors on site, it is considered that noise nuisance by the works has been brought to a minimum level and no adverse impact was brought to the nearby sensitive receivers.</p>	On-going
105	18 th December 2017	Not Specified / Construction of Road P2	Public	Noise	The complainant complained about noise from handling of steel at the water front storage area near Ocean Shore (portion VII).	Y	<p>According to the information provided and confirmed by the Engineer, the major construction activities conducted during the time of complaint include Sheet pilings works (Portion IV) and Welding works for sheet piles (Portion VII). No powered mechanical equipment was operated for welding works at Portion VII on 18 December 2017. Therefore, the sheet piling works at Portion IV is considered the source of noise nuisance from handling of steel instead of Portion VII.</p>	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
							<p>The following was implemented by Contractor:</p> <ul style="list-style-type: none"> Acoustic material was wrapped around the vibratory hammer and acoustic mat was erected as temporary noise barrier during sheet piling works at Portion IV, where practicable; Rubber pads were placed between the sheet pile and vibratory hammer to reduce noise impact from material collision when driving sheet piles into the ground. <p>According to the regular noise monitoring conducted near Ocean Shores at Noise Monitoring Station CM6(A) and CM7(A), it is considered that no adverse noise impact was brought to the nearby sensitive receivers with the implementation of noise mitigation measures by the Contractor.</p>	
106	19 th December 2017	16 th December 2017 / Construction of Road P2	Public	Air Quality and Noise	The complainant complained the noise nuisance and odour nuisance from the construction vessel near Ocean Shore.	Y	<p>According to information provided by Engineer, the following is implemented immediately on the following day to minimize noise nuisance due to the construction vessels:</p> <ul style="list-style-type: none"> apply lubricants to the vessels and the joints Replace Steel Cable by Ropes Regular noise barrier for winch at barges 	On-going
107	20 th December 2017	Not Specified / Not Specified	Public	Noise	The complainant complained about machine noise from excavation of rock near the rocky shore. He complained that there is no hoarding / barrier to surround the workfront and the use of inappropriate machine.	Y	<p>According to the information provided and confirmed by the Engineer, the major construction activities conducted during the time of complaint include Removal of armour rock seawall (Portion V). The sound produced when the excavator crossing uneven, rocky surface and from the moving of hard materials are considered the sources of noise nuisance resulting from the removal of armour rock seawall on 20 December 2017.</p> <p>Due to rocky and uneven land surface, erection of temporary noise barrier to surround the entire works area was unlikely to be feasible. And, it is considered to be impracticable to wrap the bucket or wheel of excavator with acoustic materials. Despite the limitations, temporary noise barriers were installed at where ground condition allowed. Cantilever noise barriers were erected at part of the boundary of Portion V facing Ocean Shores to reduce noise impact</p> <p>According to the regular noise monitoring conducted near Ocean Shores</p>	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
							at Noise Monitoring Station CM6(A) and CM7(A), it is considered that no adverse noise impact was brought to the nearby sensitive receivers with the implementation of noise mitigation measures by the Contractor.	
108	20 th December 2017	20 th December 2017 / Lam Tin Interchange	Resident of Nga Lai House, Yau Lai Estate	Noise	The complainant complained about the construction noise nuisance due to the rock breaking work at Lam Tin Interchange at nighttime.	Y	<p>According to the Engineer's Site Diaries, the major construction activities included mucking out of spoil after blasting works; pre-excavation grouting and hole drilling at Lam Tin Interchange.</p> <p>According to Construction Noise Assessment of this Contract, operated PME during the time of complaints are consistent with the proposed quantities in the latest Construction Noise Assessment. Also, no violation of CNP conditions was observed during time of complaints.</p> <p>The Contractor had implemented environmental mitigation measures to minimize noise nuisance as followed:</p> <ul style="list-style-type: none"> • Installed steel-type blasting door mounted with sound absorptive lining to absorb noise from blasting in the tunnel; • Ensured blasting doors were fully closed when blasting works were undertaken • Erected noise barriers with TMD and SilentMAT adjacent to blasting door facing Yau Lai Estate • Placed acoustic materials on slopes adjacent to blasting door 	On-going
109	20 th , 31 st December 2017, 7 th January 2018	Not Specified / Lam Tin Interchange	Resident of Nga Lai House, Yau Lai Estate	Noise	The complainant complained about the construction noise nuisance at Lam Tin Interchange at nighttime.	Y	<p>With the implementation of environmental mitigation measures by Contractors on site, it is considered that noise nuisance by the works has been brought to a minimum level and no adverse impact was brought to the nearby sensitive receivers.</p>	On-going
110	20 th December 2017	18 th December 2017 / Construction of Road P2	Sai Kung District Council Member Mr. Chan Kai Wai	Noise	The complainant complained about the construction noise nuisance in marine works area at about 6pm.	Y	<p>According to the information provided and confirmed by the Engineer, removal of armour rock in Portion IX was the only construction activity carried out after 1800 hours and completed before 1900 hours on 18 December 2017. One unit of derrick barge was in operation for such works during the time of complaint.</p> <p>The operated powered mechanical equipment and the noise stemmed from loading/unloading of hard materials into the barge are considered the sources of noise nuisance resulting from such works.</p> <p>The Contractor had implemented environmental mitigation measures to</p>	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
							<p>minimize the noise nuisance to the nearby noise sensitive receivers as follows:</p> <ul style="list-style-type: none"> • A layer of sand was placed over the basin of barge to act as a cushion when loading hard materials into barge. • The grab bucket was kept at the lowest level, as far as practicable, when loading hard materials into the barge. • Maintenance of barge including lubrication of moving parts was performed to minimize noise from worn or loose parts. • Noise source on the barge was covered with acoustic materials 	
111	2 nd January 2018	2 nd January 2018 / Construction of Lam Tin Interchange	Public	Noise	The complainant complained about the construction noise nuisance to Sau Lau House, Yau Lai Estate.	Y	See Investigation / Mitigation Action for Complaint No. 104.	Closed
112	5 th January 2018	5 th January 2018 / Construction of Lam Tin Interchange	Public	Noise	The complainant complained about rock breaking noise nuisance to Bik Lau House, Yau Lai Estate.	Y		Closed
113	8 th January 2018	Not specified / Construction of Lam Tin Interchange	Public	Noise	The complainant from Yung Lai House, Yau Lai Estate complained about machine noise nuisance from the works area during night time. (EPD Reference No.: K15/RE/00000714-18)	Y	<p>According to the Engineer's Site Diaries, the major construction activities included pre-excitation grouting and hole drilling at Lam Tin Interchange.</p> <p>It is uncertain that the machine noise concerned by the complainant is generated from construction of this Project. Despite, the Contractor is reminded to implemented the following for blasting works during night time:</p> <ul style="list-style-type: none"> ➤ Ensured blasting doors were fully closed when blasting works were undertaken ➤ Erected noise barriers with TMD and SilentMAT adjacent to blasting door facing Yau Lai Estate ➤ Placed acoustic materials on slopes adjacent to blasting door ➤ Proper and frequent maintenance of PME. 	Closed
114	8 th , 19 th January 2018	7 th January 2018 / Marine works area for construction of Road P2	Sai Kung District Council Member Mr. Chan Kai Wai	Noise	The complainant complained that construction work was carried out as early as 7am on 7 January 2018	Y	According to site diaries, no marine construction works was carried out on 7 th January 2018 under this Project. Marine transportation for the barge workers to rotate shift was the only non-construction activity carried out during the time of complaint on 7 th January 2018. No significant noise impact was anticipated.	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
					(Sunday).		<p>For necessary PME operating during public holidays (including Sunday) on land-based works area, the Contractor is reminded to comply with the conditions of relevant CNPs and adopt good site practices recommended in the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual and the approved Noise Mitigation Plan of this Contract, including the following:</p> <ul style="list-style-type: none"> ➤ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; ➤ Silences 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 oriented so that the noise is directly away from the nearby NSRs; ➤ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	
115	12 th January 2018	Not specified/ Construction of Lam Tin Interchange	Yau Lai Estate Property Services Management Office	Noise	The complainant complained about construction noise nuisance in early morning from the works area.	Y	Under Investigation	Closed
116	15 th January 2018	Not specified / Construction of Lam Tin Interchange	Public	Noise	The complainant from Nga Lai House, Yau Lai Estate complained about construction noise nuisance from works area (EPD Reference No.: K15/RE/00001427-18)	Y	Under Investigation	Closed
117	22 nd January 2018	Not specified/ Construction of Lam Tin	Public	Noise	A resident of Yau Lai Estate complained about construction noise	Y	Under Investigation	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			nuisance from construction of Lam Tin Interchange.			
118	25 th January 2018	Not specified/ Construction of Lam Tin Interchange	Public	Air Quality	Conduction dust nuisance from works near Cha Kwo Ling Road and the complainant requested more wheel washing and water spray at Cha Kwo Ling Road near site entrance. (EPD Reference No.: K15/RE/00002751-18)	N	No specific dust generation works was carried out near Cha Kwo Ling Road. Water browser had been deployed for washing at junction between Cha Kwo Ling Road and site entrance to minimize dust impact to Cha Kwo Ling Road.	Closed
119	26 th January 2018	Not specified/ Construction of Lam Tin Interchange	Public	Water Quality	The complainant mentioned that muddy water was discharged from the site to Cha Kwo Ling Road.	N	No muddy water and sand/rubble was identified running off the Cha Kwo Ling Road. The Contractor will be reminded that stormwater drain should be kept under monitoring.	Closed
120	27 th January 2018	27 th January 2018 / Construction of Road P2	Public	Noise	A resident of Ocean Shore complaining about hammering noise emanated from the TKO-LTT construction site in front of Ocean Shores as early as 7am on 27 January 2018 (Saturday). She said the noise lasted till 900am and caused serious annoyance to nearby residents.	Y	<p>According to the information provided and confirmed by the Engineer, construction works including breaking works of existing manhole at Portion V and dredging operation at Portion IX during the time of complaint. Breaking works at Portion V is regarded the source of hammering noise. As confirmed by the Engineer, such work was commenced at around 8:30 am.</p> <p>Furthermore, construction sites in the vicinity of Ocean Shores including, but not limited to, French International School and ALTO Residences, could possibly be the sources of such noise nuisance between 7:00 – 8:30 am.</p> <p>The Contractor had implemented environmental mitigation measures to minimize the noise nuisance to the nearby noise sensitive receivers as follows:</p> <ul style="list-style-type: none"> • Acoustic box was utilized for breaking works • Noise sources on the barge and dredger were covered with acoustic materials <p>The Engineer and the Environmental Team have reminded the</p>	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
							Contractor to ensure the construction work carried out must comply with the condition stated in the Construction Noise Permit and to implement mitigation measure in accordance with the approved Noise Mitigation Plan to reduce noise nuisance to nearby sensitive receivers	
121	29 th January 2018	Not specified/ Construction of Lam Tin Interchange	Public	Air Quality	The complainant complained that a breaking operating in LTI near East Harbour Crossing Admin Building without water spray. (EPD Reference No.: K15/RE/00003007-16)	N	<p>According to the Engineer's site diaries, the major construction activities at the location of the complaint recorded included breaking works from 0800 hrs to 1800 hrs with 1 no. of backhoe with hydraulic breaker in operation on 29th January 2018. The breaking works near the location of the complaint is regarded to be the source of dust nuisance, thus the complaint is considered to be project related.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as below:</p> <ul style="list-style-type: none"> ● Breaking of rocks was provided with water spraying to reduce fugitive emission; and ● Hoarding with tarpaulin sheets were erected to further reduce dust generation due to breaking works. <p>With the above mitigation measures put in place, it is considered that construction dust impacts due to the construction of Lam Tin Interchange have been brought to a minimum.</p>	Closed
122	1 st , 9 th , 15 th February 2018	Not specified/ near Cha Kwo Ling Tsuen and Tin Hau Temple	Public	Air Quality	The complainant complained the dust nuisance on Cha Kwo Ling Road near Yau Tong and Tin Hau Temple.	N	<p>According to the information provided by the Contractor and confirmed by the Engineer of the Project, there were no construction activities in Portion 1 adjacent to Cha Kwo Ling Road during the time of complaint. Apart from the road traffic on Cha Kwo Ling Road, it is considered that the entering and leaving of construction vehicles from Portion 1 would also contribute to the dust and noise nuisance on Cha Kwo Ling Road.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows:</p> <p style="text-align: center;"><u>Air Quality:</u></p> <ul style="list-style-type: none"> ➤ Vehicle washing bay was set up at the site access of Portion 1 near Cha Kwo Ling Road (See Photo 1); 	Closed
123	2 nd February 2018	Not specified/ near Cha Kwo Ling Tsuen	Public	Air Quality	Resident of Cha Kwo Ling Tsuen complained the dust nuisance on Cha Kwo Ling Road	N		Closed
124	13 th February 2018	Not specified/ Construction of Lam Tin Interchange	Public	Air Quality	Resident of Cha Kwo Ling Tsuen complained the dust nuisance due to daytime open blasting and the broken dust curtain at Cha Kwo Ling Barging Point.	N		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
					(EPD Reference No.: K15/RE/00004536-18)		<ul style="list-style-type: none"> ➤ The access road leading to and exiting from the wheel washing bay to Cha Kwo Ling Road was hard-paved to prevent vehicle tracking of soil and mud to public roads (See Photo 2); ➤ Water trucks and workers were dispatched to clear dust on Cha Kwo Ling Road and frequently perform water spraying to reduce dust generation due to vehicle movement (See Photo 3); ➤ Broken dust screen deployed in Cha Kwo Ling Barging Point was replaced (See Photo 4); <p style="text-align: center;"><u>Noise:</u></p> <ul style="list-style-type: none"> ➤ Steel bridge with full enclosure was used by construction vehicles to access Cha Kwo Ling Barging Point to reduce noise nuisance generated by entering or leaving of dump trucks from Cha Kwo Ling Barging Point (See Photo 5). <p>The following recommendations were made to further enhance the mitigation measures:</p> <ul style="list-style-type: none"> ➤ To provide a hard-surfaced road between any cleaning facility and the public road ➤ To treat exposed earth by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen or other suitable surface stabilizer within six months after the last construction activity within the site; ➤ To increase the frequency of cleaning Cha Kwo Ling by water trucks and workers to avoid the accumulation of dust on the public road; ➤ Where practicable, to provide sheltered area on the top and three sides for stockpiles of dusty materials, or perform frequent water spraying so as to maintain the entire surface wet; and ➤ To continue to properly implement noise mitigation measures as recommended in the Environmental Monitoring & Audit Manual and approved Noise Mitigation Plan; <p>The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.</p>	
125	14 th February 2018	Not specified/ near Cha Kwo Ling Tsuen	Public	Noise	Resident of Cha Kwo Ling Tsuen complained the noise of dump trucks and construction vehicles during night time	Y	<ul style="list-style-type: none"> ➤ To provide a hard-surfaced road between any cleaning facility and the public road ➤ To treat exposed earth by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen or other suitable surface stabilizer within six months after the last construction activity within the site; ➤ To increase the frequency of cleaning Cha Kwo Ling by water trucks and workers to avoid the accumulation of dust on the public road; ➤ Where practicable, to provide sheltered area on the top and three sides for stockpiles of dusty materials, or perform frequent water spraying so as to maintain the entire surface wet; and ➤ To continue to properly implement noise mitigation measures as recommended in the Environmental Monitoring & Audit Manual and approved Noise Mitigation Plan; <p>The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.</p>	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
126	21 st February 2018	19 th February 2018 / Construction of Road P2	Sai Kung District Council Member Mr. Chan Kai Wai	Noise	The complainant complained that barge was working in the marine works area in front of Ocean Shores from 7 am and emit loud noise.	Y	<p>According to the information provided and confirmed by the Engineer, no marine works were being conducted in Portion IX on 19 February 2018.</p> <p>The CCTV footage (provided by the Contractor, checked by Environmental Team and Independent Environmental Checker) confirms that no marine works were carried out from 7:00 to 10:00 am on 19 February 2018. Therefore, the complaint is considered non-Project related.</p> <p>For necessary PME operating during public holidays (including Sunday) on land-based works area, the Contractor is reminded to comply with the conditions of relevant CNPs and adopt good site practices recommended in the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual and the approved Noise Mitigation Plan of this Contract, including the following:</p> <ul style="list-style-type: none"> • 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 oriented so that the noise is directly away from the nearby NSRs; • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. <p>Furthermore, the Contractor had implemented environmental mitigation measures to minimize the noise nuisance from construction barges as follows:</p>	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
							<ul style="list-style-type: none"> • Maintenance of barge including lubrication of moving parts was performed to minimized noise from worn or loose parts; • Noise source on barge was covered with acoustic materials; <p>The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team</p>	
127	22 nd February 2018	Not specified/ Construction of Lam Tin Interchange	Public	Noise	The complainant complained the noise time construction noise from the site.	Y	According to the Engineer's Site Diaries, the major construction activities performed in the reporting period included rock breaking and excavation at Lam Tin Interchange.	Closed
128 ⁽⁴⁾	3 rd March 2018	3 rd March 2018 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	The complainant complained the noise nuisance due to the breaking work at Lam Tin Interchange in the morning.	Y	<p>The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as follows:</p> <p><u>Air Quality:</u></p> <ul style="list-style-type: none"> ➢ Breaking works were provided with water spraying to reduce fugitive emission; ➢ Frequent water spraying on slopes and haul roads at Lam Tin Interchange; <p><u>Noise:</u></p> <ul style="list-style-type: none"> ➢ Powered mechanical equipment (PME) for rock breaking were equipped with TMD and SilentMat at Slope H in Lam Tin Interchange; ➢ Erected noise barriers at Slope H in Lam Tin Interchange; ➢ Ensured blasting doors were closed while mucking out in the tunnel was undertaken; ➢ Installed steel-type blasting door mounted with sound absorptive lining to absorb noise due to construction works in the tunnel; ➢ Vertical screens with blasting mat to minimize the blasting 	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
							<p>noise due to surface blasting works; and</p> <ul style="list-style-type: none"> ➤ Protective cages with rubber mat has been provided for the surface blasting works to minimize the blasting noise to the nearby NSRs in Lam Tin Interchange; <p>According to Construction Noise Assessment of this Contract, operated PME during the time of complaints are consistent with the proposed quantities in the latest Construction Noise Assessment.</p> <p>The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.</p>	
129 ⁽⁴⁾	3 rd March 2018	3 rd March 2018 / near Ocean Shore	Resident of Ocean Shore	Noise	The complainant complained the noise nuisance from the construction site near the Ocean Shore at 8:30am.	Y	<p>According to the information provided and confirmed by the Engineer, one backhoe was deployed for site clearance on 3 March 2018. Major construction works were not yet commenced during the time of complaint but site clearance works in the morning. The excessive sound from movement of the poorly maintained backhoe is considered the source of noise nuisance.</p> <p>The Contractor had implemented mitigation measures to prevent similar noise disturbance as follows:</p> <ul style="list-style-type: none"> • The use of concerned backhoe was stopped immediately by the Engineer upon receipt of the complaint. • Maintenance was provided to the concerned backhoe to avoid unnecessary disturbance. <p>The Engineer and the Environmental Team have reminded the Contractor to keep all powered mechanical equipment in good condition to minimize the noise impact from site clearance to nearby sensitive receiver.</p> <p>The following recommendations were made to further enhance the preventive measures:</p> <ul style="list-style-type: none"> • To maintain equipment in good condition to ensure quietest operation possible; • To repair any loosen and worn parts of 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
							<p>equipment, as soon as possible, to reduce excessive noise disturbance;</p> <ul style="list-style-type: none"> • To schedule works carefully to avoid noisy works during sensitive hours; • To locate noisy equipment as far away as possible from any noise sensitive receivers; • To provide training to workers regularly on proper operation or appropriate use of equipment to avoid unnecessary noise impact. <p>The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.</p>	
130	6 th March 2018	Not specified/ Not specified	Anonymous	Air Quality	The complainant complained the dust nuisance from the construction site and no water spraying system was observed near the construction site. He request to review the water sparing system more frequently	N	See Investigation / Mitigation Measures for Complaint No. 127.	Closed
131	7 th March 2018	Not specified / near Cha Kwo Ling Tsuen and Tin Hau Temple	Public	Air Quality	The complainant complained the dust nuisance on Cha Kwo Ling Road near Yau Tong and Tin Hau Temple. He request to perform frequent water spraying on Cha Kwo Ling Road.	N	<p>According to the information provided by the Contractor and confirmed by the Engineer of the Project, there were no construction activities in Portion 1 adjacent to Cha Kwo Ling Road and Works Area 1 during the time of complaint. Apart from the road traffic on Cha Kwo Ling Road, it is considered that the entering and leaving of construction vehicles from Portion 1 and transfer of construction materials in Works Area 1 would also contribute to the dust and noise nuisance on Cha Kwo Ling Road.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual as follows:</p> <p style="text-align: center;"><u>Air Quality:</u></p>	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
							<ul style="list-style-type: none"> ➤ Vehicle washing bay was set up at the site access of Portion 1 near Cha Kwo Ling Road; ➤ The access road leading to and exiting from the wheel washing bay to Cha Kwo Ling Road was hard-paved to prevent vehicle tracking of soil and mud to public roads; ➤ Water trucks and workers were dispatched to clear dust on Cha Kwo Ling Road and frequently perform water spraying to reduce dust generation due to vehicle movement; ➤ Accumulated dust on Cha Kwo Ling Road was cleared by using the shovel and the boom <p><u>Noise:</u></p> <ul style="list-style-type: none"> ➤ Acoustic baffle between Works Area 1 and Cha Kwo Ling Village with acoustic materials mounted on container office to absorb noise due to handling of construction materials in Works Area 1. ➤ Steel bridge with full enclosure was used by construction vehicles to access Cha Kwo Ling Barging Point to reduce noise nuisance generated by entering or leaving of dump trucks from Cha Kwo Ling Barging Point <p>The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.</p>	
133	16 th March 2018 22 nd March 2018	Not specified/ Construction of Lam Tin Interchange	Resident of Yung Lai House, Yau Lai Estate	Noise	The complainant complained the noisy breaking work at Lam Tin Interchange at around 7pm.	Y	See Investigation / Mitigation Measures for Complaint No. 127	Closed
134	19 th March 2018	Not specified / near Cha Kwo Ling Tsuen and Tin Hau Temple	Public	Air Quality	The complainant complained the dust nuisance from the construction site near Cha Kwo Ling Tsuen	N	See Investigation / Mitigation Measures for Complaint No. 131	Closed
135	20 th March 2018	Not specified / near Cha Kwo Ling Road	茶果嶺居民關注組	Air Quality & Noise	The complainant complained about the dust nuisance near Cha Kwo Ling Road, construction noise at barging point at	Y	See Investigation / Mitigation Measures for Complaint No. 127 & 131	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
					around 7am and blasting noise at Cha Kwo Ling site.			
136	27 th March 2018	Not specified / near Po Shun Road	Anonymous	Noise	The complainant complained the noise nuisance from the footbridge construction works near Po Shun Road during nighttime.	Y	<p>According to the information provided and confirmed by the Engineer, night time construction works were only being conducted within site boundary under this contract on 27 March 2018. Therefore, no night time construction works were carried out on 10 March 2018.</p> <p>One valid Construction Noise Permit (CNP) (No. GW-RE0162-18) was granted to the Contractor for the construction works at Po Shun Road near Po Yap Road, one group of powered mechanical equipment (PME) will be allowed for any day not being holiday and not immediately following a general holiday from 00:30 - 05:30. Therefore, No violation of CNP was observed.</p> <p>The Contractor had implemented environmental measures to minimize noise nuisance to the nearby sensitive receivers as follows:</p> <ul style="list-style-type: none"> • The portable generator was enclosed by an acoustic enclosure. • The vibratory roller was operated with an acoustic baffle. <p>The following recommendations are made to further enhance the mitigation measures:</p> <ul style="list-style-type: none"> • To regularly check and review the noise control activities that are being carried out on site to ensure compliance with statutory requirement. • To locate noisy equipment as far away as possible from the NSR nearby. • Machines and plant that may be in intermittent use should be shut down between works periods or 	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
							<p>should be throttled down to a minimum.</p> <ul style="list-style-type: none"> To provide training for the workers to prevent unnecessary noise disturbance. <p>The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.</p>	
137 ⁽⁵⁾	26 th March 2018	26 th March 2018 / Construction of Road P2	Anonymous	Air Quality	The complainant complained about dust/dirt being brought onto Tong Yin Street/Chin Shin Street by the vehicles travelling to and from TKO-LTT construction site, causing air nuisance and affecting the passerby/residents	N	<p>According to the information provided and confirmed by the Engineer, no dump truck was found improperly covered before leaving the site on 26 March 2018.</p> <p>According to the weekly site inspection conducted by the Environmental Team in March 2018, no observation was identified regarding dusty trail around site entrance nor dump truck leaving the site improperly covered/without wheel-washed. Manual wheel-washing was observed at the exit of the unloading area in Portion VII and the wheel-washing facility at the site exit was observed functioning properly.</p> <p>The Contractor had undertaken initiatives to minimize dust generation due to vehicle movement of dump trucks to the nearby sensitive receivers as follows:</p> <ul style="list-style-type: none"> Immediately cleaned the dust and dirt on Tong Yin Street and Chi Shin Street; Additional notice would be set up to remind the truck driver to perform wheel-washing properly before leaving site. <p>The Contractor has deployed staff at the access to check the dump trucks to ensure they are properly covered and wheel-washed before leaving the site</p> <p>The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.</p>	Closed
	27 th March 2018	26 th March 2018 / Construction of Road P2	Anonymous	Air Quality	The complainant complained that some of the excavated materials fell from the dump trucks and accumulated on the road near Tong Yin Street and Chi Shin Street.			

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
138	27 th March 2018	Not specified / near Po Shun Road	Anonymous	Noise	The complainant complained the noise nuisance from the footbridge construction works near Po Shun Road from 12am to 5am.	Y	See Investigation / Mitigation Action for Complaint No. 136.	Closed
139	28 th March 2018	Not specified / near Po Shun Road	Resident of Park Central	Noise	The complainant complained the noise nuisance from the footbridge construction works near Po Shun Road during nighttime. She request to erect the noise barrier to minimize the noise nuisance to the nearby sensitive receiver.	Y	See Investigation / Mitigation Action for Complaint No. 136.	Closed
140	28 th March 2018	Not specified / near Po Shun Road	Property Management Office of Park Central	Noise	The complainant complained the noise nuisance from the footbridge construction works near Po Shun Road during nighttime. He received few of complaints from resident and request to erect the noise barrier to minimize the noise nuisance to the nearby sensitive receiver.	Y	See Investigation / Mitigation Action for Complaint No. 136.	Closed
141	29 th March 2018	Not specified/ Not specified	Sai Kung District Council Member Mr. Chan Kai Wai	Noise	The complainant complained the noise nuisance from the marine work site due to the movement of barge.	Y	<p>According to the information provided and confirmed by the Engineer, one unit of derrick barge was mobilizing during the time of complaint on 29 March 2018. The frictional noise from the cable when moving the derrick barge is likely the source of noise nuisance.</p> <p>According to the information provided and confirmed by the Engineer, no land-based and marine-based construction works except general site cleanliness was performed on 8 April 2018. No noise impact would be expected from site cleanliness.</p> <p>One valid Construction Noise Permit (CNP) (No.: GW-RE0038-18) was granted to the Contractor for marine-based construction site near Ocean</p>	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
							<p>Shores, no use of powered mechanical equipment (PME) will be allowed for general holidays (including Sunday) at marine works area under this Contract. Since no land-based and marine-based construction activity was carried out on 8 April 2018 (Sunday), no violation of CNP is found in this regard.</p> <p>According to the Construction Noise Permit (CNP) (No.: GW-RE0038-18), no use of PME will be permitted for general holidays (including Sundays) at marine works area under this Contract. In this regard, the Contractor has utilized CCTV to keep track of the activities in marine portions and ensure no works are being conducted during restricted hours.</p> <p>For necessary PME operating during public holidays (including Sunday) on land-based works area, the Contractor is reminded to comply with the conditions of relevant CNPs and adopt good site practices recommended in the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual and the approved Noise Mitigation Plan of this Contract, including the following:</p> <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • Machines and plants that may be in intermittent use should be shut down between works periods or should be throttled down to 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 noise sensitive receivers; <p>Furthermore, the Contractor had implemented environmental mitigation measures to minimize noise nuisance from construction barges as follows:</p> <ul style="list-style-type: none"> • Maintenance of barge including lubrication of moving parts was performed to minimize noise from worn or loose parts; 	

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							<ul style="list-style-type: none"> • Noise source on barge was covered with acoustic materials • Nylon rope was used instead of wire rope to reduce the frictional noise when securing the barge in place <p>According to the regular noise monitoring conducted at Noise Monitoring Station CM6(A) and CM7(A), it is considered that no adverse noise impact was brought to the nearby sensitive receivers with the implementation of noise mitigation measures by the Contractor.</p> <p>The environmental conditions of the site and the control of works will be continuously reviewed and monitored by the Engineer and the Environmental Team.</p>	
142	29 th March 2018	Not specified / near Po Shun Road	Anonymous	Noise	The complainant complained the noise nuisance from the footbridge construction works near Po Shun Road during nighttime. He request to stop all construction work during nighttime.	Y	See Investigation / Mitigation Action for Complaint No. 136.	Closed
143	29 th March 2018	Not specified / near Tiu Keng Leng Road	Anonymous	Noise	The complainant complained the noise nuisance from the footbridge construction works near Tiu Keng Leng Road during nighttime on 27 th March 2018.	Y	See Investigation / Mitigation Action for Complaint No. 136.	Closed
144	29 th March 2018	Not specified / near Po Shun Road	Public	Noise	The complainant complained about the noise arising from the footbridge construction works near Po Shun Road after midnight of 10 March 2018.	Y	See Investigation / Mitigation Action for Complaint No. 136.	Closed
145	2 nd April 2018	Public holiday/ Construction	Resident of Yau Lai Estate	Noise	The complainant complained the noise nuisance due to the	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.	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
		Works near Eastern Harbour Crossing tunnel portal			construction work near Eastern Harbour Crossing tunnel portal on public holiday. (started from 9:00 am)		<p>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:</p> <ul style="list-style-type: none"> - Construction of Lam Tin Interchange (LTI); <p>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)</p> <p>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.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual as follows:</p> <ul style="list-style-type: none"> ➤ 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 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; 	

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
							<ul style="list-style-type: none"> ➤ 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 <p>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.</p>	
146	9 th April 2018	8 th April 2018/work site at the waterfront near Ocean Shore	Public	Noise	The complainant complaining about construction noise emanated from the work site at the waterfront near Ocean Shore Block 1 on 8 April 2018, starting from 8am. The complainant said noise were generated from barges, machine and construction vehicles and causing nuisance.	Y	See Investigation / Mitigation Action for Complaint No. 142.	Closed
147	15 th 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	See Investigation / Mitigation Action for Complaint No. 145.	Closed
148	15 th 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	See Investigation / Mitigation Action for Complaint No. 145.	Closed
149	16 th 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.	Closed
	18 th 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	The Contractor had implemented environmental mitigation	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
							<p>measures to minimize the noise nuisance to the nearby noise sensitive receivers as follows:</p> <ul style="list-style-type: none"> ➤ 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 <p>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.</p> <p>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.</p>	
150	17 th 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 Action for Complaint No. 145.	Closed
151	17 th 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 Action for Complaint No. 145.	Closed
152	20 th 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 the Lam Tin Interchange.	Y	See Investigation / Mitigation Action for Complaint No. 145.	Closed
153	23 th 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	Y	See Investigation / Mitigation Action 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 Contractor to review the noise mitigation measures on site.			
154	23 th 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 Action for Complaint No. 145.	Closed
155	23 th April 2018	Not specified / 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	<p>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.</p> <p>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.</p> <p>The Contractor had implemented environmental mitigation measures to minimize the noise nuisance to the nearby noise sensitive receivers as follows:</p> <ul style="list-style-type: none"> ➤ Acoustics barriers were provided to the drill rigs for pre-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 <p>The Engineer and the Environmental Team have reminded the Contractor to properly implement mitigation measures to</p>	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
							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.	
156	25 th 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 Action for Complaint No. 145.	Closed
157	26 th April 2018	Not specified / 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. She requested to direct the strong lighting toward the sea.	N	<p>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.</p> <p>Upon the receipt of the complaint, as confirmed by the Engineer, the Contractor had taken initiatives to maintain the environmental conditions in the works area as shown below:</p> <ul style="list-style-type: none"> • 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 <p>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.</p>	Closed
158	30 th 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 Action 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
159	30 th 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	<p>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</p> <p>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.</p> <p>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.</p> <p>The Contractors had implemented environmental mitigation measures to reduce construction nuisance from construction activities to the nearby sensitive receivers as follows:</p> <p><u>Noise:</u></p> <ul style="list-style-type: none"> • Noise source on the barge was covered with acoustic materials. • Additional sound absorptive blankets were used to reduce the nuisance from the engine of the barge. • Nylon rope was used instead of wire rope to reduce friction secure the barge in place. • Maintenance of barge including lubrication of moving parts was performed to minimized noise from worn or loose parts. <p><u>Air Quality:</u></p> <ul style="list-style-type: none"> • Additional water filter tank was adopted to reduce emission of dark smoke and exhaust smell. 	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.	

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	14	0	0
Total	161	1	0

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	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	--	--	--	--	--	--
NE/2015/03	--	--	--	--	--	--
NE/2017/01	--	--	--	--	--	--
NE/2017/02	--	--	--	--	--	--

**APPENDIX M
SUMMARY TABLE FOR MAJOR SITE
ACTIVITIES UNDERTAKEN IN THE
REPORTING QUARTER**

Appendix M - Summary Table for Major Site Activities undertaken in the Reporting Quarter

Contract	Site Area	Site Activities		
		February 2018	March 2018	April 2018
NE/2015/01 – Tseung Kwan O - Lam Tin Tunnel - Main Tunnel and Associated Works	Lam Tin Interchange	<ol style="list-style-type: none"> 1. EHC2 U-Trough 2. Site Formation – Area 1G1, Area 1G2, Area 2 , Area 3, Area 4 & Area 5 3. Pipe Pile wall – Area 2A 	<ol style="list-style-type: none"> 1. EHC2 U-Trough 2. Site Formation – Area 1G1, Area 1G2, Area 2 , Area 3, Area 4 & Area 5 3. Pipe Pile wall – Area 2A 	<ol style="list-style-type: none"> 1. EHC2 U-Trough 2. Site Formation – Area 1G1, Area 1G2, Area 2 , Area 3, Area 4 & Area 5 3. Pipe Pile wall – Area 2A
	Main Tunnel	<ol style="list-style-type: none"> 1) Main tunnel Excavation 	<ol style="list-style-type: none"> 1) Main tunnel Excavation 	<ol style="list-style-type: none"> 1) Main tunnel Excavation
	TKO Interchange	<ol style="list-style-type: none"> 1) Haul Road Construction, Site Formation and Slope Works 2) Steel Platform for Bridge Construction 	<ol style="list-style-type: none"> 1) Haul Road Construction, Site Formation and Slope Works 2) Steel Platform for Bridge Construction 	<ol style="list-style-type: none"> 1) Haul Road Construction, Site Formation and Slope Works 2) Steel Platform for Bridge Construction
NE/2015/02 – Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	General	<ol style="list-style-type: none"> 1) Installation of DN2100 Concrete Pipe at Portion IV & VII 2) ELS Installation for U-Trough at Portion V & VI 3) Construction of Retaining Wall and U-Trough at Portion VIII 4) Enhancement of Temporary Steel Cofferdam at Portion IX 5) Dredging Works at Portion IX 6) Treatment of Marine Sediment at Area A 7) General Site Clearance and 	<ol style="list-style-type: none"> 1) Installation of DN2100 Concrete Pipe at Portion IV & VII 2) ELS Installation for U-Trough at Portion V & VI 3) Construction of Retaining Wall and U-Trough at Portion VIII 4) Enhancement of Temporary Steel Cofferdam at Portion IX 5) Dredging Works I at Portion IX 6) Treatment of Marine Sediment at Area A 	<ol style="list-style-type: none"> 1) Installation of DN2100 Concrete Pipe at Portion IV & VII 2) ELS Installation for U-Trough at Portion V & VI 3) Construction of Retaining Wall and U-Trough at Portion VIII 4) Enhancement of Temporary Steel Cofferdam at Portion IX 5) Dredging Works and Armour Rock Removal at Portion IX 6) Treatment of Marine Sediment at Area A

		Hoarding Erection	7) General Site Clearance and Hoarding Erection	7) General Site Clearance and Hoarding Erection
NE/2015/03 – Tsueng Kwan O – Lam Tin Tunnel – Northern Footbridge	General	1) Pile cap construction 2) Sheet Piling	1) West Pier Construction 2) Erection of falsework system at central divider	1) Erection of falsework system
NE/2017/0 – Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works	General	N/A	N/A	1. Construction of Site Office
NE/2017/02 – Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	General	N/A	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement Setup 4) Site office erection Communication Liaison Center erection	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement Setup 4) Site office erection 5) Communication Liaison Center erection 6) Modification of traffic island 7) Fencing erection

APPENDIX N
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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 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; 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 	<ol style="list-style-type: none"> 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; 	<ol style="list-style-type: none"> 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; 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 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; 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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)	<ul style="list-style-type: none"> 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 <i>in-situ</i> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation proposal. 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; 	<ul style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; 	<ul style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation proposal; 	<ul style="list-style-type: none"> Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice;

Event	Action			
	ET	IEC	ER	CONTRACTOR
<p>sampling days at water sensitive receiver(s)</p>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • 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.
<p>Limit level being exceeded by one sampling day at water sensitive receiver(s)</p>	<ul style="list-style-type: none"> • Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; 	<ul style="list-style-type: none"> • Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; 	<ul style="list-style-type: none"> • Discuss with IEC, ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods; 	<ul style="list-style-type: none"> • Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	IEC	ER	CONTRACTOR
	<ul style="list-style-type: none"> • If exceedance is found to be caused by the reclamation activities, repeat <i>in-situ</i> 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. 	<ul style="list-style-type: none"> • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; 	<ul style="list-style-type: none"> • Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; 	<ul style="list-style-type: none"> • Discuss with IC(E), ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods; 	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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%	<ul style="list-style-type: none"> • Ventilate to restore oxygen to >19%
	<18%	<ul style="list-style-type: none"> • Stop works • Evacuate personnel/prohibit entry • Increase ventilation to restore oxygen to >19%
Methane	>10% LEL (i.e. > 0.5% by volume)	<ul style="list-style-type: none"> • Prohibit hot works • Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. > 1% by volume)	<ul style="list-style-type: none"> • Stop works • Evacuate personnel / prohibit entry • Increase ventilation to restore methane to <10% LEL
Carbon Dioxide	>0.5%	<ul style="list-style-type: none"> • Ventilate to restore carbon dioxide to < 0.5%
	>1.5%	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none">● 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.
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APPENDIX O
ECOLOGICAL MONITORING

App O – Ecological Monitoring

Reporting Period: February 2018 – April 2018

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