

# China Harbour Engineering Company Limited

Contract No. HY/2010/02

## Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works

### Final EM&A Review Report for March 2012 to April 2018

[1/2021]

	Name	Signature
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Reviewed, Approved and Certified:	Echo Leong (ETL)	

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13 January 2021

Ove Arup & Partners  
Chief Resident Engineer's Office  
11 Tung Chung Waterfront Road, Tung Chung,  
Lantau, Hong Kong

By Fax (3698 5999) and By Post

Attention: Mr. Seven YAU

Dear Sirs,

**Re: Agreement No. CE 48/2011 (EP)  
Environmental Project Office for the  
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities, and  
Tuen Mun-Chek Lap Kok Link – Investigation**

**Contract No. HY/2010/02  
HZMB Hong Kong Boundary Crossing Facilities – Reclamation Work  
Final EM&A Review Report**

Reference is made to the Environmental Team's submission of the Final EM&A Summary Report for March 2012 to April 2018 certified by the ET Leader (ET's ref.: "60249820/C/RMKY20210112" dated 12 January 2021) and provided to us via e-mail on 12 January 2021.

We are pleased to inform you that we have no adverse comments on the captioned report, subject to the acceptance of alternative statistical analysis of dolphin monitoring results by the relevant authorities. The ET Leader (ETL) and the relevant specialist(s) of the ET are reminded that our verification to this report does not release any of the ETL/ET obligation in the EM&A Manual under the applicable Environmental Permit(s) for this project, in particular on the statistical analysis of dolphin monitoring results.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned, the ENPO Leader Mr. Y H Hui, should you have any queries

Yours faithfully,  
For and on behalf of  
Ramboll Hong Kong Limited

Manson Yeung  
Independent Environmental Checker

c.c.	HyD	Mr. Clarence CHENG	(By Fax: 3188 6614)
	HyD	Mr. Joseph Chung	(By Fax: 3188 6614)
	AECOM	Ms. Eco Leong	(By Fax: 2317 7609)
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## TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
1.1 Background	1
1.2 Scope of Report	1
1.3 Contract Organization	2
1.4 Summary of Construction Works	2
2. SUMMARY OF EM&A PROGRAMME REQUIREMENTS	5
2.1 Monitoring Parameters	5
2.2 Environmental Quality Performance (Action/Limit Levels)	7
2.3 Environmental Mitigation Measures	7
3. MONITORING RESULTS	7
3.1 Air Quality Monitoring	7
3.2 Noise Monitoring	12
3.3 Water Quality Monitoring	15
3.4 Dolphin Monitoring	15
3.5 Environmental Site Inspection and Audit	35
3.5.1 Site Inspection	35
4. ADVICE ON THE SOLID AND LIQUID WASTE MANAGEMENT STATUS	36
4.1 Summary of Solid and Liquid Waste Management	36
5. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES	36
5.1 Implementation Status of Environmental Mitigation Measures	36
6. SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT	37
6.1 Summary of Exceedances of the Environmental Quality Performance Limit	37
7. SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS	39
7.1 Summary of Environmental Complaints, Notification of Summons and Successful Prosecutions	39
8. REVIEW OF THE VALIDITY OF THE EIA PREDICTION	40
9. REVIEW OF ENVIRONMENTAL IMPLEMENTATION STATUS	42
10. REVIEW OF EM&A PROGRAMME	43
11. COMMENTS, RECOMMENDATIONS AND CONCLUSIONS	44
12. CONCLUSIONS	46

## List of Tables

Table 1.1	Contact Information of Key Personnel
Table 3.1	Summary of Number of Monitoring Events for 1-hr & 24-hr TSP Concentration
Table 3.2	Summary of Number of Exceedances for 1-hr & 24-hr TSP Monitoring
Table 3.3	Maximum Predicted TSP concentrations under the “Mitigated” scenario
Table 3.4	Summary of Number of Monitoring Events for Impact Noise
Table 3.5	Summary of Number of Monitoring Exceedances for Impact Noise
Table 3.6	Construction Noise Impact at Noise Sensitive Receivers
Table 3.7	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 3.8	Summary of Number of Monitoring Events for Impact Water Quality
Table 3.9	Summary of Water Quality Exceedances in Mar 17 – Apr 18
Table 3.10	Summary of number of water quality exceedances per monitoring month
Table 3.11	Comparison of depth averaged dissolved oxygen levels (Surface & Mid-depth, Bottom depth) during baseline and impact monitoring period (mgL <sup>-1</sup> )
Table 3.12	Ambient and Tolerance Values for Suspended Sediment Concentrations (mgL <sup>-1</sup> ) in the Vicinity of Sensitive Receivers adopted in the EIA
Table 3.13	Calculated Elevations in Suspended Sediment Concentrations at Sensitive Receivers (mgL <sup>-1</sup> ) under the 2012 mitigated scenario from the EIA
Table 3.14	Baseline suspended solids levels and 30% of baseline mean (mgL <sup>-1</sup> )
Table 3.15	Average suspended solids levels at sensitive receivers (mgL <sup>-1</sup> ) in November 2014
Table 3.16	Summary of the STG/ANI Quarterly Values
Table 3.17	Summary of All Dolphin Impact Monitoring Sightings from Year 1 (March 2012 – February 2013) to the Year 6 (Mar 2017 – August 17) of the HKBCF Reclamation Works Project
Table 3.18	Comparison of low, moderate and high habitat utilisation in NEL and NWL between advanced and impact monitoring (in %)
Table 3.19	Dolphins Frequently Recorded During Impact Monitoring Surveys

## Figures

Figure 1	General Contract Layout Plan
Figure 2a-2e	Impact Air Quality and Noise Monitoring Stations and Wind Station
Figure 3a-3f	Impact Water Quality Monitoring Stations
Figure 4a-4d	Impact Dolphin Monitoring Line Transect Layout Map
Figure 5	Environmental Complaint Handling Procedure

## List of Appendices

Appendix A	Contract Organization for Environmental Works
Appendix B	Three Month Rolling Construction Programmes
Appendix C	Implementation Schedule of Environmental Mitigation Measures (EMIS)
Appendix D	Summary of Action and Limit Levels
Appendix E	Graphical Presentation of Impact Air Quality Monitoring Results
Appendix F	Graphical Presentation of Impact Daytime Construction Noise Monitoring Results
Appendix G	Graphical Presentation of Impact Water Quality Monitoring Results
Appendix H	Impact Dolphin Monitoring Survey Findings and Analysis
Appendix I	Summary of Waste Flow Table
Appendix J	Cumulative Statistics on Exceedances, Complaints, Notifications of Summons and Successful Prosecutions
Appendix K	Event Action Plan

## EXECUTIVE SUMMARY

Contract No. HY/2010/02 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works (here below, known as “the Contract”) mainly comprises reclamation at the northeast of the Hong Kong International Airport of an area of about 130-hectare for the construction of an artificial island for the development of the Hong Kong Boundary Crossing Facilities (HKBCF), and about 19-hectare for the southern landfall of the Tuen Mun - Chek Lap Kok Link (TMCLKL). It is a designated Project and is governed by the current permits for the Project, i.e. the amended Environmental Permits (EPs) issued on 11 April 2016 (EP-353/2009/K) and 13 March 2015 (EP-354/2009/D) (for TMCLKL Southern Landfall Reclamation only).

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Highways Department (HyD) as the consultants for the design and construction assignment for the Project’s reclamation works (i.e. the Engineer for the Contract).

China Harbour Engineering Company Limited (CHEC) was awarded by HyD as the Contractor to undertake the construction work of the Contract.

Ramboll Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) for the Project.

AECOM Asia Co. Ltd. (AECOM) was appointed by CHEC to undertake the role of Environmental Team for the Contract for carrying out the environmental monitoring and audit (EM&A) works.

The construction phase of the Contract under the EPs was commenced on 12 March 2012 and will be tentatively completed by early Year 2018. The EM&A programme, including air quality, noise, water quality and dolphin monitoring and environmental site inspections, was commenced on 12 March 2012.

As informed by the Contractor, major activities in the reporting period were:-

### **Marine-base**

- Additional GI installation
- Backfill cellular structure
- Band drain installation
- Capping Beams structures
- Cellular structure (capping beams, connecting arcs, installation & backfilling)
- Cone penetration test;
- Conforming sloping seawalls
- Connecting arc cell installation
- Construction of cellular structure
- Construction of conveyors for public fill
- Construction of temporary jetties for surcharge laying
- Construction of temporary pier at Portion A
- Construction of temporary seawall
- Deep Cement Mixing
- Earthwork fill
- Flat barge of unloading public fill for surcharge laying
- Geotechnical Instrumentation works
- Geotextile laying and fabrication;
- Ground investigation
- Installation of silt screen at sea water intake of HKIA
- Installations of Precast Culverts except sloping outfalls
- Instrumentation works
- Jet grout columns works
- Laying geo-textile

- Laying stone blanket
- Maintenance of Silt curtain
- Maintenance of silt curtain & silt screen at sea water intake of HKIA
- Optimizing rubble mound seawalls
- Outfall installation
- Portion D Construction of Access to Portion A
- Precast Yard for seawall blocks & culverts
- Precast Yard setup
- Public filling
- Reinstatement of seawall
- Removal of Temporary Seawall
- Rock filling
- Rubble Mound Seawall
- Sand blanket laying
- Sand blanket trial
- Sand filling
- Seawall blocks for temporary construction
- Silt curtain deployment and repairing
- Silt curtain fabrication and deployment; and
- Sloping Seawalls
- Stone blankets laying.
- Stone column installation and installation trial
- Surcharge laying and removal
- Temporary bridge at Portion D
- Temporary Watermain construction along access at Portion D
- Vibro-compaction on surcharge
- Maintenance of silt curtain & silt screen at sea water intake of HKIA (As informed by the Contractor, the silt curtain at NE Airport Cooling Water Intake has been removed on 10 May 2016.)

**Land-base**

- Constructing site access at Works Area WA2 to Ying Hei Road, Tung Chung;
- Construction of Permanent Seawall
- Construction of Sloping Outfalls
- Construction of Temporary Marine Access at Works Area WA2
- Deep Cement Mixing
- Drainage works at Works Area WA2 and WA3;
- Earthwork fill
- Erection of site office for CHEC(GD) at Works Area WA2
- Geotechnical Instrumentation Works
- Geotextile fabrication at Works Area WA2 and WA4; and
- Green roof construction at Works Area WA2
- Hoarding erection at Work Areas Portion D and Works Area WA2
- Installations of Precast Culverts except sloping outfalls
- Installed sand bag at Works Area WA2
- Jet grout columns works
- Maintenance of Temporary Marine Access at Works Area WA2
- Maintenance works of Public Works Regional Laboratory at Works Area WA3

- Maintenance works of Site Office at Works Area WA2
- Public Works Regional Laboratory erection and construction at Works Area WA3;
- Removal of Temporary Seawall
- Sign board erection at Works Area WA2
- Silt curtain fabrication at Works Area WA2 and WA4;
- Site office erection and construction at Works Area WA2;
- Stone column installation barges setup and their maintenance works at Works Area WA4.
- Surcharge removal & laying
- Vertical Band Drains

A summary of monitoring and audit activities conducted in the reporting period\* is listed below:

24-hour Total Suspended Particulates (TSP) monitoring	352 sessions
1-hour TSP monitoring	352 sessions
Noise monitoring	281 sessions
Impact water quality monitoring	846 sessions
Impact dolphin monitoring	132 surveys
Joint Environmental site inspection	319 sessions

\*monitoring works between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.

#### **Breaches of Action and Limit Levels for Air Quality**

A total of 25 Action Level exceedances and 10 Limit Level exceedances were recorded during the 24-hr TSP impact monitoring in the reporting period. 4 Action Level exceedances of 24-hr TSP were recorded Contract No. HY/2013/01 and the rest of the exceedances were recorded by this Contract. No action level or limit level exceedance of 1-hour TSP monitoring at all impact air quality monitoring station the reporting period. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports. For level of exceedance, location and when exceedances were recorded, please refer to relevant monthly EM&A report. Investigation results confirm that the exceedances were not related to the activities of this Contract. No other 1-hour and 24-hour action and limit level exceedances was recorded at all monitoring stations in the reporting period.

#### **Breaches of Action and Limit Levels for Noise**

1 Limit Level exceedance of impact noise monitoring was recorded in June 2012. No exceedance of impact noise monitoring was recorded by Contract No. HY/2013/01 and all exceedances were recorded by this Contract. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports. Investigation results show that the exceedance was not due to the Project works. The Contractor was recommended to continue implementing existing noise mitigation measures. 1 noise complaint was received in October 2012 and therefore 1 Action Level Exceedance of construction noise was recorded in October 2012. Investigation into the possible causes of such exceedance was undertaken and reported in the respective monthly EM&A reports, the investigations results confirmed that the action and limit level exceedance were not related to Contract. No other exceedance was recorded at all monitoring stations in the reporting period.

#### **Breaches of Action and Limit Levels for Water Quality**

297 Action Level exceedances and 27 Limit Level exceedances were recorded during the reporting period. After investigation, all impact water quality exceedances were considered not related to this Contract except the Action Level Exceedance recorded at SR5 and Limit Level Exceedance recorded at IS10 on 18 Dec 13 were related to Contract. For details of investigation please refer to monthly EM&A Report of this Contract. The exceedances note at IS10 and SR5 on 18 Dec 13 were considered as Contract related. The silt curtain integrity checking record on 4 January 14 shows that the disconnected silt curtain observed on 18 Dec 13 at northwest of HKBCF were rectified and the Contractor was further reminded to ensure provision of ongoing maintenance to the silt curtains and to carry out maintenance work once defects were found. For details of

investigation please refer to monthly EM&A Report December 2013; the Limit Level Exceedance of Turbidity and Limit Level Exceedance of Suspended Solids recorded at IS17 during ebb tide on 10 October 2014 and Action Level Exceedance of Suspended Solids recorded at IS17 during flood tide on 20 October 2014, which were considered related to this Contract. Recommendation has been given and rectification has been carried on by the Contractor on 28 October 2014. As rectification was provided by the Contractor and recurrence of Contract related exceedance was not observed in the subsequent monitoring events.

### **Triggering of Event and Action Plan for Impact Dolphin Monitoring**

15 Limit level exceedances and 6 Action level exceedances were recorded in the reporting period for impact dolphin monitoring. After investigation, it was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified nor separate from the other stress factors. Event Action Plan for Impact Dolphin Monitoring was triggered. For investigation results please refer to Appendix L of the corresponding quarterly reports.

Impact dolphin monitoring results obtained between September 2017 and April 2018, at all transects are reported in the EM&A Report prepared for Contract No. HY/2013/01.

### **Implementation Status and Review of Environmental Mitigation Measures**

Most of the recommended mitigation measures, as included in the EM&A programme, were implemented properly in the reporting period. The recommended environmental mitigation measures effectively minimize the potential environmental impacts from the Contract.

Changes of EM&A programme such as conditional omission of air monitoring station (AMS 6) for this Contract; relocation of air quality monitoring station, relocation of construction noise monitoring station, impact water quality monitoring stations, alternation of the transect lines of dolphin monitoring were carried out during the reporting period. For background proposal date and approval date of each changes of the EM&A programme, please refer to the corresponding annual EM&A review report of this contract.

Overall, the EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme. .

Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.

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

48 environmental complaints were received in the reporting period.

2 summonses and 2 successful prosecutions were received in the reporting period.



## 1. INTRODUCTION

### 1.1 Background

- 1.1.1 Contract No. HY/2010/02 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Work (here below, known as “the Contract”) mainly comprises reclamation at the northeast of the Hong Kong International Airport of an area of about 130-hectare for the construction of an artificial island for the development of the Hong Kong Boundary Crossing Facilities (HKBCF), and about 19-hectare for the southern landfall of the Tuen Mun - Chek Lap Kok Link (TMCLKL).
- 1.1.2 The environmental impact assessment (EIA) reports (Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities – EIA Report (Register No. AEIAR-145/2009) (HKBCFEIA) and Tuen Mun – Chek Lap Kok Link – EIA Report (Register No. AEIAR-146/2009) (TMCLKLEIA), and their environmental monitoring and audit (EM&A) Manuals (original EM&A Manuals), for the Project were approved by Environmental Protection Department (EPD) in October 2009.
- 1.1.3 EPD subsequently issued the Environmental Permit (EP) for HKBCF in November 2009 (EP-353/2009) and the Variation of Environmental Permit (VEP) in June 2010 (EP-353/2009/A), November 2010 (EP-353/2009/B), November 2011 (EP-353/2009/C), March 2012 (EP-353/2009/D), October 2012 (EP-353/2009/E), April 2013 (EP-353/2009/F), August 2013 (EP-353/2009/G), January 2015 (EP-353/2009/H), July 2015 (EP-353/2009/I), February 2016 (EP-353/2009/J) and April 2016 (EP-353/2009/K). Similarly, EPD issued the Environmental Permit (EP) for TMCLKL in November 2009 (EP-354/2009) and the Variation of Environmental Permit (VEP) in December 2010 (EP-354/2009/A), January 2014 (EP-354/2009/B), December 2014 (EP-354/2009/C) and March 2015 (EP-354/2009/D).
- 1.1.4 The Project is a designated Project and is governed by the current permits for the Project, i.e. the amended EPs issued on 11 April 2016 (EP-353/2009/K) and 13 March 2015 (EP-354/2009/D) (for TMCLKL Southern Landfall Reclamation only).
- 1.1.5 A Contract Specific EM&A Manual, which included all Contract-relation contents from the original EM&A Manuals for the Contract, was issued in May 2012.
- 1.1.6 Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Highways Department (HyD) as the consultants for the design and construction assignment for the Project’s reclamation works (i.e. the Engineer for the Contract).
- 1.1.7 China Harbour Engineering Company Limited (CHEC) was awarded by HyD as the Contractor to undertake the construction work of the Contract.
- 1.1.8 Ramboll Hong Kong Limited. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) for the Project.
- 1.1.9 AECOM Asia Co. Ltd. (AECOM) was appointed by CHEC to undertake the role of Environmental Team for the Contract for carrying out the EM&A works.
- 1.1.10 The construction phase of the Contract under the EPs was commenced on 12 March 2012 and will be tentatively completed by early Year 2018.
- 1.1.11 According to the Contract Specific EM&A Manual, there is a need of an EM&A programme including air quality, noise, water quality and dolphin monitoring and environmental site inspections. The EM&A programme of the Project commenced on 12 March 2012.

### 1.2 Scope of Report

- 1.2.1 This is the Final EM&A Review Report under the Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for the Contract from 12 March 2012 and 30 April 2018.

### 1.3 Contract Organization

1.3.1 The Contract organization structure is shown in Appendix A. The key personnel contact names and numbers are summarized in Table 1.1.

**Table 1.1 Contact Information of Key Personnel**

Party	Position	Name	Telephone	Fax
<b>Engineer's Representative (ER)</b>  (Ove Arup & Partners Hong Kong Limited)	Senior Resident Engineer	Seven Yau	3698 5850	2698 5999
<b>IEC / ENPO</b>  (Ramboll Hong Kong Limited)	Independent Environmental Checker	Ray Yan	3465 2836	3465 2899
	Environmental Project Office Leader	Y. H. Hui	3456 2850	3465 2899
<b>Contractor</b>  (China Harbour Engineering Company Limited)	Environmental Officer	Louie Chan	36932254	2578 0413
	24-hour Hotline	Alan C.C. Yeung	9448 0325	--
<b>ET</b>  (AECOM Asia Company Limited)	ET Leader	Echo Leong	3922 9280	2317 7609

### 1.4 Summary of Construction Works

1.4.1 The construction phase of the Contract under the EP commenced on 12 March 2012.

1.4.2 As informed by the Contractor, details of the major works carried out in the reporting period are listed below:-

#### **Marine-base**

- Additional GI installation
- Backfill cellular structure
- Band drain installation
- Capping Beams structures
- Cellular structure – (capping beams, connecting arcs, installation & backfilling)
- Cone penetration test;
- Conforming sloping seawalls
- Connecting arc cell installation
- Construction of cellular structure
- Construction of conveyors for public fill
- Construction of temporary jetties for surcharge laying

- Construction of temporary pier at Portion A
- Construction of temporary seawall
- Deep Cement Mixing
- Earthwork fill
- Flat barge of unloading public fill for surcharge laying
- Geotechnical Instrumentation works
- Geotextile laying and fabrication;
- Ground investigation
- Installation of silt screen at sea water intake of HKIA
- Installations of Precast Culverts except sloping outfalls
- Instrumentation works
- Jet grout columns works
- Laying geo-textile
- Laying stone blanket
- Maintenance of Silt curtain
- Maintenance of silt curtain & silt screen at sea water intake of HKIA
- Optimizing rubble mound seawalls
- Outfall installation
- Portion D Construction of Access to Portion A
- Precast Yard for seawall blocks & culverts
- Precast Yard setup
- Public filling
- Reinstatement of seawall
- Removal of Temporary Seawall
- Rock filling
- Rubble Mound Seawall
- Sand blanket laying
- Sand blanket trial
- Sand filling
- Seawall blocks for temporary construction
- Silt curtain deployment and repairing
- Silt curtain fabrication and deployment; and
- Sloping Seawalls
- Stone blankets laying.
- Stone column installation
- Stone column installation trial;
- Surcharge laying and removal
- Temporary bridge at Portion D
- Temporary Watermain construction along access at Portion D
- Vibro-compaction on surcharge
- Maintenance of silt curtain & silt screen at sea water intake of HKIA (As informed by the Contractor, the silt curtain at NE Airport Cooling Water Intake has been removed on 10 May 2016.)

**Land-base**

- Constructing site access at Works Area WA2 to Ying Hei Road, Tung Chung;
- Construction of Permanent Seawall
- Construction of Sloping Outfalls

- Construction of Temporary Marine Access at Works Area WA2
- Deep Cement Mixing
- Drainage works at Works Area WA2 and WA3;
- Earthwork fill
- Erection of site office for CHEC(GD) at Works Area WA2
- Geotechnical Instrumentation Works
- Geotextile fabrication at Works Area WA2 and WA4; and
- Green roof construction at Works Area WA2
- Hoarding erection at Work Areas Portion D and Works Area WA2
- Installations of Precast Culverts except sloping outfalls
- Installed sandbag at Works Area WA2
- Jet grout columns works
- Maintenance of Temporary Marine Access at Works Area WA2
- Maintenance works of Public Works Regional Laboratory at Works Area WA3
- Maintenance works of Site Office at Works Area WA2
- Public Works Regional Laboratory erection and construction at Works Area WA3;
- Removal of Temporary Seawall
- Sign board erection at Works Area WA2
- Silt curtain fabrication at Works Area WA2 and WA4;
- Site office erection and construction at Works Area WA2;
- Stone column installation barges setup and their maintenance works at Works Area WA4.
- Surcharge removal & laying
- Vertical Band Drains

1.4.3 The construction programme of the Contract is shown in Appendix B.

1.4.4 The general layout plan of the Contract site showing the detailed works areas is shown in Figure 1.

1.4.5 The environmental mitigation measures implementation schedule are presented in Appendix C.

## 2. SUMMARY OF EM&A PROGRAMME REQUIREMENTS

### 2.1 Monitoring Parameters

- 2.1.1 The Contract Specific EM&A Manual designated 4 air quality monitoring stations, 2 noise monitoring stations, 21 water monitoring stations (9 Impact Stations, 7 Sensitive Receiver Stations and 5 Control/Far Field Stations) to monitor environmental impacts on air quality, noise and water quality respectively. Pre-set and fixed transect line vessel-based dolphin survey was required in two AFCD designated areas (Northeast and Northwest Lantau survey areas). The impact dolphin monitoring at each survey area should be conducted twice per month.
- 2.1.2 For impact air quality monitoring, monitoring locations AMS2 (Tung Chung Development Pier) and AMS7 (Hong Kong SkyCity Marriott Hotel) were set up at the proposed locations in accordance with Contract Specific EM&A Manual. The conditional omission of Monitoring Station AMS6 was effective since 19 November 2012. For monitoring location AMS3 (Ho Yu College), as proposed in the Contract Specific EM&A Manual, approval for carrying out impact monitoring could not be obtained from the principal of the school. Permission on setting up and carrying out impact monitoring works at nearby sensitive receivers, like Caribbean Coast and Coastal Skyline, was also sought. However, approvals for carrying out impact monitoring works within their premises were not obtained. Impact air quality monitoring was conducted at site boundary of the site office area in Works Area WA2 (AMS3B) respectively. Same baseline and Action Level for air quality, as derived from the baseline monitoring data recorded at Ho Yu College, was adopted for this alternative air quality location.
- 2.1.3 For impact noise monitoring, monitoring locations NMS2 (Seaview Crescent Tower 1) was set up at the proposed locations in accordance with Contract Specific EM&A Manual. However, for monitoring location NMS3 (Ho Yu College), as proposed in the Contract Specific EM&A Manual, approval for carrying out impact monitoring could not be obtained from the principal of the school. Permission on setting up and carrying out impact monitoring works at nearby sensitive receivers, like Caribbean Coast and Coastal Skyline, was also sought. However, approvals for carrying out impact monitoring works within their premises were not obtained. Impact noise monitoring was conducted at site boundary of the site office area in Works Area WA2 (NMS3B) respectively. Same baseline noise level, as derived from the baseline monitoring data recorded at Ho Yu College was adopted for this alternative noise monitoring location. Reference is made to ET's proposal of relocation of air quality monitoring station (AMS7) dated on 2 February 2015, with no further comment received from IEC on 2 February 2015 and no objection received from EPD on 5 February 2015, the impact air quality monitoring station AMS7 (Hong Kong SkyCity Marriott Hotel) has been relocated to AMS7A (Chu Kong Air-Sea Union Transportation Company Limited) on 3 February 2015. Action Level for air quality, as derived from the baseline monitoring data recorded at Hong Kong SkyCity Marriott Hotel, was adopted for this alternative air quality location.
- 2.1.4 As informed by the premises owner of (AMS7A) - Chu Kong Air-Sea Union Transportation Co. LTD would not grant us the permission to install air quality monitoring equipment (High volume sampler) and conduct 1-hour TSP/24 hour TSP monitoring at the premises of Chu Kong Air-Sea Union Transportation Co. LTD after December 2015. In order to fulfil the EM&A requirement of this Contract, as permission to conduct impact air quality monitoring at the premise of Hong Kong SkyCity Marriott Hotel has been granted in December 2015, ET proposed relocation of air quality monitoring station (AMS7A) on 15 December 2015, with no further comment received from IEC on 15 December 2015 and no particular comment received from EPD on 21 December 2015, the impact air quality monitoring station AMS7A (Chu Kong Air-Sea Union Transportation Company Limited) has been relocated to AMS7 (Hong Kong SkyCity Marriott Hotel) on 30 December 2015. The impact air quality monitoring for December 2015 was conducted before the relocation of AQM Station from AMS7A to AMS7. The impact air quality monitoring has been conducted at AMS7 (Hong Kong SkyCity Marriott Hotel) since 1 January 2016, Action Level for air quality, as derived from the baseline monitoring data recorded at Hong Kong SkyCity Marriott Hotel will be adopted for this air quality monitoring location.
- 2.1.5 In accordance with the Contract Specific EM&A Manual, twenty-one stations were designated for impact water quality monitoring. The nine Impact Stations (IS) were chosen on the basis of their proximity to the reclamation and thus the greatest potential for water quality impacts, the seven Sensitive Receiver Stations (SR) were chosen as they are close to the key sensitive receives and the

five Control/ Far Field Stations (CS) were chosen to facilitate comparison of the water quality of the IS stations with less influence by the Project/ ambient water quality conditions.

- 2.1.6 Due to safety concern and topographical condition of the original locations of SR4 and SR10B, alternative impact water quality monitoring stations, naming as SR4(N) and SR10B(N), were adopted, which are situated in vicinity of the original impact water quality monitoring stations (SR4 and SR10B) and could be reachable. Same baseline and Action Level for water quality, as derived from the baseline monitoring data recorded, were adopted for these alternative impact water quality monitoring stations.
- 2.1.7 Due to the commencement of marine work of the Expansion of Hong Kong International Airport into a Three-Runway System (3RS Project), a large portion of works site boundary will be established at the northern part of the existing airport Island. The recent arrangement of works boundary of 3RS Project which delineates the boundary of the designated 3RS Project (for the indicative 3RS boundary, please refer to Figure 4a-4d). The works area of 3RS project will affect several water quality monitoring stations and the dolphin monitoring transect lines which are being used for conducting monitoring under Contract No. HY/2010/02. The EM&A Programme for the HZMB HKBCF Project will therefore be affected. As a result, a proposal was prepared by ET in September 2016 in accordance with condition 5.1 of EP-353/2009/K and condition 4.1 of EP-354/2009/D, to relocate water quality monitoring stations from SR5, IS10, CS(Mf)3 and alternate the transect lines of impact dolphin monitoring 2, 3, 4, 5, 6 and 7. A revised proposal has been updated and sent to IEC/ENPO for their further review on 24 March 2017 and IEC/ENPO verified the revised proposal on the same date. The revised proposal has been sent to authority by project team for review and approval on 3 April 2017. The authority subsequently approved the proposal on 12 May 2017.
- 2.1.8 Due to substantial completion of marine works by the end of June 2017, it is anticipated that the remaining construction works under Contract No. HY/2010/02, which include ground investigation (GI) works, construction of temporary timber platform, removal of jetty and reinstatement of seawall at the western section, construction of outfall at the eastern seawall, would cause limited disturbance to water column and not to the seabed. In view of this, a proposal for change of EM&A programme/requirements was prepared by ET in accordance with Condition 5.1 of EP-353/2009/K and Condition 4.1 of EP-354/2009/D, to terminate water quality monitoring works at stations IS5, IS(Mf)6, IS8, SR4(N), SR5(N), SR6, SR10A, SR10B(N), CS4, CSA and CS6, and impact dolphin monitoring (line-transect vessel survey method) covering NEL and NWL when perimeter silt curtain under the Contract is completely removed and vessel traffic numbers average 10 per month for Contract No. HY/2010/02. A revised proposal has been updated and sent to IEC/ENPO for their further review on 15 August 2017 and IEC/ENPO verified the revised proposal on 16 August 2017. The revised proposal has been sent to authority by project team for review and approval on 21 August 2017. The authority subsequently approved the proposal on 7 September 2017.
- 2.1.9 As informed by IEC/ENPO on 27 December 2017, three water quality monitoring stations of SR3, SR10A and SR10B(N) were relocated due to topographical condition. Alternative water quality monitoring stations SR3(N), SR10A(N) and SR10B(N2) were justified and certified by the ET Leader of Contract No. HY/2013/01 on 8 November 2017, verified by IEC/ENPO on 13 November 2017. The proposal was submitted to the authority for review and approval on 29 November 2017. The authority subsequently approved the proposal on 22 December 2017. Relocation of water quality monitoring stations from SR3, **SR10A** and SR10B(N) to SR3(N), SR10A(N) and SR10B(N2) are adopted effective from 22 December 2017.
- 2.1.10 As informed by IEC/ENPO on 26 February 2018, air quality monitoring station AMS7 was relocated due to permission to carry out AQM at Hong Kong SkyCity Marriott Hotel could not be granted after the end of January 2018. Alternative air quality monitoring station AMS7B was justified and certified by ET Leader of Contract No. HY/2013/01 on 22 January 2018, verified by IEC/ENPO on 24 January 2018. The proposal was submitted to the authority for review and approval on 30 January 2018. Relocation of air quality monitoring stations from AMS7 to AMS7B is adopted effective from 6 February 2018 with the Authority's consent.
- 2.1.11 As informed by the Contractor, major construction activities for Contract no. HY/2010/02 has been substantially completed and it is anticipated that potential environmental impact for remaining works

which only include ad hoc minor maintenance/touch up works on seawall under the Contract would be insignificant. In view of this, a proposal for Termination of EM&A Programme was prepared and certified by ET in accordance with Condition 5.1 of EP-353/2009/K and Condition 4.1 of EP-354/2009/D to terminate the EM&A Programme for Contract no. HY/2010/02. The proposal has been sent to IEC/ENPO for their further review on 17 April 2018 and IEC/ENPO verified the proposal on 18 April 2018. The proposal has been sent to authority by project team on 19 April 2018. The proposal was subsequently approved by the authority.

2.1.12 The monitoring locations used during the reporting period are depicted in Figures 2, 3 and 4 respectively.

2.1.13 The Contract Specific EM&A Manual also required environmental site inspections for air quality, noise, water quality, chemical, waste management, marine ecology and landscape and visual impact.

## 2.2 Environmental Quality Performance (Action/Limit Levels)

2.2.1 The environmental quality performance limits (i.e. Action and/or Limit Levels) of air, noise, water quality and Chinese White Dolphin monitoring were derived from the baseline air, baseline noise, baseline water quality monitoring results at the respective monitoring stations and baseline Chinese White Dolphin monitoring respectively, while the environmental quality performance limits of noise monitoring were defined in the EM&A Manual.

2.2.2 The environmental quality performance limits of air quality, noise, water and Chinese White Dolphin monitoring are given in Appendix D.

## 2.3 Environmental Mitigation Measures

2.3.1 Relevant environmental mitigation measures were stipulated in the Particular Specification and EPs (EP-353/2009/K and EP-354/2009/D) (for TMCLKL Southern Landfall Reclamation only) for the Contractor to adopt. A list of environmental mitigation measures and their implementation statuses are given in Appendix C.

## 3. MONITORING RESULTS

### 3.1 Air Quality Monitoring

#### 3.1.1 Introduction

- 3.1.1.1. In accordance with the Contract Specific EM&A Manual, impact 1-hour Total Suspended Particulates (TSP) monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was carried out for at least once every 6 days at the 4 monitoring stations (AMS2, AMS3B, AMS6 and AMS7).
- 3.1.1.2. The monitoring locations for impact air quality monitoring are depicted in Figure 2a-2e. However, for AMS6 (Dragonair/CNAC (Group) Building), permission on setting up and carrying out impact monitoring works was sought, however, access to the premise has not been granted yet on this report issuing date.
- 3.1.1.3. Reference is made to ET's proposal of relocation of air quality monitoring station (AMS7) dated on 2 February 2015, with no further comment received from IEC on 2 February 2015 and no objection received from EPD on 5 February 2015, the impact air quality monitoring station AMS7 (Hong Kong SkyCity Marriott Hotel) has been relocated to AMS7A (Chu Kong Air-Sea Union Transportation Company Limited) on 3 February 2015 and monitoring work at AMS7A commenced on 5 February 2015. Action Level for air quality, as derived from the baseline monitoring data recorded at Hong Kong SkyCity Marriott Hotel, was adopted for this alternative air quality location.
- 3.1.1.4. ET proposed relocation of air quality monitoring station (AMS7A) on 15 December 2015, with no further comment received from IEC on 15 December 2015 and no particular comment received from EPD on 21 December 2015. The impact air quality monitoring were conducted at AMS7 (Hong Kong SkyCity

Marriott Hotel), Action Level for air quality, as derived from the baseline monitoring data recorded at Hong Kong SkyCity Marriott Hotel will be adopted for this air quality monitoring location.

- 3.1.1.5. As informed by IEC/ENPO on 26 February 2018, air quality monitoring station AMS7 was relocated due to permission to carry out AQM at Hong Kong SkyCity Marriott Hotel could not be granted after the end of January 2018. Alternative air quality monitoring station AMS7B was justified and certified by ET Leader of Contract No. HY/2013/01 on 22 January 2018, verified by IEC/ENPO on 24 January 2018. The proposal was submitted to the authority for review and approval on 30 January 2018. Relocation of air quality monitoring stations from AMS7 to AMS7B is adopted effective from 6 February 2018 with the Authority's consent.
- 3.1.1.6. The weather was mostly sunny and fine, with occasional cloudy and occasional rainy in the reporting period. The major dust source in the reporting period included construction activities from the Contract, as well as nearby traffic emissions.
- 3.1.1.7. The number of monitoring events and exceedances recorded in each month of the reporting period are presented in Table 3.1 and Table 3.2 respectively.
- 3.1.1.8. The baseline and impact air quality monitoring data are provided in the baseline monitoring report and monthly EM&A reports respectively. The graphical plots of the impact air quality monitoring results are provided in Appendix E. No specific trend of the monitoring results or existence of persistent pollution source was noted.

**Table 3.1 Summary of Number of Monitoring Events for 1-hr & 24-hr TSP Concentration**

Monitoring Parameter	Location	No. of monitoring events*
		Mar 12 – Apr 18
1-hr TSP	AMS2	1056
	AMS3A/3B	1056
	AMS7/7A/7B	1056
24-hr TSP	AMS2	352
	AMS3A/3B	352
	AMS7/7A/7B	352

\*No. of monitoring events carried out under this Contract only. The rest of the monitoring events between September 2017 and April 2018 for 1-hour TSP and 24-hour TSP are reported in the EM&A Report prepared for Contract No. HY/2013/01.

**Table 3.2 Summary of Number of Exceedances for 1-hr & 24-hr TSP Monitoring**

Monitoring Parameter	Location	Level of Exceedance	Number of Exceedance
			Mar 12 – Apr 18
1-hr TSP	AMS2	Action	0
		Limit	0
	AMS3A/3B	Action	0
		Limit	0
	AMS7/7A/7B	Action	0
		Limit	0
<b>Total</b>			<b>0</b>
24-hr TSP	AMS2	Action	2
		Limit	1
	AMS3A/3B	Action	18
		Limit	9
	AMS7/7A/7B	Action	5
		Limit	0
<b>Total</b>			<b>35</b>



### **3.1.2 Environmental Mitigation Measures**

- 3.1.2.1 Relevant Air mitigation measures, as recommended in the EIA Report were stipulated in the EM&A Manual for the Contractor to adopt. The implementation status of air quality mitigation measures is depicted in Appendix C.

### **3.1.3 Summary of Actions Taken in the event of Non-Compliance**

- 3.1.3.1 Other than the mitigation measures implemented as mentioned in Appendix C, in the event of non-compliance, actions were taken in accordance with the Event-Action Plan in the EM&A Manual. The Contractor was notified immediately. Investigation was carried out within three working days of identification of non-compliance such as identifying the air pollution sources, checking the implementation status of the mitigation measures, etc., and measurement was repeated to confirm the investigation findings. Further investigation was carried out to identify the source of pollution when deemed necessary. In summary, no direct evidence between the exceedance at AMS2, AMS3B and the Hong Kong Boundary Crossing Facilities - reclamation works could be established for all non-compliances and therefore no action was required to be taken.

### **3.1.4 Review of Reasons for and the implications of Non-Compliance**

- 3.1.4.1 A total of 25 Action Level exceedances and 10 Limit Level exceedances were recorded during the 24-hr TSP impact monitoring in the reporting period. 4 Action Level exceedances of 24-hr TSP were recorded Contract No. HY/2013/01 and the rest of the exceedances were recorded by this Contract. No action level or limit level exceedance of 1-hour TSP monitoring at all impact air quality monitoring station the reporting period. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports. For level of exceedance, location and when exceedances were recorded, please refer to relevant monthly EM&A report. Investigation results confirm that the exceedances were not related to the activities of this Contract. No other 1-hour and 24-hour action and limit level exceedances was recorded at all monitoring stations in the reporting period.

### **3.1.5 Environmental Acceptability of the Contract**

#### **3.1.5.1 Trend of 1-hour and 24-hour TSP**

- 3.1.5.1.1 The trend of TSP at AMS2, AMS3A/3B and AMS7/7A/7B were comparable to the baseline range and showed no noticeable deterioration of air quality during the impact monitoring period.

#### **3.1.5.2 Correlation between exceedances with possible dust generating activities**

- 3.1.5.2.1 Possible dust generating activities of the Contract did not cause any noticeable deterioration in air quality at Hong Kong Boundary Crossing Facilities – Reclamation Works. With proper implementation of air quality mitigation measures, the monitoring results showed no adverse air quality impact.

### 3.1.5.3 Comparison of EM&A results with EIA predictions

**Table 3.3 Maximum Predicted TSP concentrations under the “Mitigated” scenario**

ASR	Location ID in the approved EIA report	Predicted Daily Concentrations*		Average Impact 1-hour TSP Levels#, $\mu\text{g}/\text{m}^3$	Average Impact 24-hour TSP Levels#, $\mu\text{g}/\text{m}^3$
		1-hour	24-hour		
AMS7/AMS7A/AMS7B	Hong Kong SkyCity Marriott Hotel	344	92	77	66

\*Extracted from Table 5-8 of the EIA report

# Both average Impact 1-hour TSP Levels and average Impact 24-hour TSP Levels were calculated using monitoring data obtained by this Contract between March 2012 to August 2017. Monitoring works and monitoring data between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.

3.1.5.3.1 At 1-hour and 24-hour TSP monitoring station at AMS7/AMS7A/AMS7B, the average 24-hour TSP levels recorded in the EM&A programme were in similar magnitude as the Daily dust level predicted in the EIA.

### 3.1.6 Practicality and Effectiveness of the EIA process and the EM&A programme

3.1.6.1 Monitoring and auditing of air quality was recommended for the construction phase of the Project in the EIA to ensure no exceedance of the TSP standard at the sensitive receiver.

3.1.6.2 The air quality monitoring methodology was effective in monitoring the air quality impacts of the Contract. Baseline monitoring of 1-hour and 24-hour TSP helped to determine the ambient TSP levels at the sensitive receiver prior to commencement of construction works. During periods when there were possible dust generating construction activities, impact monitoring of 24-hour TSP helped to determine whether the Contract caused unacceptable air quality impacts on the sensitive receiver. As the scope of the Contract mainly includes reclamation works during the reporting period and dust generation from the construction activities such as wind erosion and sand filling is the key concern during the construction phase. The monitoring of TSP was therefore considered to be cost effective for the Contract.

3.1.6.3 All recommended mitigation measures were applicable to the Contract. As discussed above, the Contract did not cause unacceptable air quality impacts. However, as the nature of the Contract is reclamation works of approximately 130 hectares of land in size, some mitigation measures in practice were generally focused on dust generating activities only. Nevertheless, the mitigation measures implemented were effective and efficient in controlling air quality impacts.

3.1.6.4 Monitoring and audit of 24-hour TSP levels had ensured that any deterioration in air quality was readily detected and timely actions taken to rectify any non-compliance. Assessment and analysis of 24-hour TSP results collected throughout the baseline and impact monitoring periods also demonstrated the environmental acceptability of the Contract. Weekly site inspections had ensured that the EIA recommended air quality mitigation measures were effectively implemented. The EM&A program is considered to be cost effective.

### 3.1.7 Conclusion

3.1.7.1 Air quality monitoring for the Contract was conducted during the baseline and impact monitoring periods. Key construction activities including reclamation works, seawall construction, maintenance of silt curtain, outfall installation, additional GI installation, reinstatement of seawall, surcharge removal & laying, construction of permanent seawall, maintenance works of site office, works of public works regional laboratory at works area and maintenance of temporary marine access. The trend of 1-Hour TSP and 24-hour TSP was comparable to the baseline range and showed no noticeable deterioration of air quality

during the monitoring period. Although exceedances were recorded, they were isolated and short-term events. There is no evidence of long-term deteriorating trend.

- 3.1.7.2 The average 24-hour TSP levels recorded at AMS7/7A/7B in EM&A programme were in similar magnitude with the Daily dust level predicted in the EIA. No TSP level was predicted by the Project EIA at AMS2 and AMS3A/3B and therefore, no comparison of EM&A data with EIA predictions could be made. Air quality mitigation measures implemented were effective in controlling air quality impacts.

### 3.2 Noise Monitoring

#### 3.2.1 Introduction

- 3.2.1.1 Impact noise monitoring was conducted at the 2 monitoring stations (NMS2 and NMS3A/3B) for at least once per week during 07:00 – 19:00 in the reporting period.
- 3.2.1.2 The monitoring locations used during the reporting period are depicted in Figure 2a-2e.
- 3.2.1.3 Major noise sources during the noise monitoring included construction activities of the Contract and nearby traffic noise.
- 3.2.1.4 The number of impact noise monitoring events and exceedances are summarized in Table 3.4 and Table 3.5 respectively.

**Table 3.4 Summary of Number of Monitoring Events for Impact Noise**

Monitoring Parameter	Location	No. of monitoring events
		Mar 12- April 18
Noise	NMS2	283
	NMS3A/NMS3B	283

\*Only no. of monitoring events carried out under this Contract is reported. The rest of the monitoring events between September 2017 and April 2018 for construction noise monitoring are reported in the EM&A Report prepared for Contract No. HY/2013/01.

**Table 3.5 Summary of Number of Monitoring Exceedances for Impact Noise**

Monitoring Parameter	Location	Level of Exceedance	No. of Exceedance(s)
Noise	NMS2	Action	1
		Limit	0
	NMS3A/NMS3B	Action	0
		Limit	1
<b>Total</b>			<b>2</b>

- 3.2.1.5 The graphical plots of the trends of the monitoring results are provided in Appendix F. No specific trend of the monitoring results or existence of persistent pollution source was noted.

#### 3.2.2 Environmental Mitigation Measures

- 3.2.2.1. Relevant noise mitigation measures, as recommended in the EIA Report were stipulated in the EM&A Manual for the Contractor to adopt. The implementation status of noise mitigation measures is depicted in Appendix C. Construction Noise Permits were applied and complied with when construction works were carried out during restricted hours.

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

##### 3.2.3.1 Summary of Non-compliance (Exceedances)

- 3.2.3.1.1 Table 3.5 summarised the number exceedance recorded at each monitoring station throughout the impact monitoring period. 1 Limit Level exceedance of impact noise monitoring was recorded in June 2012. No exceedance of impact noise monitoring was recorded by Contract No. HY/2013/01 and all exceedances were recorded by this Contract. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports. Investigation results show that the exceedance was not due to the Project works. The Contractor was recommended to continue implementing existing noise mitigation measures. 1 noise complaint was received in October 2012 and therefore 1 Action Level Exceedance of construction noise was recorded in October 2012. Investigation into the possible causes of such exceedance was undertaken and reported in the

respective monthly EM&A reports, the investigations results confirmed that the action and limit level exceedance were not related to Contract.

### 3.2.3.2 Summary of Actions Taken in the event of Non-Compliance

3.2.3.2.1 Investigation was carried out within three working days of identification of non-compliance. Assessments showed that all exceedances were not due to the works and therefore no action was required to be taken and these were verified by the IEC.

### 3.2.3.3 Review of Reasons for and the implications of Non-Compliance

3.2.3.3.1 There was 1 limit level exceedance recorded at NMS3A. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports. The investigations results confirmed that the limit level exceedance was not related to Contract.

3.2.3.3.2 1 noise complaint was received in October 2012 and therefore 1 Action Level Exceedance of construction noise was recorded in October 2012. Investigation into the possible causes of such exceedance was undertaken and reported in the respective monthly EM&A reports, the investigations results confirmed that the action level exceedance was not related to Contract.

3.2.3.3.3 In summary, the average impact noise levels recorded in the reporting period were generally within the range of the predicted construction noise levels in the Project EIA.

## 3.2.4 Environmental Acceptability of the Contract

### 3.2.4.1 Trend of Measured Noise Level (Leq)

3.2.4.1.1 Other than an isolated event, the noise monitoring results for all monitoring stations were below the Limit levels. The trend showed no noticeable noise impact from the Project during the impact monitoring period.

### 3.2.4.2 Correlation between exceedances with possible noise generating activities

3.2.4.2.1 Exceedances were rarely recorded for all monitoring stations. However, exceedance was recorded at monitoring station NMS3A/3B.

3.2.4.2.2 For exceedance recorded at NMS3A, it exceeded the limit level, trench excavation (near access road) and general site clearance were the major land-based construction activity being undertaken at Works Area WA2 during the monitoring period. Stone blanket laying at Portion B and Portion E1 was the major marine-based construction activities being undertaken during the monitoring period. Field observations indicated that construction activities, like sheet piling, percussive piling and excavation, were carrying out in other private developments (which are located at eastern and southern side of the Works Area WA2) during the course of monitoring, which are close to the monitoring station NMS3A and contribute to the measured noise level. Therefore, noise generating activities of the Project did not cause any noticeable noise impact at the sensitive receivers. The impact noise levels recorded were generally similar to the predicted construction noise levels in the Project EIA.

## 3.2.5 Comparison of EM&A results with EIA predictions

3.2.5.1 The EIA predicted that noise emitted by the use of Powered Mechanical Equipment (PME) on site would be the major source of noise impact during construction. The Construction Noise Impact at Noise Sensitive Receivers are summarised in Table 3.6 (extracted from Table 6-9 of the EIA Report).

**Table 3.6 Construction Noise Impact at Noise Sensitive Receivers**

NSR	Location	Predicted Noise Levels, dB(A)	
		Total Noise Impacts, dB(A)	Criterion, dB(A)
NMS2	Seaview Crescent Tower 1	74	75

3.2.5.2 During the construction period of the Contract, 1 limit level and 1 action level exceedances were recorded in the impact monitoring period. The measured impact noise levels of the Contract for each monitoring station are summarised in Table 3.7 for comparison with EIA.

**Table 3.7 Summary of Construction Noise Monitoring Results in the Reporting Period**

NSR	Location	Average <sup>#</sup> , dB(A), Leq,30 mins	Range <sup>#</sup> , dB(A), Leq,30 mins	Limit Level, dB(A), Leq,30 mins
NMS2	Seaview Crescent Tower 1	67	61 - 74 <sup>^</sup>	75
NMS3A/NMS3B	Site Boundary of Site Office Area at Works Area WA2	66	53 - 75 <sup>*</sup>	70

\* Façade measurements were made at NMS3A on or before 5 September 2012. Free field measurements were made on all monitoring after 5 September 2012 due to removal of site office located at NMS3A. A correction of +3 dB(A) was be made to all free field measurements.

# Both average and range of construction noise were calculated using monitoring data obtained by this Contract between March 2012 to August 2017. Monitoring works and monitoring data between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF – Passenger Clearance Building.

3.2.5.3 The average impact noise levels recorded in EM&A during impact monitoring were all within the range of the predicted construction noise levels in the EIA Report. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports.

### 3.2.6 Practicality and Effectiveness of the EIA process and the EM&A programme

3.2.6.1 Monitoring and auditing of noise was recommended for the construction phase of the Project in the EIA process to ensure compliance with the appropriate criterion at the receivers.

3.2.6.2 The noise monitoring methodology was effective in monitoring the noise impacts of the Contract. Baseline noise monitoring determined the ambient noise levels at the sensitive receivers prior to commencement of construction works. During periods when possible noise generating construction activities were on-going, impact noise monitoring would determine whether the Contract caused adverse noise impacts on the sensitive receivers. The monitoring methodology which focus on  $L_{eq30}$  minute therefore considered to be cost effective for the Contract.

3.2.6.3 Noise mitigation measures recommended in the EIA Report were stipulated in the EM&A Manual for the Contractor to implement during the construction phase of the Project. The list of noise mitigation measures is depicted in Appendix C. All recommended mitigation measures were applicable to the Contract. As discussed above, the Contract did not cause adverse noise impacts to the receivers. Therefore, the mitigation measures implemented were effective and efficient in controlling noise impacts.

3.2.6.4 Monitoring and audit of noise levels ensured that any noise impact to the receivers would readily be detected and timely actions could be taken to rectify any non-compliance. Assessment and analysis of noise results collected throughout the baseline and impact monitoring periods also demonstrated the environmental acceptability of the Contract. Weekly site inspections ensured that the EIA recommended noise mitigation measures were effectively implemented. The EM&A program is considered to be cost effective.

### 3.2.7 Conclusion

3.2.7.1 The trend of  $L_{eq}$  was comparable to the baseline range and showed no noticeable noise impact during the impact monitoring period. Although exceedance was recorded, there was no evidence of long-term increasing trend. The average impact noise levels recorded in EM&A programme were all lower than the construction noise levels predicted in the EIA.

### 3.3 Water Quality Monitoring

#### 3.3.1 Introduction

3.3.1.1 Impact water quality monitoring was conducted 3 times per week during mid-ebb and mid-flood tides at 21 water monitoring stations (9 Impact Stations, 7 Sensitive Receiver Stations and 5 Control/Far Field Stations).

3.3.1.2 The monitoring locations used during the reporting period are depicted in Figure 3a-3f.

3.3.1.3 Number of impact water quality monitoring events and exceedances recorded in the reporting period at each impact station are summarized in Table 3.8 and Table 3.9 respectively.

**Table 3.8 Summary of Number of Monitoring Events for Impact Water Quality**

Monitoring Parameter	Tide	No. of monitoring events <sup>#</sup>	
		Mar 17 – Apr 18	
Water Quality	Mid-Ebb	844*	
	Mid-Flood	845*	

#monitoring works between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.

**Table 3.9 Summary of Water Quality Exceedances in Mar 12 – Apr 18**

Station	Exceedance Level	DO (S&M)		DO (Bottom)		Turbidity		SS		Total	
		Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood
IS5	Action	0	0	1	2	0	0	3	4	4	6
	Limit	0	0	0	0	0	0	0	0	0	0
IS(Mf)6	Action	0	0	0	0	0	1	5	9	5	10
	Limit	0	0	0	0	0	0	0	0	0	0
IS7	Action	1	0	1	0	0	1	3	10	5	11
	Limit	0	0	0	0	0	0	0	0	0	0
IS8	Action	0	0	0	0	0	1	2	10	2	11
	Limit	0	0	0	0	0	1	0	3	0	4
IS(Mf)9	Action	0	3	0	1	0	0	5	12	5	16
	Limit	0	0	0	0	0	0	0	1	0	1
IS10/IS10(N)	Action	6	4	8	6	0	1	1	13	14	25
	Limit	0	0	0	0	0	0	0	3	0	3
IS(Mf)11	Action	3	5	7	7	0	2	1	11	11	25
	Limit	0	0	0	0	0	0	0	1	0	1
IS(Mf)16	Action	1	2	5	2	0	0	5	6	12	11

	Limit	0	0	0	0	0	0	0	0	0	0
IS17/IS17(N)	Action	3	4	8	3	0	1	5	1	15	10
	Limit	0	0	0	0	1	0	3	0	4	0
SR3/SR3(N)	Action	2	1	0	0	0	0	3	4	5	5
	Limit	0	0	0	0	0	0	0	0	0	0
SR4(N)	Action	0	0	0	0	0	1	1	12	1	13
	Limit	0	0	0	0	0	1	1	1	1	2
SR5/SR5(N)	Action	1	1	1	1	1	1	0	19	4	21
	Limit	0	0	0	0	0	0	0	2	0	3
SR6	Action	0	2	0	1	0	0	2	12	2	15
	Limit	0	0	0	0	0	0	0	2	0	2
SR7	Action	1	4	0	0	0	0	0	15	1	19
	Limit	0	0	0	0	0	0	1	0	0	1
SR10A	Action	0	0	1	1	0	0	0	3	0	5
	Limit	1	1	0	0	0	0	0	1	1	2
SR10B(N)	Action	0	0	1	2	0	0	0	7	1	8
	Limit	1	2	0	0	0	0	0	0	1	2
Total	Action	18	26	33	26	1	9	36	148	297	
	Limit	2	3	0	0	1	2	5	14	27	

Note: S: Surface;  
 M: Mid-depth;

3.3.1.4 Please refer to the monthly EM&A report (March 2012 to April 2018) accordingly for the details of the captioned exceedances.

3.3.1.5 The graphical plots of the trends of the monitoring results are provided in Appendix G. No specific trend of the monitoring results or existence of persistent pollution source was noted.

### 3.3.2 Environmental Mitigation Measures

3.3.2.1 Relevant water quality mitigation measures, as recommended in the EIA Report were stipulated in the EM&A Manual for the Contractor to adopt. The implementation status of water quality mitigation measure is depicted in Appendix C.

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

#### 3.3.3.1 Summary of Non-compliance (Exceedances)

3.3.3.1.1 Table 3.9 summarised the number of dissolved oxygen, turbidity and suspended solids exceedances recorded at each impact monitoring station and sensitive receiver station throughout the impact



monitoring period. A total of 297 Action Level exceedances and 27 Limit Level exceedances were recorded during the reporting period.

### 3.3.4 Review of Reasons for and the implications of Non-Compliance

3.3.4.1 297 Action Level exceedances and 27 Limit Level exceedances were recorded during the reporting period. After investigation, all impact water quality exceedances were considered not related to this Contract except the Action Level Exceedance recorded at SR5 and Limit Level Exceedance recorded at IS10 on 18 Dec 13 were related to Contract. The silt curtain integrity checking record on 4 January 14 shows that the disconnected silt curtain observed on 18 Dec 13 at northwest of HKBCF were rectified and the Contractor was further reminded to ensure provision of ongoing maintenance to the silt curtains and to carry out maintenance work once defects were found. For details of investigation please refer to monthly EM&A Report December 2013.

3.3.4.2 The Limit Level Exceedance of Turbidity, Limit Level Exceedance of Suspended Solids recorded at IS17 during ebb tide on 10 October 2014 and Action Level Exceedance of Suspended Solids recorded at IS17 during flood tide on 20 October 2014, which were considered related to this Contract. Recommendation has been given and rectification has been carried on by the Contractor on 28 October 2014. As rectification was provided by the Contractor and recurrence of Contract related exceedance was not observed in the subsequent monitoring events. For details of investigation please refer to monthly EM&A Report October 2014.

3.3.4.3 After review of the investigation results of the other water quality exceedances (for detail of investigations please refer to section 4 of monthly EM&A report (March 12 to April 18), ambient conditions were considered to have effects on the water quality monitoring results. Exceedances were considered to be due local effects in the vicinity of the monitoring station where exceedance was recorded and after investigation, there is no adequate information to conclude the recorded exceedances are related to this Contract.

### 3.3.5 Environmental Acceptability of the Contract

#### 3.3.5.1 Trend of water quality

##### Dissolved Oxygen

3.3.5.1.1 The dissolved oxygen levels recorded in the impact monitoring period showed a seasonal trend in which lower DO levels were recorded during the wet season and higher DO levels were recorded during the dry season. One reason for this seasonal trend may have been the increase in water temperature during the wet season leading to a decrease in the solubility of oxygen in water and vice versa during the dry season. The trend of dissolved oxygen levels was presented in Appendix G. Although action and limit levels of DO levels were triggered during the reporting period, they were concluded not related to this Contract's construction activities after investigations. Furthermore the trend of dissolved oxygen levels at each monitoring stations in Appendix G did not show any noticeable deterioration of dissolved oxygen levels.

##### Turbidity

3.3.5.1.2 The turbidity levels were fairly distributed at most monitoring station during the reporting period and no apparent trend was observed. The trend of turbidity levels of each monitoring station was shown in Appendix G. Despite few isolated events, turbidity levels of all monitoring stations were still lower than the Action Level during the monitoring period.

##### Suspended Solids

3.3.5.1.3 The trend of suspended solid levels of each impact monitoring station was shown similar with that of control stations of each tide. The trend of suspended solid levels of each monitoring station was shown

in Appendix G. Despite few isolated events, suspended solids levels of all monitoring stations were still lower than the Action Level during the monitoring period.

### 3.3.6 Correlation between exceedances with possible marine construction activities

3.3.6.1 With proper implementation of water quality mitigation measures, marine construction activities of the Contract were not observed to cause any unacceptable water quality impacts to the sensitive receiver stations.

**Table 3.10 Summary of number of water quality exceedances per monitoring month**

Month (mm/yy)	Imported Fill* m <sup>3</sup> /month	DO (Surface & Middle); and DO (Bottom)	Depth averaged Turbidity	Depth averaged SS	Total
Mar-12	0	0	1	0	1
Apr-12	0	0	2	3	5
May-12	0	1	0	0	1
Jun-12	0	0	0	2	2
Jul-12	0	0	0	0	0
Aug-12	28,053	0	0	0	0
Sep-12	12,769	0	0	0	0
Oct-12	28,882	0	1	1	2
Nov-12	2,276	0	0	9	9
Dec-12	0	0	0	10	10
Jan-13	0	0	0	6	6
Feb-13	2,608	0	0	0	0
Mar-13	52568	0	0	2	2
Apr-13	119967	0	1	4	5
May-13	448159	0	0	5	5
Jun-13	245188.5	7	1	1	9
Jul-13	252327.4	0	0	3	3
Aug-13	287182.6	0	1	5	6
Sep-13	368995	0	0	5	5
Oct-13	602966	0	0	8	8
Nov-13	593481	0	0	15	15
Dec-13	930460	0	0	5	5
Jan-14	952135	0	0	7	7
Feb-14	886830	0	0	1	1
Mar-14	1,111,998	0	1	9	10
Apr-14	1,291,808	0	0	0	0
May-14	1,181,417	0	0	0	0
Jun-14	752,771	0	0	0	0
Jul-14	1,252,437	0	0	0	0
Aug-14	1,427,973	14	0	0	14
Sep-14	1,370,511	0	0	4	4

Month (mm/yy)	Imported Fill* m <sup>3</sup> /month	DO (Surface & Middle); and DO (Bottom)	Depth averaged Turbidity	Depth averaged SS	Total
Oct-14	1,750,755	0	1	17	18
Nov-14	1,788,611	0	0	1	1
Dec-14	1,608,665	0	0	2	2
Jan-15	1,774,785	0	0	13	13
Feb-15	1,120,668	0	0	2	2
Mar-15	376,294	0	0	2	2
Apr-15	240,642	0	0	0	0
May-15	743,731	0	0	0	0
Jun-15	368,595	0	0	0	0
Jul-15	35,549	0	0	2	2
Aug-15	23,625	0	0	0	0
Sep-15	34,520	0	0	1	1
Oct-15	9,246	0	0	1	1
Nov-15	0	0	0	1	1
Dec-15	0	0	0	1	1
Jan-16	0	0	0	0	0
Feb-16	0	0	2	2	4
Mar-16	38,318.70	0	0	0	0
Apr-16	18,738.00	0	0	0	0
May-16	45,272.30	0	0	1	1
Jun-16	27,882.00	0	0	0	0
Jul-16	54,308.70	0	0	0	0
Aug-16	18,958.70	0	0	0	0
Sep-16	30,298.70	0	0	3	3
Oct-16	24,499.30	0	0	5	5
Nov-16	280,380	0	0	12	12
Dec-16	11,704.00	0	0	1	1
Jan-17	18,892.70	0	0	0	0
Feb-17	17,574.70	0	0	3	3
Mar-17	20,601.30	0	2	4	6
Apr-17	39,960.70	0	0	1	1
May-17	22,430.70	0	0	0	0
Jun-17	0	0	0	0	0
Jul-17	0	0	0	2	2
Aug-17	0	0	0	0	0
Sep-17	0	86	3	5	94
Oct-17	0	0	0	2	2
Nov-17	0	0	0	6	6
Dec-17	0	0	0	3	3

Month (mm/yy)	Imported Fill* m <sup>3</sup> /month	DO (Surface & Middle); and DO (Bottom)	Depth averaged Turbidity	Depth averaged SS	Total
Jan-18	0	0	0	0	0
Feb-18	0	0	0	1	1
Mar-18	0	0	0	1	1
Apr-18	0	0	0	3	3

\*Only marine filling is counted

3.3.6.2 As shown in Table 3.10, there was no apparent correlation between the filling rates and the number of water quality exceedances recorded per monitoring month.

3.3.6.3 For dissolved oxygen, the numbers of dissolved oxygen exceedances show no noticeable deterioration of dissolved oxygen or correlation between filling rate and dissolved oxygen exceedance.

3.3.6.4 For turbidity, the numbers of turbidity exceedances show no noticeable increase of turbidity or correlation between filling rate and turbidity exceedance.

3.3.6.5 For suspended solids, the numbers of suspended solids exceedances show no noticeable increase of suspended solid or correlation between filling rate and suspended exceedance.

3.3.6.6 The trend did not show any correlation between water quality impact and the filling rates during the impact monitoring period.

3.3.6.7 With proper implementation of water quality mitigation measures and additional mitigation measures, marine construction activities of the Contract were not observed to cause any unacceptable water quality impacts to the impact monitoring stations and sensitive receiver stations.

### 3.3.7 Comparison of EM&A results with EIA predictions

3.3.7.1 Results from the sensitive receiver stations were compared with the EIA predictions for the sensitive receivers in the following manner:

- WSR 27 - San Tau Beach SSSI with SR3/SR3(N)
- WSR 22c- Tai Ho Wan Inlet (outside) with SR4(N)
- WSR 25 - Cooling water intake at HK International Airport with SR5/SR5(N)

#### Dissolved oxygen (DO)

3.3.7.2 According to Section 9.10.7.4 of the EIA Report, the dissolved oxygen depletion from the loss of sediment to suspension during the construction of the reclamation for HKBCF was calculated to be 0.4 mg/L at WSR25. Since, as stated in the Table 9.6a of the EIA report the DO of the North-western Water Control Zone is generally high with average ranges between 5.7 – 6.8 mg/L and depletion will not be detrimental to the ecological systems of the area. The average Depth averaged DO record at SR5/SR5(N) is 7.9 mg/L in November 2014 when the filling rate/month is the highest during the reporting period and therefore no significant dissolved oxygen depletion from was noted during impact monitoring.

3.3.7.3 The baseline dissolved oxygen levels and the level of depletion during impact monitoring at each sensitive receiver are summarised in Tables 3.11.

**Table 3.11 Comparison of depth averaged dissolved oxygen levels (Surface & Mid-depth, Bottom depth) during baseline and impact monitoring period (mgL<sup>-1</sup>)**

Sensitive Receiver in Baseline	Associated Location during Impact Monitoring	Monitoring Depth	Baseline mean		Impact mean (November 2014)		Depletion during Impact Monitoring	
			Mid-ebb	Mid-flood	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood
SR3	SR3/SR3(N)*	Surface & mid	6.8	6.7	8.0	7.9	-1.2	-1.2
		Bottom	-	6.2	-	-	-	-
SR4 <sup>^</sup>	SR4(N)**	Surface & mid	6.1	6.3	8.4	8.4	-2.3	-2.1
		Bottom	6.0	6.2	8.3	8.3	-2.3	-2.1
SR5	SR5/SR5(N)**	Surface & mid	6.4	6.3	8.0	7.8	-1.6	-1.5
		Bottom	6.1	6.1	8.0	7.7	-1.9	-1.6
SR6	SR6**	Surface & mid	6.6	6.5	8.1	8.2	-1.5	-1.7
		Bottom	6.2	6.1	8.1	8.2	-1.9	-2.1
SR7	SR7**	Surface & mid	6.3	6.0	7.9	7.9	-1.6	-1.9
		Bottom	6.1	5.9	7.8	7.8	-1.7	-1.9
SR10A	SR10A	Surface & mid	6.0	6.0	7.6	7.6	-1.6	-1.6
		Bottom	5.7	5.8	7.6	7.6	-1.9	-1.8
SR10B <sup>^</sup>	SR10B(N)**	Surface & mid	6.1	6.0	7.6	7.6	-1.5	-1.6
		Bottom	6.2	5.8	7.6	7.6	-1.4	-1.8

<sup>^</sup>Due to safety issue, the water quality monitoring location of SR4 has been changed to SR4(N) and water quality monitoring location of SR10B has been changed as SR10B(N) during impact monitoring.

\*Only mid-depth station of DO were monitored at SR3 in mid-ebb during baseline monitoring, in both mid-ebb and mid-flood during impact monitoring as the water depth less than 3m.

\*\* The mid-depth station of DO was omitted during impact monitoring as the water depth is less than 6m.

3.3.7.4 Comparing baseline averaged dissolved oxygen levels with EM&A results; no significant depletion was found at all sensitive receiver locations. There was no adverse effect on dissolved oxygen concentrations as a result of the filling works of the Contract as the depleted dissolved oxygen concentrations did not breach the Water Quality Objectives.

#### Suspended solids (SS)

3.3.7.5 The EIA determined the acceptability of elevations in suspended sediment concentrations based on the Water Quality Objectives. The Water Quality Objectives for suspended sediments for the North Western Water Control Zones were defined as being an allowable elevation of 30% above the background. The ambient and tolerance values for suspended sediment concentrations in the vicinity of sensitive receivers adopted in Table 9.11 of the EIA Report are presented in Table 3.12.

**Table 3.12 Ambient and Tolerance Values for Suspended Sediment Concentrations (mgL<sup>-1</sup>) in the Vicinity of Sensitive Receivers adopted in the EIA**

Sensitive Receiver in EIA Report	Associated EPD Station	Ambient value (90th Percentile)		Tolerance value (30% Tolerance)	
		Dry Season	Wet Season	Dry Season	Wet Season
WSR 27	NM5,6,8	8.3	5.6	2.5	1.7
WSR 22c	NM1,2,3	5.5	3.7	1.7	1.1
WSR 25	NM1,2,3	5.5	3.7	1.7	1.1

3.3.7.6 The use of single layer silt curtain system has been modelled in the 2012 mitigated scenario. The predicted suspended sediment concentrations under the 2012 mitigated scenario of the Contract as shown in Table 9.22 in the EIA Report are summarised in Table 3.13.

**Table 3.13 Calculated Elevations in Suspended Sediment Concentrations at Sensitive Receivers (mgL<sup>-1</sup>) under the 2012 mitigated scenario from the EIA**

Sensitive Receiver in EIA Report	Associated Location during Impact Monitoring	Calculated Elevations	
		Dry Season	Wet Season
WSR 27	SR3/SR3(N)	0.0	0.0
WSR 22c	SR4(N)	0.1	0.0
WSR 25	SR5/SR5(N)	3.0	2.7

3.3.7.7 For suspended solids, as the baseline monitoring was conducted in October 2011 which is the transitional season or just the start of dry season while no data were recorded in the wet season, direct comparison with the EIA predictions could not be made. The comparison of EM&A results with baseline results in the following paragraphs was based on the criteria of acceptability of 30 percent elevations above the background as defined in the Water Quality Objectives which was also used in scenario predictions in the EIA.

3.3.7.8 Baseline water quality monitoring for the Contract was conducted during the transitional season. The mean baseline suspended solids level at each sensitive receiver and 30 percent of the baseline mean are presented in Table 3.14.

**Table 3.14 Baseline suspended solids levels and 30% of baseline mean (mgL<sup>-1</sup>)**

Associated Location in Baseline Report	Baseline mean		30% of baseline mean	
	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood
SR3	14.0	16.3	4.2	4.9
SR4	11.3	12.2	3.4	3.7
SR5	10.6	11.9	3.2	3.6
SR6	11.9	11.9	3.6	3.6
SR7	11.4	10.4	3.4	3.1
SR10A	10.2	10.2	3.1	3.1
SR10B	11.5	11.1	3.5	3.3

3.3.7.9 The average elevations in suspended solids concentrations of November 2014 were compared with the baseline levels are provided in Table 3.15.

**Table 3.15 Average suspended solids levels at sensitive receivers (mgL<sup>-1</sup>) in November 2014**

Sensitive Receiver in Baseline	Associated Location during Impact Monitoring	Impact SS Mean (in November 2014)			
		Mid-ebb	Elevation	Mid-flood	Elevation
SR3	SR3/SR3(N)	4.7	-9.3	6.1	-10.2
SR4	SR4(N)*	6.4	-4.9	9.4	-2.8
SR5	SR5/SR5(N)	4.9	-5.7	8.6	-3.3
SR6	SR6	5.3	-6.6	5.9	-6.0
SR7	SR7	6.3	-5.1	7.2	-3.2
SR10A	SR10A	4.2	-6.0	5.3	-4.9
SR10B	SR10B(N)	4.4	-7.1	6.0	-5.1

#monitoring works between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.

3.3.7.10 With the highest filling rate in Nov 2014, the elevations in suspended solids levels were below 30 percent of the baseline suspended solids levels at all stations. Regional influences would have effects

on the deterioration in water quality than activities at the work site. Despite few isolated events described in section 3.3.4.1 and 3.3.4.2, all other exceedances were considered to be due local effects in the vicinity of the monitoring station where exceedance was recorded and after investigation, there is no adequate information to conclude that those recorded exceedances are related to this Contract.

### 3.3.8 Practicality and Effectiveness of the EIA process and the EM&A programme

- 3.3.8.1 Monitoring and audit of water quality was recommended for the construction phase of the Contract in the EIA process to ensure any deterioration in water quality would be readily detected and timely action could be taken to rectify the situation.
- 3.3.8.2 Baseline water quality monitoring determined the ambient water quality in the region prior to commencement of construction works. Impact water quality monitoring helped to determine whether the Contract would cause unacceptable water quality impacts on the sensitive receivers.
- 3.3.8.3 Water quality mitigation measures were recommended in the EIA and a list of water quality mitigation measures were stipulated in the EM&A Manual for the Contractor to implement during the construction phase of the Project. The list of water quality mitigation measures is depicted in Appendix C. All recommended mitigation measures were applicable to the Contract. Precautionary measures including installation of silt curtains were also implemented to prevent migration of suspended solids towards the sensitive receivers. Monitoring results showed that water quality at sensitive receivers was affected by regional water quality influenced by tidal and climatic conditions, local impacts from the vicinity of the receivers. As discussed above, the Contract was not observed to cause unacceptable water quality impacts to the sensitive receivers. Therefore, the mitigation measures implemented were effective and efficient in controlling water quality impacts.
- 3.3.8.4 Monitoring and audit of water quality ensured that any water quality impacts to the receivers would be readily detected and timely actions could be taken to rectify any non-compliance. Assessment and analysis of water quality results collected throughout the baseline, impact and post-Contract monitoring periods also demonstrated the environmental acceptability of the Contract. Weekly site inspections ensured that the EIA recommended and additional water quality mitigation measures were effectively implemented.

### 3.3.9 Conclusion

- 3.3.9.1 Water quality monitoring for the Contract was conducted during the baseline and impact monitoring periods. For suspended solids levels, a total of 203 exceedances were recorded. Assessment indicated that there was no correlation between the filling rates and the number of water quality exceedances recorded. Despite few isolated events described in section 3.3.4.1 and 3.3.4.2, all other exceedances were considered to be due local effects in the vicinity of the monitoring station where exceedance was recorded and after investigation, there is no adequate information to conclude that those recorded exceedances are related to this Contract.
- 3.3.9.2 The DO and SS levels recorded at SR3/SR3(N), SR4(N) and SR5/SR5(N) were in similar magnitude as predicted in the Project EIA. No comparison could be made from SR6 to SR10B(N) as predictions were not made in the Project EIA. For turbidity, as no prediction was made in the Project EIA, no comparison could be made. With the implementation of water quality mitigation measures recommended in the EIA and additional water quality mitigation measures implemented during the EM&A programme, marine construction activities of the Contract did not cause any unacceptable water quality impacts to the sensitive receivers.

### 3.4 Dolphin Monitoring

#### 3.4.1 Introduction

- 3.4.1.1 In accordance with the requirements specified in Section 9.3 of the EM&A Manual, monthly vessel-based surveys were conducted to monitor impacts on the Indo-Pacific humpback or Chinese white dolphin (*Sousa chinensis*). The surveys were conducted in the areas known as NEL and NWL and travelled the transect lines depicted in Figure 4a-4d.
- 3.4.1.2 The total transect length for NEL and NWL combined is approximately 111km although some Contract and other works at times have caused temporary truncation of some lines, particularly lines 1,2,9 and 10. Due to the presence of deployed silt curtain systems at the site boundaries of the Contract, some of the transect lines shown in Figure 4a-4d could not be fully surveyed during the regular survey. Transect 10 is reduced from 6.4km to approximately 3.6km in length due to the HKBCF construction site.
- 3.4.1.3 Coordinates for transect lines 1, 2, 7, 8, 9 and 11 have been updated in respect to the Proposal for Alteration of Transect Line for Dolphin Monitoring approved by EPD in August 2015 and May 2017. Therefore, the total transect length for both NEL and NWL combined is reduced to approximately 108km.
- 3.4.1.4 Surveys were conducted twice per month, using combined line transect and photo-identification techniques. The research team comprised qualified and experienced researchers and Marine Mammal Observers (MMO). The Dolphin Monitoring for this Contract ceased in August 2017 therefore, this report includes survey data from March – August 2017, inclusive. Monitoring works and monitoring data between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.

#### 3.4.2 Environmental Mitigation Measures

- 3.4.2.1 Relevant mitigation measures for dolphins, as recommended in the EIA Report were stipulated in the EM&A Manual for the Contractor to adopt. The implementation status of mitigation measures for dolphins is depicted in Appendix C.

#### 3.4.3 Summary of Actions Taken in the event of Non-Compliance

- 3.4.3.1 The enhanced EAP for CWD monitoring with numerical AL/LL were implemented in the reporting period.
- 3.4.3.2 15 Limit level exceedances and 6 Action level exceedances were recorded in the reporting year for impact dolphin monitoring. And the Event Action Plan was triggered (Table 3.16)

Table 3.16 Summary of the STG/ANI Quarterly Values

Quarterly period ^		STG*	ANI**	Level Exceeded
March 2013- May 2013	NEL	0	0	Limit Level
	NWL	3	8.6	
June 2013- August 2013	NEL	1.8	1.8	Action
	NWL	5.7	16.6	Action
September 2013- November 2013	NEL	0	0	Action
	NWL	6.7	24.7	Action



<b>December 2013- February 2014</b>	<b>NEL</b>	0.5	0.5	Action
	<b>NWL</b>	4.5	20.7	Action
<b>March 2014- May 2014</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	0.7	3	
<b>June 2014- August 2014</b>	<b>NEL</b>	0.5	2.7	Limit Level
	<b>NWL</b>	3.6	9.8	
<b>September 2014- November 2014</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	2.1	7.1	
<b>December 2014- February 2015</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	2.1	4.3	
<b>March 2015- May 2015</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	1.6	5.2	
<b>June 2015- August 2015</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	1.7	4.7	
<b>September 2015- November 2015</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	1.9	3.8	
<b>December 2015- February 2016</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	1.2	4.5	
<b>March 2016- May 2016</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	1.4	4.6	
<b>June 2016- August 2016</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	1.4	4.6	
<b>September 2016- November 2016</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	2.4	8	
<b>December 2016- February 2017</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	1.9	8.3	
<b>March 2017- May 2017</b>	<b>NEL</b>	0	0	Limit Level
	<b>NWL</b>	0.5	2.9	
<b>June 2017- August 2017</b>	<b>NEL</b>	0	0	Limit Level

	<b>NWL</b>	1.6	5.1	
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\* STG represents groups of dolphins (recorded on effort)

\*\* ANI represents number of individual dolphins (recorded on effort)

^The Dolphin Monitoring for this Contract ceased in August 2017 therefore, this report includes survey data from March 2012 – August 2017, inclusive. Monitoring works and monitoring data between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.

### 3.4.4 Summary of Survey Effort and Dolphin Sightings

3.4.4.1 Vessel-based surveys were conducted monthly from March 2012 to August 2017. A total of 267 survey days were completed between March 2012-August 2017. A total of 14,387km were completed of which 14,116.9 km were conducted under favourable conditions (defined as Beaufort Sea State 3 or better and with visibility of >1km). In the first year of impact monitoring (2012-13), 49 survey days were completed (total travelled 2627.5km; under favourable conditions 2601.4km). In the second year of impact monitoring (2013-14), 50 survey days were completed (total travelled 2667.1km; 2595.4km under favourable conditions). In the third year of impact monitoring (2014-15), 48 survey days were completed (total travelled 2641.7km; 2637.1km conducted under favourable conditions). In the fourth year of impact monitoring (2015-16), 48 survey days were completed (total travelled 2615.7km; 2572 km conducted under favourable conditions). In the fifth year of impact monitoring (2016-17), 48 survey days were completed (total travelled 2619.7km; 2520.9 km conducted under favourable conditions). In the final reporting period of impact monitoring for this contract (March 2017– August 2017), 24 survey days were completed (total travelled 1215.3km; 1190.1km conducted under favourable conditions). For the entire contract, >98% of the track length covered was completed under favourable conditions. Between March 2017 and August 2017, a total of 20 dolphin sightings were recorded, 8 “on effort”<sup>1</sup> and 12 as “opportunistic”. In the first year of impact monitoring, a total of 203 dolphin sightings were recorded, 145 as on effort and 58 as opportunistic. In the second year, a total of 135 dolphin sightings were recorded, 91 on effort and 44 opportunistic. In the third year, a total of 72 dolphin sightings were recorded, 46 on effort and 26 opportunistic. In the fourth year, a total of 43 dolphin sightings were recorded, 26 on effort and 17 opportunistic. In the fifth year, a total of 50 dolphin sightings were recorded, 32 on effort and 18 opportunistic. Throughout the monitoring period a total of 523 sightings were recorded, 348 “on effort” and 175 opportunistic (Appendix H: Table 1; Figure 1).

Table 3.17 Summary of All Dolphin Impact Monitoring Sightings from Year 1 (March 2012 – February 2013) to the Year 6 (March 2017 – August 2017) of the HKBCF Reclamation Works Project

Year	Total Sightings
2012-13	203
2013-14	135
2014-15	72
2015-16	43
2016-17	50
March 17 – August 2017*	20

\* The Dolphin Monitoring for this Contract ceased in August 2017, monitoring works and monitoring data between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.

<sup>1</sup> On effort” sightings are classified as those sightings which are made when the vessel is on the designated trackline and observers are actively searching. “Opportunistic sightings” are those sightings which occur while travelling between tracklines, additional sightings made when travelling back to a transect line after photographing a dolphin group and/or any dolphins noted when transiting between areas or on passage to transect lines.

### 3.4.5 Distribution

3.4.5.1. Sightings of dolphins were divided into yearly periods. The number of sightings steadily decreased from March 2012 to February 2016, from 145 to 26 on effort sightings. In 2016-17, there was a slight increase to 32 on effort sightings (Appendix H: Table 1). A marked shift in sightings from throughout NEL and NWL to the northwest of NWL and waters adjacent to south NWL occurs from 2012 to 2017 (Appendix H: Figure 2). Dolphins were consistently distributed in areas of rocky, reefy shoreline or where there was a marked depth contour. These areas are the Sha Chau and Lung Kwu Chau Marine Protected Area (SCLKCMPA), the adjacent maritime border of Hong Kong SAR and the Peoples Republic of China (PRC) and the Tai O area. Since long term monitoring has been initiated by AFCD, there has been a regular and year-round occurrence of dolphins in these areas of northern Lantau.

### 3.4.6 Encounter Rate

3.4.6.1 Encounter rates of “on effort” sightings (i.e. groups) for the years 2012-13 to 2016-17 were calculated<sup>2</sup>. The yearly encounter rate (using on effort sightings recorded during Beaufort Sea State 3 or better) has decreased from 5.57 sightings per 100km effort to 1.01 sightings per 100km effort, between year 1 and year 4 of the impact monitoring period. In year 5 (2016-17) a slight increase in encounter rate was recorded; 1.27 sightings per 100km<sup>3</sup> number of sightings (Appendix H: Table 1).

3.4.6.2 After considering the various statistical processes that best fit the data collected by this Contract, ANOVA is powerful enough to discern whether there is significant difference between baseline and monitored period. We therefore selected the statistical process for the data specific to this Contract. A repeated measures two-way ANOVA with unequal sample size was conducted. Impact monitoring from all quarters (impact phase) comparison is made to a single time within the baseline monitoring period, September to November 2011<sup>4</sup>, this baseline data set has been used consistently throughout this projects EM&A reporting. The requirement of this test was to explore differences between pre and impact monitoring phase. This comparison evaluates whether there is significant difference between encounter rates obtained during baseline and encounter rates obtained right before this Contract ceased construction activities. For details of Monthly STG and ANI encounter rates used in ANOVA, please refer to Appendix H: Table 2a and Appendix H: Table 2b.

3.4.6.3 The two variables that were examined included the two locations (NEL and NWL) and two periods (baseline and impact phase). For the comparison between the baseline period and the impact phase, the p-values for the differences in average dolphin encounter rates of STG and ANI were 0.00 and 0.00 respectively. If the alpha value is set at 0.05, significant differences were detected between the present quarter and baseline quarter in both the average dolphin encounter rates of STG and ANI. The results show that a significant decline of both individuals and groups of dolphins between baseline and impact monitoring. HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified nor separate from the other stress factors. As AFCD Monitoring has reported a significant decline in this area prior to HKBCF construction activities, it is difficult to distinguish how much HKBCF activities may have influenced this existing decline.

### 3.4.7. Group Size

3.4.7.1 The majority of all sightings recorded were of less than 5 individuals (~70%), and sightings of groups containing 10 or more individuals were rare (2.7%). Larger groups were seen in southern NWL and in, or adjacent to, SCLKCMP. Groups of five individual dolphins or more were sighted throughout the year. Groups of 5-9 individuals and more than 10 individuals were also noted during opportunistic sightings recorded from WL (Appendix H: Figure 3; 4).

<sup>2</sup> The same calculation as implemented in the AFCD Annual Monitoring Reports was used; [(total ‘on effort’ sightings/total track conducted in Beaufort Sea State 3 or better)\*100] for both NEL and NWL separately and for the two areas combined.

<sup>3</sup> The encounter rate of March-August 2017 is not compared as a full year data set is not available

<sup>4</sup> Baseline period between September to November 2011

### 3.4.8. Habitat Use

- 3.4.8.1. The EM&A Manual stipulated that surveys be conducted in such a way as to be comparable to the baseline survey for this Contract (September -November 2011) and to the long term annual monitoring conducted by AFCD. As such, analyses of density per survey effort (DPSE) and sightings per survey effort (SPSE) were calculated in accordance with the methodology detailed in AFCD reports (e.g., AFCD 2012<sup>5</sup>). The survey areas are divided into 1km x 1km squares and the relative number of sightings and densities are calculated for each block. NEL has 55 blocks and NWL has 90 blocks (only blocks of more than 0.75km<sup>2</sup> are included). For the period March 2012-August 2017, DPSE was calculated in six categories, ranging from low use (< 20 DPSE), moderate use (20.1-60 DPSE) and high use (> 60 DPSE). Within NEL, 1.8% of its area was categorized as high use; 3.6% as moderate use and 94.6% as low use. Within NWL, 3.3% of its area was categorized as high use; 15.6% as moderate use and 81.1% as low use (Appendix H: Figure 5).
- 3.4.8.2. For the period March 2012-August 2017, SPSE was calculated in six categories, ranging from low use (< 5 SPSE), moderate use (5.1-15 SPSE) and high use (> 15 SPSE). Within NEL, 1.8% of its area was calculated as high use, 36.4% as moderate use and 61.8% as low use. Within NWL, 4.4% of its area was calculated as high use, 68.9% as moderate use and 26.7% as low use (Appendix H: Figure 6).
- 3.4.8.3. For the period February 2011 – January 2012, DPSE was calculated in six categories, ranging from low use to high use. NEL and NWL have 4% and 17% of each respective area classified as high use (> 60 DPSE); 20% (NEL) and 16% (NWL) as moderate use (20.1-60 DPSE); and 76% (NEL) and 68% (NWL) as low use (< 20 DPSE) (Appendix H: Figure 7). These figures were compared to impact monitoring data for March 2012-August 2017 (Table 3.18). For DPSE in NWL, there is a 13% increase in low use grid cells, no change in moderate use cells and a decrease of 14% in high use cells. Noting the geographical location of the cells between advanced and impact monitoring, there are less high use cells in the centre of the NWL area indicating that habitat utilisation of this area has decreased. In NEL, there is a 19% increase in low use grid cells, a 17% decrease in moderate use cells and a 2% decrease in high use cells.
- 3.4.8.4. For the period February 2011 – January 2012, SPSE was calculated in six categories, ranging from low use to high use. NEL and NWL have 9% and 22% of each respective area classified as high use (> 15 SPSE); 31% (NEL) and 27% (NWL) as moderate use (5.1-15 SPSE); and 60% (NEL) and 51% (NWL) as low use (< 5 SPSE) (Appendix H: Figure 7). These figures were compared to impact monitoring data for March 2012-August 2017 (Table 3.18). For SPSE in NWL, there is a 24% decrease in low use grid cells, a 42% increase in moderate use grid cells and a 18% decrease in high use grid cells. For SPSE in NEL, there is a 2% increase in low use grid cells, a 5% increase in moderate use cells and a 7% decrease in high use cells.

Table 3.18 Comparison of low, moderate and high habitat utilisation in NEL and NWL between advanced and impact monitoring (in %)

<sup>5</sup> Agriculture, Fisheries and Conservation Department (AFCD) 2012. *Annual Marine Mammal Monitoring Programme April 2011-March 2012.* ) The Agriculture, Fisheries and Conservation Department, Government of the Hong Kong SAR.

	<b>Advanced*2012-17</b>		<b>Advanced*2012-17</b>	
<b>Frequency of Use</b>	NWL		NEL	
	DPSE			
<b>&lt;20</b>	68	81	76	95
<b>20-60</b>	16	16	20	3
<b>&gt; 60</b>	17	3	4	2
	SPSE			
<b>&lt;5</b>	51	27	60	62
<b>5-15</b>	27	69	31	36
<b>&gt;15</b>	22	4	9	2

\*Advance = advance baseline monitoring conducted between 2011 and 2012.

#### 3.4.9. Mother and Calf Pairs

- 3.4.9.1. During impact monitoring, twelve females were sighted with calves and/or juveniles; HZMB 014, HZMB 021, HZMB 023, HZMB 026, HZMB 043, HZMB 044, HZMB 047, HZMB 050, HZMB 073, HZMB 098, HZMB 114 and HZMB 116. Some calves could not be assigned to known or identifiable females (Appendix H: Figure 8). Mother-offspring bonds are known to last years, sometimes decades therefore, following calves throughout the impact monitoring period provides some insight to calf survivorship.
- HZMB 014: This female was sighted with a calf in 2012. In 2015, when last sighted during impact monitoring, there was a juvenile that, although not closely associated with her, corresponded with the size and colouration of a 3 year old dolphin.
- HZMB 021 (NL37): This female was sighted with a calf in 2012 and was not sighted again until early 2016. During this resighting, there was no juvenile of the appropriate age/colouration class recorded within the group
- HZMB 023: This female was noted in close association with a juvenile in 2012 (ID: HZMB 022) and the pair have been recorded consistently throughout the impact monitoring period.
- HZMB 026: This female was sighted with a calf in January 2013. When last resighted during impact monitoring in October 2014, a juvenile was recorded in close association.
- HZMB 044 (NL98): This female was first sighted with a new born calf in 2012 (ID: HZMB 125). Although there was a gap in resightings of approximately 15 months, this female was sighted with HZMB 125 in May 2016. When HZMB 044 was last sighted during impact monitoring in January 2017, HZMB 125 was not sighted. HZMB 125 would then have been 4.5 years old and the mother/offspring pair may no longer have had a close association
- HZMB 043: This female was seen once only with a calf in 2012. No more sightings of this individual have been recorded during impact monitoring.
- HZMB 047: This female was first identified in 2012. She was recorded with a calf in April 2015 and was not sighted again during the impact monitoring period.
- HZMB 050: This female was first sighted with a calf in 2012 and resighted with a closely associated juvenile in January 2014. During her last sighting, in July 2014, no juvenile was recorded within the group.
- HZMB 073: This female was first sighted with a calf in December 2012. In April 2013, the calf was recorded in close association with this female. When this female was sighted again, and for the final time during impact monitoring in May 2013, there were several young animals within this group but none were closely associated with her.
- HZMB 098 (NL104): This female was sighted with a calf in May 2013 and again in February 2015, with a juvenile in close association. This female was not sighted again until January 2017, at which time, no dolphin sighted within the group corresponded to the age/colouration profile of 3-4 year old dolphin. This female was last seen during impact monitoring in May 2017, again without an appropriately sized/coloured dolphin within the group.
- HZMB 114: This female was sighted with a new calf in November 2015 and was last sighted, still in close proximity to a juvenile in January 2017.
- HZMB 116: This female was sighted with a calf in December 2013 and when last sighted during impact monitoring in August 2014, a calf was still in close association with her.

#### 3.4.10. Activities

- 3.4.10.1. Five distinctive behavioural categories were defined; “feeding”, “travelling” and “multiple” (more than one behaviour was observed at one time), “other” and “unknown”. Feeding activity frequency dominated most years, except 2015-16 where travelling was the most frequently observed activity. In 2016-17, the last full year of impact monitoring data, feeding and multiple activities, which included feeding, were the most frequent activities. Although the frequency of focused surface active behaviour was relatively small in the first three years of impact monitoring, after March 2015, such behaviour was rarely seen and only in short bouts between other behaviours (so classified within the multiple behaviour group) (Appendix H: Figure 9). Although feeding behaviour occurred throughout the habitat, there is a preference for rocky reefy habitat along the shorelines of SCLKCMP and Tai O, which is the usual habitat of the dolphins prey. These areas have been consistently highlighted as critical habitat for dolphins (Appendix H: Figure 10).

#### 3.4.11. Photo-Identification Catalogue

3.4.11.1. A total of 122 dolphins comprise the photo identification catalogue established specifically for the HZMB Contract (Appendix H: Table 3). Not all dolphins photographed are identifiable as only individuals with unambiguous marks, cuts, wounds, injuries and/or pigmentation or with uniquely shaped fins can be included in the photo-identification catalogue. Several dolphins were resighted frequently (Table 3.19), although the majority of identified individuals were sighted only 1-2 times during the impact monitoring period. This implies that some individuals rely more on NWL and NEL habitat than others, as also indicated in the long term AFCD monitoring programme, and also reflects the declining use NEL and NWL habitat as the Project progressed. In 2016-17, there was some indication of a return of individuals sighted at the beginning of the impact monitoring period.

Table 3.19 Dolphins Frequently Recorded During Impact Monitoring Surveys.

HZMB ID	AFCD ID	SEEN IN BASELINE	No. DAYS SIGHTED IMPACT
HZMB 054	CH34	Y	16
HZMB 022	unknown	N	15
HZMB 044	NL98	Y	13
HZMB 023	unknown	*	12
HZMB 002	WL111	Y	12
HZMB 098	NL104	Y	10
HZMB 083	NL136	Y	9
HZMB 001	WL46	N	8
HZMB 051	NL213	N	7
HZMB 005	unknown	*	7
HZMB 041	NL24	Y	7
HZMB 094	unknown	*	7
HZMB 011	EL01	Y	6
HZMB 040	unknown	*	6
HZMB 064	unknown	*	6
HZMB 074	unknown	*	5

\* cannot be determined

### 3.4.12 Dolphin Abundance

3.4.12.1 For dolphin abundance, please refer to corresponding annual report.

### 3.4.13 Environmental Acceptability of the Contract

3.4.13.1 It was recognized in the EIA that the HZMB is adjacent to several areas of importance to the dolphin population of Hong Kong. As such, it was stipulated in the EM&A Manual for the HKBCF that a suitable analytical technique be proposed and implemented so that significant changes could be detected. A multi-parameter spatial (sometimes known as predictive) model was proposed and reviewed by management authorities and analyses developed as and when data has been made available. The purpose of the model was to make predictions of future habitat use, derived from baseline information, and compare these predictions to actual observations. Environmental covariates, such as salinity, temperature, depth, etc., which may also be drivers of dolphin habitat use, were also tested within spatial models so as to either eliminate or incorporate any influence these may have. The model thus incorporated environmental variables salinity, temperature, turbidity, depth, tidal state, time of day, as well as information associated with the sighting, e.g., group size, behavior, boat association. Following a meeting in October 2015, ENPO suggested that the information regarding density surface modelling presented in Quarterly EM&A Reports and Annual EM&A Review Reports be provided as a separate

report with details for review. This ET agreed all such data and results be removed and provided separately.

#### 3.4.14 Summary

3.4.14.1. The variable nature of habitat use, group size, behavior, mother and calf occurrence and encounter rates by small delphinids and the ability to detect significant change in small populations is a challenge faced by many research studies. Historical data from AFCD also shows such variability (in AFCD annual monitoring reports). A view of individual distribution and behavioural activities for the reporting year do show that areas of importance, such as Lung Kwu Chau, are still being frequented, behavioural activities appear similar to that known from pre construction information, although travelling frequency appears to be on the increase, and that at least one calf identified in 2012-13 has survived to 2016-17. In 2013-14, an emerging trend for decreased use of NEL was noted and no sightings were seen in NEL in 2016-17. A single, opportunistic sighting was made in NEL during this monitoring period. In addition, a decrease in sightings in the mid-section of NWL is also noted.

#### 3.4.15 Verification of Impact Statements Stated in EIA and Supporting Documentation

- 3.4.15.1 The statements made in the EIA and supporting documents are descriptive and do not provide a quantitative framework against which to compare data gathered during impact monitoring for the purposes of verifying impact on CWD. Further, some statements made pertain only to the operational phase of HZMB (that is, when all in water construction works are completed) and not the explicit impacts of the many different construction activities which are required to construct HZMB. In the interests of thoroughness, any impact statements made in key documents relevant to HKBCF are extracted here and commented on with regards to the data gathered from this the reporting year of construction activities at HKBCF.
- 3.4.15.2 The EIA report for HZMB<sup>6</sup> makes several statements with regards to impact on cetaceans during the construction phase in sections pertaining to water quality and bioaccumulation:
- 3.4.15.3 Construction Phase: In section 10.6.4.25 of the EIA report, it is stated that, “Project has low potential to cause increased sewage discharge, therefore this potential impact is insignificant. The potential water quality impacts due to site runoff, sewage from workforce and wastewater from various construction activities, and accidental spillage would be controlled through the implementation of suitable mitigation measures, including temporary drainage system, chemical toilets, etc”
- 3.4.15.4 Contract has largely maintained water quality objectives as described in the EM&A Manual. The exceedances noted were short in duration and localised to the Project site. These incidents were short in duration and when the Contractor was notified, actions were promptly taken and no further exceedances were noted.
- 3.4.15.5 In Section 10.6.4.37 of the EIA report, it is stated that, “Thus insignificant bioaccumulation impacts from the construction of HKBCF and HKLR are predicted for CWD (except perhaps with the exception of silver – as per 10.6.4.32)”
- 3.4.15.6 It is noted that for both of the above impact predictions to be investigated more thoroughly, long term trends in pathogens and toxin loads in CWD should be analysed. This has recently been completed for the Pearl River Delta (PRD) population of CWD and it is noted that both bioaccumulation and biomagnification are significantly higher than populations elsewhere (Gui *et al* 2014<sup>7</sup>). There has been no updated toxin analyses of Chinese white dolphin in the reporting year.
- 3.4.15.7 In Section 10.7.2.8 of the EIA report, it is stated that, “164 ha of sea area (138 ha reclamation and 26 ha works area) will be lost during construction due to HKBCF reclamation near the northeast Airport Island. Although the sea area is only utilised by limited number of individual CWD, it is of moderate

<sup>6</sup> Ove Arup & Partners Hong Kong Ltd 2009 HZMB – HKBCF & HKLR EIA Report. 24037-REP-125-01 Pages 83-5, 97, 115

<sup>7</sup> Gui, D., Yu, R., He, X., Tu, Q., Chen, L. and Wu, Y. Bioaccumulation and biomagnification of persistent organic pollutants in Indo-Pacific humpback dolphins (*Sousa chinensis*) from the Pearl River Estuary, China. *Chemosphere* 114:106-113



ecological value due to the close proximity of the dolphin hotspot at the Brothers Islands. Moderate impact is anticipated and mitigation measures are required. As the habitat loss due to construction would largely be carried forward to the operational phase and become permanent habitat loss, mitigation measures for operational phase (see Section 10.7.4) will mitigate this impact as well.”

- 3.4.15.8 At HKBCF, moderate impact is anticipated but the degree or type of impact is not quantified in any numerical, spatial or temporal scale. In the second year of construction activities at HKBCF there was an emerging pattern of decreased habitat use as indicated by encounter rate and number and type of “high” density cells in NEL. As anticipated in the second year (2013-14) report, this became more apparent in the third year (2014-2015) and NEL recorded no sightings in year four (2015-16) although a single sighting adjacent to HKBCF was made by MMO and site staff in November 2015 and again, in January 2017, audio recordings of dolphins were made adjacent to the newly designated marine protected area at the Brothers Islands. AFCD data indicate that higher than usual dolphin mortality has been recorded from 2014-15. Again, it is suggested that appropriate review of these data should be conducted to investigate any possible relationship with both anthropogenic activities and natural processes in the dolphins habitat. The impact of “permanent habitat loss” as a result of the HKBCF reclamation (Section 10.7.4. of the EIA), is stated to be fully mitigated by the establishment of a Marine Protected Area after the construction phase of the Project is completed. This predication cannot be assessed until the HZMB operational phase starts and the Marine Park Area is fully established. The Brothers Marine Protected Area was designated in December 2016.
- 3.4.15.9 The Ecological Baseline Survey<sup>8</sup> defines an Impact Index which is used to predict impact for each area through which the HZMB structure passes. HKBCF is located in the area defined as the “Northeast Lantau Section (NELS) – from the eastern edge of the airport platform to its connection to the North Lantau Highway”.
- 3.4.15.10 It is noted that this report states (Section 5.7.10) that “it is imperative that cumulative impacts along the whole alignment [of HZMB] are thoroughly assessed”.
- 3.4.15.11 A reference to cumulative impacts is made in Section 10.7.6 of the EIA. Section 10.7.6.3 is relevant to HKBCF. This refers only to the cumulative impact of the permanent loss of CWD habitat and no other impacts of either the construction or operational phase of the HZMB Contract. Nonetheless, the conclusion of this section states that the setting up of a marine park “effectively mitigates” CWD habitat loss. As such, this prediction cannot be verified until such a time as a marine park is established.
- 3.4.15.12 A cumulative assessment has been published using data gathered prior to the initiation of HKBCF construction activities (Marcotte *et al*, 2015<sup>9</sup>). This assessment notes that the increase in high speed ferry traffic has been concomitant to a significant decrease in dolphins sighted in NEL and adjacent NWL waters. Several other threats were considered in this study, however, high speed ferries were the most significant impact. Therefore, this study showed a significant decline in dolphins in NEL and adjacent areas was ongoing for a decade prior to commencement of HKBCF activities. The high speed ferry traffic has continued to increase in the area as HKBCF and other Projects have commenced<sup>10</sup>.
- 3.4.16 Practicality and Effectiveness of the EM&A Programme
- 3.4.16.1 Monitoring and auditing of marine mammals was recommended for the construction phase of HKBCF to evaluate impact on marine mammals.
- 3.4.16.2 Combined line transect and photo-identification methodologies have been used as part of the AFCD long term monitoring programme for over 15 years. As such, a long term data set can be used to establish trends in population distribution and abundance over the long term.
- 3.4.16.3 The AFCD annual monitoring reports for the period 2011-2012, 2012-13, 2013-14, 2014-15, 2015-16 and 2016-17 have all stated that a significant decline had been detected in population abundance in

<sup>8</sup> Agreement No. MW 01/2003. Hong Kong- Zhuhai- Macao Bridge: Hong Kong Section and the North Lantau Highway Connection: Ecological Baseline Survey. Final 9 Month Ecological Baseline Survey Report the (p 42 – 43)

<sup>9</sup> Marcotte, D., Hung, S. K., & Caquard, S. 2015. Mapping cumulative impacts on Hong Kong's pink dolphin population. *Ocean & Coastal Management*, 109, 51-63

<sup>10</sup> [http://www.mardep.gov.hk/en/publication/pdf/portstat\\_1\\_y\\_d2.pdf](http://www.mardep.gov.hk/en/publication/pdf/portstat_1_y_d2.pdf)

the NEL area over the last decade. Only long term inter annual abundance estimates can be used to detect such changes. This decline was noted prior to construction had begun at HKBCF and has now been attributed to high speed ferries by an independent study (see Section 3.4.15.12).

#### 3.4.17 Conclusion

- 3.4.17.1 Marine mammal monitoring was conducted between March 2012 and August 2017 in accordance with EM&A Manual methodologies. These methodologies have been invaluable in the past in determining both broad scale and long term patterns of distribution, abundance, association, habitat use and behavioral activities. There is historically much variation in these parameters and most observations to date have concurred with observations documented previously with the now emerging trend of decreased habitat use within NEL. As AFCD Monitoring has reported a significant decline in this area prior to HKBCF construction activities, it is difficult to distinguish how much HKBCF activities may have influenced this existing decline.
- 3.4.17.2 15 Limit level exceedances and 6 Action level exceedances were recorded in the reporting period for impact dolphin monitoring. After investigation, it was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified nor separate from the other stress factors. For investigation results please refer to Appendix L of the corresponding quarterly reports.

### 3.5 **Environmental Site Inspection and Audit**

#### 3.5.1 **Site Inspection**

- 3.5.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Contract. In the reporting period, 319 site inspections were carried out. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.
- 3.5.1.2 No substantial adverse environmental impacts were registered, indicating that mitigation measures implemented were effective and sufficient for the construction activities undertaken. For the minor deficiencies observed during regular site inspections and audit were rectified by the Contractor during the reporting period. For particular observations for air quality, noise, water quality, chemical and waste management, landscape and visual impact and other particular observations during the site inspections, please refer to relevant monthly EM&A reports, quarterly summary EM&A reports and annual EM&A review reports.

#### **4. ADVICE ON THE SOLID AND LIQUID WASTE MANAGEMENT STATUS**

##### **4.1 Summary of Solid and Liquid Waste Management**

- 4.1.1 The Contractor registered as a chemical waste producer for this project. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 4.1.2 As advised by the Contractor, 4,257.5m<sup>3</sup> hard rock and large broken concrete; 401,363.8m<sup>3</sup> of inert C&D Materials generated and reused in other Projects; 10,822,044.8m<sup>3</sup> of imported fill; 1,984,123.7m<sup>3</sup> of surplus surcharge exported to Macau; 342,712.8kg of metals; 8,034kg of paper/cardboard packaging; 17,953.3kg of plastics; 4,230.2m<sup>3</sup> other C&D waste such as general refuse were generated and disposed of and 37,418kg of chemical waste were generated and disposed of in the reporting period. The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system, dispose of C&D materials and wastes at designated ground and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 4.1.3 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.
- 4.1.4 The treated marine sediment and/or treated excavated filling material specified by Contract no. HY/2013/01 has been received as public fill for Contract no. HY/2010/02's reclamation filling works since January 2015. As informed by the Contractor in the reporting year, such site arrangement has been discontinued since 24 February 2016.
- 4.1.5 After checking with the Contractor, surcharge material was removed off site to Macau from 27 April 2016 and it was discontinued in April 2017. 1,984,123.7m<sup>3</sup> of surplus surcharge was exported to Macau during the reporting period. The Contractor was reminded to ensure consistency in quantities in case of any C&D material disposed off-site and/or no surcharge material removed off site

#### **5. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES**

##### **5.1 Implementation Status of Environmental Mitigation Measures**

- 5.1.1 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in Appendix C. Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.
- 5.1.2 Changes of EM&A programme such as conditional omission of air monitoring station (AMS 6) for this Contract; relocation of air quality monitoring station, relocation of construction noise monitoring station, impact water quality monitoring stations, alternation of the transect lines of dolphin monitoring were carried out during the reporting period. For background proposal date and approval date of each changes of the EM&A programme, please refer to the corresponding annual EM&A review report of this contract.
- 5.1.3 Overall, the EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme. .
- 5.1.4 The recommended environmental mitigation measures effectively minimize the potential environmental impacts from the Contract. The EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme during the reporting period.

## **6. SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT**

### **6.1 Summary of Exceedances of the Environmental Quality Performance Limit**

#### **6.1.1 For impact air quality monitoring**

6.1.1.1 A total of 25 Action Level exceedances and 10 Limit Level exceedances were recorded during the 24-hr TSP impact monitoring in the reporting period. 4 Action Level exceedances of 24-hr TSP were recorded Contract No. HY/2013/01 and the rest of the exceedances were recorded by this Contract. No action level or limit level exceedance of 1-hour TSP monitoring at all impact air quality monitoring station the reporting period. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports. For level of exceedance, location and when exceedances were recorded, please refer to relevant monthly EM&A report. Investigation results confirm that the exceedances were not related to the activities of this Contract. No other 1-hour and 24-hour action and limit level exceedances was recorded at all monitoring stations in the reporting period.

6.1.1.2 For impact air quality monitoring, all 1-Hour TSP results were below the Action and Limit Level in the reporting period.

#### **6.1.2 For construction noise**

6.1.2.1 There was one (1) limit level exceedance recorded at NMS3A in June 2012. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A report. For exceedance recorded at NMS3A, it exceeded the limit level, trench excavation (near access road) and general site clearance were the major land-based construction activity being undertaken at Works Area WA2 during the monitoring period. Stone blanket laying at Portion B and Portion E1 was the major marine-based construction activities being undertaken during the monitoring period. Field observations indicated that construction activities, like sheet piling, percussive piling and excavation, were carrying out in other private developments (which are located at eastern and southern side of the Works Area WA2) during the course of monitoring, which are close to the monitoring station NMS3A and contribute to the measured noise level. Therefore, noise generating activities of the Project did not cause any noticeable noise impact at the sensitive receivers. The impact noise levels recorded were generally similar to the predicted construction noise levels in the Project EIA. 1 noise complaint was received in October 2012 and therefore 1 Action Level Exceedance of construction noise was recorded in October 2012. Investigation into the possible causes of such exceedance was undertaken and reported in the respective monthly EM&A reports, the investigations results confirmed that the action level exceedance was not related to Contract.

#### **6.1.3 For impact water quality monitoring**

6.1.3.1 297 Action Level exceedances and 27 Limit Level exceedances were recorded during the reporting period. After investigation, all impact water quality exceedances were considered not related to this Contract except the Action Level Exceedance recorded at SR5 and Limit Level Exceedance recorded at IS10 on 18 Dec 13 were related to Contract. For details of investigation please refer to monthly EM&A Report of this Contract. The exceedances note at IS10 and SR5 on 18 Dec 13 were considered as Contract related. The silt curtain integrity checking record on 4 January 14 shows that the disconnected silt curtain observed on 18 Dec 13 at northwest of HKBCF were rectified and the Contractor was further reminded to ensure provision of ongoing maintenance to the silt curtains and to carry out maintenance work once defects were found. For details of investigation please refer to monthly EM&A Report December 2013; the Limit Level Exceedance of Turbidity and Limit Level Exceedance of Suspended Solids recorded at IS17 during ebb tide on 10 October 2014 and Action Level Exceedance of Suspended Solids recorded at IS17 during flood tide on 20 October 2014, which were considered related to this Contract. Recommendation has been given and rectification has been carried on by the Contractor on 28 October 2014. As rectification was provided by the Contractor and

recurrence of Contract related exceedance was not observed in the subsequent monitoring events. For details of investigation please refer to monthly EM&A Report October 2014.

6.1.3.2 The water quality recorded were generally similar to the predicted water quality during construction phase in the Project EIA.

**6.1.4 For dolphin monitoring**

6.1.4.1 15 Limit level exceedances and 6 Action level exceedances were recorded in the reporting period for impact dolphin monitoring. After investigation, it was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified nor separate from the other stress factors. Event Action Plan for Impact Dolphin Monitoring was triggered. For investigation results please refer to Appendix L of the corresponding quarterly reports.

6.1.5 Impact dolphin monitoring results obtained between September 2017 and April 2018, at all transects are reported in the EM&A Report prepared for Contract No. HY/2013/01.

6.1.6 Cumulative statistics on exceedances is provided in Appendix J.

**7. SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS**

**7.1 Summary of Environmental Complaints, Notification of Summons and Successful Prosecutions**

7.1.1 Total of 48 environmental complaints were received in the reporting period. Investigations were conducted for each of the environmental complaints according to the requirement of the EM&A manual if this Contract, the investigations results confirms that there were no evidence that the environmental impacts stated in the complaints were related to the Contract. The Environmental Complaint Handling Procedure is annexed in Figure 5.

7.1.2 2 summonses and 2 successful prosecution were received in the reporting period.

7.1.3 Statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix J.

## 8. REVIEW OF THE VALIDITY OF THE EIA PREDICTION

### 8.1 For Impact Air Quality Monitoring

- 8.1.1 A total of 1 Action level and 4 Limit Level exceedances were recorded during the 24-hr TSP impact monitoring period between March 2012 to February 2013. No exceedance of 1-hour TSP exceedance level was recorded at all monitoring station during the 1-hr TSP impact monitoring period. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports, the investigations results confirmed that the air quality exceedances were not related to Contract.
- 8.1.2 A total of 15 Action level and 5 Limit Level exceedances were recorded during the 24-hr TSP impact monitoring period between March 2013 to February 2014. No exceedance of 1-hour TSP exceedance level was recorded at all monitoring station during the 1-hr TSP impact monitoring period. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports, the investigations results confirmed that the air quality exceedances were not related to Contract.
- 8.1.3 A total of Five (5) Action level exceedances were recorded during the 24-hr TSP impact monitoring period between March 2014 to February 2015. No Limit level exceedance was recorded during reporting period. No exceedance of 1-hour TSP exceedance level was recorded at all monitoring station during the 1-hr TSP impact monitoring period. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports, the investigations results confirmed that the air quality exceedances were not related to Contract.
- 8.1.4 A total of 1 Limit Level exceedance was recorded during the 24-hr TSP impact monitoring period between March 2015 to February 2016. No exceedance of 1-hour TSP exceedance level was recorded at all monitoring station during the 1-hr TSP impact monitoring period. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports, the investigations results confirmed that the air quality exceedances were not related to Contract.
- 8.1.5 1 action level exceedance of 24-Hour TSP was recorded at AMS3B on 28 November 2017; 2 action level exceedances of 24-Hour TSP were recorded at AMS3B on 23 December 2017 and 17 January 2018 respectively. 1 action level exceedance of 24-Hour TSP was recorded at AMS2 on 17 January 2018. After investigation, there is no adequate information to conclude the recorded action level exceedances are related to this Contract. No other 1-hour and 24-hour action and limit level exceedances was recorded at all monitoring stations by this Contract or Environmental Team of Contract No. HY/2013/01 in the reporting period. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports, the investigations results confirmed that the air quality exceedances were not related to Contract.
- 8.1.6 After investigation, there is no adequate information to conclude the recorded exceedances are related to this Contract. No other 1-hour and 24-hour action and limit level exceedances was recorded at all monitoring stations in the reporting period. For level of exceedance, location and when exceedances were recorded, please refer to corresponding monthly EM&A report. All other air quality monitoring results in the reporting period were below the Action Levels established in the baseline air quality monitoring carried out in November 2011. The result was in line with the Environmental Impact Assessment (EIA) prediction that dust generation would be controlled and would not exceed the acceptable criteria, with proper implementation of the recommended dust mitigation measures.
- 8.1.7 There was no AL/LL exceedances recorded in 24-hr TSP monitoring during periods March 2012 to February 2013; March 2014 to February 2015; March 2016 to February 2017; and March 2017 to October 2017.

### 8.2 For construction noise monitoring



- 8.2.1 2 exceedances were recorded in the reporting period. This is generally in line with the EIA and ERR prediction that with the implementation of noise mitigation measures, the construction noise from the Contract works will meet the stipulated criterion at the residential NSRs and at a majority of the education institutions as predicted by the EIA.
- 8.3 For impact water quality monitoring,
- 8.3.1 44 action and 5 limit level exceedances of DO (S&M); 59 action level exceedances of DO (Bottom); 10 action level exceedances and 3 limit level exceedance of Turbidity; 184 action level exceedances and 19 limit level exceedances of SS were recorded at measured suspended solids values (in mg/L) and they were considered not related to the Contract works except the Action Level Exceedance recorded at SR5 and Limit Level Exceedance recorded at IS10 on 18 Dec 13 were related to Contract. For details of investigation please refer to monthly EM&A Report of this Contract. The exceedances note at IS10 and SR5 on 18 Dec 13 were considered as Contract related. The silt curtain integrity checking record on 4 January 14 shows that the disconnected silt curtain observed on 18 Dec 13 at northwest of HKBCF were rectified and the Contractor was further reminded to ensure provision of ongoing maintenance to the silt curtains and to carry out maintenance work once defects were found. For details of investigation please refer to monthly EM&A Report December 2013; the Limit Level Exceedance of Turbidity and Limit Level Exceedance of Suspended Solids recorded at IS17 during ebb tide on 10 October 2014 and Action Level Exceedance of Suspended Solids recorded at IS17 during flood tide on 20 October 2014, which were considered related to this Contract. Recommendation has been given and rectification has been carried on by the Contractor on 28 October 2014. As rectification was provided by the Contractor and recurrence of Contract related exceedance was not observed in the subsequent monitoring events. For details of investigation please refer to monthly EM&A Report October 2014.
- 8.3.2 Considering all the rest of water quality monitoring results in the reporting period were below the Action Levels established in the baseline water quality monitoring carried out in November 2011. The result was in line with the Environmental Impact Assessment (EIA) prediction that water quality impact would be controlled and would not exceed the acceptable criteria, with proper implementation of the recommended water quality mitigation measures.

## 9. REVIEW OF ENVIRONMENTAL IMPLEMENTATION STATUS

- 9.1 The impact air quality, noise and water quality monitoring programme ensured that any environmental impact to the receivers would be readily detected and timely actions could be taken to rectify any non-compliance. The environmental monitoring results indicated that the construction activities in general were in compliance with the relevant environmental requirements and were environmentally acceptable. The weekly site inspection ensured that all the environmental mitigation measures recommended in the EIA were effectively implemented. Despite the minor deficiencies found during site audits, the Contractor had taken appropriate actions to rectify deficiencies within reasonable timeframe. Therefore, the effectiveness and efficiency of the mitigation measures were considered high in most of the time.
- 9.2 For all the parameters under monitoring as mentioned in Section 3, the measured levels were in line with the EIA predictions generally. This indicates that the mitigation measures were effectively implemented.
- 9.3 Most of the recommended mitigation measures, as included in the EM&A programme, were implemented properly in the reporting period. The recommended environmental mitigation measures effectively minimize the potential environmental impacts from the Contract.
- 9.4 Changes of EM&A programme such as conditional omission of air monitoring station (AMS 6) for this Contract; relocation of air quality monitoring station, relocation of construction noise monitoring station, impact water quality monitoring stations, alternation of the transect lines of dolphin monitoring were carried out during the reporting period. For background proposal date and approval date of each changes of the EM&A programme, please refer to the corresponding annual EM&A review report of this contract.
- 9.5 Overall, the EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme. .
- 9.6 Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.

## **10. REVIEW OF EM&A PROGRAMME**

- 10.1 The environmental monitoring methodology was considered well established as the monitoring results were found in line with the EIA predictions.
- 10.2 As effective follow up actions were promptly taken once exceedances were recorded, no further exceedance occurred for each case. The EM&A programme was considered successfully and adequately conducted during the course of the reporting period.

## 11. COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

### 11.1 Comments on mitigation measures

11.1.1 According to the environmental site inspections performed in the reporting period, the following recommendations were provided:

### 11.2 Air Quality Impact

- All working plants and vessels on site should be regularly inspected and properly maintained to avoid dark smoke emission.
- All vehicles should be washed to remove any dusty materials before leaving the site.
- Haul roads should be sufficiently dampened to minimize fugitive dust generation.
- Wheel washing facilities should be properly maintained and reviewed to ensure properly functioning.
- Temporary exposed slopes and open stockpiles should be properly covered.
- Enclosure should be erected for cement debagging, batching and mixing operations.
- Water spraying should be provided to suppress fugitive dust for any dusty construction activity.

### 11.3 Construction Noise Impact

- Quieter powered mechanical equipment should be used as far as possible.
- Noisy operations should be oriented to a direction away from sensitive receivers as far as possible.
- Proper and effective noise control measures for operating equipment and machinery on-site should be provided, such as erection of movable noise barriers or enclosure for noisy plants. Closely check and replace the sound insulation materials regularly
- Vessels and equipment operating should be checked regularly and properly maintained.
- Noise Emission Label (NEL) shall be affixed to the air compressor and hand-held breaker operating within works area.
- Better scheduling of construction works to minimize noise nuisance.

### 11.4 Water Quality Impact

- Regular review and maintenance of silt curtain systems, drainage systems and desilting facilities in order to make sure they are functioning effectively.
- Construction of seawall should be completed as early as possible.
- Regular inspect and review the loading process from barges to avoid splashing of material.
- Silt, debris and leaves accumulated at public drains, wheel washing bays and perimeter u-channels and desilting facilities should be cleaned up regularly.
- Silty effluent should be treated/ desilted before discharged. Untreated effluent should be prevented from entering public drain channel.
- Proper drainage channels/bunds should be provided at the site boundaries to collect/intercept the surface run-off from works areas.
- Exposed slopes and stockpiles should be covered up properly during rainstorm.

#### 11.5 Chemical and Waste Management

- All types of wastes, both on land and floating in the sea, should be collected and sorted properly and disposed of timely and properly. They should be properly stored in designated areas within works areas temporarily.
- All chemical containers and oil drums should be properly stored and labelled.
- All plants and vehicles on site should be properly maintained to prevent oil leakage.
- All kinds of maintenance works should be carried out within roofed, paved and confined areas.
- All drain holes of the drip trays utilized within works areas should be properly plugged to avoid any oil and chemical waste leakage.
- Oil stains on soil surface and empty chemical containers should be cleared and disposed of as chemical waste.
- Regular review should be conducted for working barges and patrol boats to ensure sufficient measures and spill control kits were provided on working barges and patrol boats to avoid any spreading of leaked oil/chemicals.

#### 11.6 Landscape and Visual Impact

- All existing, retained/transplanted trees at the works areas should be properly fenced off and regularly inspected.

#### 11.7 Recommendations on EM&A Programme

- 11.7.1 The impact monitoring programme for air quality, noise, water quality and dolphin ensured that any deterioration in environmental condition was readily detected and timely actions taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental impacts of the Contract. With implementation of recommended effective environmental mitigation measures, the Contract's environmental impacts were considered as environmentally acceptable. The weekly environmental site inspections ensured that all the environmental mitigation measures recommended were effectively implemented.
- 11.7.2 The recommended environmental mitigation measures, as included in the EM&A programme, effectively minimize the potential environmental impacts from the Contract. Also, the EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

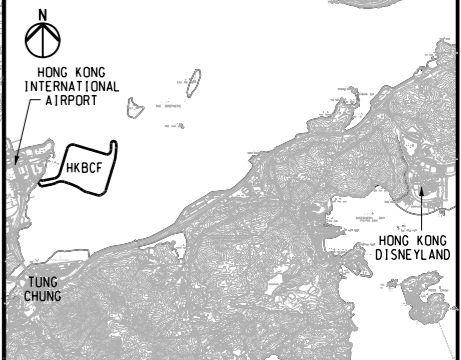
## 12. CONCLUSIONS

- 12.3.1 The construction phase and EM&A programme of the Contract commenced on 12 March 2012.
- 12.3.2 A total of 25 Action Level exceedances and 10 Limit Level exceedances were recorded during the 24-hr TSP impact monitoring in the reporting period. No action level or limit level exceedance of 1-hour TSP monitoring at all impact air quality monitoring station the reporting period. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports. For level of exceedance, location and when exceedances were recorded, please refer to relevant monthly EM&A report of November 2017, December 2017 and January 2018. Investigation results confirm that the exceedances were not related to the activities of this Contract. No other 1-hour and 24-hour action and limit level exceedances was recorded at all monitoring stations in the reporting period.
- 12.3.3 For construction noise monitoring, 1 Limit Level exceedance of impact noise monitoring was recorded in June 2012. No exceedance of impact noise monitoring was recorded by Contract No. HY/2013/01 and all exceedances were recorded by this Contract. Investigation into the possible causes of each exceedance was undertaken and reported in the respective monthly EM&A reports. Investigation results show that the exceedance was not due to the Project works. The Contractor was recommended to continue implementing existing noise mitigation measures. 1 complaint on noise was received in October 2012 and therefore 1 Action Level Exceedance of construction noise was recorded in October 2012. Investigation into the possible causes of such exceedance was undertaken and reported in the respective monthly EM&A reports, the investigations results confirmed that the action and limit level exceedance were not related to Contract. No other exceedance was recorded at all monitoring stations in the reporting period. Noise generating activities of the Contract did not cause any noticeable noise impact at the sensitive receivers. The impact noise levels recorded were generally similar to the predicted construction noise levels in the Project EIA.
- 12.3.4 For impact water quality monitoring, 297 Action Level exceedances and 27 Limit Level exceedances were recorded during the reporting period. After investigation, all impact water quality exceedances were considered not related to this Contract except the Action Level Exceedance recorded at SR5 and Limit Level Exceedance recorded at IS10 on 18 Dec 13 were related to Contract. For details of investigation please refer to monthly EM&A Report of this Contract. The exceedances note at IS10 and SR5 on 18 Dec 13 were considered as Contract related. The silt curtain integrity checking record on 4 January 14 shows that the disconnected silt curtain observed on 18 Dec 13 at northwest of HKBCF were rectified and the Contractor was further reminded to ensure provision of ongoing maintenance to the silt curtains and to carry out maintenance work once defects were found. For details of investigation please refer to monthly EM&A Report December 2013; the Limit Level Exceedance of Turbidity, Limit Level Exceedance of Suspended Solids recorded at IS17 during ebb tide on 10 October 2014 and Action Level Exceedance of Suspended Solids recorded at IS17 during flood tide on 20 October 2014, which were considered related to this Contract. Recommendation has been given and rectification has been carried on by the Contractor on 28 October 2014. As rectification was provided by the Contractor and recurrence of Contract related exceedance was not observed in the subsequent monitoring events. For details of investigation please refer to monthly EM&A Report October 2014.
- 12.3.5 After investigation, all other impact water quality exceedances were considered not related to this Contract. With the implementation of water quality mitigation measures recommended in the EIA and additional water quality mitigation measures implemented during the EM&A programme, marine construction activities of the Contract did not cause any unacceptable water quality impacts to the sensitive receivers.
- 12.3.6 15 Limit level exceedances and 6 Action level exceedances were recorded in the reporting period for impact dolphin monitoring. After investigation, it was concluded that the HZMB works is one of the contributing factors affecting the dolphins. The investigation results showed that although no unacceptable changes in environmental parameters of this Contract have been measured. Event and Action Plan for Impact Dolphin Monitoring was triggered. After investigation, there was no evidence that indicated that the reduced number of dolphins in NWL and NEL was related solely to Contract works. It was also concluded the contribution of impacts due to the HZMB works as a whole (or

individual contracts) cannot be quantified nor separate from the other stress factors. Please also refer to the attachment for full investigation result. For investigation results please refer to Appendix L of the corresponding quarterly reports.

- 12.3.7 Environmental site inspection was carried out 319 times in the reporting period. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.
- 12.3.8 48 environmental complaints were received in the reporting period. Statistics on complaints, are summarized in Appendix J.
- 12.3.9 2 summonses and 2 successful prosecutions were received in the reporting period. Statistics on notifications of summons and successful prosecutions are summarized in Appendix J.
- 12.3.10 As discussed in the above sections, the Contract did not cause unacceptable environmental impacts or disturbance to air quality, noise, water quality in the vicinity near the reclamation works.
- 12.3.11 Apart from the above mentioned monitoring, most of the recommended mitigation measures, as included in the EM&A programme, were implemented properly in the reporting period.
- 12.3.12 The recommended environmental mitigation measures effectively minimize the potential environmental impacts from the Contract. The EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.
- 12.3.13 Moreover, regular review and checking on the construction methodologies, working processes and plants were carried out to ensure the environmental impacts were kept minimal and recommended environmental mitigation measures were implemented effectively.

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KEY PLAN

- NOTES**
1. ALL COORDINATES ARE RELATED TO HONG KONG 1980 GRID.
  2. ALL LEVELS ARE IN METRES ABOVE HONG KONG PRINCIPAL DATUM (mPD).
  3. REFER TO DRG NO. 211036/SL/1002 FOR THE DEFINITION OF SETTING OUT LINE (SOL) FOR THE HONG KONG BOUNDARY CROSSING FACILITIES (HKBCF) RECLAMATION SITE.
  4. REFER TO DRG NO. 211036/SL/1004 FOR DETAILS OF SITE BOUNDARY.
  5. FOR EXTENT OF SORTING FACILITIES AT FILL BANK AT TSEUNG KWAN O AREA 137 REFER TO DRG NO. 211036/SL/1015.

- LEGEND**
- - - - - SITE BOUNDARY
  - - - - - SETTING OUT LINE (SOL)
  - - - - - WORKS AREA BOUNDARY

Rev	Description	By	Date
-	FOR CONSTRUCTION	HYJL	11/11

Consultant

**ARUP** 奧雅納工程顧問  
 Ove Arup & Partners Hong Kong Limited

Supported By :

- Ecosystems Ltd.
- EDA Marine Ltd.
- Geotechnical Consulting Group (Asia) Ltd.
- Hong Kong Cetacean Research Project
- IntelBuild Technyx Asia Limited
- Tony Gee and Partners LLP

Contract No. and Title:  
**Contract No. HY/2010/02**  
**Hong Kong-Zhuhai-Macao Bridge**  
**Hong Kong Boundary Crossing Facilities**  
**- Reclamation Works**

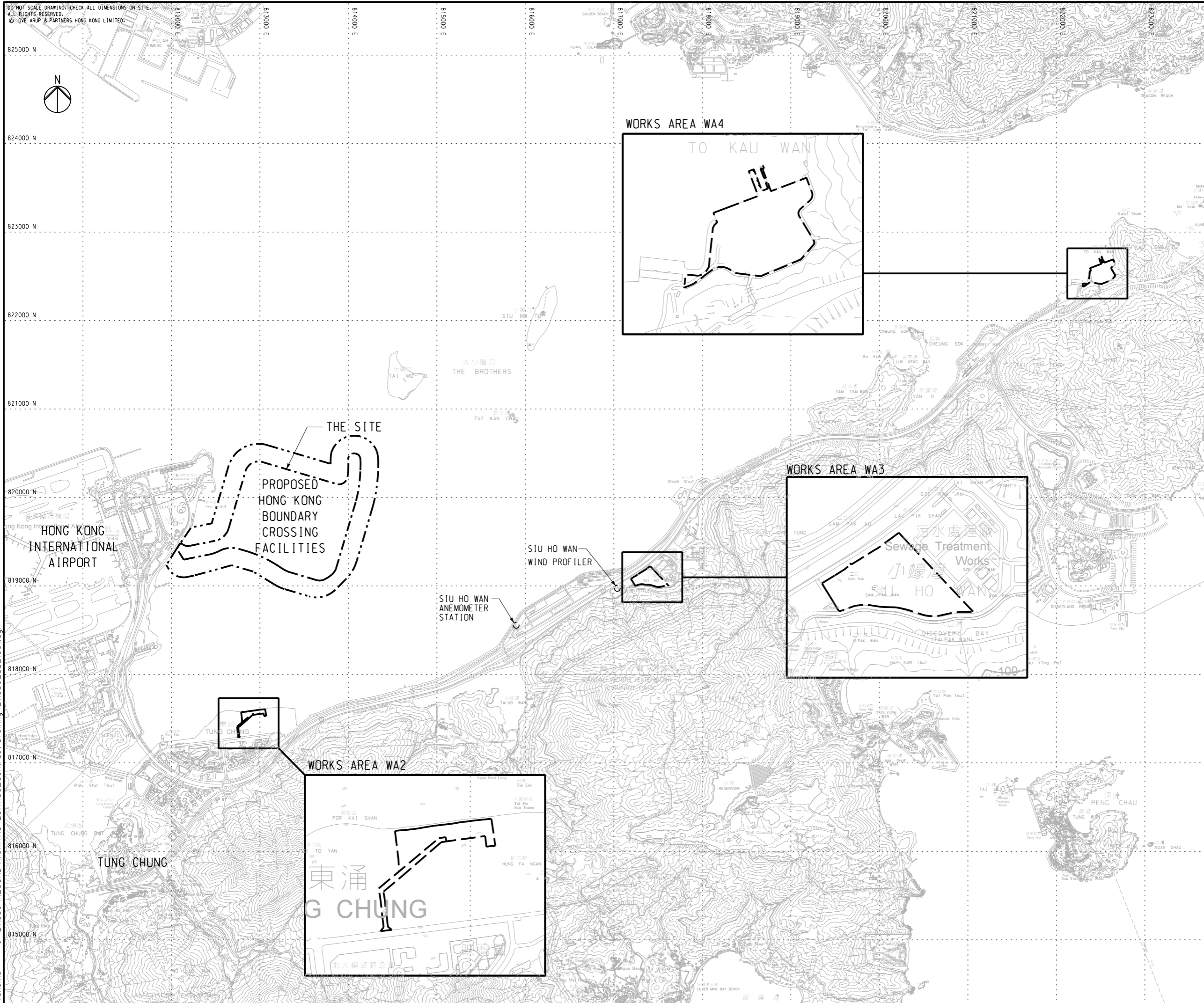
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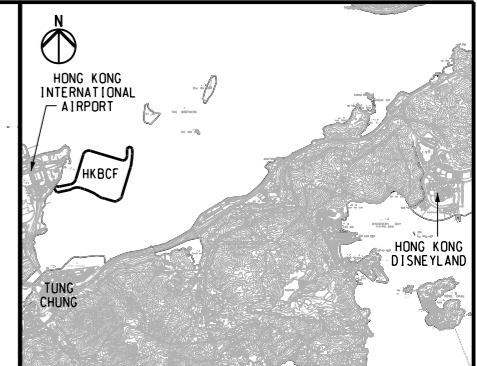
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KEY PLAN

NOTES

- FOR LEGENDS AND NOTES FOR CHAIN LINK FENCE AND GATE REFER TO DRG NO. 211036/SL/1013.
- THE ERECTION OF CHAIN LINK FENCE AND GATES SHALL BE COMPLETED BY THE HANDOVER DATE OF EACH PORTION OF SITE, OR AS INSTRUCTED BY THE ENGINEER.
- FOR SETTING OUT COORDINATES OF DIFFERENT PORTIONS OF SITE REFER TO DRG NO. 211036/SL/1003.
- ACCESS POINTS BETWEEN PORTIONS SHALL BE PROVIDED BY THE CONTRACTOR, AND THE LOCATIONS SHALL BE AGREED WITH THE ENGINEER ON SITE.
- FOR HOARDING AND FENCE AT FILL BANK AT TSEUNG KWAN O AREA 137 REFER TO DRG NO. 211036/SL/1015.

LEGEND

- SETTING OUT LINE (SOL)
- WORKS AREA BOUNDARY
- PORTIONS BOUNDARY LINE

Rev	Description	By	Date
-	FOR CONSTRUCTION	HYJL	11/11

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<b>ARUP</b>	奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited
Supported By :	<ul style="list-style-type: none"> <li>Ecosystems Ltd. <input type="radio"/></li> <li>EDA Marine Ltd. <input type="radio"/></li> <li>Geotechnical Consulting Group (Asia) Ltd. <input type="radio"/></li> <li>Hong Kong Cetacean Research Project <input type="radio"/></li> <li>Intel:Build Technyx Asia Limited <input type="radio"/></li> <li>Tony Gee and Partners LLP <input type="radio"/></li> </ul>

Contract No. and Title:  
**Contract No. HY/2010/02**  
**Hong Kong-Zhuhai-Macao Bridge**  
**Hong Kong Boundary Crossing Facilities**  
**- Reclamation Works**

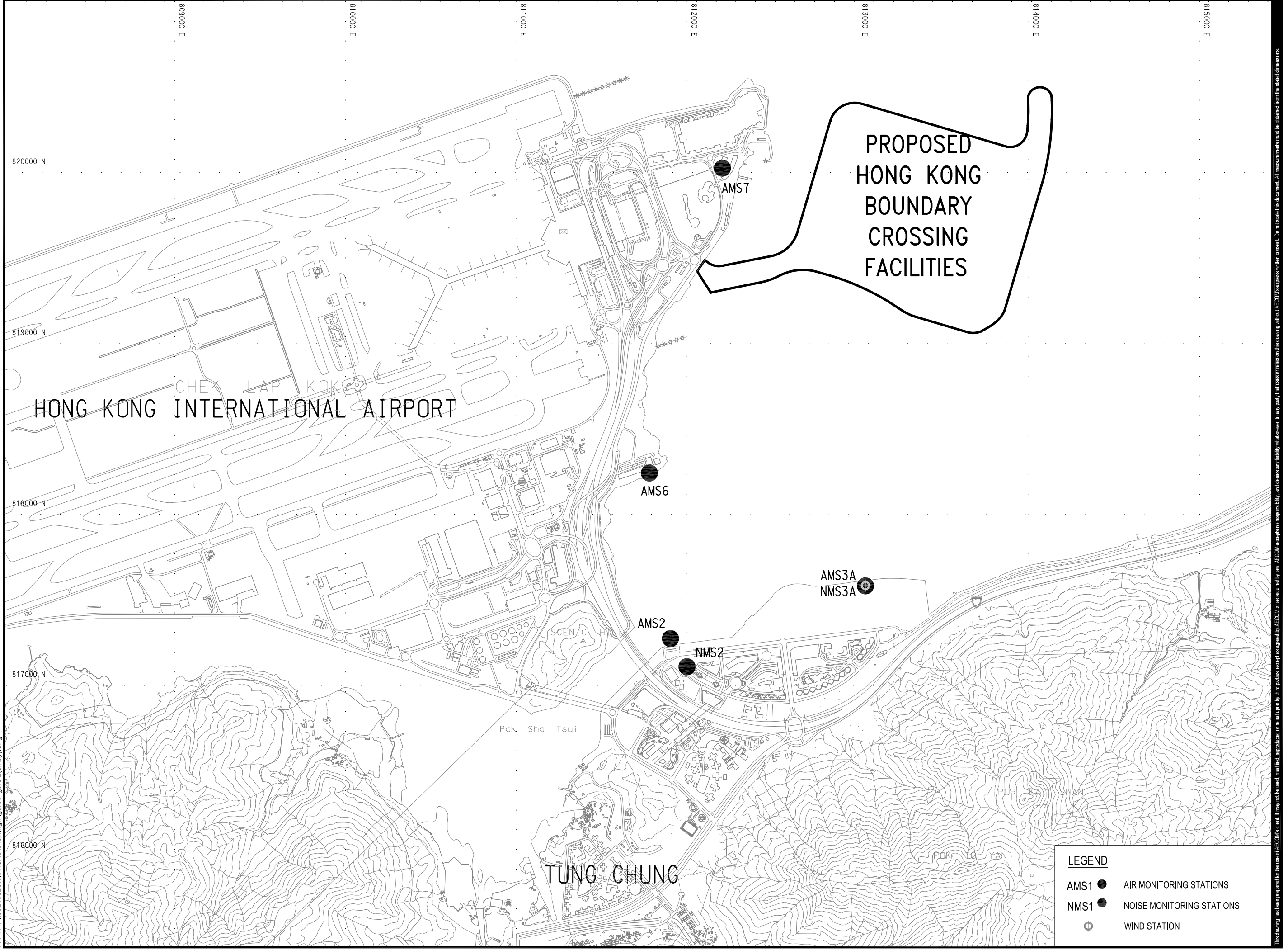
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**AND HOARDING PLAN**  
**(SHEET 2 OF 3)**

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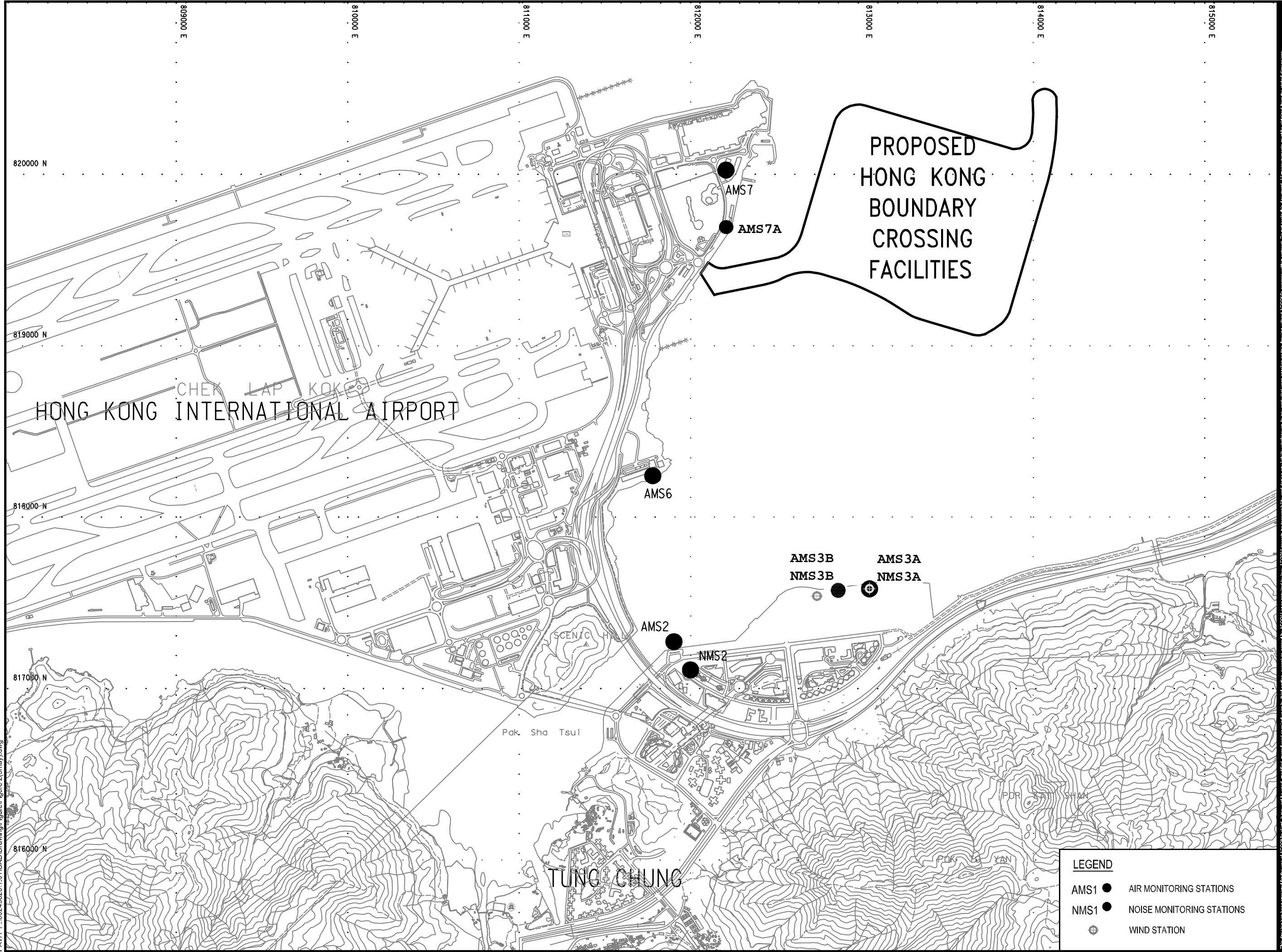
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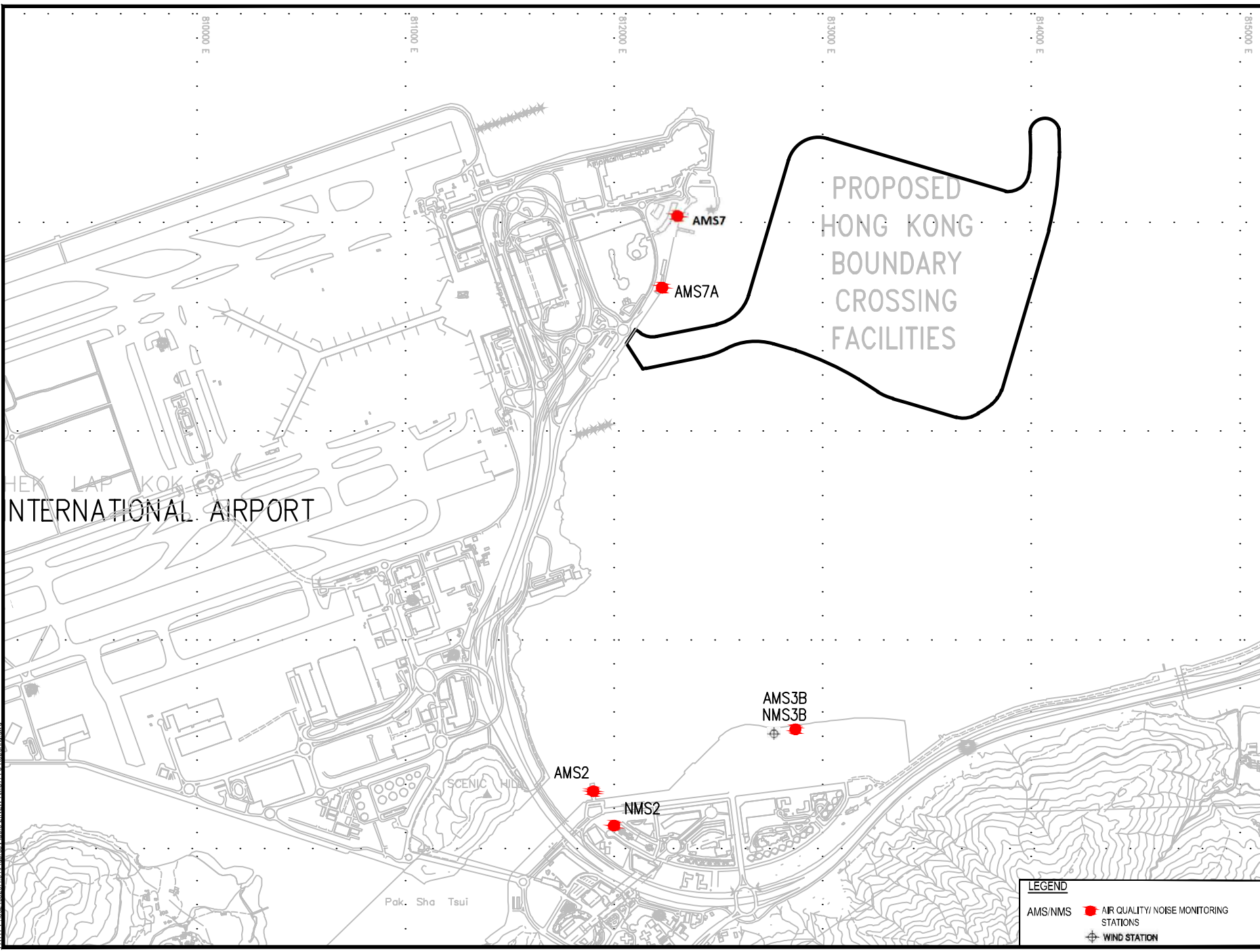
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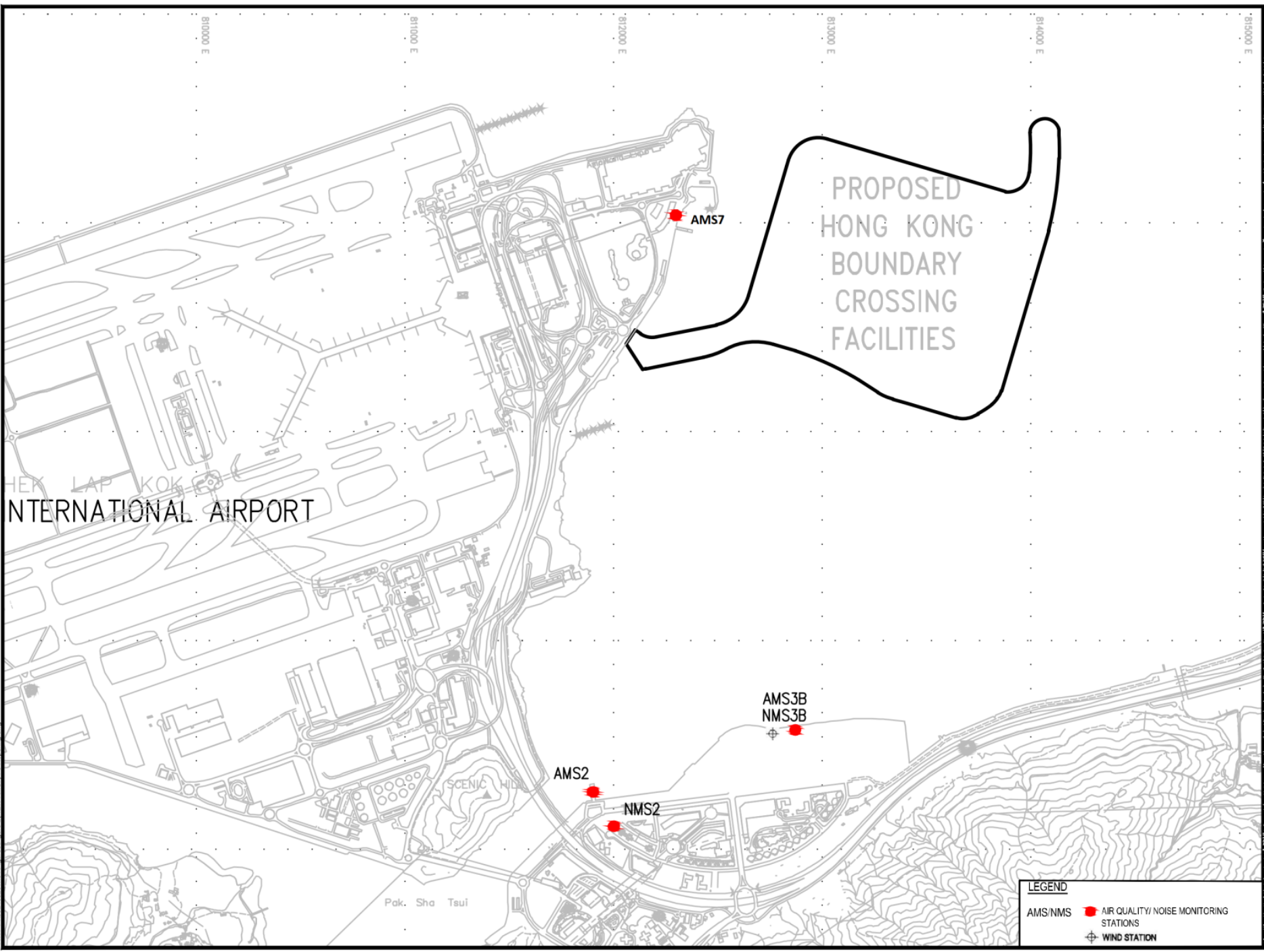


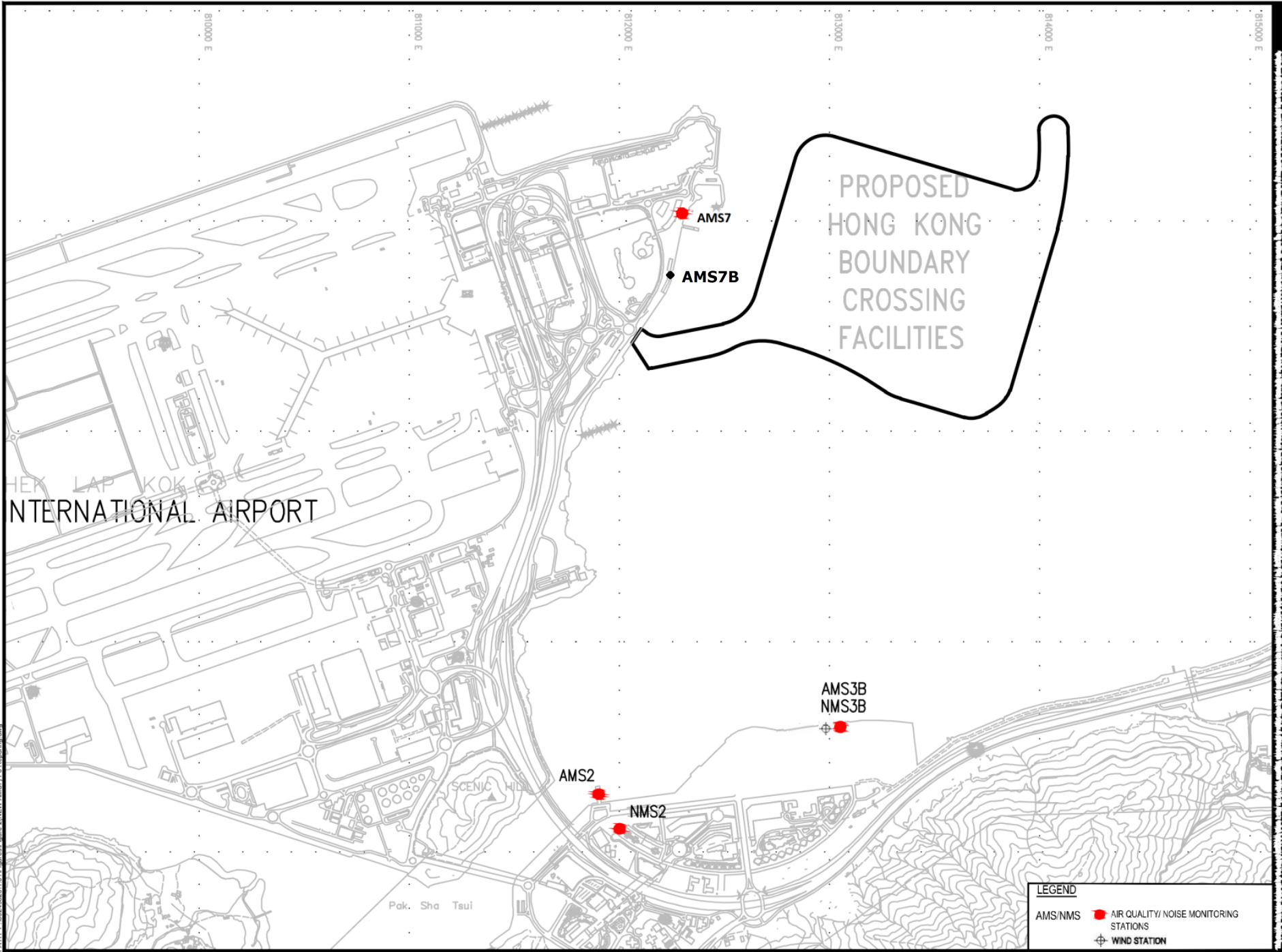
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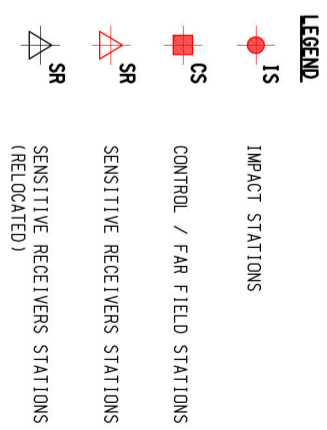
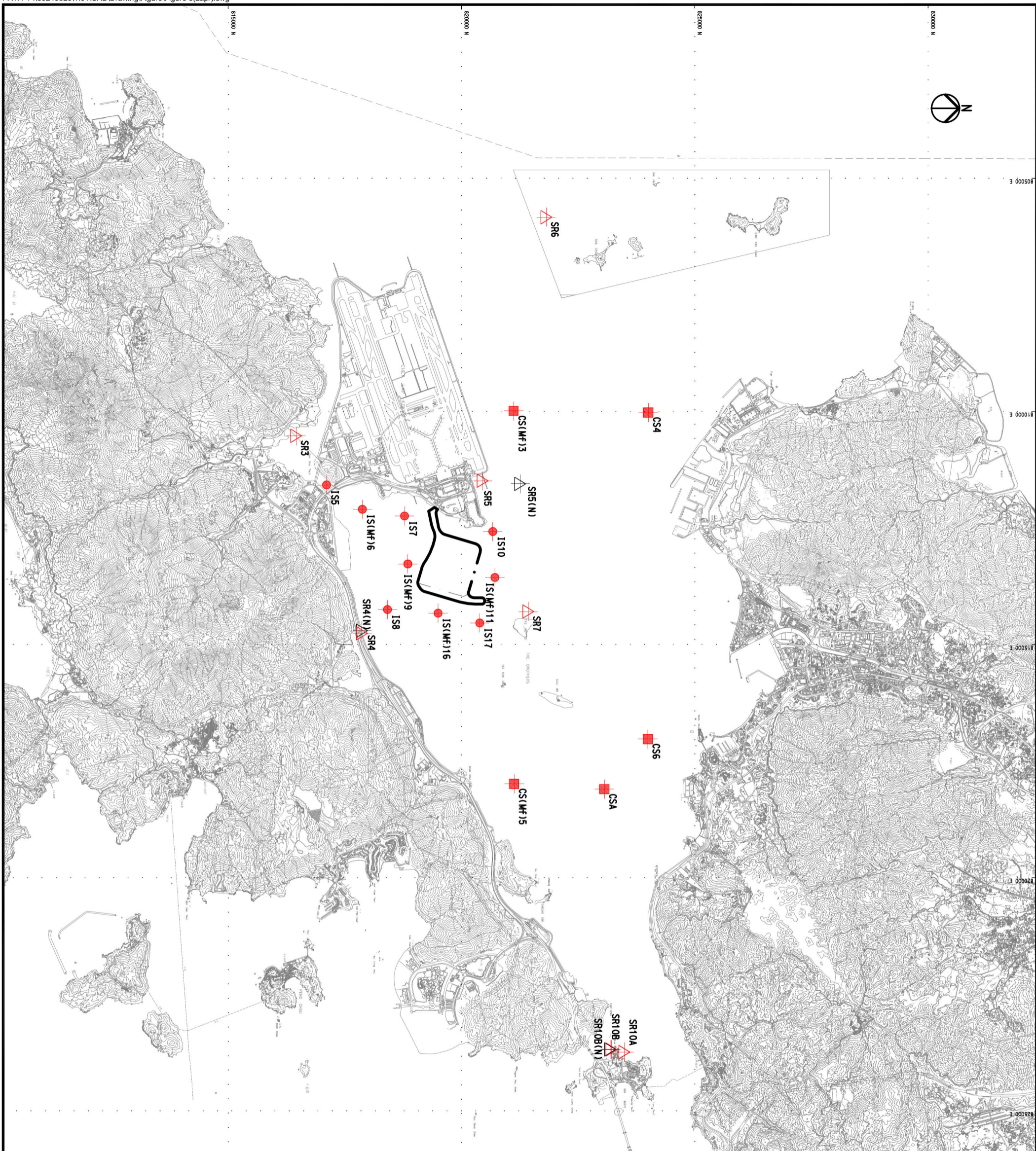


**LEGEND**

AMS/NMS ● AIR QUALITY/ NOISE MONITORING STATIONS

+ WIND STATION

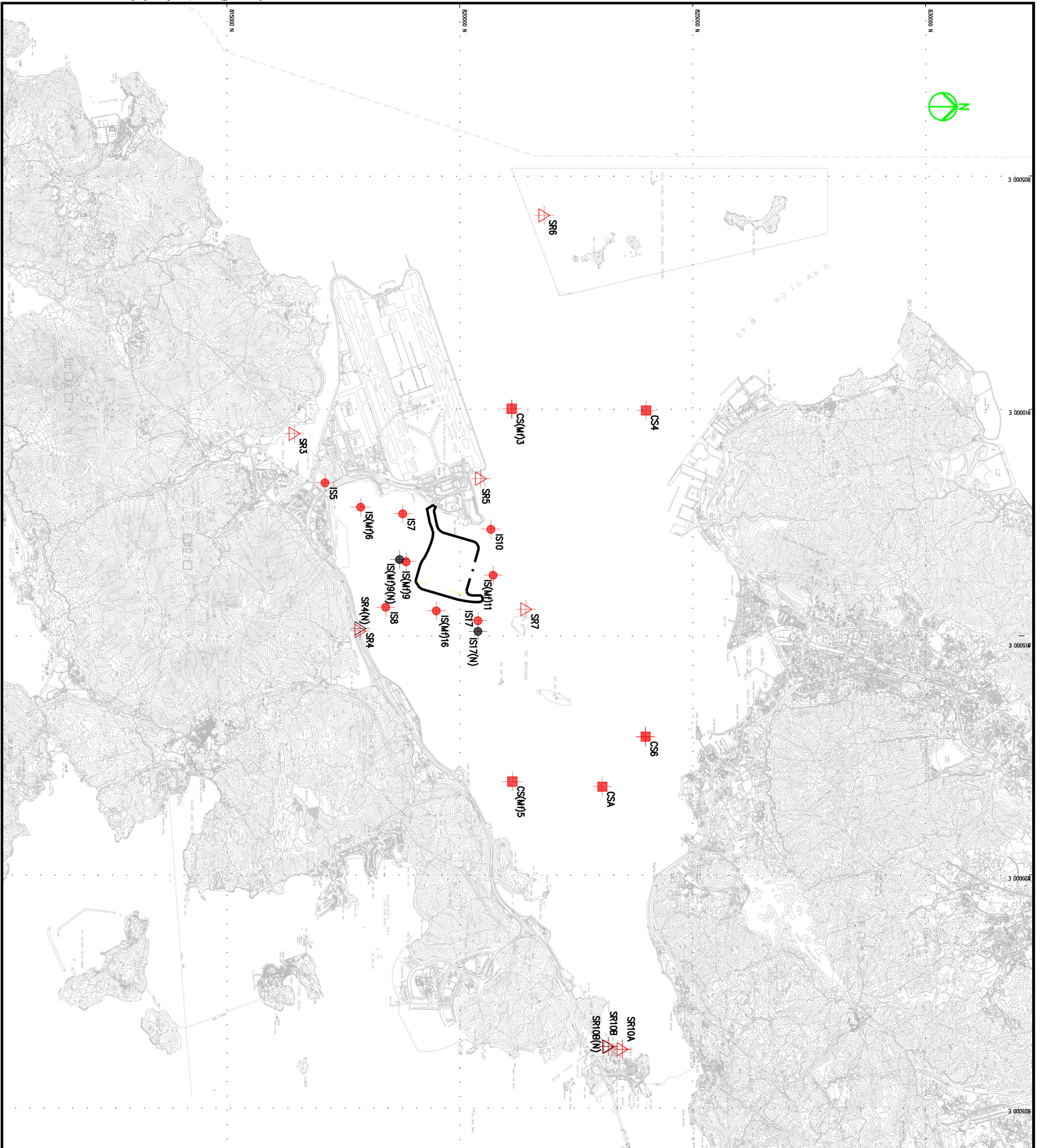
Remarks: Alternative air quality monitoring station AMS7B IS adopted effective from 6 February 2018 with the authority's consent.



**SETTING OUT SCHEDULE**

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(MF)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(MF)9	813273	818850
IS10	812577	820670
IS(MF)11	813562	820716
IS(MF)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	811555	821258
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	823187
CS(MF)3	809989	821117
CS(MF)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

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**LEGEND**

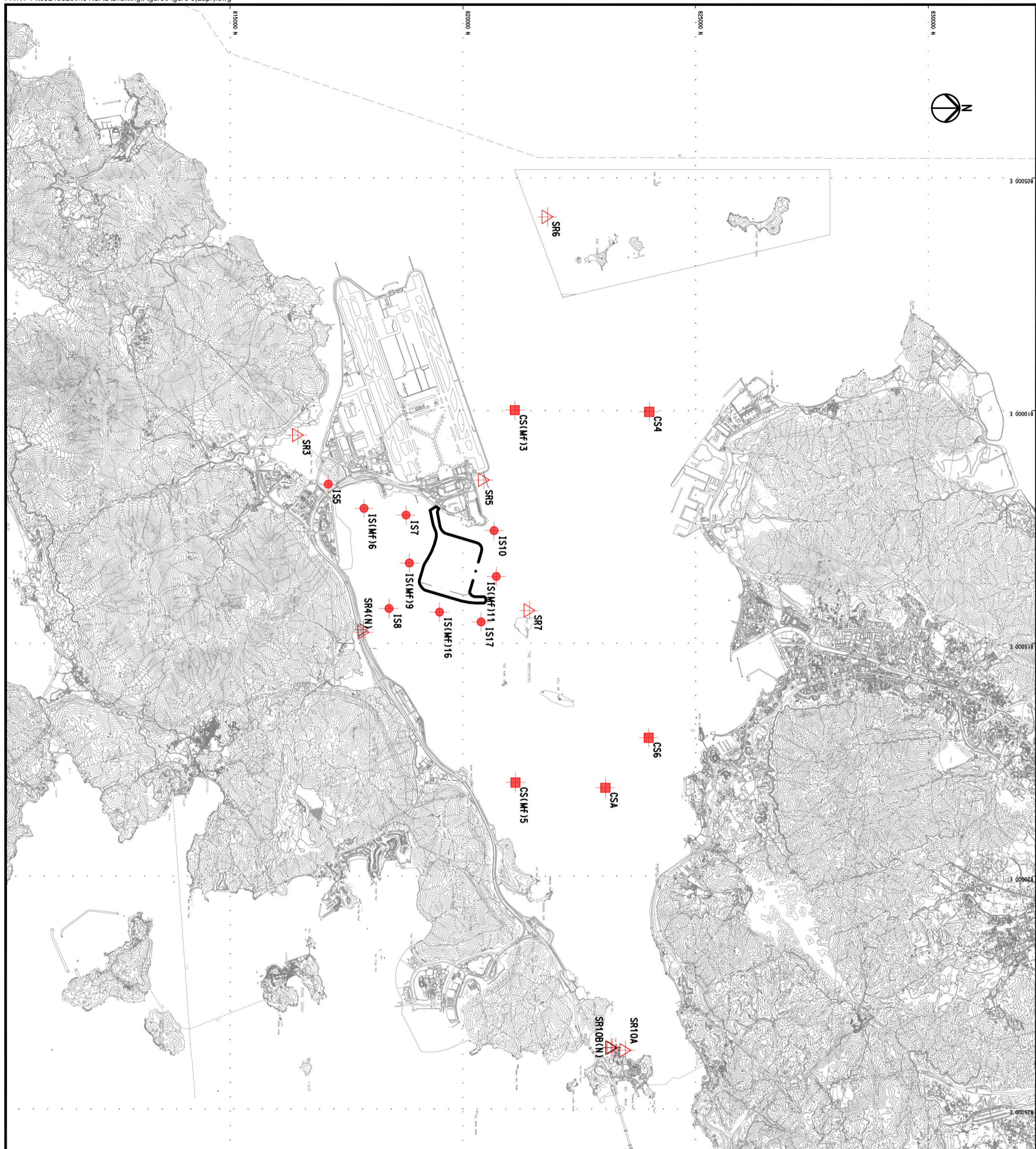
- IS (red circle with dot) IMPACT STATIONS
- CS (red square) CONTROL / FAR FIELD STATIONS
- SR (red triangle) SENSITIVE RECEIVERS STATIONS
- SR (black triangle) SENSITIVE RECEIVERS STATIONS (RELOCATED)
- IS (black circle with dot) IMPACT STATIONS (RELOCATED)

**SETTING OUT SCHEDULE**

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(M)16	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(M)9	813273	818850
IS(M)9(N)	813226	818708
IS10	812577	820670
IS(M)11	813562	820716
IS(M)16	814328	819497
IS17	814539	820391
IS17(N)	814767	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	823187
CS(M)3	809989	821117
CS(M)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

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**LEGEND**

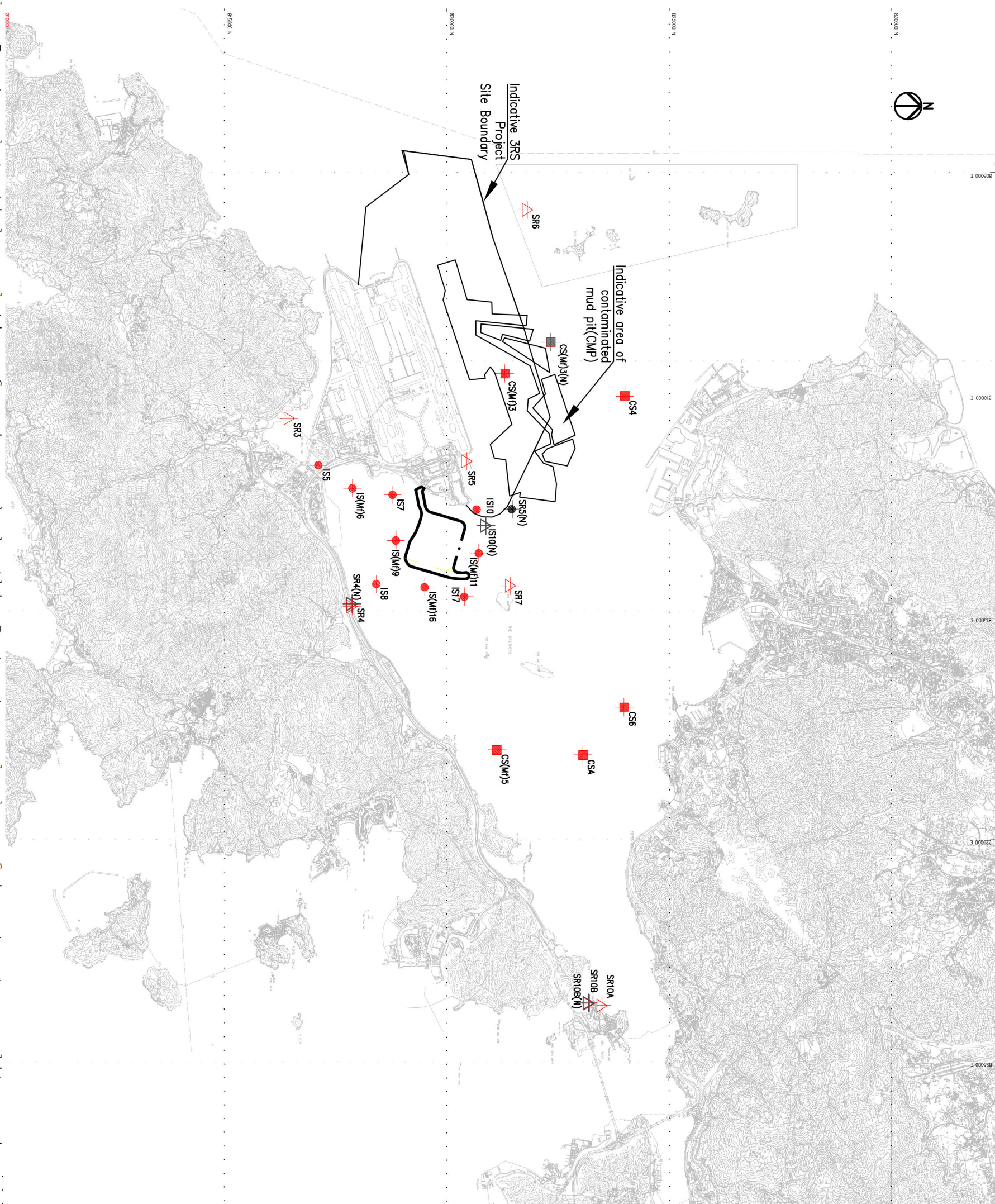
- IS IMPACT STATIONS
- CS CONTROL / FAR FIELD STATIONS
- SR SENSITIVE RECEIVERS STATIONS

**SETTING OUT SCHEDULE**

Monitoring Station	Co-ordinates	
	Easting	Northing
IS5	811579	8177106
IS(MF)6	812101	8178773
IS7	812244	8187777
IS8	814251	8184112
IS(MF)9	813273	8188550
IS10	812577	820670
IS(MF)11	813562	820716
IS(MF)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	823187
CS(MF)3	809989	821117
CS(MF)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

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Remarks: Due to substantial completion of marine works by this Contract, scale-down of impact water quality monitoring was approved on 7 September 2017. Ten Impact Stations (6 Impact Stations, 2 Sensitive Receiver Stations and 2 Control/Far Field Stations) were adopted for impact water quality monitoring effective since 8 September 2017.



**LEGEND**

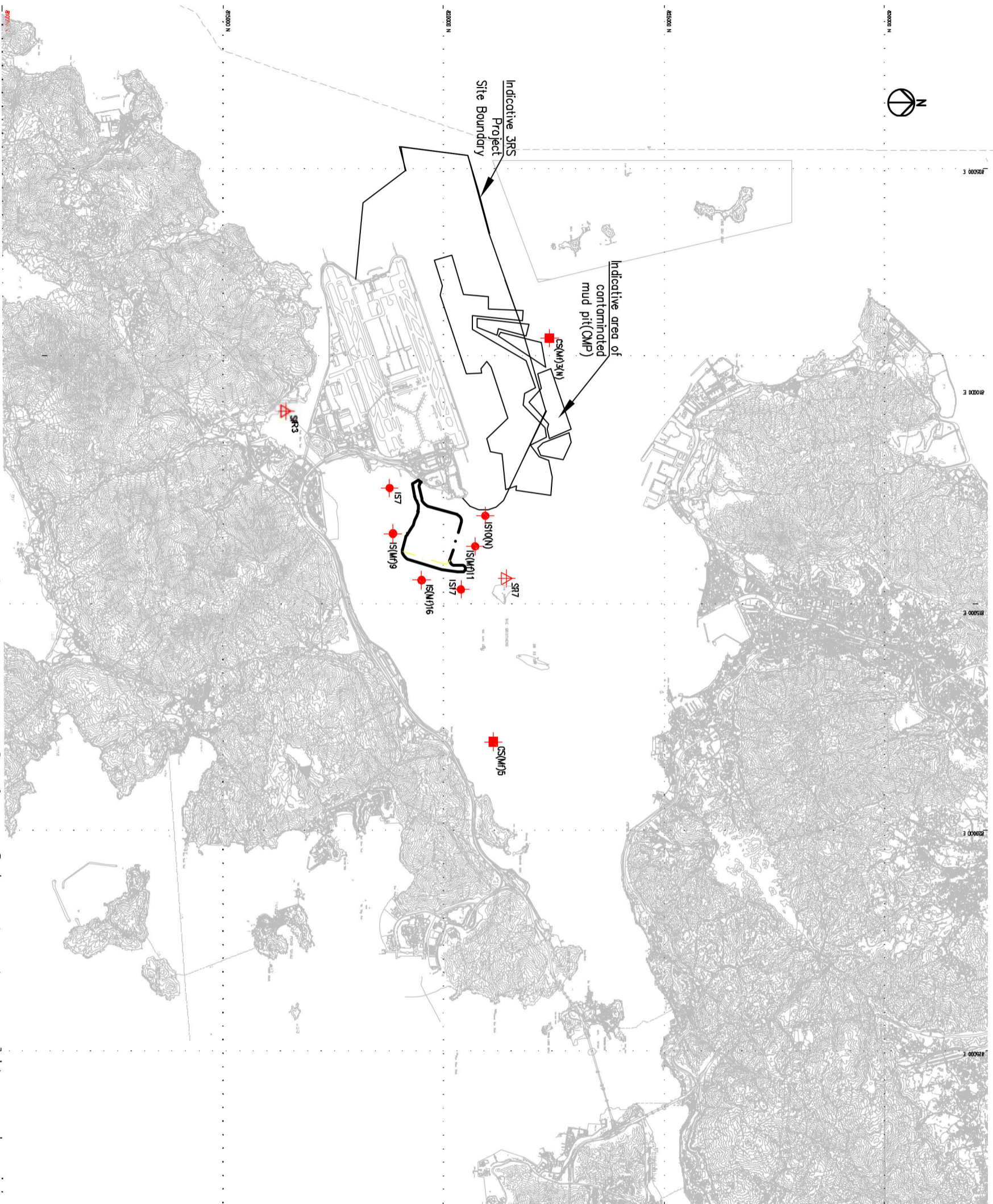
- IS (Red dot) IMPACT STATIONS
- CS (Red square) CONTROL / FAR FIELD STATIONS
- SR (Black square) SENSITIVE RECEIVER STATIONS (RELOCATED)
- IS (Red triangle) IMPACT STATIONS (RELOCATED)
- SR (Black triangle) SENSITIVE RECEIVER STATIONS (RELOCATED)
- CS (Black square) CONTROL / FAR FIELD STATIONS (RELOCATED)

**SETTING OUT SCHEDULE**

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(M)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(M)9	813273	818850
SR5(N)	812589	821475
IS(M)11	813562	820716
IS(M)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
IS10(N)	812942	820881
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	823187
CS(M)3(N)	808814	822355
CS(M)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064
IS10	812577	820670
SR5	811489	820455
CS(M)3	809989	821117

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Remarks: Due to substantial completion of marine works by this Contract, scale-down of impact water quality monitoring was approved on 7 September 2017. Ten stations (6 Impact Stations, 2 Sensitive Receiver Stations and 2 Control/Far Field Stations) were adopted for impact water quality monitoring effective since 8 September 2017.



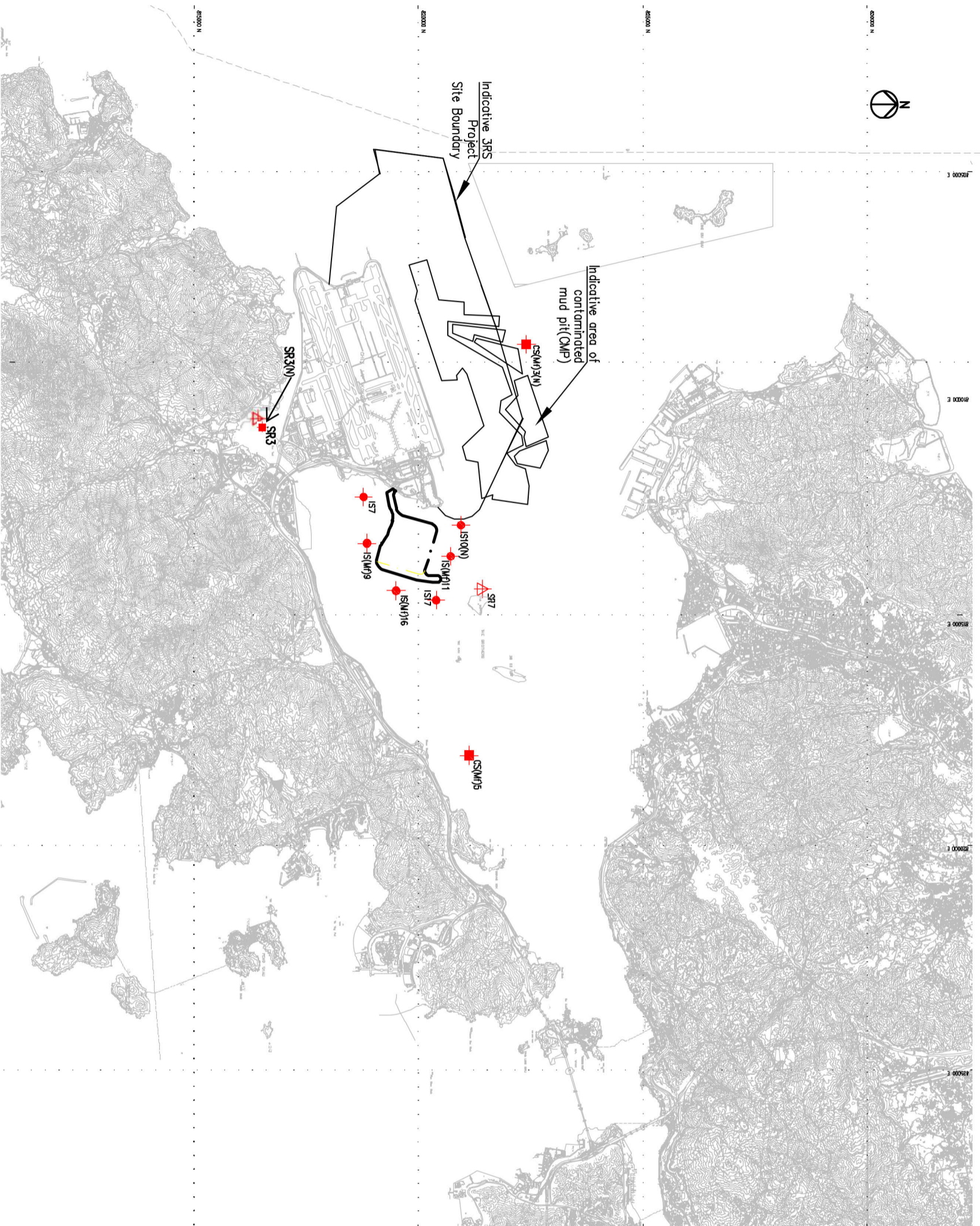
- LEGEND**
- IS IMPACT STATIONS
  - CS CONTROL / FAR FIELD STATIONS
  - SR SENSITIVE RECEIVER STATIONS

**SETTING OUT SCHEDULE**

Monitoring Stations	Co-ordinates	
	EASTING	NORTHING
IS7	812244	818777
IS(M)9	813273	818850
IS10(N)	812942	820881
IS(M)11	813562	820716
IS(M)16	814328	819497
IS17	814539	820391
SR3	810525	816456
SR7	814293	821431
CS(M)3(N)	808814	822355
CS(M)5	817990	821129

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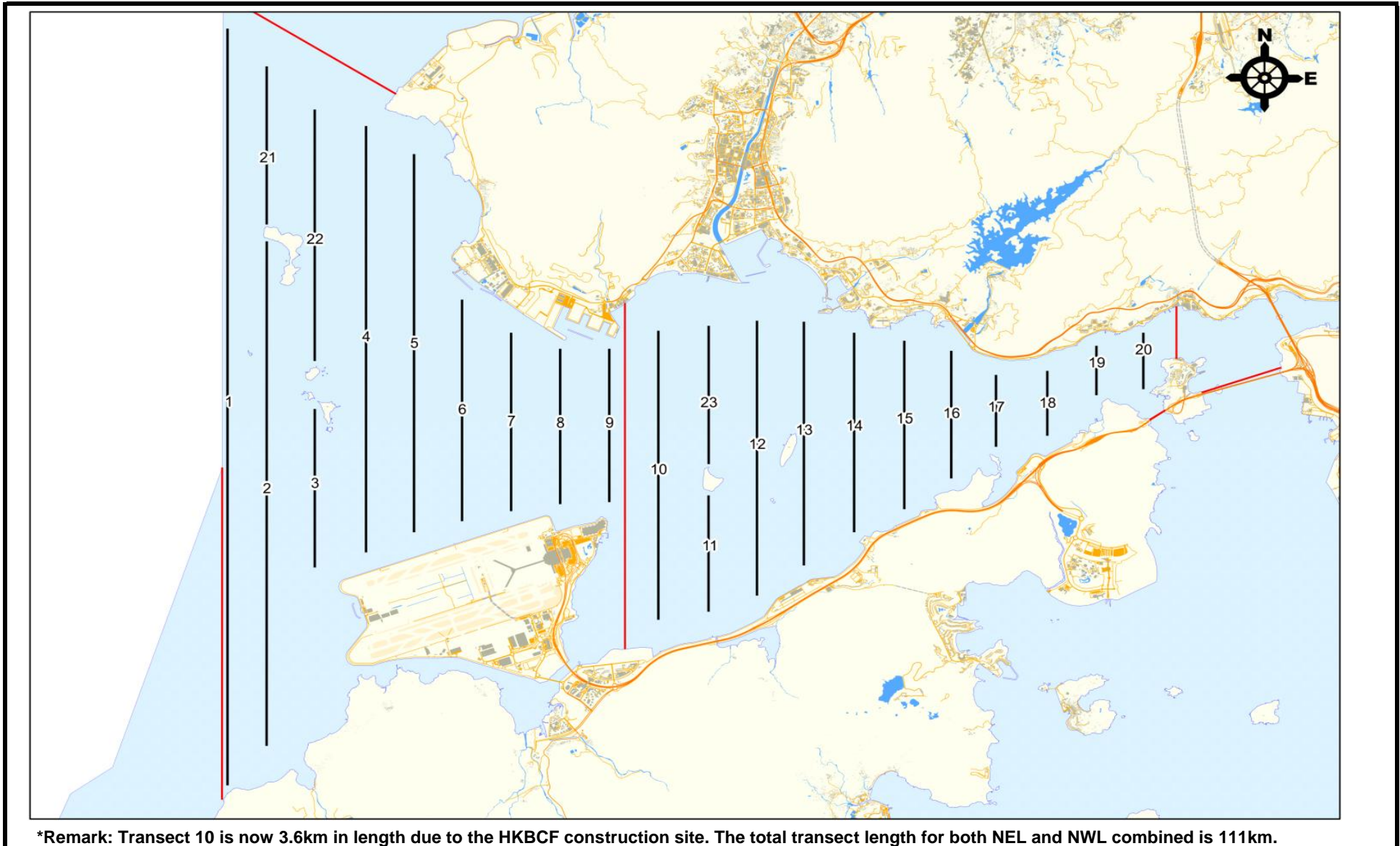
Remarks: Due to topographical condition of the original location of SR3, alternative water quality monitoring station, naming as SR3(N) which is situated in vicinity of the original water quality monitoring stations (SR3) was justified and verified by the ET Leader of Contract No. HY/2013/01 on 8 November 2017 and IEC/ENPO on 13 November 2017 respectively. Alternative water quality monitoring stations SR3(N) was approved by the authority and adopted on 22 December 2017.



- LEGEND**
- IS IMPACT STATIONS
  - CS CONTROL / FAR FIELD STATIONS
  - SR SENSITIVE RECEIVERS STATIONS

**SETTING OUT SCHEDULE**

Monitoring Stations	Co-ordinates	
	EASTING	NORTHING
IS7	812244	818777
IS(M)9	813273	818850
IS10(N)	812942	820881
IS(M)11	813562	820716
IS(M)16	814328	819497
IS17	814539	820391
SR3(N)	810689	816591
SR7	814293	821431
CS(M)3(N)	808814	822355
CS(M)5	817990	821129



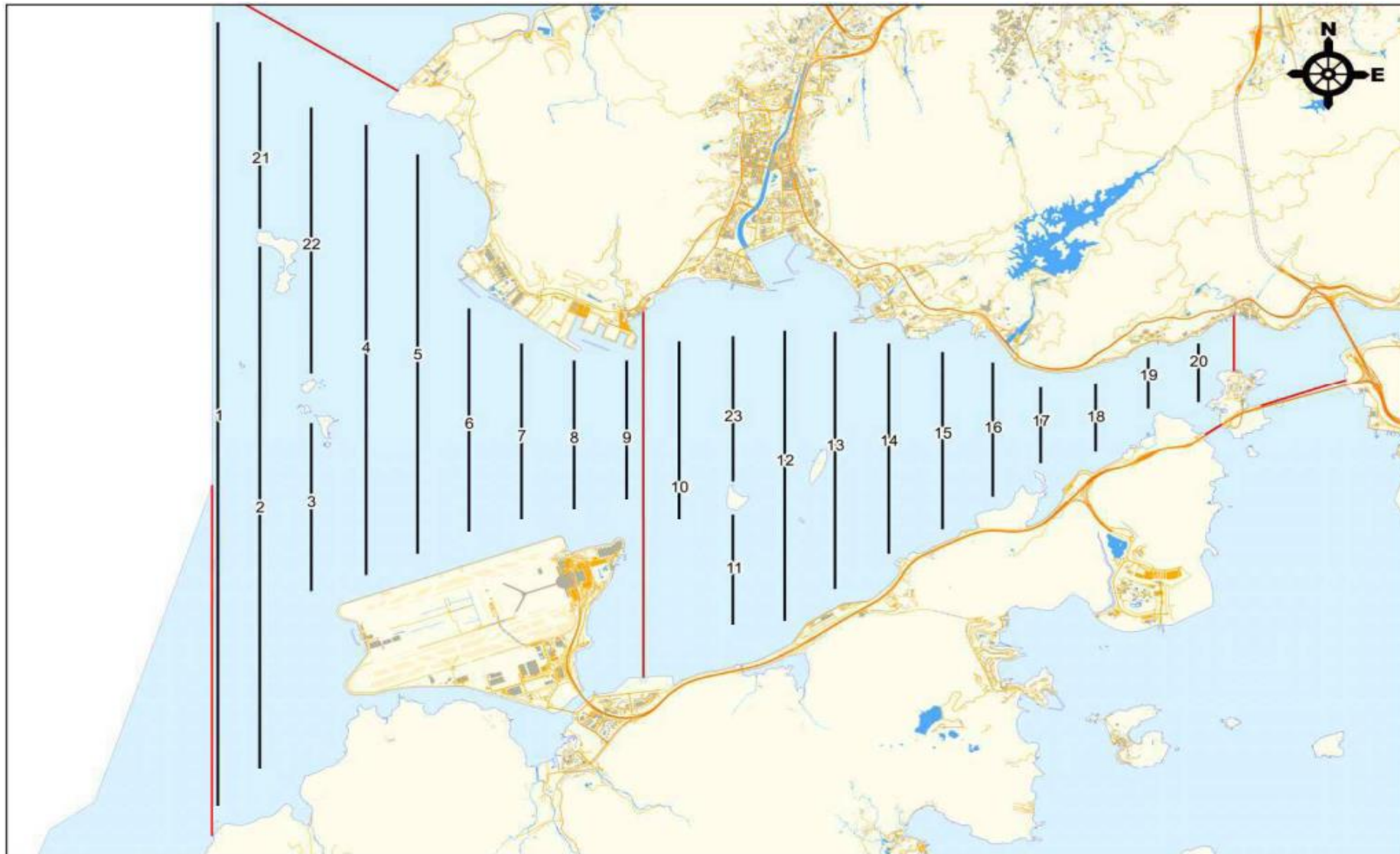
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**HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS  
 Project No.: 60249820**

**Impact Dolphin Monitoring Line Transect Layout  
 Map (For reporting period Mar 2012- Feb 2015)**



Figure 4a

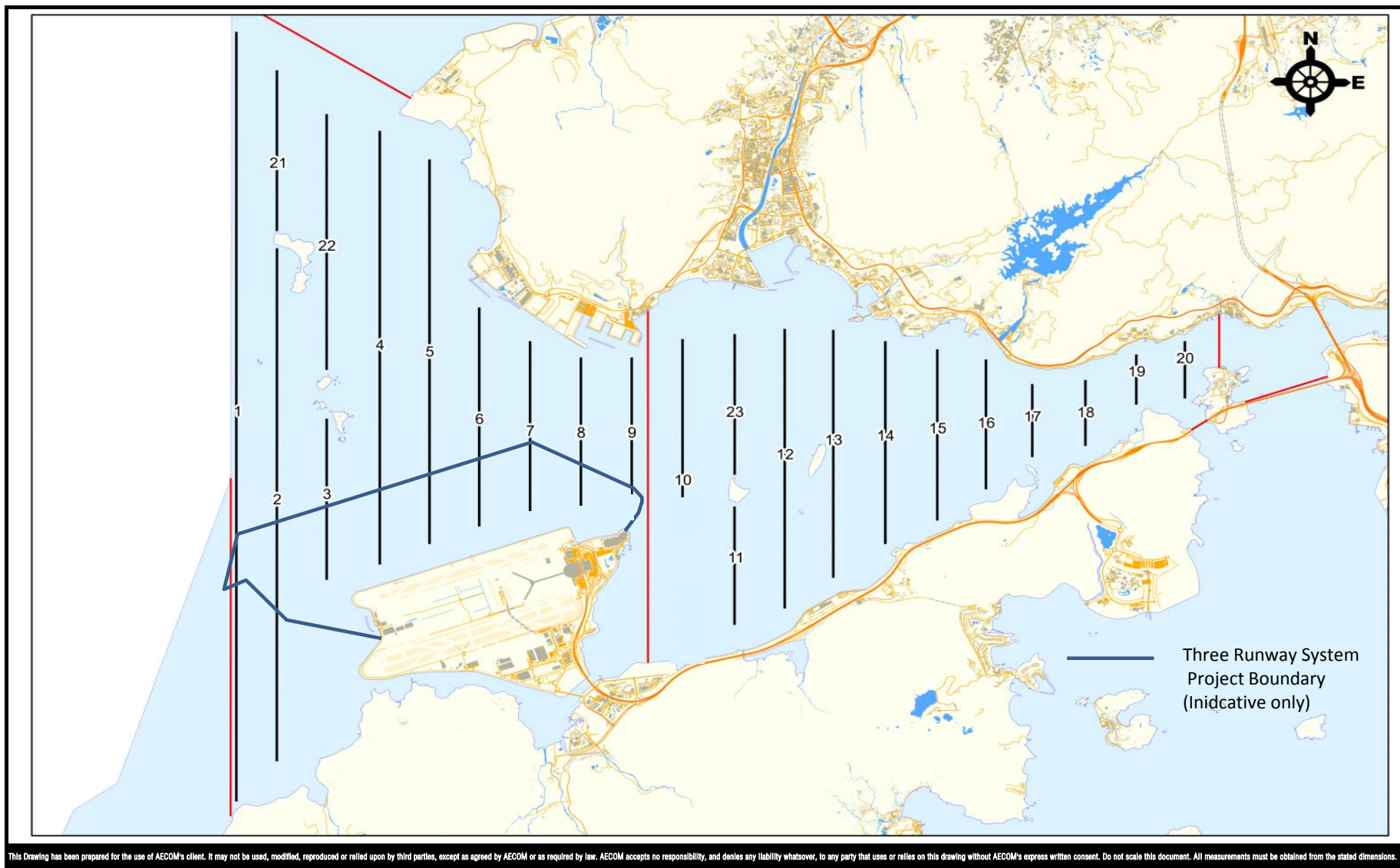


**Remarks:**

\*Transect 10 is now 3.6km in length due to the HKBCF construction site.

^Coordinates for transect lines 1, 2, 7, 8, 9 and 11 have been updated in respect to the Proposal for Alteration of Transect Line for Dolphin Monitoring approved by EPD on 19 August 2015. The total transect length for both NEL and NWL combined is 108km.

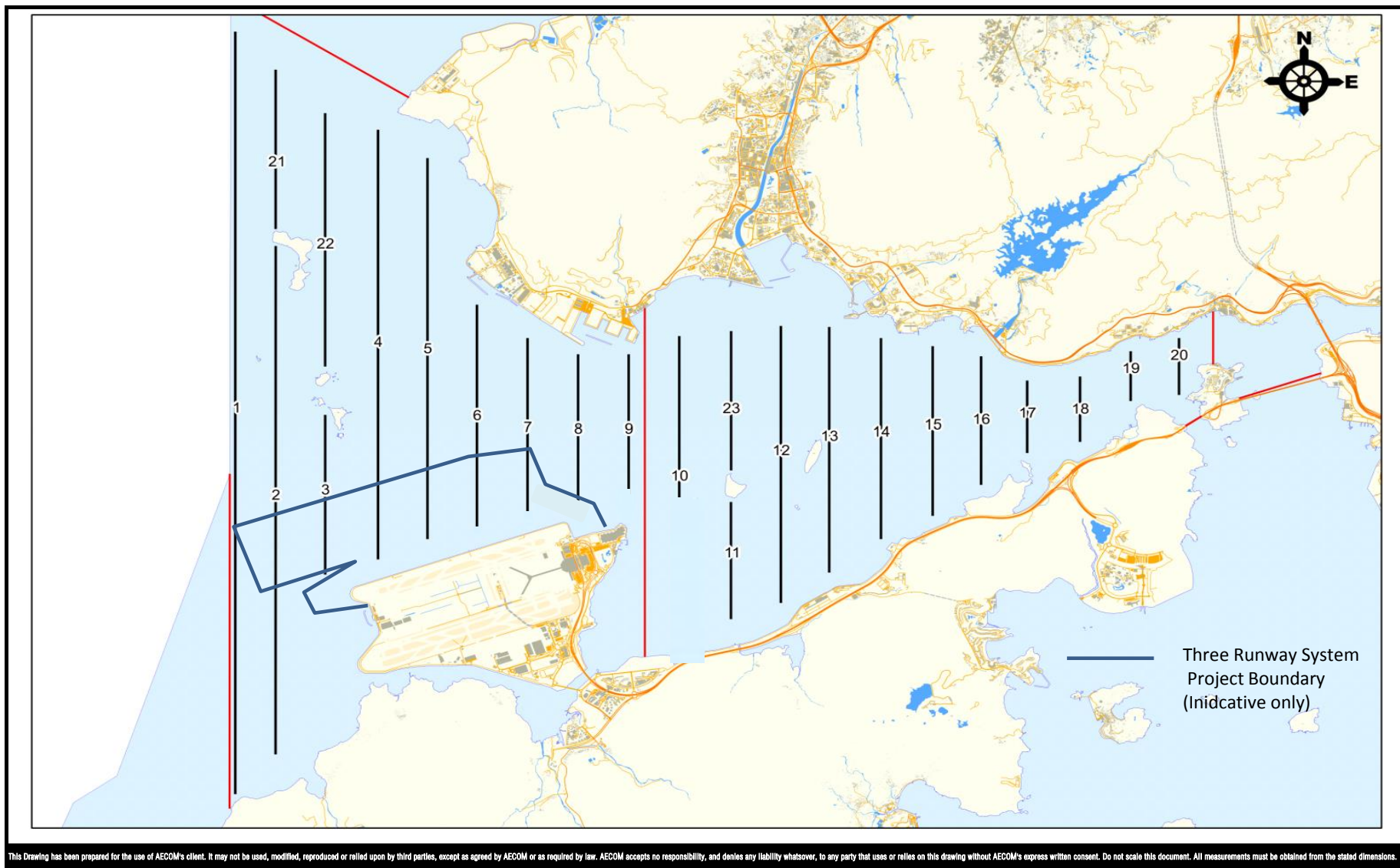
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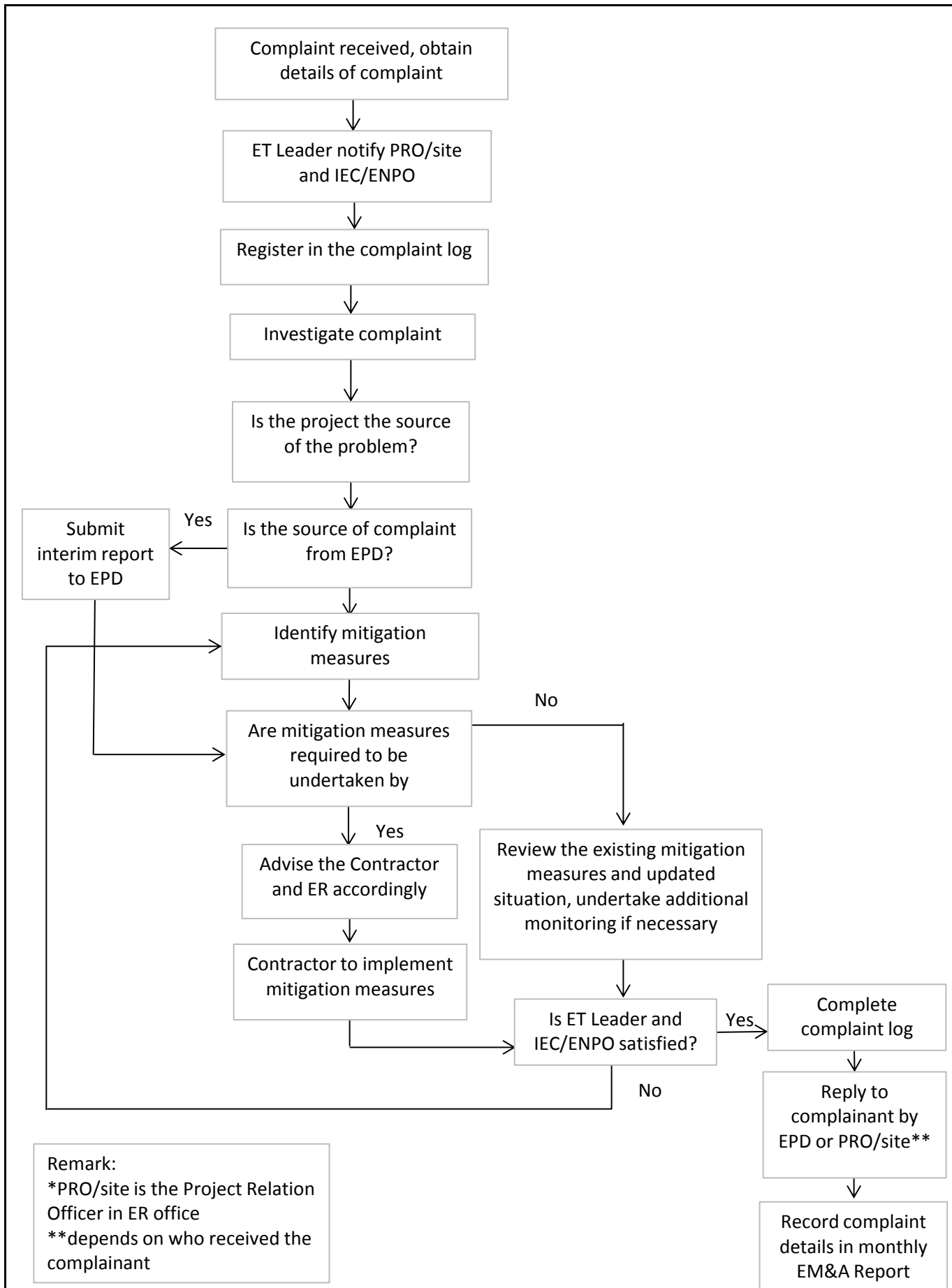
**Remarks:**

\*Transect 10 is now 3.6km in length due to the HKBCF construction site.

^Coordinates for transect lines 1, 2, 7, 8, 9 and 11 have been updated in respect to the Proposal for Alteration of Transect Line for Dolphin Monitoring approved by EPD on 19 August 2015. The total transect length for both NEL and NWL combined is 108km.

# New projects, large number of barges/vessels were anchored densely at north of Three Runway System project boundary, access to the transect area on lines 1, 2, 3, 4, 6 and 8 were blocked or affected in February 2017.

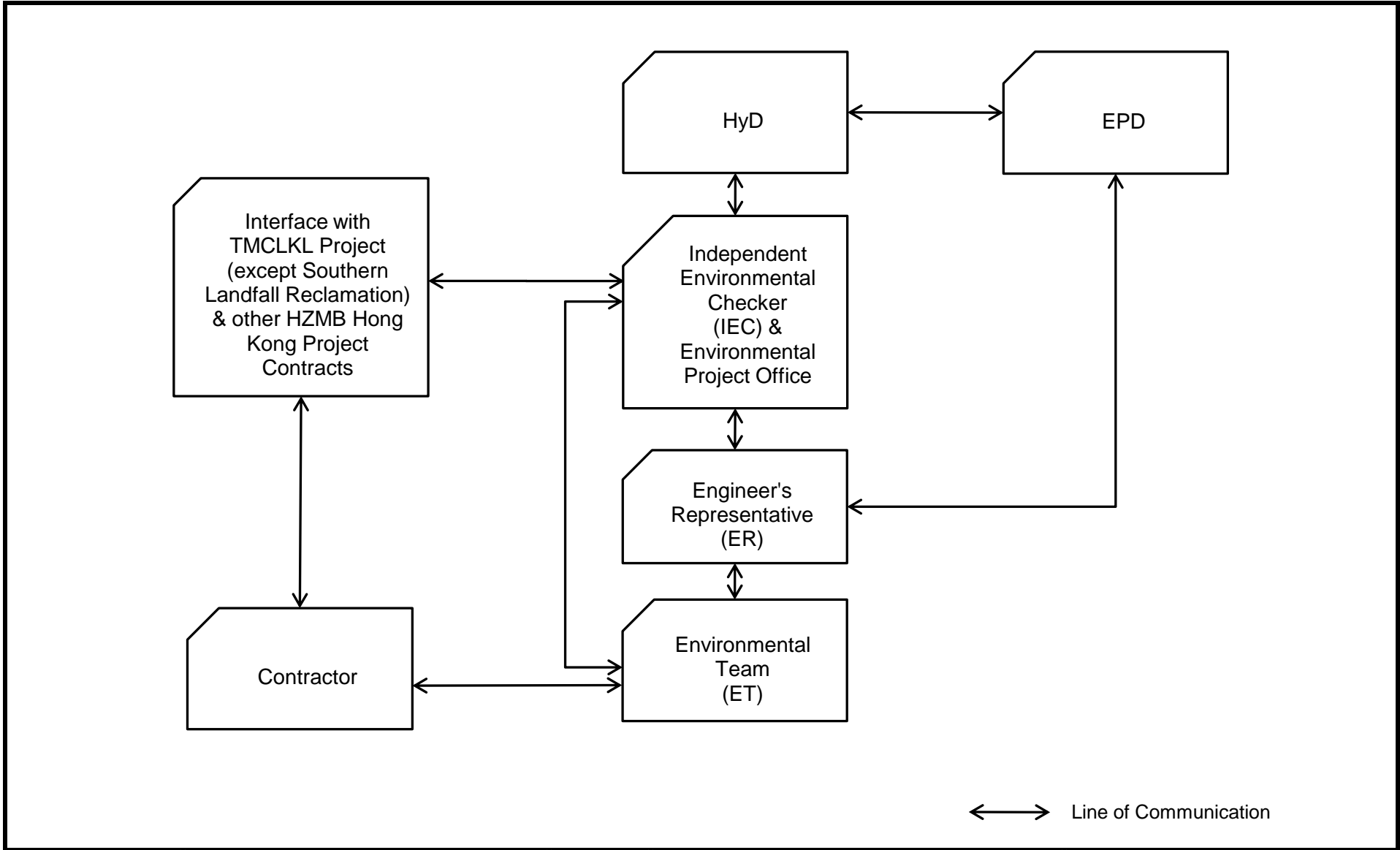




Remark:  
 \*PRO/site is the Project Relation Officer in ER office  
 \*\*depends on who received the complainant

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Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013								
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr							
<b>15th Monthly Progress Report status as of 21 Feb 2013</b>							1918	1469	30-Nov-11 A	28-Feb-17	0																
<b>Contract Key Dates</b>							829	334	06-Jan-12 A	20-Jan-14	-46																
<b>Key Dates for achievement of Stages and completion of Sections</b>							120	0	27-May-12 A	24-Sep-12 A																	
G1020	KD-1a, Achievement of Stage 1a (180days , 27May2012)	0	0		27-May-12 A																						
G1030	KD-1b, Achievement of Stage 1b (300days, 24Sep2012)	0	0		24-Sep-12 A																						
<b>Possession of Site</b>							91	0	28-May-12 A	27-Aug-12 A																	
G1250	Works Area TKO-WA (Zone B1&B2)	0	0	28-May-12 A																							
G1260	Works Area TKO-WA (Zone C)	0	0	27-Aug-12 A																							
<b>Vacation of Site</b>							0	0	31-May-12 A	31-May-12 A																	
G1310	Works Area WA3 (Other Zone)	0	0		31-May-12 A																						
G1330	Works Area WA4 (Zone B)	0	0		31-May-12 A																						
G1340	Works Area WA4 (Zone C)	0	0		31-May-12 A																						
<b>Summary Programme</b>							829	334	06-Jan-12 A	20-Jan-14	-46																
<b>Sewawall Construction</b>							829	334	06-Jan-12 A	20-Jan-14	-46																
G1380	CONE PENETRATION TEST	134	0	06-Jan-12 A	04-May-12 A																						
G1400	GEOTEXTILE LAYING	181	0	20-Feb-12 A	06-Aug-12 A																						
G1410	STONE BLANKETS	179	0	10-Mar-12 A	30-Sep-12 A																						
G1420	STONE COLUMNS INSIDE CELLS	240	327	15-Jun-12 A	13-Jan-14	-39																					
G1430	STONE COLUMNS OUTSIDE CELLS	0	334	30-Nov-12 A	20-Jan-14	-69																					
G1440	CELLULAR MAIN CELLS (EXCEPT MARINE ACCESS)	479	192	14-Jul-12 A	31-Aug-13	-267																					
<b>Reclamation Construction</b>							635	328	25-Mar-12 A	14-Jan-14	-40																
<b>Reclamation Below +5.5mPD</b>							635	328	25-Mar-12 A	14-Jan-14	-40																
G1470	CONE PENETRATION TEST	102	0	25-Mar-12 A	08-Jun-12 A																						
G1480	GEOTEXTILE FOR SAND BLANKET	232	204	30-Jan-13 A	12-Sep-13	68																					
G1490	SAND BLANKET	343	328	18-Feb-13 A	14-Jan-14	-40																					
<b>Preliminary &amp; General</b>							416	0	02-Jan-12 A	31-Jan-13 A																	
<b>Procurement/Supply of Major Material</b>							383	0	15-Jan-12 A	31-Jan-13 A																	
P1400	Order of Sheet Pile material for Cellular Structure for Portion B	103	0	18-Feb-12 A	25-Jun-12 A																						
P1420	Order of Sheet Pile material for Cellular Structure for Portion C	126	0	01-Mar-12 A	03-Aug-12 A																						
P1870	Order of Sheet Pile material for Cellular Structure for Portion E	78	0	21-May-12 A	21-Aug-12 A																						
P1890	*Order for Both Temporary and Permanent Corrosion Control Systems	212	0	21-May-12 A	31-Jan-13 A																						
<b>Straight Web Sheets Piles</b>							352	0	15-Jan-12 A	31-Dec-12 A																	
SPM-0020	Manufacture & Arrival of Straight Web Sheet Piles 2nd	73	0	15-Jan-12 A	27-Mar-12 A																						
SPM-0050	Manufacture & Arrival of Straight Web Sheet Piles 5th	33	0	09-Mar-12 A	10-Apr-12 A																						
SPM-0060	Manufacture & Arrival of Straight Web Sheet Piles 6th	20	0	11-Mar-12 A	30-Mar-12 A																						
SPM-0070	Manufacture & Arrival of Straight Web Sheet Piles 7th	24	0	15-Mar-12 A	07-Apr-12 A																						

█ Remaining Level of Effort    █ Critical Remaining Work  
█ Actual Level of Effort    ◆ Milestone  
█ Primary Baseline    ▬ Summary  
█ Actual Work  
█ Remaining Work

For Construction works from Mar 2012 to Feb 2013

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013			
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr		
SPM-0080	Manufacture & Arrival of Straight Web Sheet Piles 8th	30	0	08-Apr-12 A	07-May-12 A		[Gantt bar from Apr to May]															
SPM-0090	Manufacture & Arrival of Straight Web Sheet Piles 9th	31	0	08-May-12 A	07-Jun-12 A		[Gantt bar from May to Jun]															
SPM-0100	Manufacture & Arrival of Straight Web Sheet Piles 10th	31	0	08-Jun-12 A	08-Jul-12 A		[Gantt bar from Jun to Jul]															
SPM-0110	Manufacture & Arrival of Straight Web Sheet Piles 11th Delete	1	0	31-Dec-12 A	31-Dec-12 A		[Vertical line at Dec]															
SPM-0120	Manufacture & Arrival of Straight Web Sheet Piles 12th Delete	1	0	31-Dec-12 A	31-Dec-12 A		[Vertical line at Dec]															
SPM-0130	Manufacture & Arrival of Straight Web Sheet Piles 13th Delete	1	0	31-Dec-12 A	31-Dec-12 A		[Vertical line at Dec]															
<b>Preconstruction Works</b>		<b>148</b>	<b>0</b>	<b>01-Feb-12 A</b>	<b>31-Jul-12 A</b>		[Summary bar from Feb to Jul]															
P1360	Site Establishment, hoardings erections etc.	148	0	01-Feb-12 A	31-Jul-12 A		[Blue bar from Feb to Jul]															
P1370	Install Perimeter Silt Curtain	114	0	12-Mar-12 A	31-Jul-12 A		[Blue bar from Mar to Jul]															
<b>Contract Submission</b>		<b>0</b>	<b>0</b>	<b>10-Aug-12 A</b>	<b>10-Aug-12 A</b>		[Vertical line at Aug]															
C1220	Submission of Temporary Drainage Management Plan	0	0		10-Aug-12 A		[Vertical line at Aug]															
<b>Site Establishment</b>		<b>213</b>	<b>0</b>	<b>16-Apr-12 A</b>	<b>31-Dec-12 A</b>		[Summary bar from Apr to Dec]															
SE1140	Installation of 2 nos. Project Signboards (with HZMB Logo)	0	0		31-Dec-12 A		[Vertical line at Dec]															
SE1190	Contractor's Office Design and Construction at WA2	0	0		31-May-12 A		[Vertical line at May]															
SE1210	Public Complaints & Enquiries CUM Information Centre with Operative	0	0		16-Apr-12 A		[Vertical line at Apr]															
<b>Environmental Submission</b>		<b>153</b>	<b>0</b>	<b>26-Mar-12 A</b>	<b>30-Sep-12 A</b>		[Summary bar from Mar to Sep]															
E1020	Action Reporting Procedures by ETL to the Contractor for Agreement and to the Engineer for Approval, Verified by IEC	0	0		26-Mar-12 A		[Vertical line at Mar]															
E1060	All Submissions to EP No. EP-354/2009/A & EP-353/2009/B Permit Holder by HyD, Tuen Mun - CLK Link & HKBCF (Part C)	102	0	01-Jun-12 A	30-Sep-12 A		[Blue bar from Jun to Sep]															
E1070	All Submissions to EP No. EP-134/2002/I Permit Holder by CEDD, Fill bank at TKO Area 137 (Part C)	35	0	21-Jul-12 A	30-Aug-12 A		[Blue bar from Jul to Aug]															
<b>Marine Works</b>		<b>0</b>	<b>0</b>	<b>26-Mar-12 A</b>	<b>26-Mar-12 A</b>		[Vertical line at Mar]															
MW1030	Obtain Approval from the Engineer for Importation of Sand Fill from the PRC Mainland	0	0	26-Mar-12 A			[Vertical line at Mar]															
<b>Geotechnical Works</b>		<b>0</b>	<b>0</b>	<b>22-May-12 A</b>	<b>22-May-12 A</b>		[Vertical line at May]															
GW1030	Submission of Instrumentation Specialist	0	0	22-May-12 A			[Vertical line at May]															
<b>Corrosion Control</b>		<b>0</b>	<b>0</b>	<b>14-Jun-12 A</b>	<b>03-Dec-12 A</b>		[Summary bar from Jun to Dec]															
CC1010	Submission of Shop Drawings	0	0	14-Jun-12 A			[Vertical line at Jun]															
CC1030	Submission of Test Report by Manufacturer	0	0	03-Dec-12 A			[Vertical line at Dec]															
<b>Plant Delivery &amp; Mobilization</b>		<b>161</b>	<b>0</b>	<b>02-Jan-12 A</b>	<b>20-Jun-12 A</b>		[Summary bar from Jan to Jun]															
PD00140	Preparation & Delivery of Plant for Cellular Structures	161	0	02-Jan-12 A	20-Jun-12 A		[Blue bar from Jan to Jun]															
<b>Work Zone, as defined in PS Clause 1.03(6)</b>		<b>1052</b>	<b>669</b>	<b>04-Feb-12 A</b>	<b>21-Dec-14</b>	<b>-171</b>	[Summary bar from Feb to Dec]															
<b>Events</b>		<b>194</b>	<b>0</b>	<b>06-Feb-12 A</b>	<b>17-Aug-12 A</b>		[Summary bar from Feb to Aug]															
<b>Interface with Others</b>		<b>194</b>	<b>0</b>	<b>06-Feb-12 A</b>	<b>17-Aug-12 A</b>		[Summary bar from Feb to Aug]															
<b>Marker Buoys at Chainage 4500 - 4900</b>		<b>15</b>	<b>0</b>	<b>06-Jun-12 A</b>	<b>20-Jun-12 A</b>		[Summary bar from Jun to Jun]															
IF01040	Consent for resume site boundary by MD	0	0		06-Jun-12 A		[Vertical line at Jun]															
IF01050	Realignment of the silt curtain to resume site boundary	14	0	06-Jun-12 A	20-Jun-12 A		[Blue bar from Jun to Jun]															
IF01060	Resume the stone columns works at CH4500 to CH4900	0	0	20-Jun-12 A			[Vertical line at Jun]															
<b>120M Accessway at Chainage 4900 - 5600</b>		<b>30</b>	<b>0</b>	<b>19-Jul-12 A</b>	<b>17-Aug-12 A</b>		[Summary bar from Jul to Aug]															

- Remaining Level of Effort
- Critical Remaining Work
- Actual Level of Effort
- ◆ Milestone
- ▬ Primary Baseline
- ▬ Summary
- █ Actual Work
- █ Remaining Work

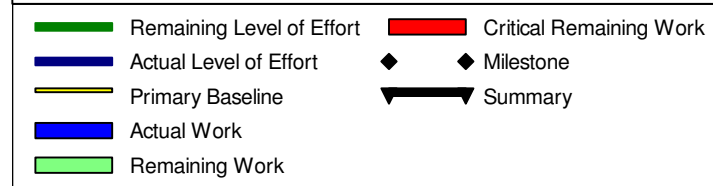
For Construction works from Mar 2012 to Feb 2013

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013			
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr		
IF02010	Consent for resume site boundary by MD	0	0		19-Jul-12 A																	
IF02020	Possession of 120M barge accessway in Airport SkyPier Basin	0	0	19-Jul-12 A																		
IF02030	Realignment of the marker buoy	3	0	19-Jul-12 A	21-Jul-12 A																	
IF02040	Realignment of the silt curtain	28	0	19-Jul-12 A	17-Aug-12 A																	
IF02050	Resume the stone columns works at Portion A	0	0	17-Aug-12 A																		
<b>Abandoned Submarine Cables</b>		<b>106</b>	<b>0</b>	<b>06-Feb-12 A</b>	<b>22-May-12 A</b>																	
IF03020	Confirmation of Abandon of submarine cables by NWT & Hutchison	85	0	06-Feb-12 A	21-May-12 A																	
IF03050	Resume the stone columns works	0	0	22-May-12 A																		
<b>Portion D</b>		<b>91</b>	<b>0</b>	<b>22-Mar-12 A</b>	<b>20-Jun-12 A</b>																	
A1570-010	Occupation by others in Portion D from 22/3 - 23/3/2012	2	0	22-Mar-12 A	23-Mar-12 A																	
A1570-020	Occupation by others in Portion D from 30/3 - 4/4/2012	6	0	30-Mar-12 A	04-Apr-12 A																	
A1570-030	Occupation by others in Portion D from 8/4 - 12/4/2012	5	0	08-Apr-12 A	12-Apr-12 A																	
A1570-040	Suspend the installation of silt curtain	0	0	21-Apr-12 A																		
A1570-050	Possession of site of Pier in Portion D to resume site boundary	0	0		06-Jun-12 A																	
A1570-060	Silt curtain laying	14	0	06-Jun-12 A	20-Jun-12 A																	
A1570-070	Resume the stone blankets at west side in Portion D	0	0	09-Jun-12 A																		
<b>Daily Record</b>		<b>66</b>	<b>0</b>	<b>17-Mar-12 A</b>	<b>21-May-12 A</b>																	
DR01-00050	Laying Silt Curtain for trial stone column	3	0	17-Mar-12 A	20-Mar-12 A																	
DR01-00060	Trial stone columns 4hrs	4	0	21-Mar-12 A	24-Mar-12 A																	
DR01-00070	Modify the stone column vibro-probe shoe	15	0	25-Mar-12 A	10-Apr-12 A																	
DR01-00080	Trial stone columns 8 nos	3	0	11-Apr-12 A	13-Apr-12 A																	
DR01-00090	Review of trial stone column report	8	0	14-Apr-12 A	22-Apr-12 A																	
DR01-00100	Addition trial stone columns 3hrs	2	0	23-Apr-12 A	24-Apr-12 A																	
DR01-00110	Approval of trial stone column by the Engineer	1	0	25-Apr-12 A	25-Apr-12 A																	
DR01-00120	Resume installation of Stage 1 silt curtain and laying geotextile & stone blanket	10	0	26-Apr-12 A	05-May-12 A																	
DR01-00130	1st Batch stone aggregate arrival - Test fail	1	0	06-May-12 A	06-May-12 A																	
DR01-00140	2nd Batch stone aggregate arrival - Visual Approval	1	0	10-May-12 A	10-May-12 A																	
DR01-00150	Start Permanent Stone Column works	0	0	11-May-12 A																		
DR01-00160	Stone Column Works 2hrs	2	0	11-May-12 A	12-May-12 A																	
DR01-00170	Causing stone column works due to the 2nd batch fail	0	0	13-May-12 A																		
DR01-00180	Arrival of 3rd batch stone column	3	0	13-May-12 A	15-May-12 A																	
DR01-00190	Wait for test result	6	0	16-May-12 A	21-May-12 A																	
<b>Trial Construction</b>		<b>36</b>	<b>0</b>	<b>21-Mar-12 A</b>	<b>25-Apr-12 A</b>																	
<b>Trial installation of Stone Columns</b>		<b>36</b>	<b>0</b>	<b>21-Mar-12 A</b>	<b>25-Apr-12 A</b>																	
T0050	Install trial stone columns 12hrs	17	0	21-Mar-12 A	13-Apr-12 A																	
T0060	The report of trial stone columns submit to the Engineer	1	0	16-Apr-12 A	16-Apr-12 A																	

- Remaining Level of Effort
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For Construction works from Mar 2012 to Feb 2013

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013					
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr				
T0062	comments from the Engineer	7	0	16-Apr-12 A	22-Apr-12 A																			
T0064	Additonal trial stone column	2	0	23-Apr-12 A	24-Apr-12 A																			
T0070	The trial stone columns approved by the Engineer	1	0	25-Apr-12 A	25-Apr-12 A																			
<b>Portion A</b>		462	66	04-Feb-12 A	27-Apr-13	-187																		
<b>Variation of Environmental Permit - Sand Blanket laying in all portions</b>		91	10	02-Jan-13 A	02-Mar-13	-406																		
VEP-10010	VEP Preparation	25	0	02-Jan-13 A	30-Jan-13 A	F A																		
VEP-10020	VEP Discussion with EPD	1	0	31-Jan-13 A	31-Jan-13 A	F A																		
VEP-10030	VEP Approval by EPD	30	10	01-Feb-13 A	02-Mar-13	F A																		
<b>Ground Treatment</b>		462	66	04-Feb-12 A	27-Apr-13	-187																		
<b>CPT</b>		57	0	04-Feb-12 A	14-Apr-12 A																			
<b>Seawall Portion A at C119 - C134 &amp; Portion C2a C115 - C118</b>		57	0	04-Feb-12 A	14-Apr-12 A																			
CPTSA0-015	The Level confirm by the Engineer	39	0	07-Feb-12 A	22-Mar-12 A																			
CPTSA0-020	CPT Portion A from C 124 to C115	40	0	04-Feb-12 A	21-Mar-12 A																			
CPTSA0-025	The Level confirm by the Engineer	17	0	22-Mar-12 A	14-Apr-12 A																			
<b>Geotextile</b>		15	0	01-May-12 A	18-May-12 A																			
<b>Seawall Portion A at C119 - C134 &amp; Portion C2a C115 - C118</b>		15	0	01-May-12 A	18-May-12 A																			
GESA0-020	Geotextile Portion A from C125 to C115	15	0	01-May-12 A	18-May-12 A																			
<b>Stone Blanket</b>		84	0	10-Mar-12 A	22-Jun-12 A																			
<b>Seawall Portion A at C119 - C134 &amp; Portion C2a C115 - C118</b>		84	0	10-Mar-12 A	22-Jun-12 A																			
STBA0-010	Stone Blankets Portion A from C134 to C126	84	0	10-Mar-12 A	22-Jun-12 A																			
STBA0-020	Stone Blankets Portion A from C125 to C115	72	0	24-Mar-12 A	22-Jun-12 A																			
<b>Stone Columns C118 - C134 6,399Nos.</b>		162	61	14-Nov-12 A	27-Apr-13	-171																		
<b>Portion AC118 - C121 4Cells 1,460Nos.</b>		106	21	10-Dec-12 A	15-Mar-13	-180																		
SC0A-1000	Stone Columns PA C118 - C121 4cells 250nrs/1460nrs completed upto 4Feb2013	53	0	10-Dec-12 A	04-Feb-13 A	F A																		
SC0A-1010	Removal of C120 for stone columns	41	21	28-Jan-13 A	15-Mar-13	F A																		
<b>Portion AC122 - C124 3Cells 1,075Nos.</b>		109	44	23-Dec-12 A	09-Apr-13	-166																		
SC0A-2000	Stone Columns PA C122 - C124 3cells 238nrs/1075nrs completed upto 4Feb2013	41	0	23-Dec-12 A	04-Feb-13 A	F A																		
SC0A-2010	Stone Columns PA C122 - C124 3cells 837nrs/1075nrs (15nrs/day) FTB-AP3	56	44	05-Feb-13 A	09-Apr-13	F A																		
<b>Portion AC125 - C128 4Cells 1,516Nos.</b>		110	61	09-Jan-13 A	27-Apr-13	-171																		
SC0A-3000	Stone Columns PA C125 - C128 4cells 433nrs/1516nrs completed upto 4Feb2013	25	0	09-Jan-13 A	04-Feb-13 A	F A																		
SC0A-3010	Stone Columns PA C125 - C128 4cells 1,083nrs/1516nrs (15nrs/day) FTB19	73	61	05-Feb-13 A	27-Apr-13	F A																		
<b>Portion AC129 - C131 3Cells 1,181Nos</b>		114	28	30-Nov-12 A	22-Mar-13	-151																		
SC0A-4000	Stone Columns PA C129 - C131 584nrs/1181nrs completed upto 4Feb2013	62	0	30-Nov-12 A	04-Feb-13 A	F A																		
SC0A-4010	Stone Columns PA C129 - C131 597nrs/1181nrs (15nrs/day) FTB20	40	28	05-Feb-13 A	22-Mar-13	F A																		
<b>Portion AC132 - C134 3Cells 1,167Nos</b>		162	47	14-Nov-12 A	12-Apr-13	-170																		
SC0A-5000	Stone Columns PA C132 - C134 3cells 288nrs/1167nrs completed upto 4Feb2013	77	0	14-Nov-12 A	04-Feb-13 A	F A																		
SC0A-5010	Stone Columns PA C132 - C134 3cells 879nrs/1167nrs (15nrs/day) FTB-AP4	59	47	05-Feb-13 A	12-Apr-13	F A																		
<b>Reclamation</b>		371	36	25-Mar-12 A	28-Mar-13	-432																		
<b>Portion A CPT</b>		75	0	25-Mar-12 A	14-Jun-12 A																			
<b>Land Portion A</b>		75	0	25-Mar-12 A	14-Jun-12 A																			
CPTRA0-010	CPT for Portion A	75	0	25-Mar-12 A	14-Jun-12 A	F A																		



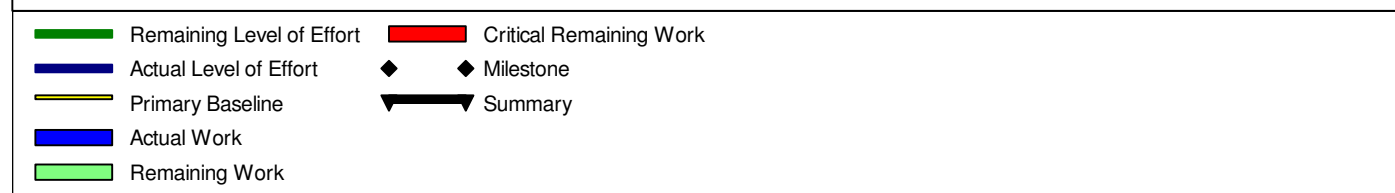
For Construction works from Mar 2012 to Feb 2013

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013								
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr							
<b>Portion A Geotextile</b>							26	8	30-Jan-13 A	01-Mar-13	-381																
<b>Land Portion A</b>							26	8	30-Jan-13 A	01-Mar-13	-381																
GERA0-010	Geotextile 285,000m2 for sand blanket PA Main Area C118 to C126 10,000m2/day	26	8	30-Jan-13 A	01-Mar-13	-381																					
<b>Portion A Sand Blanket</b>							36	33	18-Feb-13 A	28-Mar-13	-399																
<b>Land Portion A</b>							36	33	18-Feb-13 A	28-Mar-13	-399																
SABRA0-010	Sand Blankets 357,500m3 PA Main Area C120 to C126 10,000m3/day	36	33	18-Feb-13 A	28-Mar-13	-399																					
<b>Portion B, C &amp; E</b>							1043	669	13-Feb-12 A	21-Dec-14	-171																
<b>Portion B, C &amp; E</b>							1043	669	13-Feb-12 A	21-Dec-14	-171																
<b>Seawall</b>							583	218	13-Feb-12 A	26-Sep-13	51																
<b>Ground Treatment</b>							425	23	13-Feb-12 A	15-Mar-13	-197																
<b>CPT</b>							93	0	13-Feb-12 A	06-Jun-12 A																	
<b>Seawall Portion B at C001 - C050</b>							93	0	13-Feb-12 A	06-Jun-12 A																	
CPTSB0-015	The Level confirm by the Engineer	86	0	21-Feb-12 A	06-Jun-12 A																						
CPTSB0-020	CPT Portion B from C026 to C050	47	0	13-Feb-12 A	11-Apr-12 A																						
CPTSB0-025	The Level confirm by the Engineer	86	0	21-Feb-12 A	06-Jun-12 A																						
<b>Seawall Portion C2a at C101 - C114</b>							42	0	24-Feb-12 A	17-Apr-12 A																	
CPTSC2a-010	CPT Portion C2a from C114 to C101	23	0	24-Feb-12 A	21-Mar-12 A																						
CPTSC2a-015	The Level confirm by the Engineer	24	0	16-Mar-12 A	17-Apr-12 A																						
<b>Seawall Portion C2c at C091 - C100</b>							75	0	05-Mar-12 A	06-Jun-12 A																	
CPTSC2c-010	CPT Portion C2c from C100 to C091	42	0	05-Mar-12 A	26-Apr-12 A																						
CPTSC2c-015	The Level confirm by the Engineer	69	0	12-Mar-12 A	06-Jun-12 A																						
<b>Seawall Portion E2 at C051 - C068</b>							77	0	02-Mar-12 A	06-Jun-12 A																	
CPTSE2-010	CPT Portion E2 from C051 to C068	49	0	02-Mar-12 A	04-May-12 A																						
CPTSE2-015	The Level confirm by the Engineer	69	0	12-Mar-12 A	06-Jun-12 A																						
<b>Seawall Portion E1 at C069 - C090</b>							90	0	16-Feb-12 A	06-Jun-12 A																	
CPTSE1-010	CPT Portion E1 from C069 to C090	44	0	16-Feb-12 A	11-Apr-12 A																						
CPTSE1-015	The Level confirm by the Engineer	81	0	27-Feb-12 A	06-Jun-12 A																						
<b>Geotextile</b>							112	0	09-Apr-12 A	06-Aug-12 A																	
<b>Seawall Portion B at C001 - C050</b>							107	0	09-Apr-12 A	01-Aug-12 A																	
GESB0-010	Geotextile Portion B from C001 to C025	107	0	09-Apr-12 A	01-Aug-12 A																						
GESB0-020	Geotextile Portion B from C026 to C050	63	0	26-May-12 A	01-Aug-12 A																						
<b>Seawall Portion C2a at C101 - C114</b>							17	0	27-Apr-12 A	14-May-12 A																	
GESC2a-010	Geotextile Portion C2a from C114 to C101	17	0	27-Apr-12 A	14-May-12 A																						
<b>Seawall Portion C2c at C091 - C100</b>							90	0	24-Apr-12 A	29-Jul-12 A																	
GESC2c-010	Geotextile Portion C2c from C100 to C091	90	0	24-Apr-12 A	29-Jul-12 A																						
<b>Seawall Portion E2 at C051 - C068</b>							36	0	07-Jun-12 A	14-Jul-12 A																	
GESE2-010	Geotextile Portion E2 from C051 to C068	36	0	07-Jun-12 A	14-Jul-12 A																						
<b>Seawall Portion E1 at C069 - C090</b>							53	0	11-Jun-12 A	06-Aug-12 A																	
GESE1-010	Geotextile Portion E1 from C069 to C090	53	0	11-Jun-12 A	06-Aug-12 A																						
<b>Stone Blankets</b>							131	0	13-Apr-12 A	31-Aug-12 A																	
<b>Seawall Portion B at C001 - C050</b>							105	0	13-Apr-12 A	03-Aug-12 A																	
STBB0-010	Stone Blankets Portion B from C001 to C025	104	0	13-Apr-12 A	02-Aug-12 A																						
STBB0-020	Stone Blankets Portion B from C026 to C050	65	0	26-May-12 A	03-Aug-12 A																						

█ Remaining Level of Effort    █ Critical Remaining Work  
█ Actual Level of Effort    ◆ Milestone  
█ Primary Baseline    ▶ Summary  
█ Actual Work  
█ Remaining Work

For Construction works from Mar 2012 to Feb 2013

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013							
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr						
<b>Seawall Portion C2a at C101 - C114</b>		36	0	02-May-12 A	09-Jun-12 A																					
STBC2a-010	Stone Blankets Portion C2a from C114 to C101	36	0	02-May-12 A	09-Jun-12 A																					
<b>Seawall Portion C2c at C091 - C100</b>		89	0	11-May-12 A	14-Aug-12 A																					
STBC2c-010	Stone Blankets Portion C2c from C100 to C091	89	0	11-May-12 A	14-Aug-12 A																					
<b>Seawall Portion E2 at C051 - C068</b>		54	0	13-Jun-12 A	09-Aug-12 A																					
STBE2-010	Stone Blankets Portion E2 from C051 to C068	54	0	13-Jun-12 A	09-Aug-12 A																					
<b>Seawall Portion E1 at C069 - C090</b>		68	0	20-Jun-12 A	31-Aug-12 A																					
STBE1-010	Stone Blankets Portion E1 from C069 to C090	68	0	20-Jun-12 A	31-Aug-12 A																					
<b>Stone Columns for Sloping Seawall by Marine Plant</b>		96	21	27-Dec-12 A	15-Mar-13	-180																				
<b>Portion C2a C113 - C117 5Cells 2,164Nos FTB17</b>		96	21	27-Dec-12 A	15-Mar-13	-180																				
SC0A-1030	Stone Columns PC2a C113 - C117 5cells 492nrs/2164nrs Completed upto 4Feb2013	37	0	27-Dec-12 A	04-Feb-13 A																					
SC0A-1040	Stone Columns PC2a C113 - C117 5cells 495nrs/2164nrs (15nrs/day) FTB17 before 28Feb2013	33	21	05-Feb-13 A	15-Mar-13	-180																				
<b>Stone Columns whole area in each cellular structure by Marine Plant</b>		177	0	15-Jun-12 A	22-Dec-12 A																					
<b>Seawall Portion C2c at C092 - C102 11cells 3,095nrs</b>		177	0	15-Jun-12 A	22-Dec-12 A																					
<b>FTB17 532nrs</b>		152	0	29-Jun-12 A	09-Dec-12 A																					
V3-SCIC-01	Stone Columns inside cells & 2rows 84nrs FTB17	41	0	29-Jun-12 A	11-Aug-12 A																					
V3-SCIC-03	Mobilization of vibro probes FTB17 stone column barge	46	0	12-Aug-12 A	30-Sep-12 A																					
V3-SCIC-04	Stone Columns inside cells & 2rows 448nrs (15nrs/day) FTB17	65	0	01-Oct-12 A	09-Dec-12 A																					
<b>FTB19 2,563nrs</b>		177	0	15-Jun-12 A	22-Dec-12 A																					
V3-SCIC-11	Stone Columns inside cells & 2rows 272nrs FTB19	49	0	15-Jun-12 A	06-Aug-12 A																					
V3-SCIC-13	Mobilization of vibro probes FTB19 stone column barge	5	0	07-Aug-12 A	12-Aug-12 A																					
V3-SCIC-14	Stone Columns inside cells & 2rows 2291nrs (15nrs/day) FTB19	123	0	13-Aug-12 A	22-Dec-12 A																					
<b>Stone Columns Inside cellular structures by Marine Plant</b>		106	16	11-Dec-12 A	09-Mar-13	-248																				
<b>Seawall Portion C2a at C103 - C112 10cells 990nrs</b>		106	16	11-Dec-12 A	09-Mar-13	-248																				
SCIC-010	Stone Columns inside cells & 2rows 2cells 578nrs/990nrs FTB18 upto 20Jan2013	52	0	11-Dec-12 A	04-Feb-13 A																					
SCIC-020	Stone Columns inside cells & 2rows 2cells 412nrs/990nrs (15nrs/day) FTB18	28	16	05-Feb-13 A	09-Mar-13	-248																				
<b>Stone Columns Inside cells by Land Plant</b>		41	0	03-May-12 A	19-Jun-12 A																					
<b>Seawall Portion B at K024 - C051 28cells 3,080nrs</b>		41	0	03-May-12 A	19-Jun-12 A																					
V3-SCIB0-00	Preparation of Supplementary Agreement for changing the small diameter of cellular walls	29	0	03-May-12 A	05-Jun-12 A																					
V3-SCIB0-00	Confirmation of Supplementary Agreement for changing the small diameter of cellular walls	12	0	06-Jun-12 A	19-Jun-12 A																					
<b>Cellular Structures</b>		504	218	02-May-12 A	26-Sep-13	51																				
<b>Cellular Main Cells 89cells</b>		504	218	02-May-12 A	26-Sep-13	51																				
CS10000	Production of Y Junction for Cellular Walls Construction	504	218	02-May-12 A	26-Sep-13	51																				
CS10010	Pre-fabrication of 1/4 sheetpile walls	443	218	02-Jul-12 A	26-Sep-13	5																				
<b>Full Guide Frames Method 89cells</b>		230	8	14-Jul-12 A	28-Feb-13	-430																				
<b>Portion B K024 to K051 28cells</b>		230	8	14-Jul-12 A	28-Feb-13	-430																				
CS028-000	Portion B Cellular Structure K028	14	0	06-Oct-12 A	21-Oct-12 A																					
CS031-000	Portion B Cellular Structure K031	12	0	03-Oct-12 A	15-Oct-12 A																					
CS033-000	Portion B Cellular Structure K033 type_C 3476m3	105	0	18-Oct-12 A	07-Feb-13 A																					
CS034-000	Portion B Cellular Structure K034	22	0	12-Sep-12 A	04-Oct-12 A																					
CS037-000	Portion B Cellular Structure K037 type_C 3476m3	112	0	11-Oct-12 A	07-Feb-13 A																					
CS038-000	Portion B Cellular Structure K038	42	0	14-Jul-12 A	28-Aug-12 A																					



For Construction works from Mar 2012 to Feb 2013

- █ Remaining Level of Effort
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Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013				
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr			
CS039-000	Portion B Cellular Structure K039	23	0	26-Sep-12 A	19-Oct-12 A																		
CS041-000	Portion B Cellular Structure K041	21	0	05-Sep-12 A	27-Sep-12 A																		
CS045-000	Portion B Cellular Structure K045	55	0	19-Jul-12 A	15-Sep-12 A																		
CS046-000	Portion B Cellular Structure K046	44	0	13-Aug-12 A	28-Sep-12 A																		
CS049-000	Portion B Cellular Structure K049	40	0	28-Jul-12 A	08-Sep-12 A																		
CSB00-010	Portion B Modification of guide frame for Cellular structures	36	7	18-Jan-13 A	28-Feb-13	-399																	
<b>Portion E2 K052 to C067 16cells</b>		<b>58</b>	<b>0</b>	<b>13-Aug-12 A</b>	<b>13-Oct-12 A</b>																		
CS055-000	Portion E2 Cellular Structure K055	21	0	21-Sep-12 A	13-Oct-12 A																		
CS056-000	Portion E2 Cellular Structure K056	35	0	13-Aug-12 A	18-Sep-12 A																		
<b>Reclamation</b>		<b>75</b>	<b>0</b>	<b>20-Mar-12 A</b>	<b>08-Jun-12 A</b>																		
<b>Ground Treatment</b>		<b>75</b>	<b>0</b>	<b>20-Mar-12 A</b>	<b>08-Jun-12 A</b>																		
<b>CPT</b>		<b>75</b>	<b>0</b>	<b>20-Mar-12 A</b>	<b>08-Jun-12 A</b>																		
<b>Land Portion C1a</b>		<b>58</b>	<b>0</b>	<b>30-Mar-12 A</b>	<b>30-May-12 A</b>																		
CPTRC1a-01	CPT for Portion C1a	58	0	30-Mar-12 A	30-May-12 A																		
<b>Land Portion B</b>		<b>62</b>	<b>0</b>	<b>20-Mar-12 A</b>	<b>25-May-12 A</b>																		
CPTRB0-010	CPT for Portion B	62	0	20-Mar-12 A	25-May-12 A																		
<b>Land Portion C2a</b>		<b>21</b>	<b>0</b>	<b>29-Mar-12 A</b>	<b>19-Apr-12 A</b>																		
CPTRC2a-01	CPT for Portion C2a	21	0	29-Mar-12 A	19-Apr-12 A																		
<b>Land Portion C1b</b>		<b>60</b>	<b>0</b>	<b>24-Mar-12 A</b>	<b>28-May-12 A</b>																		
CPTRC1b-01	CPT for Portion C1b	60	0	24-Mar-12 A	28-May-12 A																		
<b>Land Portion E2</b>		<b>65</b>	<b>0</b>	<b>20-Mar-12 A</b>	<b>28-May-12 A</b>																		
CPTRE2-010	CPT for Portion E2	65	0	20-Mar-12 A	28-May-12 A																		
<b>Land Portion E1</b>		<b>10</b>	<b>0</b>	<b>12-Apr-12 A</b>	<b>21-Apr-12 A</b>																		
CPTRE1-010	CPT for Portion E1	10	0	12-Apr-12 A	21-Apr-12 A																		
<b>Land Portion C2b</b>		<b>44</b>	<b>0</b>	<b>23-Apr-12 A</b>	<b>08-Jun-12 A</b>																		
CPTRC2b-01	CPT for Portion C2b	44	0	23-Apr-12 A	08-Jun-12 A																		
<b>Land Portion C2c</b>		<b>52</b>	<b>0</b>	<b>03-Apr-12 A</b>	<b>28-May-12 A</b>																		
CPTRC2c-01	CPT for Portion C2c	52	0	03-Apr-12 A	28-May-12 A																		
<b>Geotechnical Instrumentation Works</b>		<b>669</b>	<b>669</b>	<b>22-May-12 A</b>	<b>21-Dec-14</b>	<b>-171</b>																	
A2550	Submission and Approval of Instrumentation Method Statement	11	0	22-May-12 A	22-May-12 A																		
<b>Geotechnical Instrumentation Works for Seawalls</b>		<b>669</b>	<b>669</b>	<b>10-Dec-12 A</b>	<b>21-Dec-14</b>	<b>-171</b>																	
<b>Cluster Type SB 2nrs Inclinometer Cluster inside cells</b>		<b>669</b>	<b>669</b>	<b>10-Dec-12 A</b>	<b>21-Dec-14</b>	<b>-171</b>																	
<b>SB-1 K049 Portion B</b>		<b>669</b>	<b>669</b>	<b>10-Dec-12 A</b>	<b>21-Dec-14</b>	<b>-171</b>																	
CTSB1-010	Installation of SB-1 K049 Portion B	6	0	10-Dec-12 A	12-Dec-12 A																		
CTSB1-020	Commencement of Monitoring of SB-1 K049 Portion B	0	0	14-Dec-12 A																			
CTSB1-030	Monitoring of SB-1 K049 Portion B by Weekly until removal of surcharge	662	669	14-Dec-12 A	21-Dec-14	-171																	
<b>Portion D</b>		<b>449</b>	<b>42</b>	<b>08-Feb-12 A</b>	<b>03-Apr-13</b>	<b>22</b>																	
A1565-1	The Level confirm by the Engineer Package 1	63	0	08-Feb-12 A	10-Apr-12 A																		
A1585-2	The Level confirm by the Engineer Package 2	0	0		04-May-12 A																		
A1595-3	The Level confirm by the Engineer Package 3	0	0		07-May-12 A																		
<b>Submission</b>		<b>321</b>	<b>14</b>	<b>19-Apr-12 A</b>	<b>06-Mar-13</b>	<b>50</b>																	

- Remaining Level of Effort
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For Construction works from Mar 2012 to Feb 2013

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013								
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr							
<b>Design Submission</b>							321	14	19-Apr-12 A	06-Mar-13	11																
<b>Settlement Assessment for Reclamation Areas at Portion D</b>							321	14	19-Apr-12 A	06-Mar-13	-259																
PD-DGN-13010	Settlement Assessment for Reclamation Area at Portion D submission	0	0	19-Apr-12 A	19-Apr-12 A																						
PD-DGN-13020	Settlement Assessment for Reclamation Area at Portion D comments	31	0	20-Apr-12 A	20-May-12 A																						
PD-DGN-13030	Settlement Assessment for Reclamation Area at Portion D submission	0	0	18-Jun-12 A	18-Jun-12 A																						
PD-DGN-13040	Settlement Assessment for Reclamation Area at Portion D comments	30	0	19-Jun-12 A	18-Jul-12 A																						
PD-DGN-13050	Settlement Assessment for Reclamation Area at Portion D submission	0	0	28-Sep-12 A	28-Sep-12 A																						
PD-DGN-13060	Settlement Assessment for Reclamation Area at Portion D comments	36	0	28-Sep-12 A	02-Nov-12 A																						
PD-DGN-13070	Settlement Assessment for Reclamation Area at Portion D submission	0	0	21-Feb-13*	21-Feb-13*	-259																					
PD-DGN-13080	Settlement Assessment for Reclamation Area at Portion D comments	14	14	21-Feb-13	06-Mar-13	-259																					
<b>Settlement Assessment for Reclamation with land-based Drain</b>							0	0	21-Feb-13	21-Feb-13	-211																
PD-DGN-01010	Settlement Assessment for Reclamation with Land based band drain	0	0	21-Feb-13*	21-Feb-13*	-211																					
<b>Stability Analysis and Settlement Assessment for Vertical Seawall w No Dredging</b>							0	0	21-Feb-13	21-Feb-13	-308																
PD-DGN-02010	Stability Analysis and settlement assessment for vertical seawall with no dredging	0	0	21-Feb-13*	21-Feb-13*	-308																					
<b>Stability Analysis and Settlement Assessment for Sloping Seawall w No Dredging</b>							0	0	21-Feb-13	21-Feb-13	-308																
PD-DGN-03010	Stability Analysis and Settlement Assessment for Sloping seawall with no dredging	0	0	21-Feb-13*	21-Feb-13*	-308																					
<b>Settlement Assessment for Culverts C1 - C4 w No Dredging</b>							0	0	21-Feb-13	21-Feb-13	25																
PD-DGN-04010	Settlement assessment for box culverts C1 - C4 with no dredging	0	0	21-Feb-13*	21-Feb-13*	25																					
<b>Structural Analysis for Culverts C1 - C4 w Precast Method</b>							0	0	21-Feb-13	21-Feb-13	25																
PD-DGN-05010	Structural analysis for Box Culverts C1 - C4 with Precast Method	0	0	21-Feb-13*	21-Feb-13*	25																					
<b>Drainage Impact Assessment &amp; Temporary Diversion (stg1 - for reclamation and surcharge period)</b>							0	0	21-Oct-12 A	21-Oct-12 A																	
PD-DGN-06010	Drainage Impact Assessment and Temporary Diversion (stage 1 - for reclamation and Surcharge Period)	0	0	21-Oct-12 A	21-Oct-12 A																						
<b>Detailed Drawings for Temporary and Permanent Seawalls, Reclamation &amp; Surcharge</b>							0	0	21-Feb-13	21-Feb-13	-308																
PD-DGN-12010	Detailed Drawings for Temporary and Permanent Seawalls, Reclamation and surcharge	0	0	21-Feb-13*	21-Feb-13*	-308																					
<b>Method Statement Submission</b>							293	14	17-May-12 A	06-Mar-13	50																
<b>Seawall</b>							79	4	07-Nov-12 A	24-Feb-13	-312																
PD-MTD-01010	MTD for Temporary Seawall Cosntruction - Preparation & Submission 1st	0	0	07-Nov-12 A	07-Nov-12 A																						
PD-MTD-01020	MTD for Temporary Seawall Construction - Comments	20	0	07-Nov-12 A	26-Nov-12 A																						
PD-MTD-01030	MTD for Temporary Seawall Cosntruction - Preparation & Submission 2nd	0	0	10-Dec-12 A	10-Dec-12 A																						
PD-MTD-01040	MTD for Temporary Seawall Construction - Approval	45	4	11-Dec-12 A	24-Feb-13	-312																					
<b>Reclamation</b>							120	0	25-Jul-12 A	22-Nov-12 A																	
PD-MTD-02010	MTD for reclamation - Preparation & Submission 1st	0	0	25-Jul-12 A	25-Jul-12 A																						
PD-MTD-02020	MTD for reclamation - Comments	9	0	26-Jul-12 A	03-Aug-12 A																						
PD-MTD-02030	MTD for reclamation - Preparation & Submission 2nd	0	0	09-Nov-12 A	09-Nov-12 A																						
PD-MTD-02040	MTD for reclamation - Approval	14	0	09-Nov-12 A	22-Nov-12 A																						
<b>Vertical Drain by land plant</b>							202	0	17-May-12 A	05-Dec-12 A																	
PD-MTD-03010	MTD for Vertical Drain by land plant - Preparation & submission 1st	0	0	17-May-12 A	17-May-12 A																						
PD-MTD-03020	MTD for Vertical Drain by Land plant - Comments	19	0	18-May-12 A	05-Jun-12 A																						
PD-MTD-03030	MTD for Vertical Drain by land plant - Preparation & submission 2nd	0	0	06-Jul-12 A	06-Jul-12 A																						
PD-MTD-03040	MTD for Vertical Drain by Land plant - Comments	25	0	07-Jul-12 A	31-Jul-12 A																						

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For Construction works from Mar 2012 to Feb 2013

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013			
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr		
PD-MTD-03050	MTD for Vertical Drain by land plant - Preparation & submission 3rd	0	0		27-Aug-12 A																	
PD-MTD-03060	MTD for Vertical Drain by Land plant - Comments	9	0	28-Aug-12 A	05-Sep-12 A																	
PD-MTD-03070	MTD for Vertical Drain by land plant - Preparation & submission 4th	0	0		11-Sep-12 A																	
PD-MTD-03080	MTD for Vertical Drain by Land plant - Comments	39	0	12-Sep-12 A	21-Oct-12 A																	
PD-MTD-03090	MTD for Vertical Drain by land plant - Preparation & submission 5th	0	0		30-Oct-12 A																	
PD-MTD-03100	MTD for Vertical Drain by Land plant - Comments	14	0	31-Oct-12 A	13-Nov-12 A																	
PD-MTD-03110	MTD for Vertical Drain by land plant - Preparation & submission 6th	0	0		21-Nov-12 A																	
PD-MTD-03120	MTD for Vertical Drain by Land plant - Approval	14	0	22-Nov-12 A	05-Dec-12 A																	
<b>Stone Columns by land plant</b>		<b>168</b>	<b>0</b>	<b>28-Jun-12 A</b>	<b>13-Dec-12 A</b>																	
PD-MTD-04010	MTD for Stone Columns by Land Plant - Preparation & submission 1st	0	0		28-Jun-12 A																	
PD-MTD-04020	MTD for Stone Columns by Land Plant - Comments	16	0	29-Jun-12 A	14-Jul-12 A																	
PD-MTD-04030	MTD for Stone Columns by Land Plant - Preparation & submission 2nd	0	0		27-Sep-12 A																	
PD-MTD-04040	MTD for Stone Columns by Land Plant - Comments	49	0	28-Sep-12 A	15-Nov-12 A																	
PD-MTD-04050	MTD for Stone Columns by Land Plant - Preparation & submission 3rd	0	0		29-Nov-12 A																	
PD-MTD-04060	MTD for Stone Columns by Land Plant - Comments	14	0	30-Nov-12 A	13-Dec-12 A																	
<b>Construction &amp; Sequence of Culvert C1 - C4</b>		<b>26</b>	<b>0</b>	<b>09-Nov-12 A</b>	<b>04-Dec-12 A</b>																	
PD-MTD-05010	MTD for construction of culvert C1 - C4 - Preparation & Submission	0	0		09-Nov-12 A																	
PD-MTD-05020	MTD for construction of culvert C1 - C4 - Approval	26	0	09-Nov-12 A	04-Dec-12 A																	
<b>Extension Culvert EC1</b>		<b>14</b>	<b>14</b>	<b>21-Feb-13</b>	<b>06-Mar-13</b>	<b>50</b>																
PD-MTD-06010	MTD for culvert EC1 - Preparation & Submission	0	0	21-Feb-13*		50																
PD-MTD-06020	MTD for culvert EC1 - Approval	14	14	21-Feb-13	06-Mar-13	50																
<b>Float &amp; Sink installation of Culvert C1 - C4</b>		<b>45</b>	<b>4</b>	<b>11-Dec-12 A</b>	<b>24-Feb-13</b>	<b>56</b>																
PD-MTD-07010	MTD for Float & Sink of culvert C1 - C4 - Preparation & Submission	0	0		11-Dec-12 A																	
PD-MTD-07020	MTD for Float & Sink of culvert C1 - C4 - Approval	45	4	11-Dec-12 A	24-Feb-13	56																
<b>Stone Columns by Marine Plant</b>		<b>409</b>	<b>42</b>	<b>19-Mar-12 A</b>	<b>03-Apr-13</b>	<b>-435</b>																
<b>Stone Columns in Zone A 2,154nrs</b>		<b>181</b>	<b>20</b>	<b>26-Sep-12 A</b>	<b>14-Mar-13</b>	<b>-393</b>																
A1624	PD Zone A Lower Stone Columns 690nrs/1166nrs completed upto 4Feb2013	123	0	26-Sep-12 A	04-Feb-13 A																	
A1634	PD Zone A Lower Stone Columns 476nrs/1166nrs (15nrs/day) AP1	32	20	05-Feb-13 A	14-Mar-13	-393																
A1644	PD Zone A Upper Stone Columns 952nrs/988nrs Completed upto 4Feb2013	72	0	20-Nov-12 A	04-Feb-13 A																	
A1654	PD Zone A Upper Stone Columns 36nrs/988nrs (15nrs/day) AP2	3	0	05-Feb-13 A	07-Feb-13 A																	
<b>Stone Columns in Zone B 2,906nrs</b>		<b>170</b>	<b>9</b>	<b>26-Sep-12 A</b>	<b>02-Mar-13</b>	<b>-374</b>																
A1664	PD Zone B Lower Stone Columns 927nrs/1161nrs completed upto 4Feb2013	123	0	26-Sep-12 A	04-Feb-13 A																	
A1684	PD Zone B Upper Stone Columns 1481nrs/1745nrs Completed upto 4Feb2013 AP2	72	0	20-Nov-12 A	04-Feb-13 A																	
A1694	PD Zone B Upper Stone Columns 264nrs/1745nrs (15nrs/day) AP2	18	9	08-Feb-13 A	02-Mar-13	-374																
<b>Stone Columns in Zone C 2,456nrs</b>		<b>404</b>	<b>42</b>	<b>24-Mar-12 A</b>	<b>03-Apr-13</b>	<b>-435</b>																
A1570	D - Lay Geotextile at West Portion	110	0	24-Mar-12 A	20-Jul-12 A																	
A1575	D - Lay Stone Blanket Westion Portion	46	0	01-Jun-12 A	20-Jul-12 A																	
A1580-20	PD Zone C Lower Stone Columns 1,078nrs/1,850nrs completed upto 4Feb2013	155	0	22-Aug-12 A	04-Feb-13 A																	

█ Remaining Level of Effort █ Critical Remaining Work  
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 Primary Baseline ▬ Summary  
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 Remaining Work

For Construction works from Mar 2012 to Feb 2013

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	2012												2013			
							Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr		
A1580-30	PD Zone C Lower Stone Columns 772nrs/1,850nrs (15nrs/day) FTB16	51	39	05-Feb-13 A	03-Apr-13	-402																
A1580-40	PD Zone C Upper Stone Columns 280nrs/606nrs completed upto 4Feb2013	72	0	20-Nov-12 A	04-Feb-13 A																	
<b>Stone Columns East 3,296nrs</b>		<b>115</b>	<b>0</b>	<b>19-Mar-12 A</b>	<b>20-Jul-12 A</b>																	
A1602	D - Lay Geotextile at East Portion	115	0	19-Mar-12 A	20-Jul-12 A																	
A1603	D - Lay Stone Blanket at East Portion	92	0	13-Apr-12 A	20-Jul-12 A																	
<b>Stone Columns at Box Culverts</b>		<b>177</b>	<b>0</b>	<b>14-Jul-12 A</b>	<b>20-Jan-13 A</b>																	
A1604-30	PD C1 Culvert Stone Columns 99nrs/217nrs completed upto 4Feb2013	177	0	14-Jul-12 A	20-Jan-13 A																	
A1604-40	PD C3 Culvert Stone Columns 55nrs/175nrs completed upto 4Feb2013	109	0	26-Sep-12 A	20-Jan-13 A																	
A1604-60	PD C4 Culvert Stone Columns 61nrs/147nrs completed upto 4Feb2013	109	0	26-Sep-12 A	20-Jan-13 A																	
<b>Site Instruction</b>		<b>14</b>	<b>14</b>	<b>21-Feb-13</b>	<b>06-Mar-13</b>	<b>-445</b>																
<b>Removal of rockfill at existing seawall</b>		<b>14</b>	<b>14</b>	<b>21-Feb-13</b>	<b>06-Mar-13</b>	<b>-445</b>																
SI1-B00010	PD - Instruction of removal of rockfill by the Engineer	0	0	21-Feb-13*		-445																
SI1-B00020	PD - Method statement of removal rock mound at existing seawall preparation	14	14	21-Feb-13	06-Mar-13	-445																
<b>Works Area WA2 (Tung Chung)</b>		<b>1570</b>	<b>1207</b>	<b>30-Nov-11 A</b>	<b>28-Feb-17</b>	<b>0</b>																
<b>Zone A</b>		<b>1518</b>	<b>1207</b>	<b>06-Feb-12 A</b>	<b>28-Feb-17</b>	<b>0</b>																
A1430	Establishment of Engineer's Accommodation	94	0	06-Feb-12 A	31-May-12 A																	
A1880	Maintenance of Engineer's Accommodation	1434	1207	21-May-12 A	28-Feb-17	0																
<b>Zone B</b>		<b>615</b>	<b>252</b>	<b>30-Nov-11 A</b>	<b>20-Dec-13</b>	<b>0</b>																
A3090	Maintenance of Site	615	252	30-Nov-11 A	20-Dec-13	0																
<b>Works Area WA3 (Siu Ho Wan STW)</b>		<b>1570</b>	<b>1207</b>	<b>30-Nov-11 A</b>	<b>28-Feb-17</b>	<b>0</b>																
<b>Zone A</b>		<b>1570</b>	<b>1207</b>	<b>30-Nov-11 A</b>	<b>28-Feb-17</b>	<b>0</b>																
WA3-1000	Site Clearance & Hoarding	103	0	30-Nov-11 A	05-Apr-12 A																	
WA3-1010	Establishment of Accomodation for Public Works Regional Laboratory	38	0	21-Feb-12 A	05-Apr-12 A																	
WA3-1020	Maintenance of Accomodation for Public Works REgion Laboratory	1467	1207	08-Apr-12 A	28-Feb-17	0																
<b>Others</b>		<b>99</b>	<b>0</b>	<b>30-Nov-11 A</b>	<b>30-Mar-12 A</b>	<b>0</b>																
A3100	Maintenance of Site	99	0	30-Nov-11 A	30-Mar-12 A	0																
<b>Works Area WA4 (To Kau Wan)</b>		<b>548</b>	<b>252</b>	<b>23-Feb-12 A</b>	<b>20-Dec-13</b>	<b>0</b>																
A1910	Maintenance of Site Zone A	548	252	23-Feb-12 A	20-Dec-13	0																
A2060	Maintenance of Site Zone B	32	0	23-Feb-12 A	30-Mar-12 A																	
A2070	Maintenance of Site Zone C	32	0	23-Feb-12 A	30-Mar-12 A																	
<b>Works Area TKO Fill Bank</b>		<b>1736</b>	<b>1379</b>	<b>01-Mar-12 A</b>	<b>30-Nov-16</b>	<b>0</b>																
WA-TKO-1000	Establishment of Public Fill Sorting Facilities Zone A	84	0	01-Mar-12 A	23-May-12 A																	
WA-TKO-1010	Testing and commission of Sorting Facilities First Stage	7	0	21-May-12 A	27-May-12 A																	
WA-TKO-1020	Establishment of Public Fill Sorting Facilities Zone B	81	0	28-May-12 A	31-Aug-12 A																	
WA-TKO-1030	Testing and commission of Sorting Facilities for Zone B	20	0	01-Sep-12 A	24-Sep-12 A																	
WA-TKO-1040	Operate and Maintain Public Fill Sorting Facilities in Zone A, B1 & B2	1254	1134	25-Sep-12 A	30-Nov-16	0																
WA-TKO-1050	Maintainance of Site in Zone C	570	450	25-Sep-12 A	22-Aug-14	0																

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For Construction works from Mar 2012 to Feb 2013

Activity ID	Activity Name	Original Duration	Start	Finish	2013												2014					
					Mar 16	Apr 17	May 18	Jun 19	Jul 20	Aug 21	Sep 22	Oct 23	Nov 24	Dec 25	Jan 26	Feb 27	Mar 28					
<b>34th Monthly Progress Report Status as on 21Oct2014 Ver.5h5</b>					997	30-Nov-11 A	22-Aug-14 A															
<b>Work Zone, as defined in PS Clause 1.03(6)</b>					608	11-Dec-12 A	10-Aug-14 A															
<b>Portion A, B, C &amp; E</b>					579	09-Jan-13 A	10-Aug-14 A															
<b>Portion A, B, C &amp; E</b>					579	09-Jan-13 A	10-Aug-14 A															
<b>Seawall</b>					499	18-Jan-13 A	31-May-14 A															
<b>Ground Treatment</b>					496	21-Jan-13 A	31-May-14 A															
<b>Stone Columns for Rubble Mound Seawall by Marine Plant</b>					460	05-Feb-13 A	10-May-14 A															
<b>Portion A C118 - C121 4Cells 2,316Nos.</b>					151	18-Feb-13 A	30-Jul-13 A															
SC0A-1010	PA Removal of C120 for stone columns	39	18-Feb-13 A	31-Mar-13 A	[Gantt bar]																	
SC0A-1015	PA Geotextile & Stone Blanket for stone columns at C118 - C121	10	01-Apr-13 A	11-Apr-13 A	[Gantt bar]																	
SC0A-1020	PA Stone Columns C121 - C118 4cells 1,090nrs FTB17 & AP3 (19nrs/day) upto 13Jun2013	59	12-Apr-13 A	13-Jun-13 A	[Gantt bar]																	
SC0A-1050	PA Stone Columns outermost C121 - C119 3cells 905nrs FTB19 (19nrs/day)	18	11-Jul-13 A	30-Jul-13 A	[Gantt bar]																	
SC0A-1100	PA Stone Columns C118 - C118 1cells 321nrs FTB-AP3 (10nrs/day) from 14Jun2013	23	14-Jun-13 A	08-Jul-13 A	[Gantt bar]																	
<b>Portion A C122 - C124 3Cells 1,717Nos.</b>					120	05-Feb-13 A	17-Jun-13 A															
SC0A-2010	PA Stone Columns C122 - C124 3cells 398nrs FTB-AP3 upto 20Mar2013	38	05-Feb-13 A	20-Mar-13 A	[Gantt bar]																	
SC0A-2020	PA Stone Columns C122 - C124 3cells 100nrs FTB-AP3 upto 6Apr2013	16	21-Mar-13 A	06-Apr-13 A	[Gantt bar]																	
SC0A-2030	PA Stone Columns C122 - C124 3cells 838nrs (10nrs/day) FTB-AP3 upto 13Jun2013	63	08-Apr-13 A	13-Jun-13 A	[Gantt bar]																	
SC0A-2050	PA Stone Columns C122 - C124 3cells 143nrs (19nrs/day) FTB19 from 14Jun2013	3	14-Jun-13 A	17-Jun-13 A	[Gantt bar]																	
<b>Portion A C125 - C128 4Cells 2,281Nos.</b>					97	05-Feb-13 A	23-May-13 A															
SC0A-3010	PA Stone Columns C125 - C128 4cells 902nrs FTB19 upto 20Mar2013	38	05-Feb-13 A	20-Mar-13 A	[Gantt bar]																	
SC0A-3020	PA Stone Columns C125 - C128 4cells 502nrs FTB19 upto 6Apr2013	16	21-Mar-13 A	06-Apr-13 A	[Gantt bar]																	
SC0A-3030	PA Stone Columns C125 - C128 4cells 444nrs (19nrs/day) FTB19	43	08-Apr-13 A	23-May-13 A	[Gantt bar]																	
<b>Portion A C129 - C131 3Cells 1,823Nos</b>					108	05-Feb-13 A	23-May-13 A															
SC0A-4010	PA Stone Columns C129 - C131 492nrs completed FTB20 upto 15Mar2013	33	05-Feb-13 A	15-Mar-13 A	[Gantt bar]																	
SC0A-4020	PA Stone Columns FTB20 Maintenance	22	16-Mar-13 A	06-Apr-13 A	[Gantt bar]																	
SC0A-4030	PA Stone Columns C129 - C131 250nrs completed FTB20 upto 6Apr2013	10	28-Mar-13 A	06-Apr-13 A	[Gantt bar]																	
SC0A-4040	PA Stone Columns C129 - C131 497nrs (19nrs/day) FTB20	43	08-Apr-13 A	23-May-13 A	[Gantt bar]																	
<b>Portion A C132 - C134 3Cells 1,809Nos</b>					129	05-Feb-13 A	26-Jun-13 A															
SC0A-5010	PA Stone Columns C132 - C134 3cells 204nrs FTB-AP4 upto 20Mar2013	38	05-Feb-13 A	20-Mar-13 A	[Gantt bar]																	
SC0A-5020	PA Stone Columns C132 - C134 3cells 77nrs FTB-AP4 upto 6Apr2013	16	21-Mar-13 A	06-Apr-13 A	[Gantt bar]																	
SC0A-5030	PA Stone Columns C132 - C134 3cells 1,151nrs (10nrs/day) FTB-AP4 upto 13Jun13	63	07-Apr-13 A	13-Jun-13 A	[Gantt bar]																	
SC0A-5040	PA Stone Columns C132 - C134 3cells 89nrs (19nrs/day) FTB20	12	14-Jun-13 A	26-Jun-13 A	[Gantt bar]																	
<b>Portion B K13 - K15 3Cells 1,104Nos</b>					177	13-Apr-13 A	20-Oct-13 A															
SC0B-1010	PB Modification of stone column barge FTB-AP2	7	13-Apr-13 A	19-Apr-13 A	[Gantt bar]																	
SC0B-1030	PB Stone Columns K013 - K015 3cells 68nrs/1,104nrs from 14Jun to 30Jun2013 FTB-AP4	15	14-Jun-13 A	30-Jun-13 A	[Gantt bar]																	
SC0B-1040	PB Stone Columns K013 - K015 3cells 470nrs/1,104nrs from 1Jul to 25Aug2013 FTB-AP2	90	01-Jul-13 A	05-Oct-13 A	[Gantt bar]																	
SC0B-1045	PB Stone Columns FTB20 Modification	50	13-Jul-13 A	05-Sep-13 A	[Gantt bar]																	

█ Remaining Level of Effort    ◆ Milestone  
█ Actual Level of Effort    ▼ Summary  
█ Actual Work  
█ Remaining Work  
█ Critical Remaining Work

34th Monthly Progress Report Status as on 21Oct2014 Ver.5h5

TASK filter: ET Progress Report Mar 2013 to Feb 2014.  
Resource Profile Filter:Aggregate.Stone Aggregate (cum)

Activity ID	Activity Name	Original Duration	Start	Finish	2013												2014					
					Mar 16	Apr 17	May 18	Jun 19	Jul 20	Aug 21	Sep 22	Oct 23	Nov 24	Dec 25	Jan 26	Feb 27	Mar 28					
SC0B-1050	PB Stone Columns K013 - K015 4cells 603nrs/1,104nrs (19nrs/day) FTB-20 from 6Sep2013	42	06-Sep-13 A	20-Oct-13 A																		
<b>Portion B K16 - K20 5cells 1,950Nos</b>		117	26-Jun-13 A	30-Oct-13 A																		
SC0B-2020	PB Stone Columns K016 - K020 4cells 203nrs/1,950nrs upto 12Jul2013	16	26-Jun-13 A	12-Jul-13 A																		
SC0B-2022	PB Stone Columns K016 - K018 3cells 229nrs/1,950nrs upto 23Aug2013 FTB-AP3	29	24-Jul-13 A	23-Aug-13 A																		
SC0B-4030	PB Stone Columns K016 - K018 3cells 765nrs/1,950nrs (19nrs/day) FTB19	62	24-Aug-13 A	30-Oct-13 A																		
<b>Portion B K21 - K23 3Cells 1,144Nos</b>		184	26-Apr-13 A	10-Nov-13 A																		
SC0B-3010	PB Stone Columns K021 - K023 3cells 143nrs/1144nrs upto 13Jun2013	46	26-Apr-13 A	13-Jun-13 A																		
SC0B-3020	PB Stone Columns K019 - K022 3cells 519nrs/1144nrs	58	14-Jun-13 A	15-Aug-13 A																		
SC0B-3030	PB Stone Columns K019 - K022 3cells 342nrs/1144nrs (19nrs/day) FTB19	10	31-Oct-13 A	10-Nov-13 A																		
SC0B-4040	PB Stone Columns K019 - K022 3cells 283nrs/1144nrs (14nrs/day) FTB20	19	21-Oct-13 A	10-Nov-13 A																		
<b>Portion B K24 - K27 4Cells 1,568Nos</b>		138	14-Jun-13 A	10-Nov-13 A																		
SC0B-4010	PB Stone Columns K024 - K027 5Cells 850nrs/1568nrs FTB-AP2 from 14Jun to 15Aug2013	58	14-Jun-13 A	15-Aug-13 A																		
SC0B-4020	PB Stone Columns outermost K024 - K027 5Cells 1051nrs/1568nrs (19nrs/day) from 16Aug2013 FTB16	80	16-Aug-13 A	10-Nov-13 A																		
<b>Portion C2a C113 - C117 5Cells 3,258Nos</b>		419	05-Feb-13 A	10-May-14 A																		
SC0A-1040	PC2A Stone Columns C113 - C117 5cells 329nrs FTB17 upto 20Mar2013	38	05-Feb-13 A	20-Mar-13 A																		
SC0A-1060	PC2A Stone Columns C113 - C117 5cells 753nrs (19nrs/day) FTB16 upto 13Jun2013	38	26-Apr-13 A	05-Jun-13 A																		
SC0A-1070	PC2A Stone Columns outermost C113 - C117 5cells 613nrs upto 31Jul13'	44	14-Jun-13 A	31-Jul-13 A																		
SC0A-1080	PC2A Stone Columns outermost C116 - C117 5cells 362nrs (19nrs/day) FTB17 from 5Sep2013	17	05-Sep-13 A	22-Sep-13 A																		
SC0A-1090	PC2A Stone Columns outermost C113 - C115 5cells 1,614nrs (19nrs/day) FTB17	164	11-Nov-13 A	10-May-14 A																		
<b>Stone Columns Inside cellular structures by Marine Plant</b>		101	21-Jan-13 A	12-May-13 A																		
<b>Seawall Portion C2a at C103 - C112 10cells 1100nrs</b>		80	21-Jan-13 A	19-Apr-13 A																		
SCIC-020	PC2a Stone Columns insdie cells & 2rows 2cells 522nrs/1100nrs (15nrs/day) FTB18	80	21-Jan-13 A	19-Apr-13 A																		
<b>Seawall Portion E2 at C060 - C067 8cells @80nrs/cell 640nrs</b>		25	16-Apr-13 A	12-May-13 A																		
SCIE2-010	PE2 Stone Columns inside cells & 2rows 8cells C060 - C067 640nrs (15nrs/day) FTB18	25	16-Apr-13 A	12-May-13 A																		
<b>Stone Columns Outside cellular Structures by Marine Plant</b>		311	26-Jun-13 A	31-May-14 A																		
<b>Seawall Portion B at K028 - K052 25cells 4,910nrs</b>		233	04-Jul-13 A	15-Mar-14 A																		
SCOB-0010	PB Stone Columns outermost K028 - K051 17cells 832nrs upto 11Sep2013	65	04-Jul-13 A	11-Sep-13 A																		
SCOB-0020	PB Stone Columns beside K028 - K051 24cells 358nrs upto 12Sep13' AP1, 2, 3 & 5	66	04-Jul-13 A	12-Sep-13 A																		
SCOB-0030	PB Stone Columns outermost K028 - K053 24cells 770nrs from 12Sep13' to 9Nov2013	55	12-Sep-13 A	09-Nov-13 A																		
SCOB-0040	PB Stone Columns beside K028 - K053 24cells 666nrs from 12Sep13' to 9Nov2013	55	12-Sep-13 A	09-Nov-13 A																		
<b>K028 - K040</b>		90	25-Nov-13 A	05-Mar-14 A																		
SCOB-A010	PB Stone Columns K028 - K031 Row 01-11 61nrs (8nrs/day) FTB16	19	29-Dec-13 A	17-Jan-14 A																		
SCOB-A020	PB Stone Columns K028 - K031 Row 12-14 134nrs (8nrs/day) FTB16	38	09-Dec-13 A	17-Jan-14 A																		
SCOB-A030	PB Stone Columns K032 - K037 Row 01-11 124 (14nrs/day) FTB20	51	25-Nov-13 A	17-Jan-14 A																		
SCOB-A040	PB Stone Columns K032 - K036 Row 12-14 233nrs (6nrs/day) AP5	23	05-Feb-14 A	28-Feb-14 A																		
SCOB-A050	PB Stone Columns K038 - K040 Row 01-11 110 (14nrs/day) FTB19	53	25-Nov-13 A	20-Jan-14 A																		
SCOB-A060	PB Stone Columns K037 - K040 Row 12-14 202nrs (6nrs/day) AP6	32	26-Jan-14 A	05-Mar-14 A																		
<b>K041 - K046</b>		75	21-Dec-13 A	15-Mar-14 A																		

- ▬ Remaining Level of Effort      ◆ Milestone
- ▬ Actual Level of Effort      ▬ Summary
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work

34th Monthly Progress Report Status as on 21Oct2014 Ver.5h5

Page 2 of 16

TASK filter: ET Progress Report Mar 2013 to Feb 2014.  
 Resource Profile Filter:Aggregate.Stone Aggregate (cum)

Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Start	Finish	2013												2014		
					Mar 16	Apr 17	May 18	Jun 19	Jul 20	Aug 21	Sep 22	Oct 23	Nov 24	Dec 25	Jan 26	Feb 27	Mar 28		
SCOB-B010	PB Stone Columns K041 - K043 Row 01-11 233nrs (14nrs/day) FTB19	13	21-Feb-14 A	06-Mar-14 A															
SCOB-B020	PB Stone Columns K041 - K043 Row 12-14 168nrs (8nrs/day) FTB16	57	21-Dec-13 A	24-Feb-14 A															
SCOB-B030	PB Stone Columns K044 - K046 Row 01-11 125nrs (14nrs/day) FTB20	13	21-Feb-14 A	06-Mar-14 A															
SCOB-B040	PB Stone Columns K044 - K046 Row 12-14 142nrs (8nrs/day) FTB16	18	25-Feb-14 A	15-Mar-14 A															
<b>K047 - K052</b>		<b>75</b>	<b>03-Dec-13 A</b>	<b>25-Feb-14 A</b>															
SCOB-C020	PB Stone Columns K047 - K052 Row 01-11 28nrs (6nrs/day) AP6	5	21-Feb-14 A	25-Feb-14 A															
SCOB-C030	PB Stone Columns K047 - K052 Row 12-14 174nrs (6nrs/day) AP6	18	03-Dec-13 A	21-Dec-13 A															
<b>Seawall Portion E2 at K053 - C067 2,252nrs</b>		<b>236</b>	<b>26-Jun-13 A</b>	<b>11-Mar-14 A</b>															
<b>K053 - C067</b>		<b>236</b>	<b>26-Jun-13 A</b>	<b>11-Mar-14 A</b>															
SCOE2-0010	PE2 Stone Columns outside K063 - K067 5cells 1395nrs (19nrs/day) FTB19	14	26-Jun-13 A	10-Jul-13 A															
SCOE2-0020	PE2 Stone Columns beside K063 - K067 5cells 117nrs upto 9Nov2013	36	12-Sep-13 A	20-Oct-13 A															
SCOE2-A010	PE2 Stone Columns K053 - K056 Row 01-11 251nrs (14nrs/day) FTB20	18	21-Feb-14 A	11-Mar-14 A															
SCOE2-A020	PE2 Stone Columns K053 - K056 Row 12-14 160nrs (6nrs/day) AP5	93	25-Nov-13 A	08-Mar-14 A															
<b>Seawall Portion E1 at C068 - C091 24cells 6,428nrs</b>		<b>93</b>	<b>21-Feb-14 A</b>	<b>31-May-14 A</b>															
<b>C068 - C079</b>		<b>93</b>	<b>21-Feb-14 A</b>	<b>31-May-14 A</b>															
SCOE1-A030	PE1 Stone Columns C072 - C075 Row 01-11 769nrs (14nrs/day) FTB20	93	21-Feb-14 A	31-May-14 A															
<b>C080 - C091</b>		<b>73</b>	<b>21-Feb-14 A</b>	<b>10-May-14 A</b>															
SCOE1-B030	PE1 Stone Columns C084 - C084 Row 01-11 94nrs (8nrs/day) FTB16	6	21-Feb-14 A	26-Feb-14 A															
SCOE1-B060	PE1 Stone Columns C079 - C091 Row 12-14 279nrs (6nrs/day) AP7	73	21-Feb-14 A	10-May-14 A															
<b>Seawall Portion C at C103 - C112 10cells @197nrs/cell 1970nrs</b>		<b>159</b>	<b>12-Sep-13 A</b>	<b>06-Mar-14 A</b>															
<b>Beside of front cellular walls C103-C112 985nrs</b>		<b>159</b>	<b>12-Sep-13 A</b>	<b>06-Mar-14 A</b>															
SCOC-A010	PC2a Stone Columns C112 - C103 10cells 620nrs (19nrs/day) FTB18 upto 9Nov2013	55	12-Sep-13 A	09-Nov-13 A															
SCOC-A020	PC2a Stone Columns C105 - C106 Row 01-11 276nrs (18nrs/day) FTB18	104	11-Nov-13 A	06-Mar-14 A															
<b>Stone Columns Inside cells by Land Plant 2,640nrs</b>		<b>248</b>	<b>02-Sep-13 A</b>	<b>30-May-14 A</b>															
<b>Seawall Portion B at K028 - K051 24cells 1,920nrs</b>		<b>240</b>	<b>02-Sep-13 A</b>	<b>22-May-14 A</b>															
SCIB0-005	PB Trial Stone Columns inside cells at K044 57nrs (6nrs/day/plant)	15	02-Sep-13 A	17-Sep-13 A															
SCIB0-010	PB Stone Columns inside cells K028 - K030 191nrs (5nrs/day) LB-AP2	38	25-Nov-13 A	03-Jan-14 A															
SCIB0-020	PB Stone Columns inside cells K031 - K032 151nrs (5nrs/day) LB-AP1	30	25-Nov-13 A	26-Dec-13 A															
SCIB0-030	PB Stone Columns inside cells K033 - K036 274nrs (3nrs/day) LB-BV1	73	25-Nov-13 A	14-Feb-14 A															
SCIB0-040	PB Stone Columns inside cells K037 - K039 240nrs (3nrs/day) LB-BC1	67	01-Dec-13 A	14-Feb-14 A															
SCIB0-050	PB Stone Columns inside cells K040 - K040 80nrs (3nrs/day) LB-BV2	39	20-Dec-13 A	04-Feb-14 A															
SCIB0-060	PB Stone Columns inside cells K041 - K043 237nrs (5nrs/day) LB-AP3	68	25-Nov-13 A	09-Feb-14 A															
SCIB0-070	PB Stone Columns inside cells K044 - K046 136nrs (5nrs/day) LB-AP3	89	15-Feb-14 A	22-May-14 A															
SCIB0-080	PB Stone Columns inside cells K047 - K050 267nrs (5nrs/day) LB-AP1	109	21-Jan-14 A	22-May-14 A															
SCIB0-090	PB Stone Columns inside cells K051 - K051 23nrs (5nrs/day) LB-AP3	5	10-Feb-14 A	14-Feb-14 A															
<b>Seawall Portion E2 at K052 - C060 9cells 720nrs</b>		<b>92</b>	<b>21-Feb-14 A</b>	<b>30-May-14 A</b>															
SCIE2-020	PE2 Stone Columns inside cells K052 - K055 320nrs (5nrs/day) LB-AP2	92	21-Feb-14 A	30-May-14 A															
SCIE2-040	PE2 Stone Columns inside cells K057 - C059 240nrs (3nrs/day) LB-BV1	89	21-Feb-14 A	27-May-14 A															

Remaining Level of Effort Milestone   
Actual Level of Effort Summary   
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Remaining Work   
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					Mar 16	Apr 17	May 18	Jun 19	Jul 20	Aug 21	Sep 22	Oct 23	Nov 24	Dec 25	Jan 26	Feb 27	Mar 28					
SCIE2-050	PE2 Stone Columns inside cells C061 - C062 240nrs (3nrs/day) LB-BV2	89	21-Feb-14 A	27-May-14 A																		
<b>Cellular Structures</b>		<b>452</b>	<b>18-Jan-13 A</b>	<b>14-Apr-14 A</b>	[Summary bar]																	
<b>Cellular Main Cells 85cells</b>		<b>359</b>	<b>18-Jan-13 A</b>	<b>12-Jan-14 A</b>	[Summary bar]																	
<b>Full Guide Frames Method 85cells</b>		<b>359</b>	<b>18-Jan-13 A</b>	<b>12-Jan-14 A</b>	[Summary bar]																	
<b>Portion B K028 to K051 24cells</b>		<b>134</b>	<b>18-Jan-13 A</b>	<b>31-May-13 A</b>	[Summary bar]																	
CS029-000	PB Cellular Structure K029 Type_C 1547m3	14	22-Apr-13 A	06-May-13 A																		
CS030-000	PB Cellular Structure K030 Type_C 1547m3	32	13-Mar-13 A	15-Apr-13 A																		
CS032-000	PB Cellular Structure K032 Type_C 1738m3	23	24-Apr-13 A	17-May-13 A																		
CS035-000	PB Cellular Structure K035 Type_C 1738m3	36	09-Mar-13 A	16-Apr-13 A																		
CS036-000	PB Cellular Structure K036 Type_C 1738m3	27	22-Feb-13 A	22-Mar-13 A																		
CS040-000	PB Cellular Structure K040 Type_C 1929m3	30	20-Mar-13 A	21-Apr-13 A																		
CS042-000	PB Cellular Structure K042 Type_C 1929m3	34	02-Mar-13 A	07-Apr-13 A																		
CS044-000	PB Cellular Structure K044 Type_C 1929m3	34	09-Apr-13 A	14-May-13 A																		
CS047-000	PB Cellular Structure K047 Type_C 1929m3	18	10-Apr-13 A	28-Apr-13 A																		
CS048-000	PB Cellular Structure K048 Type_C 1929m3	33	30-Jan-13 A	05-Mar-13 A																		
CS050-000	PB Cellular Structure K050 Type_C 1929m3	21	04-Apr-13 A	26-Apr-13 A																		
CS051-000	PB Cellular Structure K051 Type_C 1952m3	26	04-May-13 A	31-May-13 A																		
CSB00-010	PB Modification of guide frame for Cellular structures	84	18-Jan-13 A	20-Apr-13 A																		
<b>Portion E2 K052 to C062 11cells</b>		<b>137</b>	<b>04-Feb-13 A</b>	<b>20-Jun-13 A</b>	[Summary bar]																	
CS052-000	PE2 Cellular Structure K052 Type_C 1952m3	21	14-Mar-13 A	04-Apr-13 A																		
CS053-000	PE2 Cellular Structure K053 Type_C 1952m3	28	18-Apr-13 A	17-May-13 A																		
CS054-000	PE2 Cellular Structure K054 Type_C 1952m3	33	04-Feb-13 A	11-Mar-13 A																		
CS057-000	PE2 Cellular Structure C057 Type_C 2143m3	66	20-Mar-13 A	29-May-13 A																		
CS058-000	PE2 Cellular Structure C058 Type_C 2143m3	37	12-May-13 A	17-Jun-13 A																		
CS059-000	PE2 Cellular Structure C059 Type_C 2143m3	30	21-Feb-13 A	25-Mar-13 A																		
CS060-000	PE2 Cellular Structure C060 Type_C 2143m3	31	07-May-13 A	06-Jun-13 A																		
CS061-000	PE2 Cellular Structure C061 Type_C 2525m3	12	08-Jun-13 A	20-Jun-13 A																		
CS062-000	PE2 Cellular Structure C062 Type_C 2525m3	23	14-May-13 A	05-Jun-13 A																		
<b>Portion C &amp; E C112 to C063 50cells</b>		<b>249</b>	<b>08-May-13 A</b>	<b>12-Jan-14 A</b>	[Summary bar]																	
CS063-000	PC Cellular Structure C063	15	02-Nov-13 A	19-Nov-13 A																		
CS066-000	PC Cellular Structure C066	9	04-Dec-13 A	13-Dec-13 A																		
CS067-000	PC Cellular Structure C067	9	16-Nov-13 A	26-Nov-13 A																		
CS068-000	PC Cellular Structure C068	12	29-Oct-13 A	11-Nov-13 A																		
CS069-000	PC Cellular Structure C069	12	26-Nov-13 A	09-Dec-13 A																		
CS070-000	PC Cellular Structure C070	13	11-Nov-13 A	25-Nov-13 A																		
CS071-000	PC Cellular Structure C071	12	18-Oct-13 A	31-Oct-13 A																		
CS072-000	PC Cellular Structure C072	44	19-Nov-13 A	12-Jan-14 A																		
CS073-000	PC Cellular Structure C073	10	06-Nov-13 A	17-Nov-13 A																		

█ Remaining Level of Effort    ◆ ◆ Milestone  
█ Actual Level of Effort    ▼ Summary  
█ Actual Work  
█ Remaining Work  
█ Critical Remaining Work

34th Monthly Progress Report Status as on 21Oct2014 Ver.5h5

Page 4 of 16

TASK filter: ET Progress Report Mar 2013 to Feb 2014.  
 Resource Profile Filter:Aggregate.Stone Aggregate (cum)

*Primavera Systems, Inc.*





Activity ID	Activity Name	Original Duration	Start	Finish	2013												2014					
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar					
					16	17	18	19	20	21	22	23	24	25	26	27	28					
<b>Portion B between K028/K029 to K050/K051 23arcs</b>					374	24-Mar-13 A	02-Apr-14 A															
CA00B-000	PB Connecting Arc K037/K038 lower arcs type_c	95	24-Mar-13 A	04-Jul-13 A																		
CA00B-012L	PB Connecting Arc K028/K029 - K039/K040 (except K037/K038) Landside lower arcs 11nrs	66	11-Jul-13 A	20-Sep-13 A																		
CA00B-012S	PB Connecting Arc K028/K029 - K039/K040 (except K037/K038) Seaside lower arcs 11nrs	58	31-Aug-13 A	01-Nov-13 A																		
CA00B-014L	PB Connecting Arc K029/K030 & K030/K031 Landside upper arcs splicings 2nrs (HF)	20	27-Sep-13 A	22-Oct-13 A																		
CA00B-014S	PB Connecting Arc K029/K030 & K030/K031 Seaside upper arcs splicings 2nrs (HF)	19	02-Nov-13 A	24-Nov-13 A																		
CA00B-018	PB Final Backfill Cellular Cells & Arcs K028/K029 - K039/K040 Type_C 40295.5m3	40	30-Oct-13 A	14-Dec-13 A																		
CA00B-022	PB Connecting Arc K045/K046 Landside & Seaside upper arcs splicings 2nrs (HF)	24	25-Nov-13 A	21-Dec-13 A																		
CA00B-022L	PB Connecting Arc K040/K041 - K050/K051 Landside lower arcs 11nrs	64	11-Jul-13 A	18-Sep-13 A																		
CA00B-022S	PB Connecting Arc K040/K041 - K050/K051 Seaside lower arcs 11nrs	12	31-Oct-13 A	13-Nov-13 A																		
CA00B-025L	PB Connecting Arc K049/K050 & K050/K051 Landside upper arcs splicing 2nrs (201)	21	17-Nov-13 A	11-Dec-13 A																		
CA00B-028	PB Final Backfill Cellular Cells & Arcs K040/K041 - K050/K051 Type_C 48413m3	90	13-Dec-13 A	02-Apr-14 A																		
<b>Portion E2 between K051/K052 to C066/C067 16arcs</b>					147	01-Oct-13 A	29-Mar-14 A															
CAE2-012L	PE2 Connecting Arc K051/K052 - K062/K063 Landside lower arcs 12nrs	15	01-Oct-13 A	20-Oct-13 A																		
CAE2-012S	PE2 Connecting Arc K051/K052 - C061/C062 Seaside lower arcs 11nrs	55	20-Nov-13 A	25-Jan-14 A																		
CAE2-014L	PE2 Connecting Arc K051/K052 - K053/K054 Landside upper arcs splicing 3nrs (201)	40	25-Oct-13 A	10-Dec-13 A																		
CAE2-014S	PE2 Connecting Arc K051/K052 - K053/K054 Seaside upper arcs splicing 3nrs (201) 30Mar2014	29	25-Feb-14 A	29-Mar-14 A																		
CAE2-016L	PE2 Connecting Arc K056/C057 & C057/C058 Landside upper arcs splicing 2nrs (HF)	65	27-Nov-13 A	16-Feb-14 A																		
CAE2-016S	PE2 Connecting Arc K056/C057 & C057/C058 Seaside upper arcs splicing 2nrs (HF)	56	14-Dec-13 A	22-Feb-14 A																		
CAE2-022L	PE2 Connecting Arc C062/C063 & C066/C067 Landside lower arcs 2nrs	11	07-Jan-14 A	19-Jan-14 A																		
CAE2-022S	PE2 Connecting Arc C062/C063 & C066/C067 Seaside lower arcs 2nrs	14	11-Dec-13 A	28-Dec-13 A																		
<b>Portion C2a between C103/104 to C111/C112 9arcs</b>					202	17-Aug-13 A	06-Mar-14 A															
CAC2a-012L	PC2a Connecting Arc C107/C108 - C111/C112 Landside lower arcs 5nrs	7	17-Aug-13 A	23-Aug-13 A																		
CAC2a-012S	PC2a Connecting Arc C107/C108 - C111/C112 Seaside lower arcs 5nrs	15	01-Oct-13 A	20-Oct-13 A																		
CAC2a-014L	PC2a Connecting Arc C107/C108 - C111/C112 Landside upper arcs splicing 5nrs (205)	41	07-Nov-13 A	26-Dec-13 A																		
CAC2a-014S	PC2a Connecting Arc C107/C108 - C111/C112 Seaside upper arcs splicing 5nrs (205)	53	05-Nov-13 A	08-Jan-14 A																		
CAC2a-018	PC2a Final backfill cellular cells & Arcs C107/108 - C111/112 5arcs Type_C 32,309m3	9	10-Jan-14 A	20-Jan-14 A																		
CAC2a-032L	PC2a Connecting Arc C103/C104 - C106/C107 Landside lower arcs 4nrs	3	23-Aug-13 A	26-Aug-13 A																		
CAC2a-032S	PC2a Connecting Arc C103/C104 - C106/C107 Seaside lower arcs 4nrs	36	01-Jan-14 A	14-Feb-14 A																		
CAC2a-034L	PC2a Connecting Arc C105/C106 & C106/C107 Landside upper arcs splicing 2nrs (205)	10	17-Jan-14 A	28-Jan-14 A																		
CAC2a-034S	PC2a Connecting Arc C105/C106 & C106/C107 Seaside upper arcs splicing 2nrs (401)	12	21-Feb-14 A	06-Mar-14 A																		
<b>Portion C2c between C091/C092 to C102/C103 12arcs</b>					160	30-Sep-13 A	14-Apr-14 A															
CAC2c-012L	PC2c Connecting Arc C097/C098 - C102/C103 Landside lower arcs 6nrs	12	30-Sep-13 A	15-Oct-13 A																		
CAC2c-012S	PC2c Connecting Arc C097/C098 - C102/C103 Seaside lower arcs 6nrs	12	30-Sep-13 A	15-Oct-13 A																		
CAC2c-014L	PC2c Connecting Arc C100/C101 - C104/C105 Landside upper arcs splicing 5nrs (205)	33	31-Dec-13 A	10-Feb-14 A																		
CAC2c-014S	PC2c Connecting Arc C101/C102 - C104/C105 Seaside upper arcs splicing 4nrs (401)	61	13-Jan-14 A	26-Mar-14 A																		
CAC2c-022L	PC2c Connecting Arc C091/C092 - C096/C097 Landside lower arcs 6nrs	16	05-Oct-13 A	24-Oct-13 A																		
CAC2c-022S	PC2c Connecting Arc C091/C092 - C096/C097 Seaside lower arcs 6nrs	40	14-Oct-13 A	29-Nov-13 A																		

Remaining Level of Effort    Milestone  
 Actual Level of Effort    Summary  
 Actual Work  
 Remaining Work  
 Critical Remaining Work

34th Monthly Progress Report Status as on 21Oct2014 Ver.5h5

Page 6 of 16

TASK filter: ET Progress Report Mar 2013 to Feb 2014.  
 Resource Profile Filter:Aggregate.Stone Aggregate (cum)

Primavera Systems, Inc.

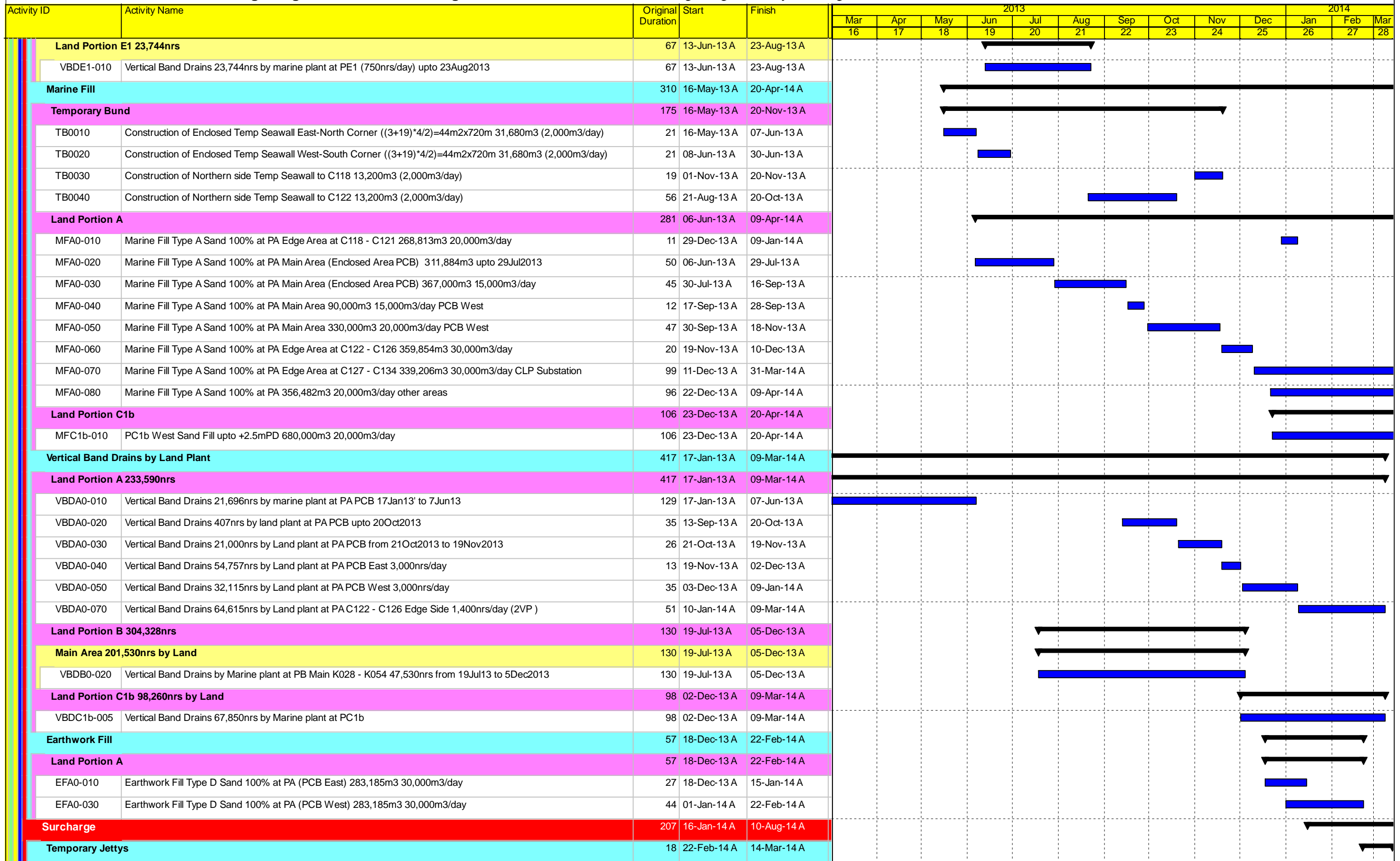






Activity ID	Activity Name	Original Duration	Start	Finish	2013												2014						
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar						
					16	17	18	19	20	21	22	23	24	25	26	27	28						
SABRC2a-01	Sand Blankets at PC2a 37,000m3 2,000m3/day East	27	01-Jun-13 A	30-Jun-13 A				█															
SABRC2a-02	Sand Blankets at PC2a 36,000m3 1,000m3/day West	7	23-Sep-13 A	30-Sep-13 A									█										
<b>Land Portion C2c</b>		27	01-Jun-13 A	30-Jun-13 A				█															
SABRC2c-01	Sand Blankets at PC2c 9,000m3 5,000m3/day	27	01-Jun-13 A	30-Jun-13 A				█															
<b>Land Portion C2b</b>		19	01-Oct-13 A	20-Oct-13 A									█										
SABRC2b-01	Sand Blankets at PC2b 9,000m3 2,000m3/day	19	01-Oct-13 A	20-Oct-13 A									█										
<b>Land Portion E2 Northern Part</b>		57	01-Nov-13 A	31-Dec-13 A																			
SABRE2-010	Sand Blankets at PE2 71,000m3 5,000m3/day North-West	57	01-Nov-13 A	31-Dec-13 A																			
<b>Land Portion E1</b>		15	08-Jul-13 A	23-Jul-13 A					█														
SABRE1-010	Sand Blankets at PE1 15,000m3 5,000m3/day	15	08-Jul-13 A	23-Jul-13 A					█														
<b>Existing Seabed Above -5mPD</b>		399	18-Feb-13 A	28-Apr-14 A																			
<b>Land Portion A</b>		256	18-Feb-13 A	20-Nov-13 A																			
SABRA0-010	Sand Blankets 557,500m3 PA Main Area stg1 6,000m3/day	110	18-Feb-13 A	15-Jun-13 A	█																		
SABRA0-020	Sand Blankets 114,779m3 PA Edge Area C118 to C121 4,000m3/day	25	24-Aug-13 A	20-Sep-13 A									█										
SABRA0-030	Sand Blankets 163,971m3 PA Edge Area C122 to C126 2,000m3/day	34	16-Jul-13 A	20-Aug-13 A									█										
SABRA0-040	Sand Blankets 180,367m3 PA Edge Area C127 to C131 2,000m3/day	11	04-Jul-13 A	15-Jul-13 A					█														
SABRA0-050	Sand Blankets 98383m3 PA Edge Area C132 to C134 4,000m3/day	12	08-Nov-13 A	20-Nov-13 A																			
<b>Land Portion B</b>		162	01-Nov-13 A	28-Apr-14 A																			
SABRB0-010	Sand Blankets at PB Edge K013 - K027 171,900m3 10,000m3/day	29	01-Dec-13 A	31-Dec-13 A																			
SABRB0-020	Sand Blankets at PB Main K028 - K051 200,550m3 5,000m3/day	28	01-Nov-13 A	30-Nov-13 A																			
SABRB0-030	Sand Blankets at PB Edge K028 - K056 200,550m3 5,000m3/day	72	10-Feb-14 A	28-Apr-14 A																			
<b>Land Portion C1a</b>		113	01-Aug-13 A	30-Nov-13 A																			
SABRC1a-01	Sand Blankets at PC1a 191,000m3 5,000m3/day North	47	01-Aug-13 A	20-Sep-13 A																			
SABRC1a-02	Sand Blankets at PC1a 191,000m3 5,000m3/day South	28	01-Nov-13 A	30-Nov-13 A																			
<b>Land Portion C1b</b>		103	01-Jun-13 A	20-Sep-13 A																			
SABRC1b-01	Sand Blankets at PC1b 142000m3 2,000m3/day West	27	01-Jun-13 A	30-Jun-13 A					█														
SABRC1b-02	Sand Blankets at PC1b 142000m3 5,000m3/day East	47	01-Aug-13 A	20-Sep-13 A																			
<b>Vertical Band Drains by Marine Plant</b>		426	24-Apr-13 A	31-Jul-14 A																			
<b>Land Portion C2a 1,760nrs</b>		416	04-May-13 A	31-Jul-14 A																			
VBDC2a-010	PC2a Vertical Band Drains 52,300nrs completed by marine plant	416	04-May-13 A	31-Jul-14 A																			
<b>Land Portion C2c 62,400nrs</b>		277	24-Apr-13 A	20-Feb-14 A																			
VBDC2c-010	Vertical Band Drains 40,192nrs by marine plant at PC2c	164	24-Apr-13 A	17-Oct-13 A																			
VBDC2c-020	Vertical Band Drains 22,208nrs by marine plant at PC2c (750nrs/ady)	63	11-Dec-13 A	20-Feb-14 A																			
<b>Land Portion C2b 62,400nrs</b>		174	23-Aug-13 A	03-Mar-14 A																			
VBDC2b-010	Vertical Band Drains 12,896nrs by marine plant at PC2b upto 10Dec2013	101	23-Aug-13 A	10-Dec-13 A																			
VBDC2b-020	Vertical Band Drains 49,504nrs by marine plant at PC2b (750nrs/day)	73	11-Dec-13 A	03-Mar-14 A																			
<b>Land Portion E2 Northern Part 84,746nrs</b>		61	02-Oct-13 A	05-Dec-13 A																			
VBDE2-010	Vertical Band Drains 23,032nrs by marine plant at PE2 upto 5Dec2013	61	02-Oct-13 A	05-Dec-13 A																			

█ Remaining Level of Effort    ◆ Milestone  
█ Actual Level of Effort    ▼ Summary  
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█ Remaining Level of Effort    ◆ Milestone  
█ Actual Level of Effort    ▼ Summary  
█ Actual Work  
█ Remaining Work  
█ Critical Remaining Work

Activity ID	Activity Name	Original Duration	Start	Finish	2013												2014						
					Mar 16	Apr 17	May 18	Jun 19	Jul 20	Aug 21	Sep 22	Oct 23	Nov 24	Dec 25	Jan 26	Feb 27	Mar 28						
<b>1st Temporary Jetty at C118</b>																							
TP10020	Marine Piling 10nrs	18	22-Feb-14 A	14-Mar-14 A																			
<b>Portion A Surcharge</b>																							
<b>Main Reclamation Areas</b>																							
<b>A1 PCB East</b>																							
SURA0-110	Sand Surcharge Laying upto +11.5mPD at PA PCB East 446,001m3 30,000m3/day	14	16-Jan-14 A	04-Feb-14 A																			
SURA0-120	PA PCB East Surcharge Period +11.5mPD 6mths (8-2=6mths)	187	05-Feb-14 A	10-Aug-14 A																			
<b>A1 PCB West</b>																							
SURA0-210	Sand Surcharge Laying upto +11.5mPD at PA PCB West 446,002m3 30,000m3/day	32	16-Jan-14 A	23-Feb-14 A																			
SURA0-220	PA PCB WEST Surcharge Period +11.5mPD 6mths (8-2=6mths)	168	24-Feb-14 A	10-Aug-14 A																			
<b>Geotechnical Instrumentation Works</b>																							
<b>Geotechnical Instrumentation Works for Seawalls</b>																							
<b>Portion A Instrumentation - SD</b>																							
<b>SD-24 C123</b>																							
CTSD-240	Installation of SD-24 (C123) PA	24	02-Dec-13 A	31-Dec-13 A																			
<b>SD-25 C128</b>																							
CTSD-250	Installation of SD-25 (C128) PA	24	02-Dec-13 A	31-Dec-13 A																			
<b>SD-26 C133</b>																							
CTSD-260	Installation of SD-26 (C133) PA	24	02-Dec-13 A	31-Dec-13 A																			
<b>Cluster Type SC 3nrs Strain Guage and Inclometer Cluster inside cells</b>																							
<b>SC-3 C108 Portion C2a</b>																							
CTSC3-010	Installation of SC-3 C108 PC2a	9	10-Jan-14 A	20-Jan-14 A																			
<b>Cluster Type SE 26nrs Surface movement marker cluster at top of cell and sloping seawall</b>																							
CTSE-240	Installation of SE-24 (C121) PA	7	21-Oct-13 A	28-Oct-13 A																			
CTSE-250	Installation of SE-25 (C126) PA	7	21-Oct-13 A	28-Oct-13 A																			
CTSE-260	Installation of SE-26 (C131) PA	7	21-Oct-13 A	28-Oct-13 A																			
<b>Geotechnical Instrumentation Works for Reclamation RA &amp; RB</b>																							
<b>RB</b>																							
SMT1-010	Installation of RB at PA	41	01-Jun-13 A	20-Jul-13 A																			
<b>Settlement Marker Type 2</b>																							
SMT2-010	M2 - Installation of Settlement Marker Type2 at PA	41	01-Jun-13 A	20-Jul-13 A																			
<b>Portion D</b>																							
<b>Submission</b>																							
<b>Design Submission</b>																							
<b>Settlement Assessment for Reclamation Areas at Portion D</b>																							
PD-DGN-13080	Settlement Assessment for Reclamation Area at PD 4th comments	41	10-Mar-13 A	19-Apr-13 A																			
<b>Method Statement Submission</b>																							
<b>Seawall</b>																							

█ Remaining Level of Effort    ◆ Milestone  
█ Actual Level of Effort    ▼ Summary  
█ Actual Work  
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Activity ID	Activity Name	Original Duration	Start	Finish	2013												2014						
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar						
					16	17	18	19	20	21	22	23	24	25	26	27	28						
PD-MTD-01040	MTD for Temporary Seawall Construction - Approval	500	11-Dec-12 A	24-Apr-14 A																			
<b>Float &amp; Sink installation of Culvert C1 - C4</b>		500	11-Dec-12 A	24-Apr-14 A																			
PD-MTD-07020	MTD for Float & Sink of culvert C1 - C4 - Approval	500	11-Dec-12 A	24-Apr-14 A																			
<b>Precast Yard for Seawall Blocks &amp; Culverts</b>		308	19-Apr-13 A	20-Feb-14 A																			
<b>Concrete Blocks</b>		308	19-Apr-13 A	20-Feb-14 A																			
PD-PY1-0100	Seawall Blocks for Temporary construction 1,190nrs	308	19-Apr-13 A	20-Feb-14 A																			
<b>Stone Columns by Marine Plant</b>		71	05-Feb-13 A	25-Apr-13 A																			
<b>Stone Columns in Zone A 2,154nrs</b>		46	05-Feb-13 A	29-Mar-13 A																			
A1630	PD Zone A Lower Stone Columns 357nrs/1166nrs AP1 upto 20Mar2013	38	05-Feb-13 A	20-Mar-13 A																			
A1634	PD Zone A Lower Stone Columns 119nrs/1166nrs (15nrs/day) AP1	8	21-Mar-13 A	29-Mar-13 A																			
<b>Stone Columns in Zone B 2,906nrs</b>		57	14-Feb-13 A	15-Apr-13 A																			
A1674	PD Zone B Lower Stone Columns 234nrs/1166nrs (15nrs/day) AP1	16	30-Mar-13 A	15-Apr-13 A																			
A1694	PD Zone B Upper Stone Columns 264nrs/1745nrs (15nrs/day) AP2	32	14-Feb-13 A	19-Mar-13 A																			
<b>Stone Columns in Zone C 2,456nrs</b>		51	05-Feb-13 A	03-Apr-13 A																			
A1580-30	PD Zone C Lower Stone Columns 772nrs/1,850nrs (15nrs/day) FTB16	51	05-Feb-13 A	03-Apr-13 A																			
A1580-50	PD Zone C Upper Stone Columns 326nrs/606nrs (15nrs/day) FTB-AP2 (subject to revise height limit by CAD)	12	19-Mar-13 A	31-Mar-13 A																			
<b>Stone Columns at Box Culverts</b>		31	23-Mar-13 A	25-Apr-13 A																			
A1604-32	PD C1 Culvert Stone Columns 118nrs/217nrs (15nrs/day) FTB16	8	23-Mar-13 A	31-Mar-13 A																			
A1604-34	PD C2 Culvert Stone Columns 175nrs/175nrs (15nrs/day) FTB16	23	01-Apr-13 A	25-Apr-13 A																			
A1604-50	PD C3 Culvert Stone Columns 120nrs/175nrs (15nrs/day) FTB-AP1	6	14-Apr-13 A	19-Apr-13 A																			
A1604-70	PD C4 Culvert Stone Columns 86nrs/147nrs (10nrs/day) FTB-AP1	5	20-Apr-13 A	25-Apr-13 A																			
<b>Site Construction</b>		276	29-Jun-13 A	31-Mar-14 A																			
<b>Seawall Construction</b>		265	29-Jun-13 A	20-Mar-14 A																			
<b>Access at Portion D</b>		11	26-Jan-14 A	11-Feb-14 A																			
<b>Construction of Temporary Bridge</b>		11	26-Jan-14 A	11-Feb-14 A																			
AA1010	Installation of Concrete Panel along Temporary Channel	2	26-Jan-14 A	28-Jan-14 A																			
AA1020	Prepare the Formation	2	10-Feb-14 A	11-Feb-14 A																			
<b>Temporary Seawall</b>		241	29-Jun-13 A	20-Mar-14 A																			
<b>S4 Temporary Seawall (160m)</b>		30	29-Jun-13 A	31-Jul-13 A																			
PDS4-00010	Outside Existing Seawall 80m Stone Aggregate upto -2.5mPD (6,000m3)	3	29-Jun-13 A	02-Jul-13 A																			
PDS4-00020	Outside Existing Seawall 80m Stone Aggregate upto +2.5mPD (16,000m3)	8	03-Jul-13 A	10-Jul-13 A																			
PDS4-00030	Geotextile laying 8shts	3	11-Jul-13 A	14-Jul-13 A																			
PDS4-00040	EC1 stone aggregate (1,200m3)	6	15-Jul-13 A	20-Jul-13 A																			
PDS4-00050	Other 80m Stone Aggregate upto -2.5mPD (6,000m3)	2	21-Jul-13 A	22-Jul-13 A																			
PDS4-00060	Other 80m Stone Aggregate upto +2.5mPD (16,000m3)	8	23-Jul-13 A	31-Jul-13 A																			
<b>70m Zone of Airport Existing Seawall</b>		189	27-Jul-13 A	20-Feb-14 A																			
PDAS-00010	Airport Existing Seawall 70m Stone Aggregate upto -2.5mPD (7,000m3)	5	27-Jul-13 A	01-Aug-13 A																			
PDAS-00020	Airport Existing Seawall 70m Stone Aggregate upto +2.5mPD (30,000m3)	18	02-Aug-13 A	20-Aug-13 A																			

Remaining Level of Effort   Milestone  
 Actual Level of Effort   Summary  
 Actual Work  
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34th Monthly Progress Report Status as on 21Oct2014 Ver.5h5  
 Page 13 of 16

TASK filter: ET Progress Report Mar 2013 to Feb 2014.  
 Resource Profile Filter:Aggregate.Stone Aggregate (cum)

Activity ID	Activity Name	Original Duration	Start	Finish	2013												2014		
					Mar 16	Apr 17	May 18	Jun 19	Jul 20	Aug 21	Sep 22	Oct 23	Nov 24	Dec 25	Jan 26	Feb 27	Mar 28		
PDAS-00030	Airport Existing Seawall 70m Seawall blocks installation 200nrs	10	10-Feb-14 A	20-Feb-14 A															
<b>Temporary Seawall CH6+136 - CH6+000 (136m)</b>		<b>203</b>	<b>12-Jul-13 A</b>	<b>20-Feb-14 A</b>															
PDTS-10010	Stone Blanket (10,000m3)	2	27-Jul-13 A	29-Jul-13 A															
PDTS-10020	Geotextile Laying 12shts	1	30-Jul-13 A	30-Jul-13 A															
PDTS-10025	S1 Temporary Seawall Rockfill type2 2,400m3	5	16-Aug-13 A	20-Aug-13 A															
PDTS-10030	S1 Temporary Seawall Rockfill Type 1	69	12-Jul-13 A	24-Sep-13 A															
PDTS-10040	S1 West1 Temporary Seawall Stone Aggregate 43,526m3 2,500m3/day	85	25-Sep-13 A	25-Dec-13 A															
PDTS-10050	V2 West1 Temporary Seawall Stone Aggregate 45,198m3 2,500m3/day	20	21-Oct-13 A	11-Nov-13 A															
PDTS-10060	V2 West1 Temporary Seawall Seawall blocks installation 350nrs	10	10-Feb-14 A	20-Feb-14 A															
<b>Temporary Seawall CH6+000 - CH5+900 (100m)</b>		<b>193</b>	<b>05-Aug-13 A</b>	<b>05-Mar-14 A</b>															
PDTS-20010	Stone Blanket (6,100m3)	2	05-Aug-13 A	06-Aug-13 A															
PDTS-20020	Geotextile Laying 12shts	1	07-Aug-13 A	07-Aug-13 A															
PDTS-20025	S1 Temporary Seawall Rockfill type2 2,400m3	2	26-Aug-13 A	27-Aug-13 A															
PDTS-20030	S1 Temporary Seawall Rockfill type1 9,500m3	5	25-Sep-13 A	30-Sep-13 A															
PDTS-20040	S1 West2 Temporary Seawall Stone Aggregate 43,526m3 2,500m3/day	23	26-Dec-13 A	18-Jan-14 A															
PDTS-20050	V2 West2 Temporary Seawall Stone Aggregate 45,198m3 2,500m3/day	47	12-Nov-13 A	31-Dec-13 A															
PDTS-20060	V2 West2 Temporary Seawall Seawall blocks installation 350nrs	12	21-Feb-14 A	05-Mar-14 A															
<b>Temporary Seawall CH5+900 - CH5+800 (100m)</b>		<b>156</b>	<b>02-Sep-13 A</b>	<b>20-Feb-14 A</b>															
PDTS-30010	Stone Blanket (7,900m3)	2	02-Sep-13 A	03-Sep-13 A															
PDTS-30020	Geotextile Laying 12shts	1	04-Sep-13 A	04-Sep-13 A															
PDTS-30025	S1 Temporary Seawall Rockfill type2 2,400m3	2	05-Sep-13 A	06-Sep-13 A															
PDTS-30030	S1 Temporary Seawall Rockfill type1 9,500m3	6	30-Sep-13 A	05-Oct-13 A															
PDTS-30040	S1 East1 Temporary Seawall Stone Aggregate 43,526m3 2,500m3/day	26	19-Jan-14 A	20-Feb-14 A															
PDTS-30050	V2 East1 Temporary Seawall Stone Aggregate 45,198m3 2,500m3/day	12	01-Jan-14 A	13-Jan-14 A															
<b>Temporary Seawall CH5+800 - CH5+650 (150m)</b>		<b>173</b>	<b>11-Sep-13 A</b>	<b>20-Mar-14 A</b>															
PDTS-40010	Stone Blanket (7,900m3)	2	11-Sep-13 A	12-Sep-13 A															
PDTS-40020	Geotextile Laying 11shts	1	13-Sep-13 A	13-Sep-13 A															
PDTS-40025	S1 Temporary Seawall Rockfill type2 2,400m3	2	14-Sep-13 A	16-Sep-13 A															
PDTS-40030	S1 East2 Temporary Seawall Rockfill type1 14,600m3	5	21-Jan-14 A	25-Jan-14 A															
PDTS-40040	S1 East2 Temporary Seawall Stone Aggregate 43,527m3 2,500m3/day	27	20-Feb-14 A	20-Mar-14 A															
PDTS-40050	V2 East2 Temporary Seawall Stone Aggregate 45,198m3 2,500m3/day	15	14-Jan-14 A	31-Jan-14 A															
<b>Reclamation below +2.5mPD</b>		<b>69</b>	<b>01-Nov-13 A</b>	<b>13-Jan-14 A</b>															
<b>West1 (South CH 0 - 100 &amp; North CH 6136 - 6000)</b>		<b>47</b>	<b>01-Nov-13 A</b>	<b>20-Dec-13 A</b>															
A1630a	PD - Aggregate bedding & sand blanket at C1	4	01-Nov-13 A	04-Nov-13 A															
A1630b	PD - Marine Fill Type A Sand 100% upto +0mPD at West1 30,540m3 5,000m3/day	9	27-Nov-13 A	05-Dec-13 A															
A1630c	PD - Marine Fill Type A Sand 100% upto +2.5mPD at West1 30,540m3 5,000m3/day	5	16-Dec-13 A	20-Dec-13 A															
<b>West2 (South CH 100 - 225 &amp; North CH 6000 - 5900)</b>		<b>69</b>	<b>01-Nov-13 A</b>	<b>13-Jan-14 A</b>															
A1630a10	PD - Aggregate bedding & sand blanket at C2	4	01-Nov-13 A	04-Nov-13 A															

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					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar						
					16	17	18	19	20	21	22	23	24	25	26	27	28						
A1630b10	PD - Marine Fill Type A Sand 100% upto +0mPD at West2 30,540m3 5,000m3/day	9	06-Dec-13 A	15-Dec-13 A																			
A1630c10	PD - Marine Fill Type A Sand 100% upto +2.5mPD at West2 30,540m3 5,000m3/day	9	04-Jan-14 A	13-Jan-14 A																			
<b>East1 (South CH 225 - 325 &amp; North CH 5900 - 5800)</b>		4	05-Nov-13 A	08-Nov-13 A																			
A1635a	PD - Aggregate bedding & sand blanket at C3	4	05-Nov-13 A	08-Nov-13 A																			
<b>East2 (South CH 325 - 450 &amp; North CH 5800 - 5650)</b>		4	09-Nov-13 A	13-Nov-13 A																			
A1635a10	PD - Aggregate bedding & sand blanket at C4	4	09-Nov-13 A	13-Nov-13 A																			
<b>Vertical Band Drain by Land Base</b>		126	26-Nov-13 A	31-Mar-14 A																			
<b>Zone C &amp; alternative 10,498nrs upto 23Feb2014</b>		72	26-Nov-13 A	24-Feb-14 A																			
A1631	PD - Install vertical band drain at existing seawall 70m by land Plant 1,418nrs upto 12Dec2013	15	26-Nov-13 A	12-Dec-13 A																			
A1632	PD - Install vertical band drain 9,080nrs at West1 by Land Plant upto 24Feb2014 (4VP +2HP(NS))	58	13-Dec-13 A	24-Feb-14 A																			
<b>Zone C &amp; B1 outstanding 8,521nrs from 24Feb2014</b>		35	25-Feb-14 A	31-Mar-14 A																			
A1635	PD - Install vertical band drain 8,520nrs by Land Plants 250nrs/day (4VP + 2HP(NS))	35	25-Feb-14 A	31-Mar-14 A																			
<b>Instrumentation &amp; Monitoring Requirements</b>		198	07-Aug-13 A	20-Feb-14 A																			
<b>West Portion</b>		82	01-Dec-13 A	20-Feb-14 A																			
<b>Vertical Seawalls - Cluster Type DV-1 &amp; DV-2</b>		82	01-Dec-13 A	20-Feb-14 A																			
DV-1010	PD - Surface Movements Marker (Type 3B) 4nrs west	6	01-Jan-14 A	06-Jan-14 A																			
DV-1020	PD - Combine Inclinometer and Extensometer 2nrs west	10	01-Jan-14 A	10-Jan-14 A																			
DV-1030	PD - Sub-surface Settlement Marker 2nrs west	44	01-Dec-13 A	13-Jan-14 A																			
DV-1040	PD - Settlement Marker (Type 2) 2nrs west	11	10-Feb-14 A	20-Feb-14 A																			
<b>Sloping Seawalls - Cluster Type DS-1 &amp; DS-2</b>		51	01-Jan-14 A	20-Feb-14 A																			
DS-1010	PD - Surface Movement Marker (Type 3B) 4nrs east	51	01-Jan-14 A	20-Feb-14 A																			
DS-1020	PD - Combine Inclinometer and Extensometer 2nrs east	51	01-Jan-14 A	20-Feb-14 A																			
DS-1030	PD - Sub-surface Settlement Marker 2nrs east	51	01-Jan-14 A	20-Feb-14 A																			
DS-1040	PD - Settlement Marker (Type 2) 2nrs east	51	01-Jan-14 A	20-Feb-14 A																			
<b>Reclamation - Cluster Type RA 3sets</b>		51	01-Jan-14 A	20-Feb-14 A																			
RA-1010	PD - Extensometer 3nrs	51	01-Jan-14 A	20-Feb-14 A																			
RA-1020	PD - Standpipe / Casagrande Piezometer 3nrs	51	01-Jan-14 A	20-Feb-14 A																			
RA-1030	PD - Double Tip Vibrating Wire Piezometer 9nrs	51	01-Jan-14 A	20-Feb-14 A																			
RA-1040	PD - Sub-surface Settlement Marker 3nrs	51	01-Jan-14 A	20-Feb-14 A																			
RA-1050	PD - Settlement Marker (Type 2) 6nrs	51	01-Jan-14 A	20-Feb-14 A																			
<b>Reclamation - Cluster Type RB 4sets</b>		51	01-Jan-14 A	20-Feb-14 A																			
RB-1010	PD - Sub-Surface Settlement Marker 4nrs west	51	01-Jan-14 A	20-Feb-14 A																			
RB-1020	PD - Settlement Marker (Type 2) 4nrs west	51	01-Jan-14 A	20-Feb-14 A																			
<b>East Portion</b>		172	07-Aug-13 A	25-Jan-14 A																			
<b>Reclamation - Cluster Type RA 1set</b>		54	03-Dec-13 A	25-Jan-14 A																			
RA-1090	PD - Sub-surface Settlement Marker 1nr	1	03-Dec-13 A	03-Dec-13 A																			
RA-1100	PD - Settlement Marker (Type 2) 2nrs	1	25-Jan-14 A	25-Jan-14 A																			
<b>Reclamation - Cluster Type RB 4sets</b>		79	07-Aug-13 A	24-Oct-13 A																			

█ Remaining Level of Effort    ◆ Milestone  
█ Actual Level of Effort    ▼ Summary  
█ Actual Work  
█ Remaining Work  
█ Critical Remaining Work

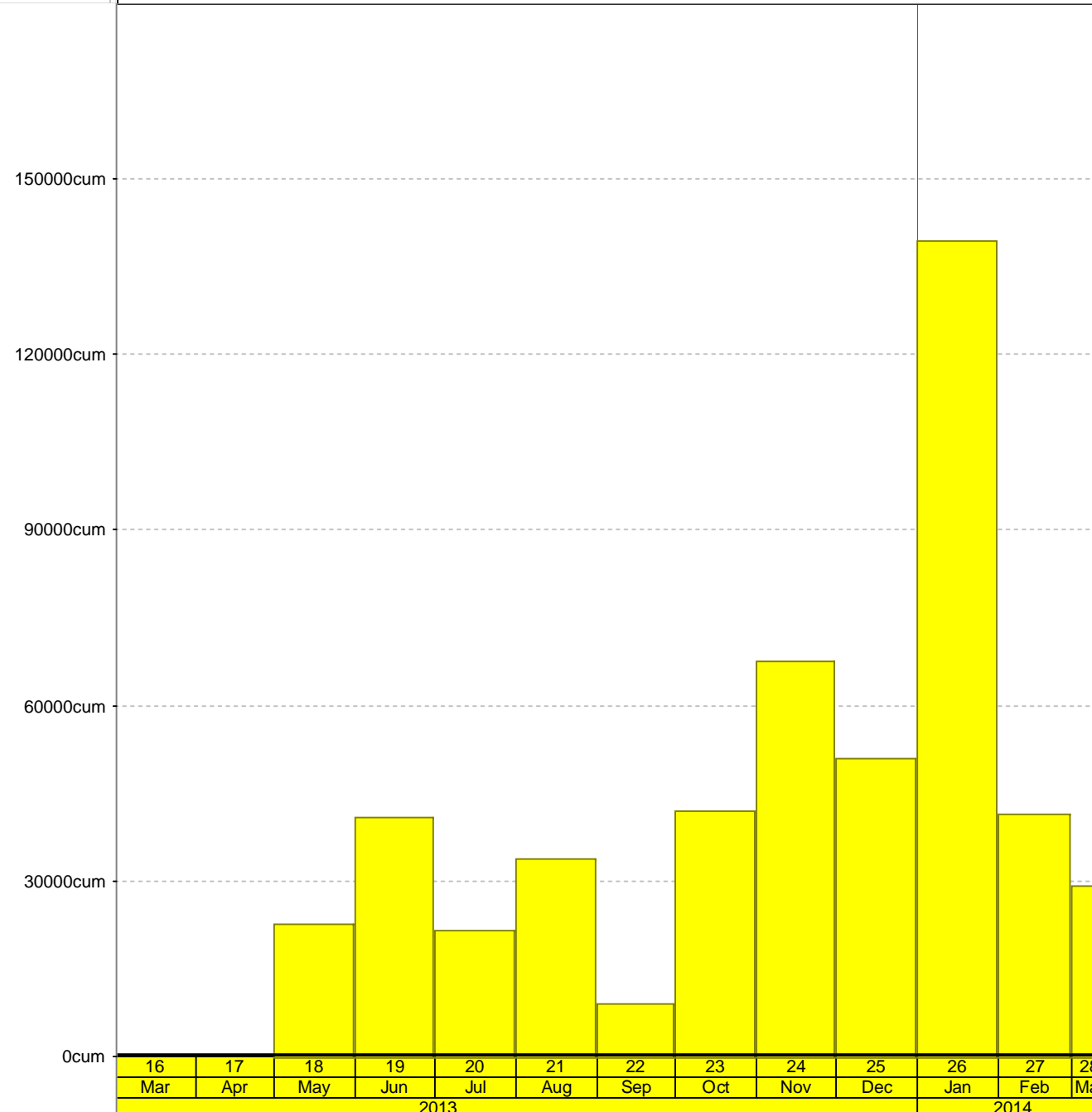
34th Monthly Progress Report Status as on 21Oct2014 Ver.5h5

Page 15 of 16

TASK filter: ET Progress Report Mar 2013 to Feb 2014.  
 Resource Profile Filter: Aggregate.Stone Aggregate (cum)

Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Start	Finish	2013												2014						
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar						
					16	17	18	19	20	21	22	23	24	25	26	27	28						
RB-1030	PD - Sub-Surface Settlement Marker 4nrs east	79	07-Aug-13 A	24-Oct-13 A																			
RB-1040	PD - Settlement Marker (Type 2) 4nrs east	1	24-Oct-13 A	24-Oct-13 A																			
<b>Works Area WA2 (Tung Chung)</b>		615	30-Nov-11 A	20-Dec-13 A																			
<b>Zone B</b>		615	30-Nov-11 A	20-Dec-13 A																			
A3090	Maintenance of Site	615	30-Nov-11 A	20-Dec-13 A																			
<b>Works Area WA4 (To Kau Wan)</b>		548	23-Feb-12 A	20-Dec-13 A																			
A1910	Maintenance of Site Zone A	548	23-Feb-12 A	20-Dec-13 A																			
<b>Works Area TKO Fill Bank</b>		568	25-Sep-12 A	22-Aug-14 A																			
WA-TKO-1050	Maintainance of Site in Zone C	570	25-Sep-12 A	22-Aug-14 A																			

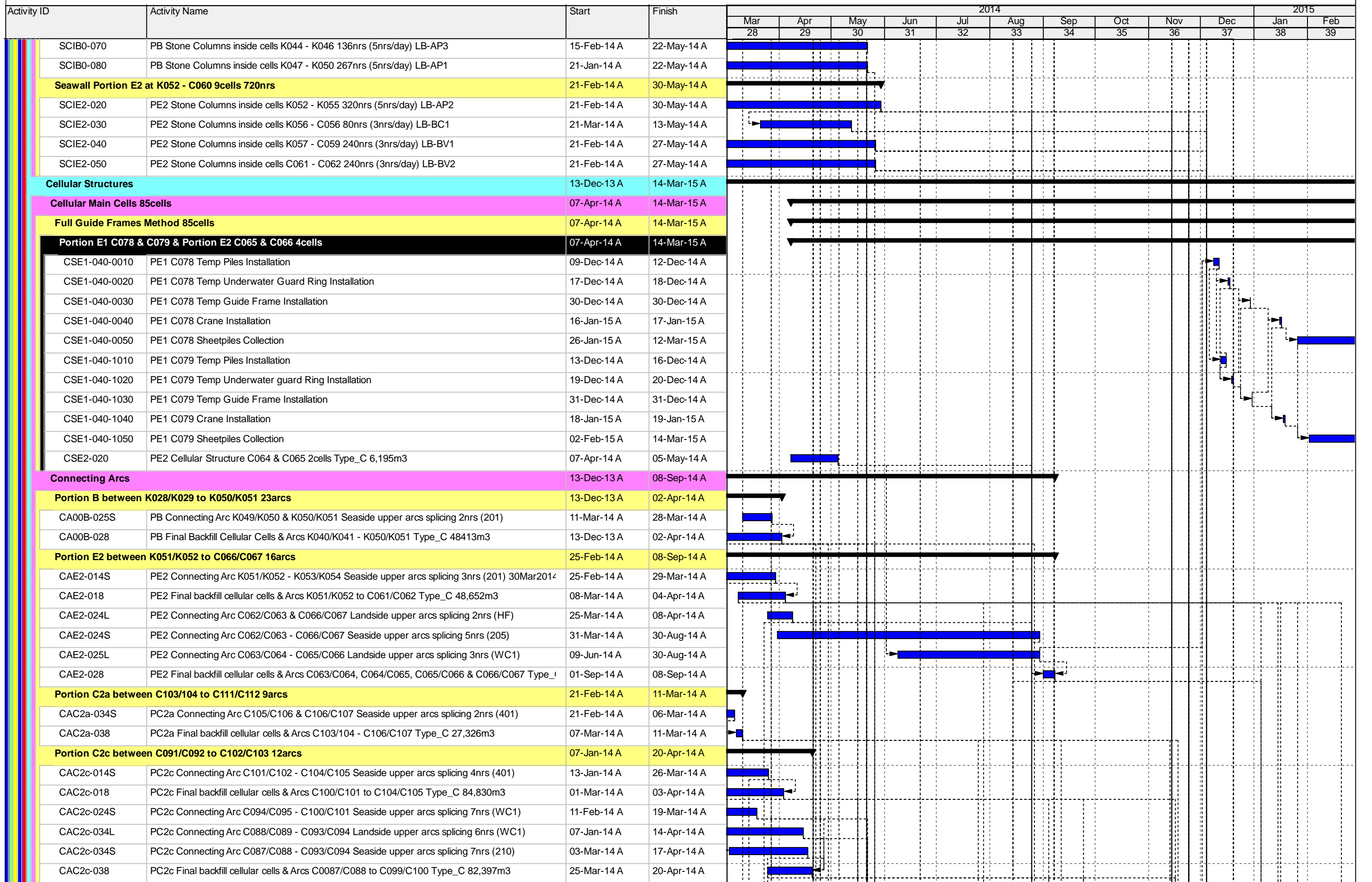


Budgeted Units  
 Limit

Remaining Level of Effort    ◆ Milestone  
 Actual Level of Effort    ▼ Summary  
 Actual Work  
 Remaining Work  
 Critical Remaining Work

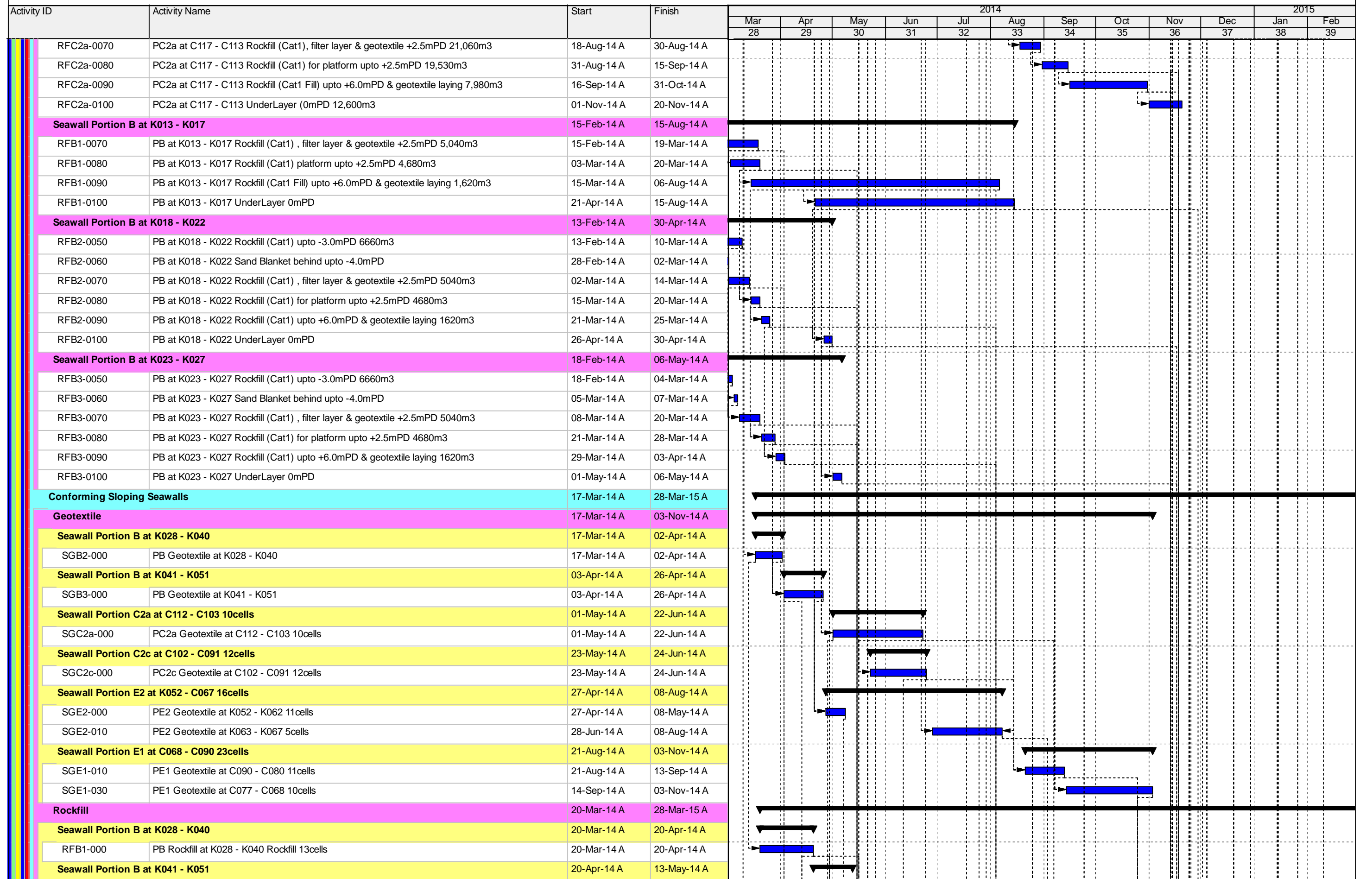
Activity ID	Activity Name	Start	Finish	2014												2015	
				Mar 28	Apr 29	May 30	Jun 31	Jul 32	Aug 33	Sep 34	Oct 35	Nov 36	Dec 37	Jan 38	Feb 39		
<b>41st Monthly Progress Report Status as on 21Apr2015</b>																	
<b>Work Zone, as defined in PS Clause 1.03(6)</b>																	
<b>Portion A, B, C &amp; E</b>																	
<b>Portion A, B, C &amp; E</b>																	
<b>Seawall</b>																	
<b>Ground Treatment</b>																	
<b>Stone Columns for Rubble Mound Seawall by Marine Plant</b>																	
<b>Portion C2a C113 - C117 5Cells 3,258Nos</b>																	
SC0A-1090	PC2A Stone Columns outermost C113 - C115 5cells 1,614nrs (19nrs/day) FTB17	11-Nov-13 A	10-May-14 A														
<b>Stone Columns Outside cellular Structures by Marine Plant</b>																	
<b>Seawall Portion B at K028 - K052 25cells 4,910nrs</b>																	
<b>K028 - K040</b>																	
SCOB-A060	PB Stone Columns K037 - K040 Row 12-14 202nrs (6nrs/day) AP6	26-Jan-14 A	05-Mar-14 A														
<b>K041 - K046</b>																	
SCOB-B010	PB Stone Columns K041 - K043 Row 01-11 233nrs (14nrs/day) FTB19	21-Feb-14 A	06-Mar-14 A														
SCOB-B030	PB Stone Columns K044 - K046 Row 01-11 125nrs (14nrs/day) FTB20	21-Feb-14 A	06-Mar-14 A														
SCOB-B040	PB Stone Columns K044 - K046 Row 12-14 142nrs (8nrs/day) FTB16	25-Feb-14 A	15-Mar-14 A														
<b>Seawall Portion E2 at K053 - C067 2,252nrs</b>																	
<b>K053 - C067</b>																	
SCOE2-A010	PE2 Stone Columns K053 - K056 Row 01-11 251nrs (14nrs/day) FTB20	21-Feb-14 A	11-Mar-14 A														
SCOE2-A020	PE2 Stone Columns K053 - K056 Row 12-14 160nrs (6nrs/day) AP5	25-Nov-13 A	08-Mar-14 A														
SCOE2-A030	PE2 Stone Columns K057 - K067 Row 01-11 232nrs (14nrs/day) FTB19	07-Mar-14 A	23-Mar-14 A														
SCOE2-A040	PE2 Stone Columns K057 - K067 Row 12-14 138nrs (6nrs/day) AP6	06-Mar-14 A	29-Mar-14 A														
<b>Seawall Portion E1 at C068 - C091 24cells 6,428nrs</b>																	
<b>C068 - C079</b>																	
SCOE1-A010	PE1 Stone Columns C068 - C071 Row 01-11 273nrs (14nrs/day) FTB19	24-Mar-14 A	14-Apr-14 A														
SCOE1-A020	PE1 Stone Columns C068 - C078 Row 12-14 325nrs (8nrs/day) FTB16	17-Mar-14 A	27-May-14 A														
SCOE1-A030	PE1 Stone Columns C072 - C075 Row 01-11 769nrs (14nrs/day) FTB20	21-Feb-14 A	31-May-14 A														
SCOE1-A040	PE1 Stone Columns C076 - C076 Row 01-11 385nrs (14nrs/day) FTB16	07-Mar-14 A	19-Apr-14 A														
SCOE1-A050	PE1 Stone Columns C077 - C077 Row 01-11 390nrs (6nrs/day) AP7	13-Apr-14 A	08-May-14 A														
SCOE1-A060	PE1 Stone Columns C078 - C079 Row 01-11 780nrs (14nrs/day) FTB19	07-Mar-14 A	23-May-14 A														
<b>C080 - C091</b>																	
SCOE1-B010	PE1 Stone Columns C080 - C080 Row 01-11 390nrs (14nrs/day) FTB19	15-Apr-14 A	22-Apr-14 A														
SCOE1-B020	PE1 Stone Columns C081 - C083 Row 01-11 479nrs (14nrs/day) FTB18	18-Apr-14 A	24-May-14 A														
SCOE1-B040	PE1 Stone Columns C085 - C090 Row 01-11 284nrs (18nrs/day) FTB18	07-Mar-14 A	31-May-14 A														
SCOE1-B060	PE1 Stone Columns C079 - C091 Row 12-14 279nrs (6nrs/day) AP7	21-Feb-14 A	10-May-14 A														
<b>Seawall Portion C at C103 - C112 10cells @197nrs/cell 1970nrs</b>																	
<b>Beside of front cellular walls C103-C112 985nrs</b>																	
SCOC-A020	PC2a Stone Columns C105 - C106 Row 01-11 276nrs (18nrs/day) FTB18	11-Nov-13 A	06-Mar-14 A														
SCOC-B010	PC2a Stone Columns C110 - C112 Row 01-11 368nrs (14nrs/day) FTB18	21-Mar-14 A	17-Apr-14 A														
SCOC-B10	PC2a Stone Columns C110 - C112 Row 12-14 252nrs (6nrs/day) AP5	01-Mar-14 A	17-Apr-14 A														
<b>Stone Columns Inside cells by Land Plant 2,640nrs</b>																	
<b>Seawall Portion B at K028 - K051 24cells 1,920nrs</b>																	

█ Remaining Level of Effort   
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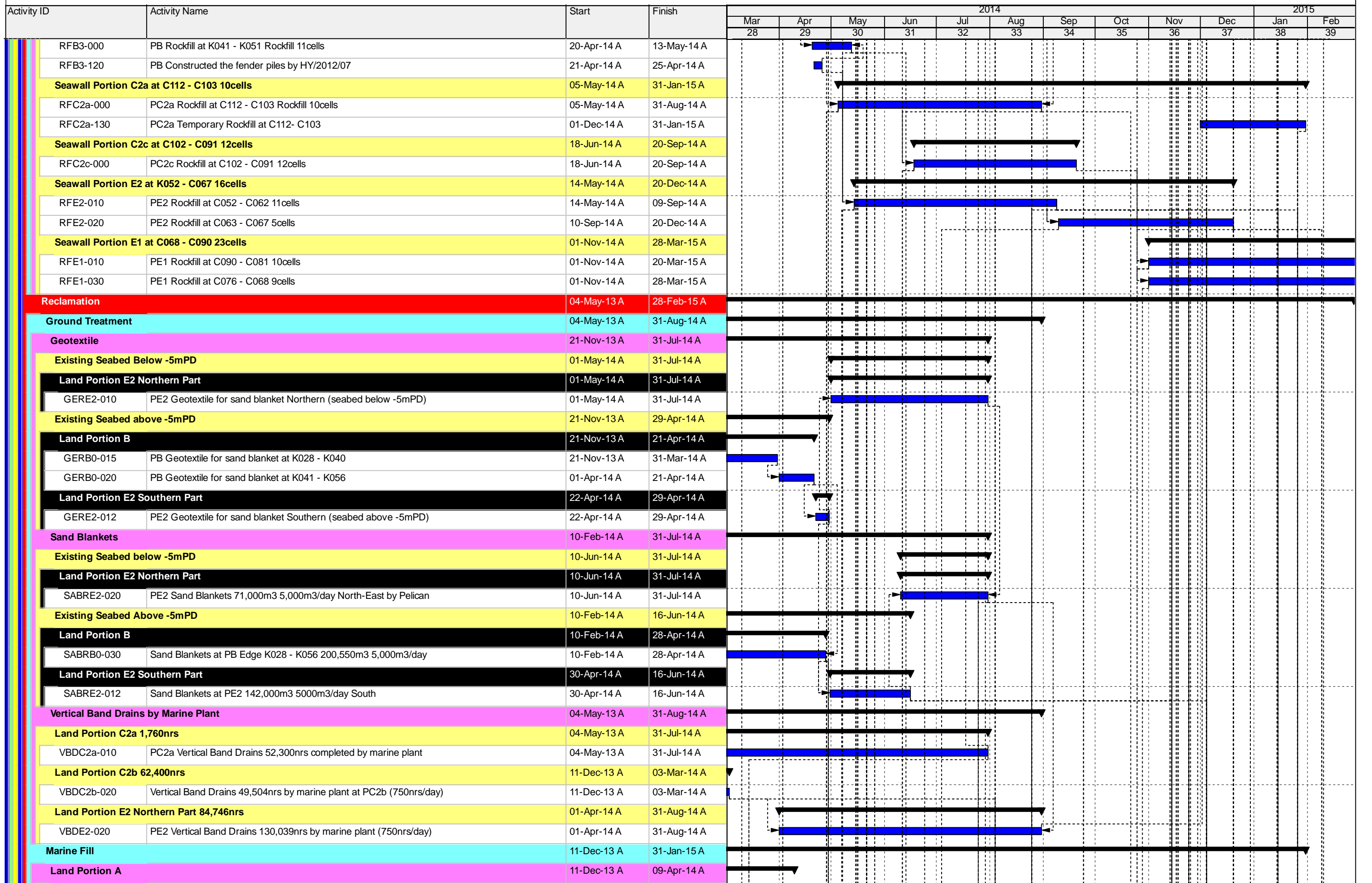
Activity ID	Activity Name	Start	Finish	2014												2015	
				Mar 28	Apr 29	May 30	Jun 31	Jul 32	Aug 33	Sep 34	Oct 35	Nov 36	Dec 37	Jan 38	Feb 39		
<b>Portion E1 between C073/C074 to C090/C091 18arcs</b>				21-Mar-14 A	11-Aug-14 A												
CAE1-014L	PE1 Connecting Arc C084/C085 - C087/C088 Landside upper arcs splicing 4nrs (HF)	07-Apr-14 A	01-Jun-14 A														
CAE1-014S	PE1 Connecting Arc C080/C081 - C086/C087 Seaside upper arcs splicing 7nrs (205)	21-Mar-14 A	13-Jul-14 A														
CAE1-016L	PE1 Connecting Arc C080/C081 - C083/C084 Landside upper arcs splicing 4nrs (HF)	30-Mar-14 A	25-May-14 A														
CAE1-018	PE1 Final backfill cellular cells & Arcs C080/C081 to C090/C091 Type_C 91,454.5 m3	31-May-14 A	20-Jul-14 A														
CAE1-034L	PE1 Connecting Arc C072/C073 - C076/C077 Landside upper arcs splicing 5nrs (210)	01-Apr-14 A	20-Jun-14 A														
CAE1-034S	PE1 Connecting Arc C072/C73 - C076/C077 Seaside upper arcs splicing 5nrs (WC1)	29-May-14 A	08-Jul-14 A														
CAE1-044L	PE1 Connecting Arc C067/C068 - C071/C072 Landside upper arcs splicing 5nrs (401)	21-Mar-14 A	11-Aug-14 A														
CAE1-044S	PE1 Connecting Arc C067/C068 - C071/C072 Seaside upper arcs splicing 5nrs (WC1)	09-May-14 A	19-Jun-14 A														
CAE1-048	PE1 Final backfill cellular cells & Arcs C077 to C066 Type_C 108,416m3	13-Jun-14 A	19-Jul-14 A														
<b>Capping Beams</b>				10-Apr-14 A	23-Feb-15 A												
<b>Portion B between K028 to K056 Capping Beams</b>				10-Apr-14 A	20-Aug-14 A												
CB025-00005	Trial Capping Beams structure 14days/cell	10-Apr-14 A	14-Apr-14 A														
CB025-00010	PB Capping Beams structure K028 - K043 16-1=15cells 4days/cell	15-Apr-14 A	21-Jun-14 A														
CB025-00020	PB Capping Beams structure K044 - K056 13cells 4days/cell	29-Apr-14 A	20-Aug-14 A														
<b>Portion E2 between K057 to C067 Capping Beams</b>				04-Aug-14 A	23-Feb-15 A												
CBE2-000	PE2 Capping Beams structure K057 to C062 6cells 8days/cell	04-Aug-14 A	10-Jan-15 A														
CBE2-005	PE2 Capping Beams structure K063 to C064 2cells 8days/cell	12-Jan-15 A	14-Feb-15 A														
CBE2-010	PE2 Capping Beams structure C065 to C067 3cells 8days/cell	12-Jan-15 A	23-Feb-15 A														
<b>Portion C2a between C112 to C103 Capping Beams</b>				13-Sep-14 A	20-Oct-14 A												
CBC2a-010	PC2a Capping Beams structure C106 to C103 4cells 4days/cell	18-Sep-14 A	20-Oct-14 A														
CBC2a-020	PC2a Capping Beams structure C112 to C107 6cells 4days/cell	13-Sep-14 A	20-Oct-14 A														
<b>Portion C2c between C102 to C091 Capping Beams</b>				11-Sep-14 A	10-Nov-14 A												
CBC2c-000	PC2c Capping Beams structure C102 to C091 12cells 4days/cell	11-Sep-14 A	10-Nov-14 A														
<b>Portion E1 between C090 to C074 Capping Beams</b>				03-Nov-14 A	15-Dec-14 A												
CBE1-010	PE1 Capping Beams structure C090 to C081 10cells 4days/cell	03-Nov-14 A	15-Dec-14 A														
<b>Optimizing Rubble Mound Seawalls</b>				13-Feb-14 A	20-Nov-14 A												
<b>Optimizing Portion A at C118 - C134</b>				28-Feb-14 A	13-Mar-14 A												
<b>Seawall Portion A at C122 - C124, Ch5+220 to 5+100</b>				01-Mar-14 A	13-Mar-14 A												
RFA2-0090	PA at C122 - C124 Rockfill (Cat1) upto +6.0mPD & geotextile laying 4,940m3	01-Mar-14 A	05-Mar-14 A														
RFA2-0100	PA at C122 - C124 UnderLayer 0mPD 7,800m3	06-Mar-14 A	13-Mar-14 A														
<b>Seawall Portion A at C125 - C128, Ch5+400 to 5+220</b>				28-Feb-14 A	06-Mar-14 A												
RFA3-0100	PA at C125 - C128 UnderLayer 0mPD 10,200m3	28-Feb-14 A	06-Mar-14 A														
<b>Seawall Portion A at C132 - C134, Ch5+700 to 5+550</b>				03-Mar-14 A	09-Mar-14 A												
RFA5-0090	PA at C132 - C134 Rockfill (Cat1) upto +6.0mPD & geotextile laying 4370m3	03-Mar-14 A	05-Mar-14 A														
RFA5-0100	PA at C132 - C134 UnderLayer 0mPD 7,800m3	06-Mar-14 A	09-Mar-14 A														
<b>Seawall Portion C2a at C117 - C113</b>				12-May-14 A	20-Nov-14 A												
RFC2a-0010	PC2a at C117 - C113 Geotextile Type 1 above stone blanket 17,800m2	12-May-14 A	13-May-14 A														
RFC2a-0020	PC2a at C117 - C113 sound survey	14-May-14 A	15-May-14 A														
RFC2a-0030	PC2a at C117 - C113 settlement markers install	16-May-14 A	17-May-14 A														
RFC2a-0040	PC2a at C117 - C113 Filter Layer (Cat0 Fill 1m) under the Rubble Mound 23,430m3	25-Jul-14 A	31-Jul-14 A														
RFC2a-0050	PC2a at C117 - C113 Rockfill (Cat1) upto -3.0mPD 27,930m3	01-Aug-14 A	15-Aug-14 A														
RFC2a-0060	PC2a at C117 - C113 Sand Blanket behind upto -4.0mPD	16-Aug-14 A	17-Aug-14 A														

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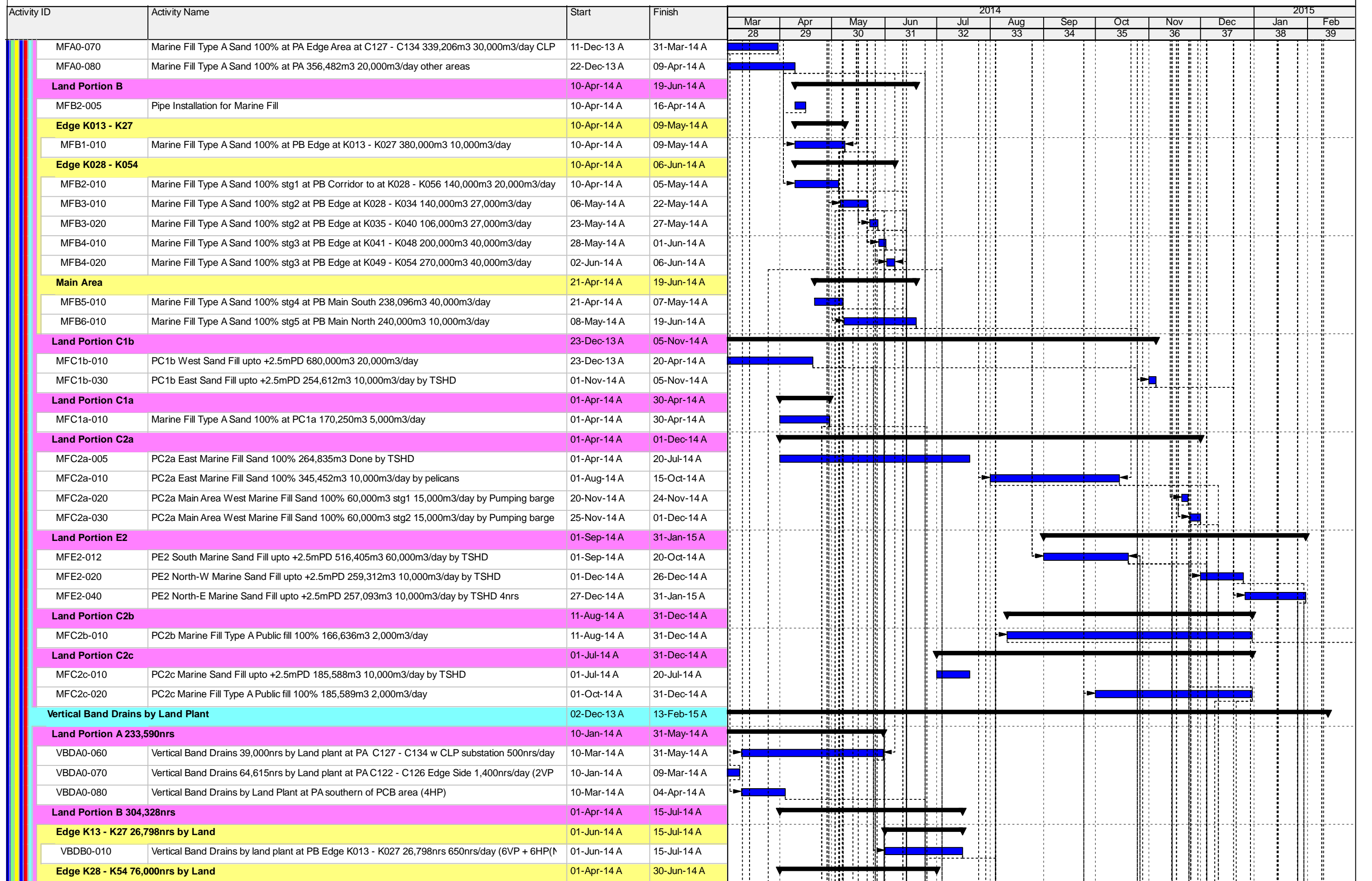


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█ Remaining Level of Effort   
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█ Actual Level of Effort   
 █ Remaining Work   
 ◆ ◆ Milestone







Activity ID	Activity Name	Start	Finish	2014												2015						
				Mar 28	Apr 29	May 30	Jun 31	Jul 32	Aug 33	Sep 34	Oct 35	Nov 36	Dec 37	Jan 38	Feb 39							
SUEA2-0010	PA CLP Substation Area Sand Surcharge upto +8.5mPD 34,848m3 10,000m3/day by Pumping	11-Aug-14 A	14-Aug-14 A																			
SUEA2-0040	PA CLP Substation Area Sand Surcharge upto +11.5mPD 30,492m3 10,000m3/day by Pumping	16-Aug-14 A	04-Sep-14 A																			
<b>Edge Area From SOL offset within 180m to 50m</b>		17-Oct-14 A	31-Jan-15 A																			
<b>CH5+110 to 5+440 Portion A North</b>		17-Oct-14 A	27-Dec-14 A																			
<b>Area of 50m to 120 from Offset</b>		19-Oct-14 A	27-Dec-14 A																			
SUEA1-0010	PA North 120m-100m from Offset Surcharge Sand Laying upto +8.5mPD 23,760m3 10,000m3	19-Oct-14 A	29-Oct-14 A																			
SUEA1-0040	PA North 100m-70m from Offset Surcharge Sand Laying upto +8.5mPD 35,640m3 10,000m3/day	30-Oct-14 A	05-Nov-14 A																			
SUEA1-0080	PA North 70m-40m from Offset Surcharge Sand Laying upto +8.5mPD 35,640m3 10,000m3/day	06-Nov-14 A	11-Nov-14 A																			
SUEA1-0090	PA North 120m-40m from Offset Surcharge Pause Period at 8.5mPD 2wks	12-Nov-14 A	30-Nov-14 A																			
SUEA1-0110	PA North 120m-40m from Offset Surcharge Sand Laying upto +11.5mPD 113,160m3 5,000m3/day	01-Dec-14 A	27-Dec-14 A																			
<b>Area of 0 to 50m from Offset</b>		17-Oct-14 A	18-Oct-14 A																			
SUEA1-2140	PA North 50m-10m Surcharge Sand Laying upto +7.0mPD 19,800m3 10,000m3/day	17-Oct-14 A	18-Oct-14 A																			
<b>CH5+440 to 5+650 Portion A South</b>		10-Nov-14 A	31-Jan-15 A																			
<b>Area of 40m - 120m from Offset (other CLP area)</b>		10-Nov-14 A	31-Jan-15 A																			
<b>Upto +8.5mPD Area</b>		10-Nov-14 A	31-Jan-15 A																			
SUEA3-0010	PA South 120m-100m from SOL Surcharge Sand Laying upto +8.5mPD 15,120m3 5,000m3/day	15-Nov-14 A	18-Nov-14 A																			
SUEA3-0030	PA South 100m-70m from SOL Surcharge Sand Laying upto +8.5mPD 22,680m3 5,000m3/day	10-Nov-14 A	18-Nov-14 A																			
SUEA3-0050	PA South 70m - 40m from SOL Surcharge Sand Laying upto +8.5mPD 22,680m3 5,000m3/day	12-Jan-15 A	16-Jan-15 A																			
SUEA3-0100	Testing	17-Jan-15 A	31-Jan-15 A																			
<b>Area of 10m - 40m from Offset (other CLP area)</b>		12-Nov-14 A	14-Nov-14 A																			
SUEA4-0030	PA South 40m-10m from SOL Surcharge Sand Laying upto +7.0mPD 11,340m3 5,000m3/day	12-Nov-14 A	14-Nov-14 A																			
<b>Land Portion B</b>		05-Aug-14 A	03-Feb-15 A																			
<b>Edge Areas</b>		05-Aug-14 A	03-Feb-15 A																			
<b>Deep Cement Mixing at K040 - K046</b>		11-Dec-14 A	03-Feb-15 A																			
DCM-1010	PB Edge Area K040-K046 Delivery (1st 3 plants)	11-Dec-14 A	09-Jan-15 A																			
DCM-1020	PB Edge Area K040-K046 Setup (1st 3 plants)	10-Jan-15 A	20-Jan-15 A																			
DCM-1030	PB Edge Area K040-K046 Delivery (2nd 3 plants)	26-Dec-14 A	26-Jan-15 A																			
DCM-1040	PB Edge Area K040-K046 Setup (2nd 3 plants)	26-Jan-15 A	03-Feb-15 A																			
<b>at K028 - K039</b>		05-Aug-14 A	04-Sep-14 A																			
SUEB0-055	PB Edge Area K028-K039 Surcharge Period +5.5mPD 1mth	05-Aug-14 A	04-Sep-14 A																			
<b>at K013 - K027</b>		24-Nov-14 A	23-Dec-14 A																			
SUEB0-005	PB Edge Area K013-K027 Period +5.5mPD 1mth	24-Nov-14 A	23-Dec-14 A																			
<b>Reclamation Areas</b>		01-Sep-14 A	10-Nov-14 A																			
<b>at East of Main Area</b>		01-Sep-14 A	12-Oct-14 A																			
SURB0-010	PB Main Area East Sand Surcharge upto +8.5mPD 131,390m3 40,000m3/day by TSHD	01-Sep-14 A	11-Sep-14 A																			
SURB0-020	PB Main Area East Sand Surcharge upto +11.5mPD 131,390m3 40,000m3/day by TSHD	28-Sep-14 A	12-Oct-14 A																			
<b>at West of Main Area stg1</b>		12-Sep-14 A	19-Oct-14 A																			
SURB1-010	PB Main Area West-S Sand Surcharge upto +8.5mPD 180,000m3 40,000m3/day by TSHD	12-Sep-14 A	22-Sep-14 A																			
SURB1-020	PB Main Area West-S Sand Surcharge upto +11.5mPD 180,000m3 30,000m3/day by TSHD	13-Oct-14 A	19-Oct-14 A																			
<b>at West of Main Area stg2</b>		23-Sep-14 A	10-Nov-14 A																			
SURB2-010	PB Main Area West-N Sand Surcharge upto +8.5mPD 212,195m3 60,000m3/day by TSHD	23-Sep-14 A	27-Sep-14 A																			
SURB2-020	PB Main Area West-N Sand Surcharge upto +11.5mPD 212,195m3 30,000m3/day by TSHD	20-Oct-14 A	10-Nov-14 A																			
<b>Land Portion C2a</b>		17-Feb-15 A	18-Mar-15 A																			

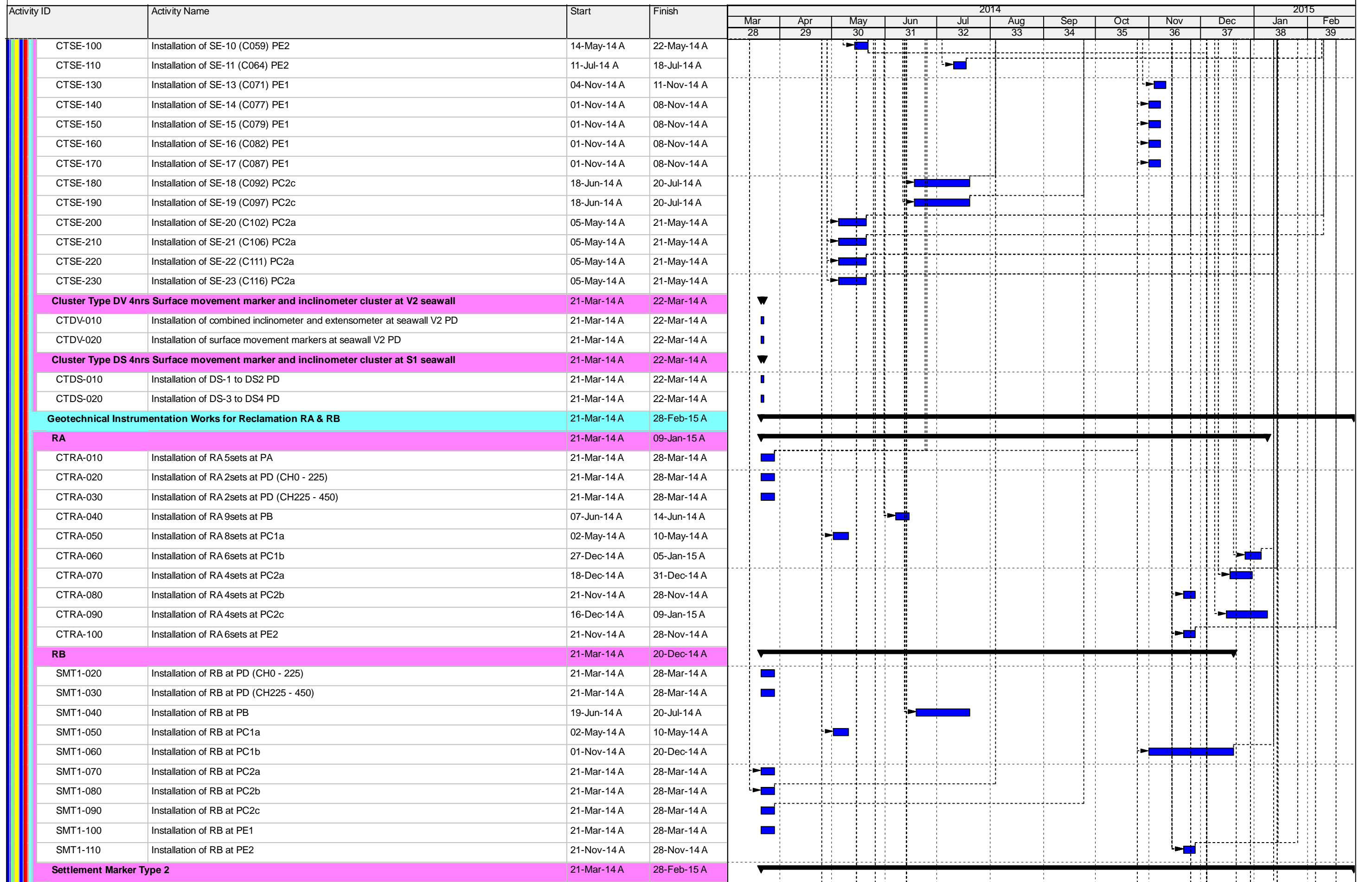
Remaining Level of Effort (Green bar), Actual Work (Blue bar), Critical Remaining Work (Red bar), Actual Level of Effort (Blue diamond), Remaining Work (Green diamond), Milestone (Black diamond)

Activity ID	Activity Name	Start	Finish	2014												2015	
				Mar 28	Apr 29	May 30	Jun 31	Jul 32	Aug 33	Sep 34	Oct 35	Nov 36	Dec 37	Jan 38	Feb 39		
<b>Edge Areas</b>				[Gantt bars for Edge Areas]													
<b>at C104 - C107 Cellular Seawall</b>				[Gantt bars for at C104 - C107 Cellular Seawall]													
SUEC2a-005	PC2a Edge Area C104-C107 Sand Surcharge Period +5.5mPD 1mth	17-Feb-15 A	18-Mar-15 A	[Gantt bar for SUEC2a-005]													
<b>Land Portion C1a</b>				[Gantt bars for Land Portion C1a]													
<b>Reclamation Areas</b>				[Gantt bars for Reclamation Areas]													
SURC1a-015	PC1a Main Area Sand Surcharge upto 8.5mPD 522,945m3 50,000m3/day by TSHD	21-Nov-14 A	08-Dec-14 A	[Gantt bar for SURC1a-015]													
SURC1a-018	PC1a Main Area Sand Surcharge upto 11.5mPD 522,944m3 30,000m3/day by TSHD	09-Dec-14 A	31-Dec-14 A	[Gantt bar for SURC1a-018]													
<b>Land Portion C1b</b>				[Gantt bars for Land Portion C1b]													
<b>Reclamation Areas</b>				[Gantt bars for Reclamation Areas]													
<b>West (1/4 Areas)</b>				[Gantt bars for West (1/4 Areas)]													
SURC1b-010	PC1b West Sand Surcharge upto 8.5mPD 141,745m3 45,000m3/day by TSHD	07-Jan-15 A	12-Jan-15 A	[Gantt bar for SURC1b-010]													
SURC1b-015	PC1b West Sand Surcharge upto 11.5mPD 141,745m3 40,000m3/day by TSHD	19-Jan-15 A	21-Jan-15 A	[Gantt bar for SURC1b-015]													
<b>East (3/4 Areas)</b>				[Gantt bars for East (3/4 Areas)]													
SURC1b-040	PC1b East Sand Surcharge upto 8.5mPD 425,233m3 40,000m3/day by TSHD	13-Jan-15 A	18-Jan-15 A	[Gantt bar for SURC1b-040]													
SURC1b-045	PC1b East Sand Surcharge upto 11.5mPD 425,233m3 40,000m3/day by TSHD 4hrs	22-Jan-15 A	31-Jan-15 A	[Gantt bar for SURC1b-045]													
<b>Land Portion E2</b>				[Gantt bars for Land Portion E2]													
<b>South Part</b>				[Gantt bars for South Part]													
<b>Edge Areas</b>				[Gantt bars for Edge Areas]													
SUEE2-005	PE2 South Edge Sand Period as +5.5mPD 1mth	12-Feb-15 A	11-Mar-15 A	[Gantt bar for SUEE2-005]													
<b>Reclamation Areas</b>				[Gantt bars for Reclamation Areas]													
SURE2-010	PE2 South Main Sand Surcharge Laying upto 8.5mPD 293,063m3 50,000m3/day by TSHD 4hrs	02-Feb-15 A	07-Feb-15 A	[Gantt bar for SURE2-010]													
<b>Geotechnical Instrumentation Works</b>				[Gantt bars for Geotechnical Instrumentation Works]													
<b>Geotechnical Instrumentation Works for Seawalls</b>				[Gantt bars for Geotechnical Instrumentation Works for Seawalls]													
<b>Cluster Type SA 2nrs Piezometer, Extensometer and Settlement Marker Cluster inside Cells</b>				[Gantt bars for Cluster Type SA 2nrs Piezometer, Extensometer and Settlement Marker Cluster inside Cells]													
<b>SA-1 K048 Portion B</b>				[Gantt bars for SA-1 K048 Portion B]													
CTSA1-010	Installation of SA-1 C048 (within 10days after filling C048) PB	21-Mar-14 A	01-Apr-14 A	[Gantt bar for CTSA1-010]													
CTSA1-020	Monitoring of SA-1 C048 PB by weekly for subsequent 10mths	02-Apr-14 A	02-Feb-15 A	[Gantt bar for CTSA1-020]													
<b>SA-2 C113 Portion C2a</b>				[Gantt bars for SA-2 C113 Portion C2a]													
CTSA2-010	Installation of SA-2 C113 (within 10days after filling C113) PC2a	21-Mar-14 A	01-Apr-14 A	[Gantt bar for CTSA2-010]													
CTSA2-020	Monitoring of SA-2 C113 PC2a by weekly for subsequent 10mths	02-Apr-14 A	02-Feb-15 A	[Gantt bar for CTSA2-020]													
<b>Cluster Type SB 2nrs Incliner Cluster inside cells</b>				[Gantt bars for Cluster Type SB 2nrs Incliner Cluster inside cells]													
<b>SB-1 K049 Portion B</b>				[Gantt bars for SB-1 K049 Portion B]													
CTSB1-010	Installation of SB-1 K049 PB	21-Mar-14 A	27-Mar-14 A	[Gantt bar for CTSB1-010]													
<b>SB-2 C112 Portion C2a</b>				[Gantt bars for SB-2 C112 Portion C2a]													
CTSB2-010	Installation of SB-2 C112 PC2a	21-Mar-14 A	27-Mar-14 A	[Gantt bar for CTSB2-010]													
<b>Cluster Type SC 3nrs Strain Guage and Incliner Cluster inside cells</b>				[Gantt bars for Cluster Type SC 3nrs Strain Guage and Incliner Cluster inside cells]													
<b>SC-1 K044 Portion B</b>				[Gantt bars for SC-1 K044 Portion B]													
CTSC1-010	Installation of SC-1 K044 PB	21-Mar-14 A	21-Mar-14 A	[Gantt bar for CTSC1-010]													
<b>SC-2 C074 Portion E1</b>				[Gantt bars for SC-2 C074 Portion E1]													
CTSC2-010	Installation of SC-2 C074 PE1	21-Mar-14 A	21-Mar-14 A	[Gantt bar for CTSC2-010]													
<b>Cluster Type SD 26nrs Instrumentation and CPT Cluster behind cells</b>				[Gantt bars for Cluster Type SD 26nrs Instrumentation and CPT Cluster behind cells]													
<b>Portion B</b>				[Gantt bars for Portion B]													
SD-01 K014		14-May-14 A	29-May-14 A	[Gantt bar for SD-01 K014]													

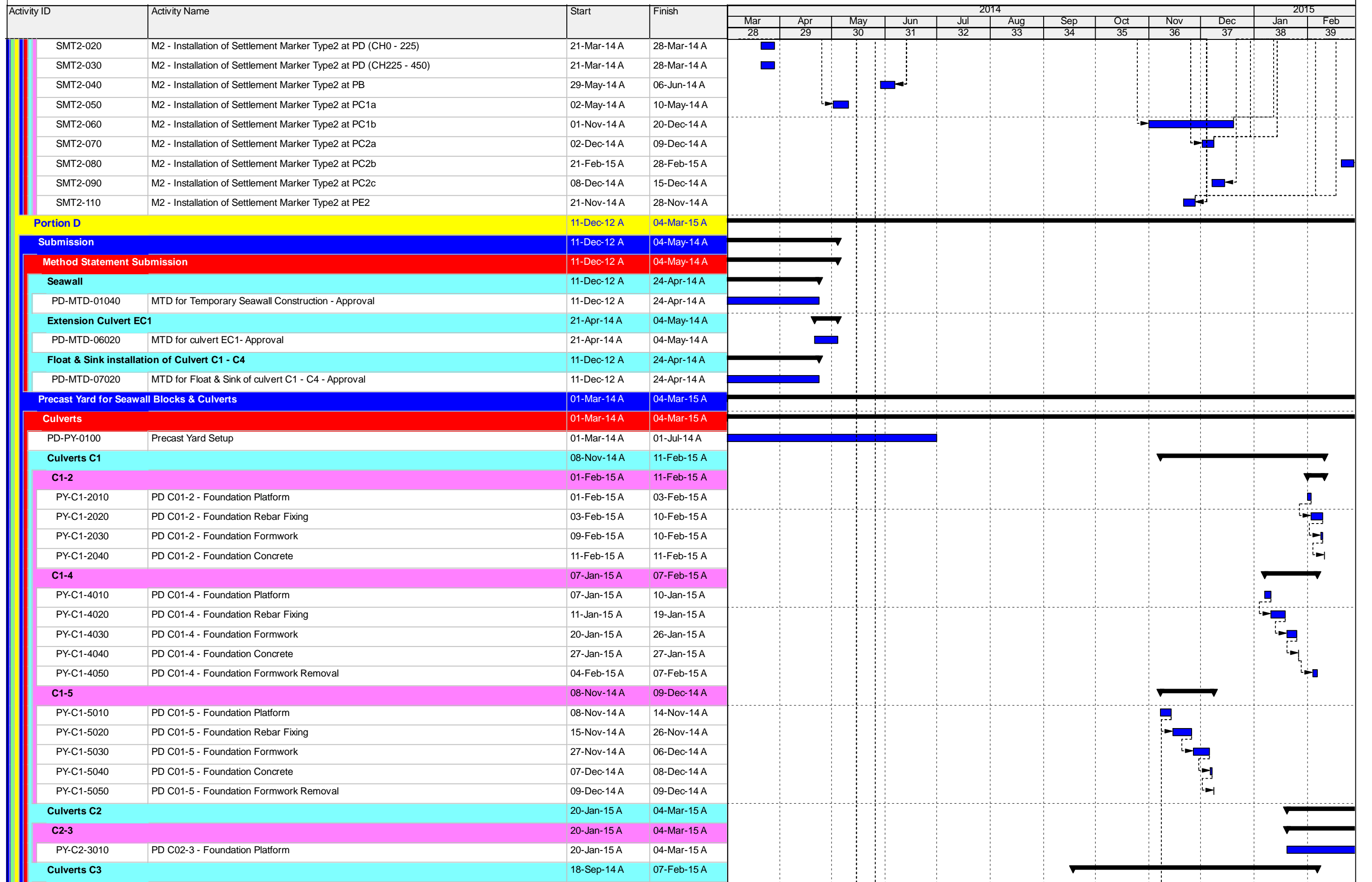
█ Remaining Level of Effort   
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▬ Actual Level of Effort   
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Activity ID	Activity Name	Start	Finish	2014							2015								
				Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb				
				28	29	30	31	32	33	34	35	36	37	38	39				
CTSD-010	Installation of SD-01 (K014) PB	14-May-14 A	29-May-14 A																
SD-02 K019		12-May-14 A	16-Jun-14 A																
CTSD-020	Installation of SD-02 (K019) PB	12-May-14 A	16-Jun-14 A																
SD-03 K023		12-May-14 A	17-Jun-14 A																
CTSD-030	Installation of SD-03 (K023) PB	12-May-14 A	17-Jun-14 A																
SD-04 K028		21-Mar-14 A	29-Apr-14 A																
CTSD-040	Installation of SD-04 (K028) PB	21-Mar-14 A	29-Apr-14 A																
SD-05 K033		21-Mar-14 A	29-Apr-14 A																
CTSD-050	Installation of SD-05 (K033) PB	21-Mar-14 A	29-Apr-14 A																
SD-06 K038		21-Mar-14 A	29-May-14 A																
CTSD-060	Installation of SD-06 (K038) PB	21-Mar-14 A	29-May-14 A																
SD-07 K042		22-Apr-14 A	29-May-14 A																
CTSD-070	Installation of SD-07 (K042) PB	22-Apr-14 A	29-May-14 A																
SD-08 K047		03-Jun-14 A	08-Jul-14 A																
CTSD-080	Installation of SD-08 (K047) PB	03-Jun-14 A	08-Jul-14 A																
SD-09 K051		07-Jun-14 A	12-Jul-14 A																
CTSD-090	Installation of SD-09 (K051) PB	07-Jun-14 A	12-Jul-14 A																
Portion E2		09-Feb-15 A	16-Feb-15 A																
SD-10 K056		09-Feb-15 A	16-Feb-15 A																
CTSD-100	Installation of SD-10 (K056) PE2	09-Feb-15 A	16-Feb-15 A																
SD-11 C061		09-Feb-15 A	16-Feb-15 A																
CTSD-110	Installation of SD-11 (C061) PE2	09-Feb-15 A	16-Feb-15 A																
SD-12 C066		09-Feb-15 A	16-Feb-15 A																
CTSD-120	Installation of SD-12 (C066) PE2	09-Feb-15 A	16-Feb-15 A																
Portion C2a		15-Dec-14 A	18-Feb-15 A																
SD-20 C104		15-Dec-14 A	17-Feb-15 A																
CTSD-200	Installation of SD-20 (C104) PC2a	15-Dec-14 A	17-Feb-15 A																
SD-21 C108		02-Feb-15 A	18-Feb-15 A																
CTSD-210	Installation of SD-21 (C108) PC2a	02-Feb-15 A	18-Feb-15 A																
SD-22 C113		21-Jan-15 A	18-Feb-15 A																
CTSD-220	Installation of SD-22 (C113) PC2a	21-Jan-15 A	18-Feb-15 A																
SD-23 C118		21-Jan-15 A	18-Feb-15 A																
CTSD-230	Installation of SD-23 (C118) PC2a	21-Jan-15 A	18-Feb-15 A																
Cluster Type SE 26nrs Surface movement marker cluster at top of cell and sloping seawall		21-Mar-14 A	11-Nov-14 A																
CTSE-010	Installation of SE-01 (K017) PB	12-May-14 A	19-May-14 A																
CTSE-020	Installation of SE-02 (K021) PB	12-May-14 A	19-May-14 A																
CTSE-030	Installation of SE-03 (K026) PB	12-May-14 A	19-May-14 A																
CTSE-040	Installation of SE-04 (K031) PB	21-Mar-14 A	28-Mar-14 A																
CTSE-050	Installation of SE-05 (K035) PB	21-Mar-14 A	28-Mar-14 A																
CTSE-060	Installation of SE-06 (K043) PB	22-Apr-14 A	29-Apr-14 A																
CTSE-070	Installation of SE-07 (K046) PB	03-Jun-14 A	10-Jun-14 A																
CTSE-080	Installation of SE-08 (K049) PB	07-Jun-14 A	14-Jun-14 A																
CTSE-090	Installation of SE-09 (K052) PE2	14-May-14 A	22-May-14 A																

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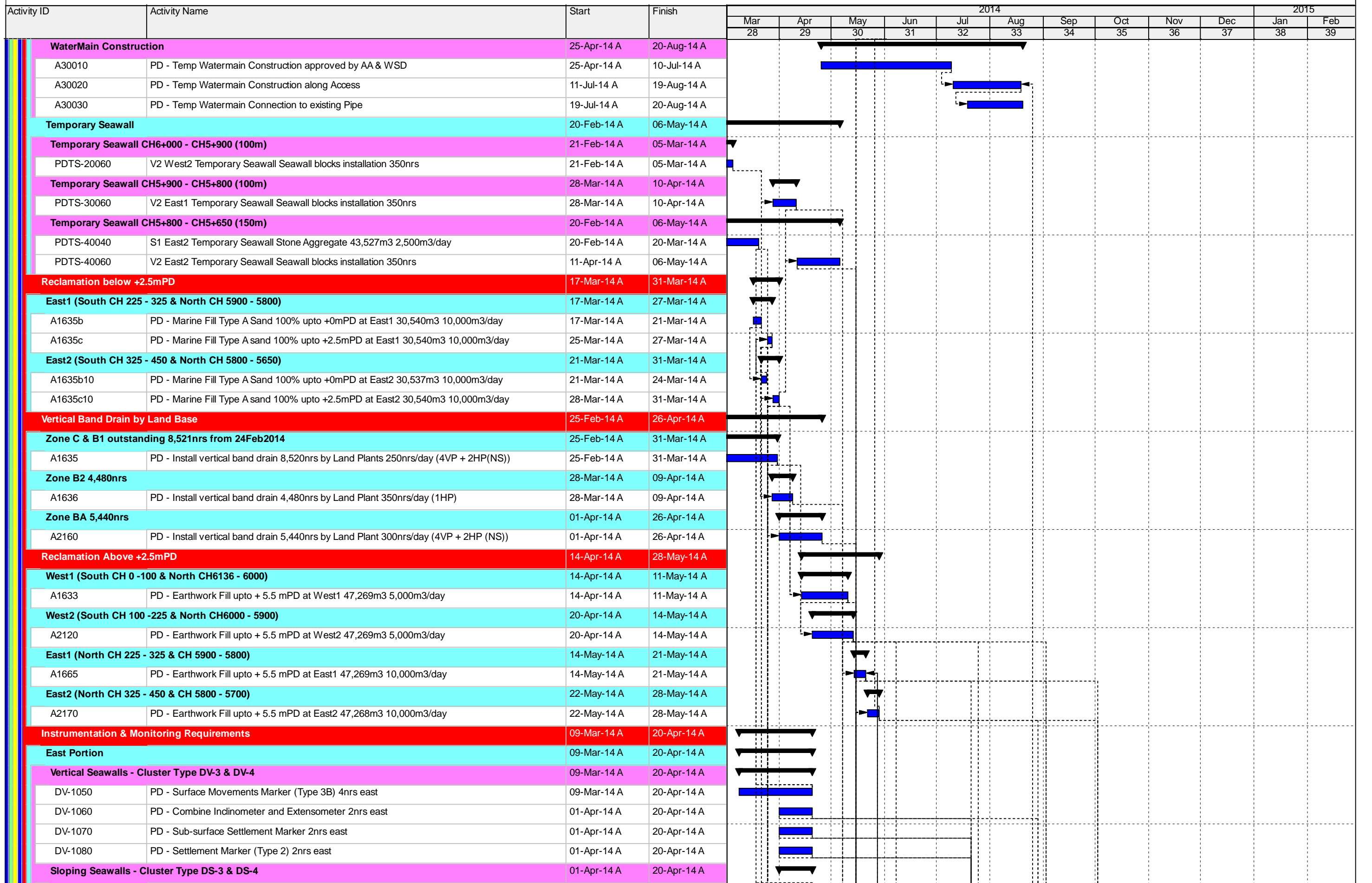
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Activity ID	Activity Name	Start	Finish	2014												2015			
				Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb				
				28	29	30	31	32	33	34	35	36	37	38	39				
<b>C3-2</b>				29-Dec-14 A	07-Feb-15 A														
PY-C3-2010	PD C03-2 - Foundation Platform	29-Dec-14 A	31-Dec-14 A																
PY-C3-2020	PD C03-2 - Foundation Rebar Fixing	02-Jan-15 A	06-Jan-15 A																
PY-C3-2030	PD C03-2 - Foundation Formwork	07-Jan-15 A	12-Jan-15 A																
PY-C3-2040	PD C03-2 - Foundation Concrete	14-Jan-15 A	14-Jan-15 A																
PY-C3-2050	PD C03-2 - Foundation Formwork Removal	15-Jan-15 A	16-Jan-15 A																
PY-C3-2060	PD C03-2 - Wall internal Formwork	28-Jan-15 A	30-Jan-15 A																
PY-C3-2070	PD C03-2 - Wall Rebar Fixing	31-Jan-15 A	06-Feb-15 A																
PY-C3-2080	PD C03-2 - Wall External Formwork	02-Feb-15 A	06-Feb-15 A																
PY-C3-2090	PD C03-2 - Wall Concrete	07-Feb-15 A	07-Feb-15 A																
<b>C3-3</b>				18-Sep-14 A	14-Dec-14 A														
PY-C3-3000	PD C03-3 (38.84m) Casting	18-Sep-14 A	14-Dec-14 A																
<b>C3-4</b>				22-Sep-14 A	04-Jan-15 A														
PY-C3-4010	PD C03-4 - Foundation Platform	22-Sep-14 A	25-Sep-14 A																
PY-C3-4020	PD C03-4 - Foundation Rebar Fixing	14-Oct-14 A	22-Oct-14 A																
PY-C3-4030	PD C03-4 - Foundation Formwork	10-Nov-14 A	13-Nov-14 A																
PY-C3-4040	PD C03-4 - Foundation Concrete	14-Nov-14 A	15-Nov-14 A																
PY-C3-4050	PD C03-4 - Foundation Formwork Removal	16-Nov-14 A	16-Nov-14 A																
PY-C3-4060	PD C03-4 - Wall internal Formwork	08-Dec-14 A	14-Dec-14 A																
PY-C3-4070	PD C03-4 - Wall Rebar Fixing	11-Dec-14 A	14-Dec-14 A																
PY-C3-4080	PD C03-4 - Wall External Formwork	15-Dec-14 A	16-Dec-14 A																
PY-C3-4090	PD C03-4 - Wall Concrete	17-Dec-14 A	18-Dec-14 A																
PY-C3-4100	PD C03-4 - Wall External Formwork Removal	19-Dec-14 A	20-Dec-14 A																
PY-C3-4110	PD C03-4 - Wall Internal Formwork Removal	29-Dec-14 A	04-Jan-15 A																
PY-C3-4120	PD C03-4 - Top Slab Formwork Removal	29-Dec-14 A	04-Jan-15 A																
<b>C3-5</b>				20-Oct-14 A	25-Jan-15 A														
PY-C3-5010	PD C03-5 - Foundation Platform	20-Oct-14 A	25-Oct-14 A																
PY-C3-5020	PD C03-5 - Foundation Rebar Fixing	26-Oct-14 A	03-Nov-14 A																
PY-C3-5030	PD C03-5 - Foundation Formwork	17-Nov-14 A	23-Nov-14 A																
PY-C3-5040	PD C03-5 - Foundation Concrete	24-Nov-14 A	25-Nov-14 A																
PY-C3-5050	PD C03-5 - Foundation Formwork Removal	26-Nov-14 A	26-Nov-14 A																
PY-C3-5060	PD C03-5 - Wall internal Formwork	14-Dec-14 A	25-Dec-14 A																
PY-C3-5070	PD C03-5 - Wall Rebar Fixing	26-Dec-14 A	03-Jan-15 A																
PY-C3-5080	PD C03-5 - Wall External Formwork	01-Jan-15 A	07-Jan-15 A																
PY-C3-5090	PD C03-5 - Wall Concrete	09-Jan-15 A	09-Jan-15 A																
PY-C3-5100	PD C03-5 - Wall External Formwork Removal	15-Jan-15 A	15-Jan-15 A																
PY-C3-5110	PD C03-5 - Wall Internal Formwork Removal	18-Jan-15 A	18-Jan-15 A																
PY-C3-5120	PD C03-5 - Top Slab Formwork Removal	25-Jan-15 A	25-Jan-15 A																
<b>Culverts C4</b>				17-Jul-14 A	01-Feb-15 A														
<b>C4-2</b>				15-Nov-14 A	01-Feb-15 A														
PY-C4-2010	PD C04-2 - Foundation Platform	15-Nov-14 A	18-Nov-14 A																
PY-C4-2020	PD C04-2 - Foundation Rebar Fixing	12-Dec-14 A	18-Dec-14 A																
PY-C4-2030	PD C04-2 - Foundation Formwork	19-Dec-14 A	22-Dec-14 A																

█ Remaining Level of Effort   
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Activity ID	Activity Name	Start	Finish	2014							2015					
				Mar 28	Apr 29	May 30	Jun 31	Jul 32	Aug 33	Sep 34	Oct 35	Nov 36	Dec 37	Jan 38	Feb 39	
PY-C4-2040	PD C04-2 - Foundation Concrete	23-Dec-14 A	23-Dec-14 A													
PY-C4-2050	PD C04-2 - Foundation Formwork Removal	27-Dec-14 A	28-Dec-14 A													
PY-C4-2060	PD C04-2 - Wall internal Formwork	03-Jan-15 A	20-Jan-15 A													
PY-C4-2070	PD C04-2 - Wall Rebar Fixing	08-Jan-15 A	20-Jan-15 A													
PY-C4-2080	PD C04-2 - Wall External Formwork	16-Jan-15 A	20-Jan-15 A													
PY-C4-2090	PD C04-2 - Wall Concrete	21-Jan-15 A	21-Jan-15 A													
PY-C4-2100	PD C04-2 - Wall External Formwork Removal	01-Feb-15 A	01-Feb-15 A													
<b>C4-3</b>		17-Jul-14 A	18-Oct-14 A													
PY-C4-0300	PD C04-3 (38.84m) Casting	17-Jul-14 A	18-Oct-14 A													
<b>C4-4</b>		04-Sep-14 A	15-Nov-14 A													
PY-C4-4000	PD C04-4 (38.84m) Casting	04-Sep-14 A	15-Nov-14 A													
<b>C4-5</b>		02-Dec-14 A	31-Jan-15 A													
PY-C4-5010	PD C04-5 - Foundation Platform	02-Dec-14 A	05-Dec-14 A													
PY-C4-5020	PD C04-5 - Foundation Rebar Fixing	02-Dec-14 A	05-Dec-14 A													
PY-C4-5030	PD C04-5 - Foundation Formwork	19-Dec-14 A	25-Dec-14 A													
PY-C4-5040	PD C04-5 - Foundation Concrete	26-Dec-14 A	31-Dec-14 A													
PY-C4-5050	PD C04-5 - Foundation Formwork Removal	31-Dec-14 A	31-Dec-14 A													
PY-C4-5060	PD C04-5 - Wall internal Formwork	06-Jan-15 A	06-Jan-15 A													
PY-C4-5070	PD C04-5 - Wall Rebar Fixing	20-Jan-15 A	30-Jan-15 A													
PY-C4-5080	PD C04-5 - Wall External Formwork	25-Jan-15 A	29-Jan-15 A													
PY-C4-5090	PD C04-5 - Wall Concrete	31-Jan-15 A	31-Jan-15 A													
<b>Site Construction</b>		20-Feb-14 A	27-Dec-14 A													
<b>Seawall Construction</b>		20-Feb-14 A	20-Aug-14 A													
<b>Access at Portion D</b>		01-Mar-14 A	20-Aug-14 A													
<b>Existing Road to Portion D</b>		11-Mar-14 A	20-May-14 A													
AA0020	Set up the TTA (Stage 1)	22-Mar-14 A	22-Mar-14 A													
AA0030	Remove the Existing Steel Vehicle Parapet	15-Apr-14 A	16-Apr-14 A													
AA0040	Saw Cutting the Top Part of the Footing of the Parapet and Profile Barrier	17-Apr-14 A	17-Apr-14 A													
AA0050	Place the Precast Concrete Block along both side of the Access	07-Apr-14 A	10-Apr-14 A													
AA0060	Excavate the Footing of the Temporary Bridge	11-Mar-14 A	12-Mar-14 A													
AA0070	Shuttering Formworks for the Footing	14-Mar-14 A	15-Mar-14 A													
AA0080	Concrete the Footing	18-Mar-14 A	18-Mar-14 A													
AA0090	Remove Formworks from Footing	20-Mar-14 A	20-Mar-14 A													
AA0100	Laying and Compact the Aggregate	03-Apr-14 A	04-Apr-14 A													
AA0110	Laying and Compact the Sub-base Material	10-Apr-14 A	11-Apr-14 A													
AA0120	Concreting the Pavement	12-Apr-14 A	12-Apr-14 A													
AA0130	Curing the Pavement	14-Apr-14 A	17-Apr-14 A													
AA0140	Set up the TTA (Stage 3 and Stage 4) for access opening	19-May-14 A	20-May-14 A													
<b>Construction of Temporary Bridge</b>		01-Mar-14 A	30-Apr-14 A													
AA1030	Erection of Concrete Block Footing	01-Mar-14 A	09-Mar-14 A													
AA1040	Installation of Hinge Joint	10-Mar-14 A	17-Mar-14 A													
AA1050	Delivery of Steelworks	18-Mar-14 A	20-Mar-14 A													
AA1060	Installation of Steel Bridge	21-Mar-14 A	30-Apr-14 A													

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█ Remaining Level of Effort   
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Activity ID	Activity Name	Actual Duration	Start	Finish	2015												2016		
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
<b>53rd_8 Monthly Progress Report Status as on 21Apr2016</b>																			
<b>Work Zone, as defined in PS Clause 1.03(6)</b>																			
<b>Portion A, B, C &amp; E</b>																			
<b>Portion A, B, C &amp; E</b>																			
<b>Seawall</b>																			
<b>Cellular Structures</b>																			
<b>Cellular Main Cells 85cells</b>																			
<b>Full Guide Frames Method 85cells</b>																			
<b>Portion E1 C078 &amp; C079 &amp; Portion E2 C065 &amp; C066 4cells</b>																			
CSE1-040-0C	PE1 C078 Sheetpiles Collection	40	26-Jan-15 A	12-Mar-15 A															
CSE1-040-1C	PE1 C079 Sheetpiles Collection	35	02-Feb-15 A	14-Mar-15 A															
CSE1-040-0C	PE1 C078 Sheetpiles Driving	6	13-Mar-15 A	19-Mar-15 A															
CSE1-040-1C	PE1 C079 Sheetpiles Driving	6	15-Mar-15 A	21-Mar-15 A															
CSE1-040-0C	PE1 C078 Crane Plant removal	3	20-Mar-15 A	23-Mar-15 A															
CSE1-040-1C	PE1 C079 Extension Sheetpiles 2m removal	12	20-Mar-15 A	01-Apr-15 A															
CSE1-040-1C	PE1 C079 Crane Plant removal	2	22-Mar-15 A	23-Mar-15 A															
CSE1-040-1C	PE1 C079 Backfill inside cell stg1 3,200m3	2	24-Mar-15 A	26-Mar-15 A															
CSE1-040-0C	PE1 C078 Backfill inside cell stg1 3,200m3	3	24-Mar-15 A	27-Mar-15 A															
CSE1-040-0C	PE1 C078 Extension Sheetpiles 2m removal	4	28-Mar-15 A	01-Apr-15 A															
CSE1-040-0C	PE1 C078 Removal of Crane and Temp Guide Frame	1	03-Apr-15 A	04-Apr-15 A															
CSE1-040-1C	PE1 C079 Removal of Crane & Temp Guide Frame	0	04-Apr-15 A	04-Apr-15 A															
CSE1-040-0C	PE1 C078 Removal of underwater guard ring	1	05-Apr-15 A	06-Apr-15 A															
CSE1-040-01	PE1 C078 Removal of Temp Piles	0	08-Apr-15 A	08-Apr-15 A															
CSE1-040-01	PE1 C078 Backfill inside cell stg2 5,752m3	4	09-Apr-15 A	13-Apr-15 A															
CSE1-040-1C	PE1 C079 Removal of underwater guard ring	2	15-Apr-15 A	17-Apr-15 A															
CSE1-040-11	PE1 C079 Removal of Temp Piles	0	18-Apr-15 A	18-Apr-15 A															
CSE1-040-11	PE1 C079 Backfill inside cell stg2 6,134m3	5	19-Apr-15 A	24-Apr-15 A															
CSE1-040-11	PE1 C079 Sand Fill to Top	0	30-Jun-15 A	30-Jun-15 A															
CSE1-040-01	PE1 C078 Sand Fill to Top	1	01-Jul-15 A	02-Jul-15 A															
<b>Connecting Arcs</b>																			
<b>Portion E1 between C077/078 to C079/080 3nrs</b>																			
<b>C077/078</b>																			
CAE1-2010	PE1 C077/078 - Temp Piles Drivening	4	09-Apr-15 A	13-Apr-15 A															
CAE1-2020	PE1 C077/078 - Temp Guide Frame Installation	0	14-Apr-15 A	14-Apr-15 A															
CAE1-2030	PE1 C077/078 - ICE Certificate & Form 5	0	15-Apr-15 A	15-Apr-15 A															
CAE1-2040	PE1 C077/078 - Sea Side Arc Sheetpile Assemby	8	17-Apr-15 A	25-Apr-15 A															
CAE1-2050	PE1 C077/078 - Sea Side Arc Sheetpile Drivening	1	26-Apr-15 A	27-Apr-15 A															
CAE1-2060	PE1 C077/078 - Land Side Arc Sheetpile Assemby	7	29-Apr-15 A	06-May-15 A															
CAE1-2070	PE1 C077/078 - Land Side Arc Sheetpile Drivening	3	07-May-15 A	10-May-15 A															
CAE1-2100	PE1 C077/078 - Backfill	8	10-May-15 A	18-May-15 A															
CAE1-2080	PE1 C077/078 - Removal of Guide Frame	0	12-May-15 A	12-May-15 A															
CAE1-2090	PE1 C077/078 - Removal of Temp Piles	2	13-May-15 A	15-May-15 A															
CAE1-2110	PE1 C077/078 Sand Fill to Top	1	01-Jul-15 A	02-Jul-15 A															
<b>C078/079</b>																			
CAE1-4010	PE1 C078/079 - Temp Piles Drivening	2	13-May-15 A	15-May-15 A															
CAE1-4020	PE1 C078/079 - Temp Guide Frame Installation	1	17-May-15 A	18-May-15 A															
CAE1-4030	PE1 C078/079 - ICE Certificate & Form 5	1	19-May-15 A	20-May-15 A															
CAE1-4040	PE1 C078/079 - Sea Side Arc Sheetpile Assemby	6	21-May-15 A	26-May-15 A															
CAE1-4050	PE1 C078/079 - Sea Side Arc Sheetpile Drivening	3	27-May-15 A	29-May-15 A															
CAE1-4060	PE1 C078/079 - Land Side Arc Sheetpile Assemby	12	03-Jun-15 A	14-Jun-15 A															
CAE1-4065	PE1 C078/079 - Machine Repair	8	10-Jun-15 A	17-Jun-15 A															
CAE1-4070	PE1 C078/079 - Land Side Arc Sheetpile Drivening	3	15-Jun-15 A	18-Jun-15 A															
CAE1-4080	PE1 C078/079 - Removal of Guide Frame	0	24-Jun-15 A	24-Jun-15 A															
CAE1-4090	PE1 C078/079 - Removal of Temp Piles	1	26-Jun-15 A	27-Jun-15 A															
CAE1-4100	PE1 C078/079 - Backfill	1	28-Jun-15 A	29-Jun-15 A															
<b>C079/080</b>																			
CAE1-3010	PE1 C079/080 - Temp Piles Drivening	2	17-Apr-15 A	19-Apr-15 A															
CAE1-3020	PE1 C079/080 - Temp Guide Frame Installation	0	24-Apr-15 A	24-Apr-15 A															
CAE1-3030	PE1 C079/080 - ICE Certificate & Form 5	0	27-Apr-15 A	27-Apr-15 A															
CAE1-3040	PE1 C079/080 - Sea Side Arc Sheetpile Assemby	7	29-Apr-15 A	06-May-15 A															
CAE1-3050	PE1 C079/080 - Sea Side Arc Sheetpile Drivening	1	07-May-15 A	08-May-15 A															
CAE1-3060	PE1 C079/080 - Land Side Arc Sheetpile Assemby	12	18-May-15 A	29-May-15 A															

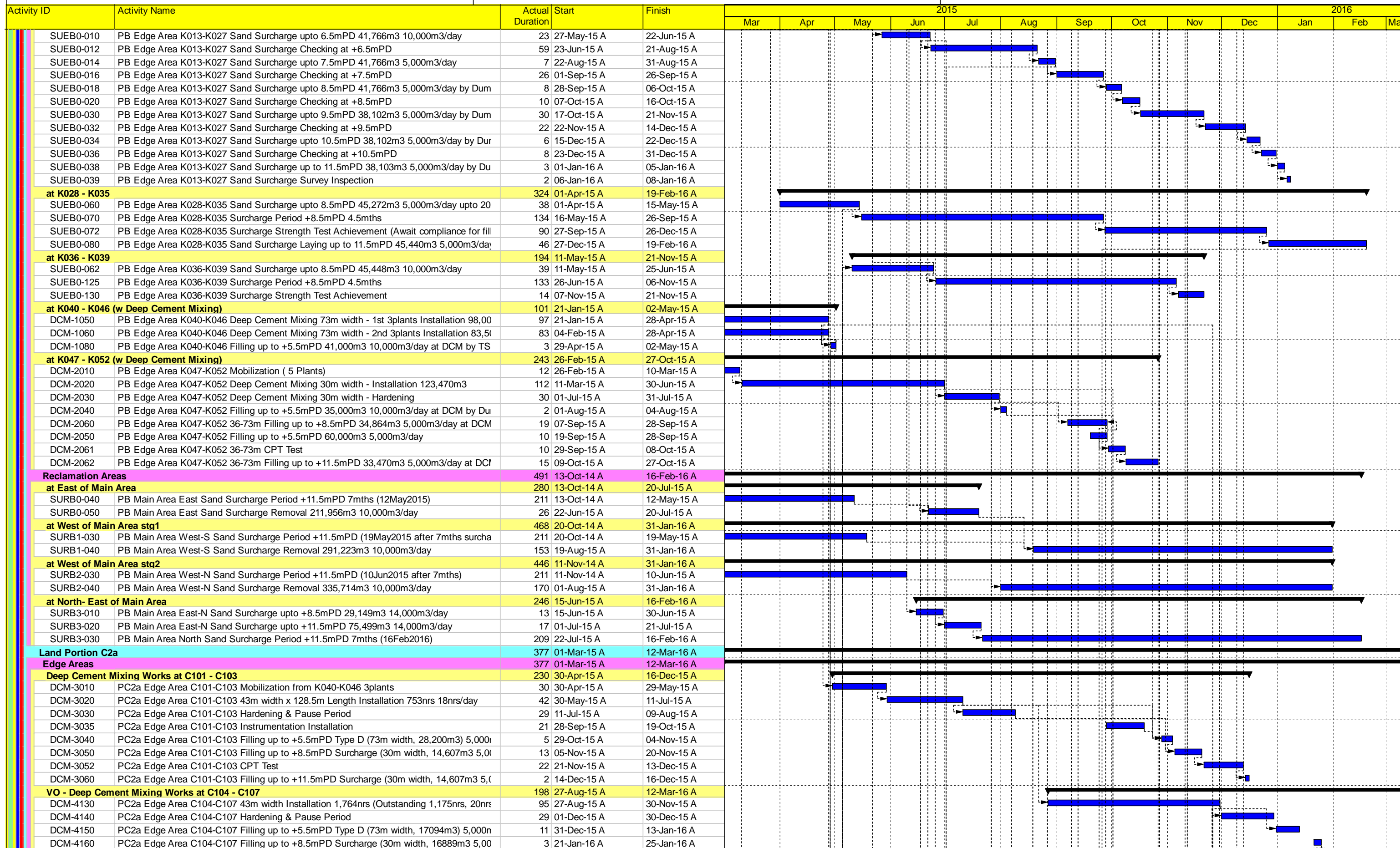
█ Remaining Level of Effort ◆ Milestone  
█ Actual Level of Effort ▶ Summary  
█ Actual Work  
█ Remaining Work  
█ Critical Remaining Work



Activity ID	Activity Name	Actual Duration	Start	Finish	2015												2016	
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
AF-RFB2-030	PB at K040 - K048 on cells Rock Armour 1-3ton 11,802m3, 237m3/day	50	11-Apr-15 A	31-May-15 A														
AF-RFB2-040	PB at K040 - K048 in front of cells Removal of temporary rockfill 3.5m/day	84	28-Apr-15 A	21-Jul-15 A														
AF-RFB2-060	PB at K040 - K048 in front of cells Rock Armour 1-3ton 11,802m3 141m3/day	84	08-May-15 A	31-Jul-15 A														
<b>Accropode</b>		75	01-Sep-15 A	15-Nov-15 A														
<b>Accropode Production about 18,000nrs</b>		75	01-Sep-15 A	15-Nov-15 A														
OP1-00010	Trial Mix and Casting Yard Establish	75	01-Sep-15 A	15-Nov-15 A														
OP1-00020	Mould Fabrication	45	01-Oct-15 A	15-Nov-15 A														
<b>Reclamation</b>		338	31-Dec-14 A	04-Dec-15 A														
<b>Marine Fill</b>		118	01-Jul-15 A	16-Nov-15 A														
<b>Land Portion E1</b>		118	01-Jul-15 A	16-Nov-15 A														
MFE1-005	PE1 Marine Sand Fill upto -8.0mPD 51,373m3	16	01-Jul-15 A	20-Jul-15 A														
MFE1-010	PE1 Marine Sand Fill upto -6.0mPD 13,725m3 5,000m3/day Layer by Layer	3	21-Sep-15 A	23-Sep-15 A														
MFE1-020	PE1 Marine Sand Fill -6.0mPD to +0.0mPD 165,257m3 5,000m3/day Layer by Layer	32	24-Sep-15 A	31-Oct-15 A														
MFE1-030	PE1 Marine Sand Fill 0.0mPD to +2.5mPD 125,000m3 10,000m3/day	12	02-Nov-15 A	16-Nov-15 A														
<b>Vertical Band Drains by Land Plant</b>		11	17-Nov-15 A	30-Nov-15 A														
<b>Land Portion E1 12,243nrs by Land</b>		11	17-Nov-15 A	30-Nov-15 A														
VBDE1-10	PE1 Vertical Band Drains 3,478nrs by land plant (400nrs/day) (2HP)	11	17-Nov-15 A	30-Nov-15 A														
<b>Earthwork Fill</b>		338	31-Dec-14 A	04-Dec-15 A														
<b>Land Portion C2a</b>		194	23-Mar-15 A	02-Oct-15 A														
EFC2a-051	PC2a Edge Area C108-C112 Remedial works by additional band drains (outstanding 1,659	85	23-Mar-15 A	15-Jun-15 A														
EFC2a-052	PC2a Edge Area C108-C112 Install Instrumentation 2points	29	01-Jun-15 A	04-Jul-15 A														
EFC2a-055	PC2a Edge Area NorthWest Earthwork Fill Type D Sand 100% stg2 50,077m3 10,000m/d	6	16-Jun-15 A	22-Jun-15 A														
EFC2a-065	PC2a Edge Area NorthWest Earthwork Fill Type D Sand 100% stg3 9,668m3 5,000m/day	2	01-Oct-15 A	02-Oct-15 A														
<b>Land Portion E2</b>		53	01-Mar-15 A	02-May-15 A														
EFE2-024	PE2 North(N) -Edge 100m Type D Earthwork Sand Fill upto +5.5mPD 43,745m3 10,000m	25	01-Mar-15 A	31-Mar-15 A														
EFE2-026	PE2 North(N) -Edge 100m Type D Earthwork Sand Fill upto +5.5mPD 11,255m3 14,000m	1	01-May-15 A	02-May-15 A														
<b>Land Portion E1</b>		15	17-Nov-15 A	04-Dec-15 A														
EFE1-010	PE1 Type D Earthwork Sand Fill upto +5.5mPD 118,263m3 5,000m3/day	15	17-Nov-15 A	04-Dec-15 A														
<b>Land Portion C2b</b>		192	31-Dec-14 A	30-Jul-15 A														
EFC2b-010	PC2b Earthwork Fill Type B public w compaction upto +5.5mPD 168,546m3 5,000m3/day	192	31-Dec-14 A	30-Jul-15 A														
<b>Land Portion C2c</b>		241	31-Dec-14 A	20-Sep-15 A														
EFC2c-010	PC2c Earthwork Fill Type B public w compaction upto +5.5mPD 276,853m3 5,000m3/day	241	31-Dec-14 A	20-Sep-15 A														
<b>Surcharge</b>		593	05-Sep-14 A	20-Apr-16 A														
<b>Portion A Surcharge</b>		471	05-Sep-14 A	20-Dec-15 A														
<b>Main Reclamation Areas</b>		325	05-Sep-14 A	27-Jul-15 A														
<b>A2 East</b>		239	05-Sep-14 A	02-May-15 A														
SURA0-420	PA A2 East Surcharge Period as +11.5mPD 8mths (2 May 2015)	239	05-Sep-14 A	02-May-15 A														
SURA0-430	PA A2 East Surcharge Removal 75,757m3 10,000m3/day	11	09-Mar-15 A	20-Mar-15 A														
<b>Area of CLP substation</b>		325	05-Sep-14 A	27-Jul-15 A														
SUEA2-0070	PA CLP Substation Sand Surcharge Period as +11.5mPD 8mths (2 May2015)	239	05-Sep-14 A	02-May-15 A														
SUEA2-0080	PA CLP Substation Sand Surcharge Removal on Main Area 60,410m3 10,000m3/day	5	21-Jul-15 A	27-Jul-15 A														
<b>Edge Area From SOL offset within 180m to 50m</b>		427	19-Oct-14 A	20-Dec-15 A														
<b>CH5+110 to 5+440 Portion A North</b>		427	19-Oct-14 A	20-Dec-15 A														
<b>Area of 50m to 120 from Offset</b>		266	28-Dec-14 A	20-Sep-15 A														
SUEA1-2090	PA North 120m-50m from Offset Surcharge Period +11.5mPD 8mths (24Aug2015)	239	28-Dec-14 A	24-Aug-15 A														
SUEA1-2100	PA North 120m-73m from Offset Surcharge Removal 64,941m3 10,000m3/day	11	09-Sep-15 A	20-Sep-15 A														
<b>Area of 0 to 50m from Offset</b>		427	19-Oct-14 A	20-Dec-15 A														
SUEA1-2180	PA North 50m-10m Surcharge Period +7.0mPD 8mths (15Jun2015)	239	19-Oct-14 A	15-Jun-15 A														
SUEA1-2150	PA North 50m-40m Surcharge Sand Laying upto +11.5mPD 87520m3 8,000m3/day	31	14-Mar-15 A	20-Apr-15 A														
SUEA1-2190	PA North 73m-10m Surcharge Sand Removal 80,000m3 10,000m3/day	7	12-Dec-15 A	20-Dec-15 A														
<b>CH5+440 to 5+650 Portion A South</b>		358	15-Nov-14 A	08-Nov-15 A														
<b>Area of 40m - 120m from Offset (other CLP area)</b>		247	06-Mar-15 A	08-Nov-15 A														
<b>Upto +11.5mPD Area</b>		247	06-Mar-15 A	08-Nov-15 A														
SUEA3-0060	PA South 120m-40m from SOL Surcharge Sand Laying upto +11.5mPD 60,480m3 8,000n	6	06-Mar-15 A	13-Mar-15 A														
SUEA3-0070	PA South Surcharge Period +11.5mPD 8mths (8 Nov2015)	239	14-Mar-15 A	08-Nov-15 A														
SUEA3-0080	PA South Surcharge Removal 111,581m3 10,000m3/day	11	21-Oct-15 A	31-Oct-15 A														
<b>Area of 10m - 40m from Offset (other CLP area)</b>		355	15-Nov-14 A	05-Nov-15 A														
SUEA4-0070	PA South 40m-10m Surcharge Period 8mths (12Jul2015)	239	15-Nov-14 A	12-Jul-15 A														
SUEA4-0040	PA South 40m-10m from SOL Surcharge Sand Laying upto +9.5mPD 34,020m3 1,000m3	166	15-Nov-14 A	30-May-15 A														
SUEA4-0080	PA South 40m-10m Surcharge Sand Removal 40,000m3 10,000m3/day	3	02-Nov-15 A	05-Nov-15 A														
<b>Land Portion B</b>		494	13-Oct-14 A	19-Feb-16 A														
SURB3-005	PB Main Area East-N Removal DCM material	14	01-Jun-15 A	14-Jun-15 A														
<b>Edge Areas</b>		394	21-Jan-15 A	19-Feb-16 A														
<b>at K013 - K027</b>		347	26-Jan-15 A	08-Jan-16 A														
SUEB0-007	PB Edge Area K013-K027 Additional Works by Additional Band Drains 8,480nrs	68	26-Jan-15 A	19-Apr-15 A														

█ Remaining Level of Effort    ◆ Milestone  
█ Actual Level of Effort    ▼ Summary  
█ Actual Work  
█ Remaining Work  
█ Critical Remaining Work





- ▬ Remaining Level of Effort ◆ ◆ Milestone
- ▬ Actual Level of Effort ▸ Summary
- ▬ Actual Work
- ▬ Remaining Work
- ▬ Critical Remaining Work





Activity ID	Activity Name	Actual Duration	Start	Finish	2015												2016		
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
DCM-4310	PE2 Edge C056-C057 43m width Installation 229hrs 10hrs/day	27	11-Nov-15 A	08-Dec-15 A															
DCM-4320	PE2 Edge C056-C057 Hardening & Pause Period	41	09-Dec-15 A	19-Jan-16 A															
DCM-4330	PE2 Edge C056-C057 Filling up to +5.5mPD Type D (73m width, 8,547m3) 5,000m3/day	4	11-Jan-16 A	15-Jan-16 A															
DCM-4350	PE2 Edge C056-C057 Filling up to +8.5mPD Surcharge (30m width, 8,547m3 5,000m3/d	1	20-Jan-16 A	21-Jan-16 A															
DCM-4360	PE2 Edge C056-C057 Surcharge CPT Test	9	22-Jan-16 A	31-Jan-16 A															
DCM-4370	PE2 Edge C056-C057 Filling up to +11.5mPD Surcharge (30m width, 8,547m3 5,000m3/c	68	01-Feb-16 A	20-Apr-16 A															
<b>Edge Areas East C052 to C055</b>		<b>387</b>	<b>12-Feb-15 A</b>	<b>05-Mar-16 A</b>															
SURE2-005	PE2 East Edge Sand Period as +5.5mPD 1mth	27	12-Feb-15 A	11-Mar-15 A															
SURE2-402	PE2 Edge C052-C055 300m Zone Sand Surcharge CPT Test	8	29-Sep-15 A	06-Oct-15 A															
SURE2-410	PE2 Edge C052-C055 300m Zone Sand Surcharge Laying upto 8.5mPD 52,773m3 10,00	8	07-Oct-15 A	15-Oct-15 A															
SURE2-420	PE2 Edge C052-C055 300m Zone Sand Surcharge Pause Period at 8.5mPD 4.5mths (27	134	16-Oct-15 A	27-Feb-16 A															
SURE2-425	PE2 Edge C052-C055 300m Zone Sand Surcharge CPT Test at 8.5mPD	6	28-Feb-16 A	05-Mar-16 A															
<b>Land Areas</b>		<b>434</b>	<b>09-Feb-15 A</b>	<b>18-Apr-16 A</b>															
<b>300m to 100m Zone</b>		<b>241</b>	<b>21-Aug-15 A</b>	<b>18-Apr-16 A</b>															
SURE2-510	PE2 Land C052-C056 300m Zone Sand Surcharge Laying upto 8.5mPD stg2 122,640m3	12	21-Aug-15 A	04-Sep-15 A															
SURE2-520	PE2 Land C052-C056 300m Zone Sand Surcharge Laying upto 11.5mPD 116,695m3 5,00	14	05-Sep-15 A	21-Sep-15 A															
SURE2-530	PE2 Land C052-C056 300m Zone Sand Surcharge Period as +11.5mPD 7mths 18Apr201	209	22-Sep-15 A	18-Apr-16 A															
<b>Out of K052 300m</b>		<b>398</b>	<b>09-Feb-15 A</b>	<b>13-Mar-16 A</b>															
SURE2-015	PE2 South Main Sand Surcharge Laying upto 11.5mPD 56,012m3 10,000m3/day by TSHD	57	09-Feb-15 A	20-Apr-15 A															
SURE2-012	PE2 Land C052-C060 Non-Tunnel Sand Surcharge Laying upto 8.5mPD 117,620m3 7,00	24	04-May-15 A	30-May-15 A															
SURE2-018	PE2 Land C052-C060 Non-Tunnel Sand Surcharge Laying upto 11.5mPD 120,758m3 14,C	65	01-Jun-15 A	15-Aug-15 A															
SURE2-020	PE2 Land C052-C060 Non-Tunnel Sand Surcharge Period as +11.5mPD 7mths 13Mar201	210	16-Aug-15 A	13-Mar-16 A															
<b>Land Portion E1</b>		<b>99</b>	<b>01-Dec-15 A</b>	<b>09-Mar-16 A</b>															
<b>Deep Cement Mixing C077 - C080 150m (Exclude VB &amp; RS)</b>		<b>99</b>	<b>01-Dec-15 A</b>	<b>09-Mar-16 A</b>															
DCM-4010	PE1 Edge Area DCM Mobilization from PC2a DCM plant and PE2 cement barge	7	01-Dec-15 A	07-Dec-15 A															
DCM-4020	PE1 Edge Area DCM Installation 415hrs 10hrs/day	29	08-Dec-15 A	06-Jan-16 A															
DCM-4050	PE1 Edge Area DCM Hardening	27	07-Jan-16 A	03-Feb-16 A															
DCM-4060	PE1 Edge Area DCM Filling upto +5.5mPD 25,000m3 5,000m3/day	5	28-Jan-16 A	03-Feb-16 A															
DCM-4080	PE1 Edge Area Surcharge Filling up to +8.5mPD (10,000m3) 10,000m3/day at interface c	1	04-Feb-16 A	05-Feb-16 A															
DCM-4083	PE1 Edge Area Surcharge Pause Period 4.5mths at interface of non DCM area 19Jun2016	32	06-Feb-16 A	09-Mar-16 A															
<b>Edge Areas Excluded 150m of DCM Area</b>		<b>26</b>	<b>05-Dec-15 A</b>	<b>31-Dec-15 A</b>															
SUEE1-005	PE1 Edge +5.5mPD Strength Test	8	05-Dec-15 A	13-Dec-15 A															
SUEE1-010	PE1 Edge Sand Surcharge Laying up to 8.5mPD 126,529m3 10,000m3/day	15	14-Dec-15 A	31-Dec-15 A															
<b>Land Portion C2b</b>		<b>283</b>	<b>01-Jul-15 A</b>	<b>09-Apr-16 A</b>															
<b>Edge Areas</b>		<b>162</b>	<b>01-Aug-15 A</b>	<b>10-Jan-16 A</b>															
SUEC2b-040	PC2b Edge Area CPT Test & Instrumentation Installation at +5.5mPD	106	01-Aug-15 A	15-Nov-15 A															
SUEC2b-050	PC2b Edge Area PBF Surcharge w compaction upto 8.5mPD 12,054m3 5,000m3/day	52	16-Nov-15 A	10-Jan-16 A															
<b>Reclamation Areas</b>		<b>283</b>	<b>01-Jul-15 A</b>	<b>09-Apr-16 A</b>															
<b>North</b>		<b>92</b>	<b>31-Jul-15 A</b>	<b>31-Oct-15 A</b>															
SURC2b-011	PC2b Main Area North PBF Surcharge w compaction upto 8.5mPD 62,964m3 5,000m3/d	67	31-Jul-15 A	10-Oct-15 A															
SURC2b-014	PC2b Main Area North Sand Surcharge Laying upto 11.5mPD 40,000m3 5,000m3/day by	17	12-Oct-15 A	31-Oct-15 A															
<b>South</b>		<b>283</b>	<b>01-Jul-15 A</b>	<b>09-Apr-16 A</b>															
SURC2b-010	PC2b Main Area South PBF Surcharge w compaction upto 8.5mPD 188,893m3 5,000m3/	27	01-Jul-15 A	30-Jul-15 A															
SURC2b-012	PC2b Main Area South PBF Surcharge Laying upto 11.5mPD 128,842m3 10,000m3/day t	35	01-Aug-15 A	11-Sep-15 A															
SURC2b-034	PC2b Main Area South PBF Surcharge Period as +11.5mPD 7mths (9Apr2016)	210	12-Sep-15 A	09-Apr-16 A															
<b>Land Portion C2c</b>		<b>178</b>	<b>01-Sep-15 A</b>	<b>26-Feb-16 A</b>															
<b>Edge Areas</b>		<b>178</b>	<b>01-Sep-15 A</b>	<b>26-Feb-16 A</b>															
SUEC2c-005	PC2c Edge Area PBF CPT Test & Instrumentation Installation at +5.5mPD	80	01-Sep-15 A	20-Nov-15 A															
SUEC2c-010	PC2c Edge Area PBF Surcharge w compaction upto 8.5mPD 43,395m3 5,000m3/day	31	20-Jan-16 A	26-Feb-16 A															
<b>Reclamation Areas</b>		<b>141</b>	<b>01-Sep-15 A</b>	<b>20-Jan-16 A</b>															
<b>West</b>		<b>55</b>	<b>01-Sep-15 A</b>	<b>26-Oct-15 A</b>															
SURC2c-W010	PC2c Main Area Public Surcharge w compaction upto 8.5mPD 79,119m3 5,000m3/day	27	01-Sep-15 A	30-Sep-15 A															
SURC2c-W020	PC2c Main Area Sand Surcharge Laying upto 11.5mPD stg1 80,000m3 10,000m3/day by	21	01-Oct-15 A	26-Oct-15 A															
<b>East</b>		<b>80</b>	<b>01-Nov-15 A</b>	<b>20-Jan-16 A</b>															
SURC2c-E010	PC2c Main Area Public Surcharge w compaction upto 8.5mPD 79,119m3 5,000m3/day	17	01-Nov-15 A	20-Nov-15 A															
SURC2c-E020	PC2c Main Area Sand Surcharge Laying upto 11.5mPD stg2 109,120m3 5,000m3/day by	52	20-Nov-15 A	20-Jan-16 A															
<b>Geotechnical Instrumentation Works</b>		<b>302</b>	<b>16-Dec-14 A</b>	<b>20-Dec-15 A</b>															
<b>Geotechnical Instrumentation Works for Seawalls</b>		<b>302</b>	<b>16-Dec-14 A</b>	<b>20-Dec-15 A</b>															
<b>Cluster Type SD 26hrs Instrumentation and CPT Cluster behind cells</b>		<b>302</b>	<b>16-Dec-14 A</b>	<b>20-Dec-15 A</b>															
<b>Portion E1</b>		<b>13</b>	<b>05-Dec-15 A</b>	<b>20-Dec-15 A</b>															
<b>SD-13 C071</b>		<b>13</b>	<b>05-Dec-15 A</b>	<b>20-Dec-15 A</b>															
CTSD-130	Installation of SD-13 (C071) PE1	13	05-Dec-15 A	20-Dec-15 A															
<b>SD-14 C074</b>		<b>13</b>	<b>05-Dec-15 A</b>	<b>20-Dec-15 A</b>															
CTSD-140	Installation of SD-14 (C074) PE1	13	05-Dec-15 A	20-Dec-15 A															
<b>SD-15 C078</b>		<b>13</b>	<b>05-Dec-15 A</b>	<b>20-Dec-15 A</b>															

- █ Remaining Level of Effort ◆ Milestone
- █ Actual Level of Effort ▶ Summary
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work

Activity ID	Activity Name	Actual Duration	Start	Finish	2015												2016							
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar							
CTSD-150	Installation of SD-15 (C078) PE1	13	05-Dec-15 A	20-Dec-15 A																				
<b>SD-16 C084</b>		<b>13</b>	<b>05-Dec-15 A</b>	<b>20-Dec-15 A</b>																				
CTSD-160	Installation of SD-16 (C084) PE1	13	05-Dec-15 A	20-Dec-15 A																				
<b>SD-17 C089</b>		<b>13</b>	<b>05-Dec-15 A</b>	<b>20-Dec-15 A</b>																				
CTSD-170	Installation of SD-17 (C089) PE1	13	05-Dec-15 A	20-Dec-15 A																				
<b>Portion C2b &amp; C2c</b>																								
<b>SD-18 C094</b>		<b>109</b>	<b>16-Dec-14 A</b>	<b>30-Apr-15 A</b>																				
CTSD-180	Installation of SD-18 (C094) PC2c	109	16-Dec-14 A	30-Apr-15 A																				
<b>SD-19 C099</b>		<b>109</b>	<b>16-Dec-14 A</b>	<b>30-Apr-15 A</b>																				
CTSD-190	Installation of SD-19 (C099) PC2c	109	16-Dec-14 A	30-Apr-15 A																				
<b>Cluster Type SE 26hrs Surface movement marker cluster at top of cell and sloping seawall</b>																								
CTSE-120	Installation of SE-12 (C069) PE2	53	16-Mar-15 A	20-May-15 A																				
<b>Geotechnical Instrumentation Works for Reclamation RA &amp; RB</b>																								
<b>Settlement Marker Type 2</b>																								
SMT2-100	M2 - Installation of Settlement Marker Type2 at PE1	29	17-Nov-15 A	20-Dec-15 A																				
<b>Portion D</b>																								
<b>Precast Yard for Seawall Blocks &amp; Culverts</b>																								
<b>Concrete Blocks</b>																								
PD-PY1-0200	Precast Seawall Blocks for Permanent construction 1,990hrs (3,180 - 1190)	141	01-Aug-15 A	20-Dec-15 A																				
<b>Culverts</b>																								
<b>Culverts C1</b>																								
<b>C1-2</b>																								
PY-C1-2050	PD C01-2 - Foundation Formwork Removal	2	04-Mar-15 A	06-Mar-15 A																				
PY-C1-2060	PD C01-2 - Wall internal Formwork	7	22-Mar-15 A	29-Mar-15 A																				
PY-C1-2070	PD C01-2 - Wall Rebar Fixing	5	30-Mar-15 A	04-Apr-15 A																				
PY-C1-2080	PD C01-2 - Wall External Formwork	7	01-Apr-15 A	08-Apr-15 A																				
PY-C1-2110	PD C01-2 - Wall Internal Formwork Removal	0	09-Apr-15 A	09-Apr-15 A																				
PY-C1-2090	PD C01-2 - Wall Concrete	0	09-Apr-15 A	09-Apr-15 A																				
PY-C1-2120	PD C01-2 - Top Slab Formwork Removal	4	14-Apr-15 A	18-Apr-15 A																				
PY-C1-2100	PD C01-2 - Wall External Formwork Removal	6	14-Apr-15 A	20-Apr-15 A																				
<b>C1-3</b>																								
PY-C1-3010	PD C01-3 - Foundation Platform	3	11-Mar-15 A	14-Mar-15 A																				
PY-C1-3020	PD C01-3 - Foundation Rebar Fixing	6	15-Mar-15 A	21-Mar-15 A																				
PY-C1-3030	PD C01-3 - Foundation Formwork	6	24-Mar-15 A	30-Mar-15 A																				
PY-C1-3040	PD C01-3 - Foundation Concrete	0	31-Mar-15 A	31-Mar-15 A																				
PY-C1-3050	PD C01-3 - Foundation Formwork Removal	3	01-Apr-15 A	04-Apr-15 A																				
PY-C1-3060	PD C01-3 - Wall internal Formwork	8	08-Apr-15 A	16-Apr-15 A																				
PY-C1-3070	PD C01-3 - Wall Rebar Fixing	3	17-Apr-15 A	20-Apr-15 A																				
PY-C1-3080	PD C01-3 - Wall External Formwork	2	22-Apr-15 A	24-Apr-15 A																				
PY-C1-3090	PD C01-3 - Wall Concrete	0	25-Apr-15 A	25-Apr-15 A																				
PY-C1-3100	PD C01-3 - Wall External Formwork Removal	0	28-Apr-15 A	28-Apr-15 A																				
PY-C1-3110	PD C01-3 - Wall Internal Formwork Removal	8	01-May-15 A	09-May-15 A																				
PY-C1-3120	PD C01-3 - Top Slab Formwork Removal	8	01-May-15 A	09-May-15 A																				
<b>C1-4</b>																								
PY-C1-4060	PD C01-4 - Wall internal Formwork	10	09-Mar-15 A	19-Mar-15 A																				
PY-C1-4070	PD C01-4 - Wall Rebar Fixing	3	21-Mar-15 A	24-Mar-15 A																				
PY-C1-4080	PD C01-4 - Wall External Formwork	8	24-Mar-15 A	01-Apr-15 A																				
PY-C1-4090	PD C01-4 - Wall Concrete	0	02-Apr-15 A	02-Apr-15 A																				
PY-C1-4100	PD C01-4 - Wall External Formwork Removal	2	06-Apr-15 A	08-Apr-15 A																				
PY-C1-4110	PD C01-4 - Wall Internal Formwork Removal	2	06-Apr-15 A	08-Apr-15 A																				
PY-C1-4120	PD C01-4 - Top Slab Formwork Removal	2	06-Apr-15 A	08-Apr-15 A																				
<b>C1-5</b>																								
PY-C1-5100	PD C01-5 - Wall External Formwork Removal	4	04-Mar-15 A	08-Mar-15 A																				
PY-C1-5110	PD C01-5 - Wall Internal Formwork Removal	4	04-Mar-15 A	08-Mar-15 A																				
PY-C1-5120	PD C01-5 - Top Slab Formwork Removal	4	04-Mar-15 A	08-Mar-15 A																				
<b>C1-6</b>																								
PY-C1-6010	PD C01-6 - Foundation Platform	94	22-Mar-15 A	24-Jun-15 A																				
PY-C1-6020	PD C01-6 - Foundation Rebar Fixing	4	22-Mar-15 A	26-Mar-15 A																				
PY-C1-6030	PD C01-6 - Foundation Formwork	1	31-Mar-15 A	01-Apr-15 A																				
PY-C1-6030	PD C01-6 - Foundation Formwork	6	03-Apr-15 A	09-Apr-15 A																				
PY-C1-6040	PD C01-6 - Foundation Concrete	0	10-Apr-15 A	10-Apr-15 A																				
PY-C1-6050	PD C01-6 - Foundation Formwork Removal	1	12-Apr-15 A	13-Apr-15 A																				
PY-C1-6060	PD C01-6 - Wall internal Formwork	5	15-Apr-15 A	20-Apr-15 A																				
PY-C1-6070	PD C01-6 - Wall Rebar Fixing	8	21-Apr-15 A	29-Apr-15 A																				

- Remaining Level of Effort ◆ Milestone
- Actual Level of Effort
- Actual Work
- Remaining Work
- Critical Remaining Work
- Summary

Activity ID	Activity Name	Actual Duration	Start	Finish	2015												2016											
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar											
PY-C1-6080	PD C01-6 - Wall External Formwork	5	24-Apr-15 A	29-Apr-15 A																								
PY-C1-6090	PD C01-6 - Wall Concrete	0	30-Apr-15 A	30-Apr-15 A																								
PY-C1-6100	PD C01-6 - Wall External Formwork Removal	0	08-May-15 A	08-May-15 A																								
PY-C1-6110	PD C01-6 - Wall Internal Formwork Removal	3	20-May-15 A	22-May-15 A																								
PY-C1-6120	PD C01-6 - Top Slab Formwork Removal	2	22-Jun-15 A	24-Jun-15 A																								
<b>Culverts C2</b>		<b>198</b>	<b>20-Jan-15 A</b>	<b>06-Aug-15 A</b>																								
<b>C2-2</b>		<b>88</b>	<b>29-Mar-15 A</b>	<b>25-Jun-15 A</b>																								
PY-C2-2010	PD C02-2 - Foundation Platform	7	29-Mar-15 A	05-Apr-15 A																								
PY-C2-2020	PD C02-2 - Foundation Rebar Fixing	2	05-Apr-15 A	07-Apr-15 A																								
PY-C2-2030	PD C02-2 - Foundation Formwork	3	11-Apr-15 A	14-Apr-15 A																								
PY-C2-2040	PD C02-2 - Foundation Concrete	0	15-Apr-15 A	15-Apr-15 A																								
PY-C2-2050	PD C02-2 - Foundation Formwork Removal	1	17-Apr-15 A	18-Apr-15 A																								
PY-C2-2060	PD C02-2 - Wall internal Formwork	8	21-Apr-15 A	29-Apr-15 A																								
PY-C2-2070	PD C02-2 - Wall Rebar Fixing	4	30-Apr-15 A	04-May-15 A																								
PY-C2-2080	PD C02-2 - Wall External Formwork	3	01-May-15 A	04-May-15 A																								
PY-C2-2090	PD C02-2 - Wall Concrete	0	05-May-15 A	05-May-15 A																								
PY-C2-2100	PD C02-2 - Wall External Formwork Removal	0	11-May-15 A	11-May-15 A																								
PY-C2-2110	PD C02-2 - Wall Internal Formwork Removal	3	21-Jun-15 A	23-Jun-15 A																								
PY-C2-2120	PD C02-2 - Top Slab Formwork Removal	1	24-Jun-15 A	25-Jun-15 A																								
<b>C2-3</b>		<b>172</b>	<b>20-Jan-15 A</b>	<b>10-Jul-15 A</b>																								
PY-C2-3010	PD C02-3 - Foundation Platform	43	20-Jan-15 A	04-Mar-15 A																								
PY-C2-3020	PD C02-3 - Foundation Rebar Fixing	6	07-Mar-15 A	13-Mar-15 A																								
PY-C2-3030	PD C02-3 - Foundation Formwork	4	14-Mar-15 A	18-Mar-15 A																								
PY-C2-3040	PD C02-3 - Foundation Concrete	0	19-Mar-15 A	19-Mar-15 A																								
PY-C2-3050	PD C02-3 - Foundation Formwork Removal	4	20-Mar-15 A	24-Mar-15 A																								
PY-C2-3060	PD C02-3 - Wall internal Formwork	6	03-May-15 A	09-May-15 A																								
PY-C2-3070	PD C02-3 - Wall Rebar Fixing	17	10-May-15 A	26-May-15 A																								
PY-C2-3080	PD C02-3 - Wall External Formwork	13	14-May-15 A	26-May-15 A																								
PY-C2-3090	PD C02-3 - Wall Concrete	2	27-Jun-15 A	28-Jun-15 A																								
PY-C2-3100	PD C02-3 - Wall External Formwork Removal	2	29-Jun-15 A	30-Jun-15 A																								
PY-C2-3110	PD C02-3 - Wall Internal Formwork Removal	3	06-Jul-15 A	08-Jul-15 A																								
PY-C2-3120	PD C02-3 - Top Slab Formwork Removal	2	09-Jul-15 A	10-Jul-15 A																								
<b>C2-4</b>		<b>99</b>	<b>06-Apr-15 A</b>	<b>13-Jul-15 A</b>																								
PY-C2-4010	PD C02-4 - Foundation Platform	4	06-Apr-15 A	10-Apr-15 A																								
PY-C2-4020	PD C02-4 - Foundation Rebar Fixing	4	12-Apr-15 A	16-Apr-15 A																								
PY-C2-4030	PD C02-4 - Foundation Formwork	4	17-Apr-15 A	21-Apr-15 A																								
PY-C2-4040	PD C02-4 - Foundation Concrete	0	22-Apr-15 A	22-Apr-15 A																								
PY-C2-4050	PD C02-4 - Foundation Formwork Removal	17	23-Apr-15 A	10-May-15 A																								
PY-C2-4060	PD C02-4 - Wall internal Formwork	8	11-May-15 A	19-May-15 A																								
PY-C2-4070	PD C02-4 - Wall Rebar Fixing	6	21-Jun-15 A	26-Jun-15 A																								
PY-C2-4080	PD C02-4 - Wall External Formwork	3	27-Jun-15 A	29-Jun-15 A																								
PY-C2-4090	PD C02-4 - Wall Concrete	2	30-Jun-15 A	01-Jul-15 A																								
PY-C2-4100	PD C02-4 - Wall External Formwork Removal	2	02-Jul-15 A	03-Jul-15 A																								
PY-C2-4110	PD C02-4 - Wall Internal Formwork Removal	3	09-Jul-15 A	11-Jul-15 A																								
PY-C2-4120	PD C02-4 - Top Slab Formwork Removal	2	12-Jul-15 A	13-Jul-15 A																								
<b>C2-5</b>		<b>102</b>	<b>26-Apr-15 A</b>	<b>06-Aug-15 A</b>																								
PY-C2-5010	PD C02-5 - Foundation Platform	4	26-Apr-15 A	30-Apr-15 A																								
PY-C2-5020	PD C02-5 - Foundation Rebar Fixing	8	01-May-15 A	09-May-15 A																								
PY-C2-5030	PD C02-5 - Foundation Formwork	3	10-May-15 A	13-May-15 A																								
PY-C2-5040	PD C02-5 - Foundation Concrete	0	14-May-15 A	14-May-15 A																								
PY-C2-5050	PD C02-5 - Foundation Formwork Removal	2	14-May-15 A	16-May-15 A																								
PY-C2-5060	PD C02-5 - Wall internal Formwork	6	12-Jul-15 A	17-Jul-15 A																								
PY-C2-5070	PD C02-5 - Wall Rebar Fixing	6	15-Jul-15 A	20-Jul-15 A																								
PY-C2-5080	PD C02-5 - Wall External Formwork	2	21-Jul-15 A	23-Jul-15 A																								
PY-C2-5090	PD C02-5 - Wall Concrete	1	24-Jul-15 A	25-Jul-15 A																								
PY-C2-5100	PD C02-5 - Wall External Formwork Removal	1	26-Jul-15 A	27-Jul-15 A																								
PY-C2-5110	PD C02-5 - Wall Internal Formwork Removal	2	02-Aug-15 A	04-Aug-15 A																								
PY-C2-5120	PD C02-5 - Top Slab Formwork Removal	1	05-Aug-15 A	06-Aug-15 A																								
<b>Culverts C3</b>		<b>8</b>	<b>14-Mar-15 A</b>	<b>22-Mar-15 A</b>																								
<b>C3-2</b>		<b>8</b>	<b>14-Mar-15 A</b>	<b>22-Mar-15 A</b>																								
PY-C3-2100	PD C03-2 - Wall External Formwork Removal	4	14-Mar-15 A	18-Mar-15 A																								
PY-C3-2110	PD C03-2 - Wall Internal Formwork Removal	4	14-Mar-15 A	18-Mar-15 A																								
PY-C3-2120	PD C03-2 - Top Slab Formwork Removal	8	14-Mar-15 A	22-Mar-15 A																								

█ Remaining Level of Effort ◆ Milestone  
█ Actual Level of Effort ➤ Summary  
█ Actual Work  
█ Remaining Work  
█ Critical Remaining Work

Activity ID	Activity Name	Actual Duration	Start	Finish	2015												2016		
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
<b>Culverts C4</b>		12	01-Mar-15 A	13-Mar-15 A	[Gantt bars for C4 activities]														
<b>C4-2</b>		7	01-Mar-15 A	08-Mar-15 A	[Gantt bars for C4-2 activities]														
PY-C4-2110	PD C04-2 - Wall Internal Formwork Removal	7	01-Mar-15 A	08-Mar-15 A	[Gantt bar]														
PY-C4-2120	PD C04-2 - Top Slab Formwork Removal	7	01-Mar-15 A	08-Mar-15 A	[Gantt bar]														
<b>C4-5</b>		5	08-Mar-15 A	13-Mar-15 A	[Gantt bars for C4-5 activities]														
PY-C4-5110	PD C04-5 - Wall Internal Formwork Removal	5	08-Mar-15 A	13-Mar-15 A	[Gantt bar]														
PY-C4-5120	PD C04-5 - Top Slab Formwork Removal	5	08-Mar-15 A	13-Mar-15 A	[Gantt bar]														
PY-C4-5100	PD C04-5 - Wall External Formwork Removal	2	10-Mar-15 A	12-Mar-15 A	[Gantt bar]														
<b>Culverts EC1</b>		127	20-Aug-15 A	25-Dec-15 A	[Gantt bars for EC1 activities]														
<b>EC1-1</b>		82	27-Aug-15 A	17-Nov-15 A	[Gantt bars for EC1-1 activities]														
PY-EC1-01010	PD EC1-01 Casting Bed	4	27-Aug-15 A	31-Aug-15 A	[Gantt bar]														
PY-EC1-01020	PD EC1-01 Base Reinforcement	16	13-Oct-15 A	29-Oct-15 A	[Gantt bar]														
PY-EC1-01030	PD EC1-01 Base Formwork	7	30-Oct-15 A	06-Nov-15 A	[Gantt bar]														
PY-EC1-01040	PD EC1-01 Base Concrete	0	06-Nov-15 A	06-Nov-15 A	[Gantt bar]														
PY-EC1-01060	PD EC1-01 Base Curing	10	07-Nov-15 A	17-Nov-15 A	[Gantt bar]														
PY-EC1-01050	PD EC1-01 Base Removal of Formwork	1	07-Nov-15 A	08-Nov-15 A	[Gantt bar]														
<b>EC1-2</b>		63	20-Aug-15 A	22-Oct-15 A	[Gantt bars for EC1-2 activities]														
PY-EC1-02010	PD EC1-02 Casting Bed	5	20-Aug-15 A	25-Aug-15 A	[Gantt bar]														
PY-EC1-02020	PD EC1-02 Base Reinforcement	14	03-Sep-15 A	17-Sep-15 A	[Gantt bar]														
PY-EC1-02030	PD EC1-02 Base Formwork	20	21-Sep-15 A	11-Oct-15 A	[Gantt bar]														
PY-EC1-02060	PD EC1-02 Base Curing	14	28-Sep-15 A	12-Oct-15 A	[Gantt bar]														
PY-EC1-02040	PD EC1-02 Base Concrete	0	13-Oct-15 A	13-Oct-15 A	[Gantt bar]														
PY-EC1-02050	PD EC1-02 Base Removal of Formwork	7	15-Oct-15 A	22-Oct-15 A	[Gantt bar]														
<b>EC1-3</b>		62	26-Aug-15 A	27-Oct-15 A	[Gantt bars for EC1-3 activities]														
PY-EC1-03010	PD EC1-03 Casting Bed	4	26-Aug-15 A	30-Aug-15 A	[Gantt bar]														
PY-EC1-03020	PD EC1-03 Base Reinforcement	16	01-Sep-15 A	17-Sep-15 A	[Gantt bar]														
PY-EC1-03030	PD EC1-03 Base Formwork	4	28-Sep-15 A	02-Oct-15 A	[Gantt bar]														
PY-EC1-03040	PD EC1-03 Base Concrete	0	12-Oct-15 A	12-Oct-15 A	[Gantt bar]														
PY-EC1-03060	PD EC1-03 Base Curing	14	13-Oct-15 A	27-Oct-15 A	[Gantt bar]														
PY-EC1-03050	PD EC1-03 Base Removal of Formwork	0	23-Oct-15 A	23-Oct-15 A	[Gantt bar]														
<b>EC1-4</b>		81	24-Aug-15 A	13-Nov-15 A	[Gantt bars for EC1-4 activities]														
PY-EC1-04010	PD EC1-04 Casting Bed	6	24-Aug-15 A	30-Aug-15 A	[Gantt bar]														
PY-EC1-04020	PD EC1-04 Base Reinforcement	36	10-Sep-15 A	16-Oct-15 A	[Gantt bar]														
PY-EC1-04030	PD EC1-04 Base Formwork	2	24-Oct-15 A	26-Oct-15 A	[Gantt bar]														
PY-EC1-04040	PD EC1-04 Base Concrete	0	27-Oct-15 A	27-Oct-15 A	[Gantt bar]														
PY-EC1-04050	PD EC1-04 Base Removal of Formwork	0	29-Oct-15 A	29-Oct-15 A	[Gantt bar]														
PY-EC1-04060	PD EC1-04 Base Curing	14	30-Oct-15 A	13-Nov-15 A	[Gantt bar]														
<b>EC1-5</b>		79	10-Sep-15 A	28-Nov-15 A	[Gantt bars for EC1-5 activities]														
PY-EC1-05010	PD EC1-05 Casting Bed	8	10-Sep-15 A	18-Sep-15 A	[Gantt bar]														
PY-EC1-05020	PD EC1-05 Base Reinforcement	14	15-Oct-15 A	29-Oct-15 A	[Gantt bar]														
PY-EC1-05030	PD EC1-05 Base Formwork	11	31-Oct-15 A	11-Nov-15 A	[Gantt bar]														
PY-EC1-05040	PD EC1-05 Base Concrete	0	12-Nov-15 A	12-Nov-15 A	[Gantt bar]														
PY-EC1-05050	PD EC1-05 Base Removal of Formwork	2	13-Nov-15 A	15-Nov-15 A	[Gantt bar]														
PY-EC1-05060	PD EC1-05 Base Curing	15	13-Nov-15 A	28-Nov-15 A	[Gantt bar]														
<b>EC1-6</b>		78	18-Sep-15 A	05-Dec-15 A	[Gantt bars for EC1-6 activities]														
PY-EC1-06010	PD EC1-06 Casting Bed	4	18-Sep-15 A	22-Sep-15 A	[Gantt bar]														
PY-EC1-06020	PD EC1-06 Base Reinforcement	13	30-Oct-15 A	12-Nov-15 A	[Gantt bar]														
PY-EC1-06030	PD EC1-06 Base Formwork	3	16-Nov-15 A	19-Nov-15 A	[Gantt bar]														
PY-EC1-06040	PD EC1-06 Base Concrete	0	20-Nov-15 A	20-Nov-15 A	[Gantt bar]														
PY-EC1-06060	PD EC1-06 Base Curing	14	21-Nov-15 A	05-Dec-15 A	[Gantt bar]														
PY-EC1-06050	PD EC1-06 Base Removal of Formwork	1	27-Nov-15 A	28-Nov-15 A	[Gantt bar]														
<b>EC1-7</b>		81	25-Sep-15 A	15-Dec-15 A	[Gantt bars for EC1-7 activities]														
PY-EC1-07010	PD EC1-07 Casting Bed	4	25-Sep-15 A	29-Sep-15 A	[Gantt bar]														
PY-EC1-07020	PD EC1-07 Base Reinforcement	13	10-Nov-15 A	23-Nov-15 A	[Gantt bar]														
PY-EC1-07030	PD EC1-07 Base Formwork	4	24-Nov-15 A	28-Nov-15 A	[Gantt bar]														
PY-EC1-07040	PD EC1-07 Base Concrete	1	29-Nov-15 A	30-Nov-15 A	[Gantt bar]														
PY-EC1-07060	PD EC1-07 Base Curing	14	01-Dec-15 A	15-Dec-15 A	[Gantt bar]														
PY-EC1-07050	PD EC1-07 Base Removal of Formwork	1	08-Dec-15 A	09-Dec-15 A	[Gantt bar]														
<b>EC1-8</b>		34	21-Nov-15 A	25-Dec-15 A	[Gantt bars for EC1-8 activities]														
PY-EC1-08010	PD EC1-08 Casting Bed	3	21-Nov-15 A	24-Nov-15 A	[Gantt bar]														
PY-EC1-08020	PD EC1-08 Base Reinforcement	6	25-Nov-15 A	01-Dec-15 A	[Gantt bar]														
PY-EC1-08030	PD EC1-08 Base Formwork	6	02-Dec-15 A	08-Dec-15 A	[Gantt bar]														
PY-EC1-08040	PD EC1-08 Base Concrete	1	09-Dec-15 A	10-Dec-15 A	[Gantt bar]														

█ Remaining Level of Effort    ◆ Milestone  
█ Actual Level of Effort    ▶ Summary  
█ Actual Work  
█ Remaining Work  
█ Critical Remaining Work

Activity ID	Activity Name	Actual Duration	Start	Finish	2015												2016							
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar							
PY-EC1-08060	PD EC1-08 Base Curing	14	11-Dec-15 A	25-Dec-15 A																				
PY-EC1-08050	PD EC1-08 Base Removal of Formwork	1	18-Dec-15 A	19-Dec-15 A																				
<b>Site Construction</b>					534 28-Oct-14 A 14-Apr-16 A																			
<b>Surcharge</b>					281 28-Oct-14 A 05-Aug-15 A																			
<b>West1 Portion</b>					217 30-Oct-14 A 03-Jun-15 A																			
A1660	PD West1 - Surcharge Period +11.5mPD 6mths	179	30-Oct-14 A	27-Apr-15 A																				
A1700	PD West1 - Preparation Works & Mobilization of plant	10	08-May-15 A	18-May-15 A																				
A1930	PD West1 - Surcharge Removal 60,000m3 5,000m3/day	25	10-May-15 A	03-Jun-15 A																				
<b>West2 Portion</b>					264 28-Oct-14 A 19-Jul-15 A																			
A2220	PD West2 - Surcharge Period +11.5mPD 6mths	179	28-Oct-14 A	25-Apr-15 A																				
A2230	PD West2 - Surcharge Removal 60,000m3 5,000m3/day	14	05-Jul-15 A	19-Jul-15 A																				
<b>East1 Portion</b>					225 26-Nov-14 A 08-Jul-15 A																			
A1690	PD East1 - Surcharge Period +11.5mPD 6mths	180	26-Nov-14 A	24-May-15 A																				
A1705	PD East1 - Surcharge Removal 60,000m3 5,000m3/day	20	19-Jun-15 A	08-Jul-15 A																				
<b>East2 Portion</b>					220 28-Dec-14 A 05-Aug-15 A																			
A2260	PD East2 - Surcharge Period +11.5mPD 6mths	180	28-Dec-14 A	25-Jun-15 A																				
A2270	PD East2 - Surcharge Removal 60,000m3 5,000m3/day	27	09-Jul-15 A	05-Aug-15 A																				
<b>C1 to C4</b>					315 04-Jun-15 A 14-Apr-16 A																			
<b>Removal of Temporary Seawall</b>					79 16-Jun-15 A 03-Sep-15 A																			
<b>Removal of North Temporary Seawall</b>					79 16-Jun-15 A 03-Sep-15 A																			
PD-V2-0030	PD C1 - Removal of North Temporary Seawall West1 CH6+136 to CH6+000	17	16-Jun-15 A	02-Jul-15 A																				
PD-V2-0015	PD C2 - Removal of Temporary Seawall blocks West2 CH6+000 to 5+893 400nrs	12	19-Jun-15 A	30-Jun-15 A																				
PD-V2-0010	PD C1 - Removal of Temporary Seawall blocks West1 CH6+136 to 6+000 400nrs	12	21-Jun-15 A	02-Jul-15 A																				
PD-V2-0020	PD C3 - Removal of Temporary Seawall blocks East1 CH5+893 to 5+800 400nrs	19	01-Jul-15 A	20-Jul-15 A																				
PD-V2-0035	PD C2 - Removal of North Temporary Seawall West2 CH6+000 to CH5+900	16	03-Jul-15 A	19-Jul-15 A																				
PD-V2-0040	PD C3 - Removal of North Temporary Seawall East1 CH5+900 to CH5+800	16	21-Jul-15 A	06-Aug-15 A																				
PD-V2-0025	PD C4 - Removal of North Temporary Seawall blocks East2 CH5+800 to 5+650 400nrs	11	06-Aug-15 A	17-Aug-15 A																				
PD-V2-0045	PD C4 - Removal of North Temporary Seawall East2 CH5+800 to CH5+650	16	18-Aug-15 A	03-Sep-15 A																				
<b>Installations of Precast Culverts except sloping outfalls</b>					273 04-Jun-15 A 03-Mar-16 A																			
<b>Culvert C1</b>					273 04-Jun-15 A 03-Mar-16 A																			
PD-C1-0010	PD C1 Excavation 83,000m3 2,500m3/day	37	04-Jun-15 A	11-Jul-15 A																				
PD-C1-0005	PD C1 Pipe Piling Installation	22	08-Jun-15 A	30-Jun-15 A																				
PD-C1-0020	PD C1 Leveling of Foundation 4,200m2 200m2/day	10	12-Jul-15 A	22-Jul-15 A																				
<b>C1-2</b>					223 16-Jul-15 A 24-Feb-16 A																			
PD-C1-2-010	PD C1-2 Back & Delivery to site stg1	2	16-Jul-15 A	18-Jul-15 A																				
PD-C1-2-015	PD C1-2 Install the buoyancy Tank	3	19-Jul-15 A	22-Jul-15 A																				
PD-C1-2-020	PD C1-2 floating to the location	0	23-Jul-15 A	23-Jul-15 A																				
PD-C1-2-040	PD C1-2 Installation	0	23-Jul-15 A	23-Jul-15 A																				
PD-C1-2-050	PD C1-2 Removal of North Steel Bulkhead	4	24-Jul-15 A	28-Jul-15 A																				
PD-C1-2-100	PD C1-2 Backfill Beside of Culvert	2	21-Aug-15 A	23-Aug-15 A																				
PD-C1-2-110	PD C1-2 Backfill upto +3.5mPD except Manholes	1	24-Aug-15 A	25-Aug-15 A																				
PD-C1-2-070	PD C1-2 Manhole Insitu concrete	3	25-Dec-15 A	28-Dec-15 A																				
PD-C1-2-060	PD C1-2 Removal of South Steel Bulkhead	3	21-Jan-16 A	24-Jan-16 A																				
PD-C1-2-120	PD C1-2 Backfill Manhole upto +5.5mPD	3	21-Feb-16 A	24-Feb-16 A																				
<b>C1-3</b>					214 29-Jul-15 A 28-Feb-16 A																			
PD-C1-3-010	PD C1-3 Back & Delivery to Site stg2	2	29-Jul-15 A	31-Jul-15 A																				
PD-C1-3-015	PD C1-3 Install the buoyancy Tank	1	01-Aug-15 A	02-Aug-15 A																				
PD-C1-3-020	PD C1-3 floating to the location	0	03-Aug-15 A	03-Aug-15 A																				
PD-C1-3-040	PD C1-3 Installation	0	03-Aug-15 A	03-Aug-15 A																				
PD-C1-3-050	PD C1-3 Removal of North Steel Bulkhead	4	04-Aug-15 A	08-Aug-15 A																				
PD-C1-3-080	PD C1-2/3 Movement Joint Installation	2	09-Aug-15 A	11-Aug-15 A																				
PD-C1-3-060	PD C1-3 Removal of South Steel Bulkhead	4	12-Aug-15 A	16-Aug-15 A																				
PD-C1-3-100	PD C1-3 Backfill Beside of Culvert	4	13-Aug-15 A	17-Aug-15 A																				
PD-C1-3-110	PD C1-3 Backfill upto +3.5mPD except Manholes	2	29-Aug-15 A	31-Aug-15 A																				
PD-C1-3-090	PD C1-2/3 Movement Joint Insitu	3	21-Oct-15 A	24-Oct-15 A																				
PD-C1-3-070	PD C1-3 Manhole Insitu concrete	3	21-Oct-15 A	24-Oct-15 A																				
PD-C1-3-120	PD C1-3 Backfill Manhole upto +5.5mPD	3	25-Feb-16 A	28-Feb-16 A																				
<b>C1-4</b>					211 05-Aug-15 A 03-Mar-16 A																			
PD-C1-4-010	PD C1-4 Back & Delivery to Site stg3	2	05-Aug-15 A	07-Aug-15 A																				
PD-C1-4-015	PD C1-4 Install the buoyancy Tank	1	08-Aug-15 A	09-Aug-15 A																				
PD-C1-4-020	PD C1-4 floating to the location	0	10-Aug-15 A	10-Aug-15 A																				
PD-C1-4-040	PD C1-4 Installation	0	10-Aug-15 A	10-Aug-15 A																				
PD-C1-4-050	PD C1-4 Removal of North Steel Bulkhead	4	11-Aug-15 A	15-Aug-15 A																				

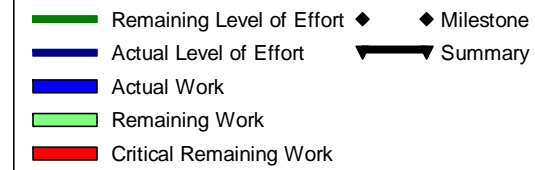
█ Remaining Level of Effort    ◆ Milestone  
█ Actual Level of Effort    ▲ Summary  
█ Actual Work  
█ Remaining Work  
█ Critical Remaining Work







Activity ID	Activity Name	Actual Duration	Start	Finish	2015												2016				
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar				
<b>Culvert C4</b>					127 19-Sep-15 A 24-Jan-16 A																
PD-C4-0010	PD C4 Excavation 68,000m3 2,500m3/day	36	19-Sep-15 A	25-Oct-15 A																	
PD-C4-0020	PD C4 Leveling of Foundation 3,450m2 200m2/day	4	26-Oct-15 A	30-Oct-15 A																	
<b>C4-2</b>					94 22-Oct-15 A 24-Jan-16 A																
PD-C4-2-010	PD C4-2 & C4-3 Back & Delivery to site stg11	6	22-Oct-15 A	28-Oct-15 A																	
PD-C4-2-015	PD C4-2 Install the buoyancy Tank	1	29-Oct-15 A	30-Oct-15 A																	
PD-C4-2-020	PD C4-2 floating to the location	0	31-Oct-15 A	31-Oct-15 A																	
PD-C4-2-040	PD C4-2 Installation	0	31-Oct-15 A	31-Oct-15 A																	
PD-C4-2-060	PD C4-2 Removal of South Steel Bulkhead	3	04-Nov-15 A	07-Nov-15 A																	
PD-C4-2-100	PD C4-2 Backfill Beside of Culvert	2	24-Nov-15 A	26-Nov-15 A																	
PD-C4-2-110	PD C4-2 Backfill upto +3.5mPD except Manholes	2	27-Nov-15 A	29-Nov-15 A																	
PD-C4-2-070	PD C4-2 Manhole Insitu concrete	4	15-Dec-15 A	19-Dec-15 A																	
PD-C4-2-050	PD C4-2 Removal of North Steel Bulkhead	3	21-Jan-16 A	24-Jan-16 A																	
<b>C4-3</b>					41 01-Nov-15 A 12-Dec-15 A																
PD-C4-3-015	PD C4-3 Install the buoyancy Tank	1	01-Nov-15 A	02-Nov-15 A																	
PD-C4-3-020	PD C4-3 floating to the location	0	04-Nov-15 A	04-Nov-15 A																	
PD-C4-3-040	PD C4-3 Installation	0	04-Nov-15 A	04-Nov-15 A																	
PD-C4-3-050	PD C4-3 Removal of North Steel Bulkhead	2	05-Nov-15 A	07-Nov-15 A																	
PD-C4-3-060	PD C4-3 Removal of South Steel Bulkhead	3	12-Nov-15 A	15-Nov-15 A																	
PD-C4-3-100	PD C4-3 Backfill Beside of Culvert	2	27-Nov-15 A	29-Nov-15 A																	
PD-C4-3-110	PD C4-3 Backfill upto +3.5mPD except Manholes	2	30-Nov-15 A	02-Dec-15 A																	
PD-C4-3-090	PD C4-2/3 Movement Joint Insitu	3	06-Dec-15 A	09-Dec-15 A																	
PD-C4-3-070	PD C4-3 Manhole Insitu concrete	4	08-Dec-15 A	12-Dec-15 A																	
PD-C4-3-080	PD C4-2/3 Movement Joint Installation	4	08-Dec-15 A	12-Dec-15 A																	
<b>C4-4</b>					49 04-Nov-15 A 23-Dec-15 A																
PD-C4-4-010	PD C4-4 Back & Delivery to site stg12	4	04-Nov-15 A	08-Nov-15 A																	
PD-C4-4-015	PD C4-4 Install the buoyancy Tank	1	09-Nov-15 A	10-Nov-15 A																	
PD-C4-4-020	PD C4-4 floating to the location	0	11-Nov-15 A	11-Nov-15 A																	
PD-C4-4-040	PD C4-4 Installation	0	11-Nov-15 A	11-Nov-15 A																	
PD-C4-4-050	PD C4-4 Removal of North Steel Bulkhead	2	12-Nov-15 A	14-Nov-15 A																	
PD-C4-4-060	PD C4-4 Removal of South Steel Bulkhead	3	25-Nov-15 A	28-Nov-15 A																	
PD-C4-4-100	PD C4-4 Backfill Beside of Culvert	2	30-Nov-15 A	02-Dec-15 A																	
PD-C4-4-110	PD C4-4 Backfill upto +3.5mPD except Manholes	2	03-Dec-15 A	05-Dec-15 A																	
PD-C4-4-070	PD C4-4 Manhole Insitu concrete	4	13-Dec-15 A	17-Dec-15 A																	
PD-C4-4-080	PD C4-3/4 Movement Joint Installation	1	18-Dec-15 A	19-Dec-15 A																	
PD-C4-4-090	PD C4-3/4 Movement Joint Insitu	3	20-Dec-15 A	23-Dec-15 A																	
<b>C4-5</b>					73 11-Nov-15 A 23-Jan-16 A																
PD-C4-5-010	PD C4-5 Back & Delivery to site stg13	4	11-Nov-15 A	15-Nov-15 A																	
PD-C4-5-015	PD C4-5 Install the buoyancy Tank	1	16-Nov-15 A	17-Nov-15 A																	
PD-C4-5-020	PD C4-5 floating to the location	0	18-Nov-15 A	18-Nov-15 A																	
PD-C4-5-040	PD C4-5 Installation	0	18-Nov-15 A	18-Nov-15 A																	
PD-C4-5-060	PD C4-5 Removal of South Steel Bulkhead	4	29-Nov-15 A	03-Dec-15 A																	
PD-C4-5-100	PD C4-5 Backfill Beside of Culvert	2	03-Dec-15 A	05-Dec-15 A																	
PD-C4-5-110	PD C4-5 Backfill upto +3.5mPD except Manholes	1	06-Dec-15 A	07-Dec-15 A																	
PD-C4-5-070	PD C4-5 Manhole Insitu concrete	3	21-Dec-15 A	24-Dec-15 A																	
PD-C4-5-080	PD C4-4/5 Movement Joint Installation	1	21-Dec-15 A	22-Dec-15 A																	
PD-C4-5-090	PD C4-4/5 Movement Joint Insitu	3	23-Dec-15 A	26-Dec-15 A																	
PD-C4-5-050	PD C4-5 Removal of North Steel Bulkhead	2	21-Jan-16 A	23-Jan-16 A																	
<b>Permanent Access to Portion A</b>					128 21-Sep-15 A 27-Jan-16 A																
PD-A2080	PD - C1 Divert Access	21	21-Sep-15 A	12-Oct-15 A																	
PD-A2110	PD - C4 Divert Access	6	04-Jan-16 A	10-Jan-16 A																	
PD-A2090	PD - C2 Divert Access	6	21-Jan-16 A	27-Jan-16 A																	
<b>Removal of Temporary Access to Portion A</b>					113 13-Oct-15 A 03-Feb-16 A																
PD-A1100	PD C1 - Removal of Temporary Access	7	13-Oct-15 A	20-Oct-15 A																	
PD-A1110	PD C2 - Removal of Temporary Access	6	28-Jan-16 A	03-Feb-16 A																	
<b>Construction of Sloping Outfalls</b>					107 19-Nov-15 A 05-Mar-16 A																
<b>Culvert C1 Sloping Outfall</b>					107 19-Nov-15 A 05-Mar-16 A																
PD-C1-0110	PD C1-1 Outfall Excavation	23	19-Nov-15 A	12-Dec-15 A																	
PD-C1-0120	PD C1-1 Outfall Formation	6	13-Dec-15 A	19-Dec-15 A																	
PD-C1-0125	PD C1-1 Buoyancy	1	31-Dec-15 A	01-Jan-16 A																	
PD-C1-0130	PD C1-1 Outfall Installation	0	02-Jan-16 A	02-Jan-16 A																	
PD-C1-0140	PD C1-1 Outfall Removal of Buoyancy & Bulkhead	3	03-Jan-16 A	06-Jan-16 A																	
PD-C1-0150	PD C1-1 Outfall Insitu Concrete	13	21-Feb-16 A	05-Mar-16 A																	





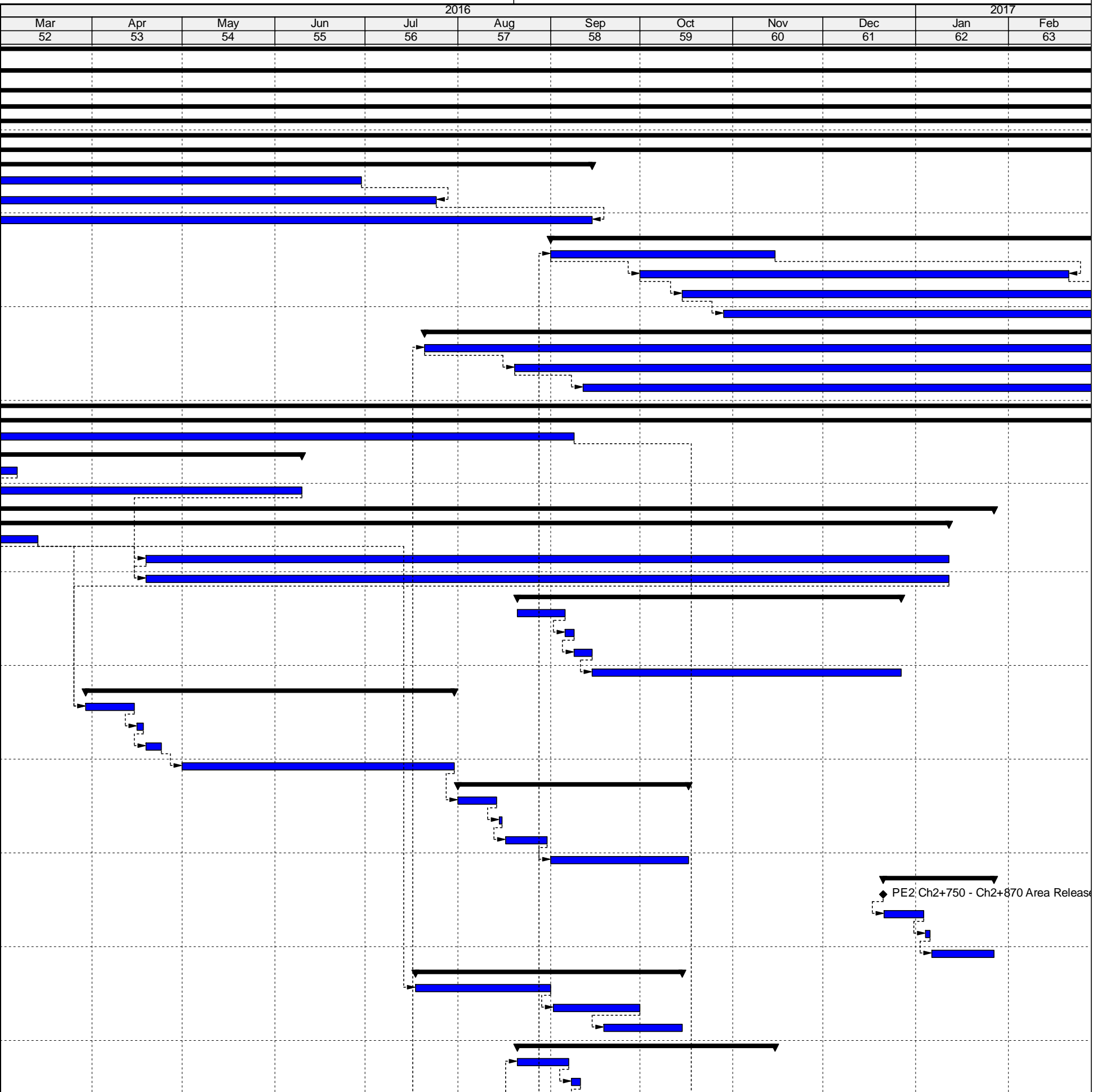




Activity ID	Activity Name	Actual Duration	Start	Finish	2015												2016						
					Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar						
PD-EC1-7-010	PD EC1-7 & C1-1 Back & Delivery stg16	5	22-Dec-15 A	27-Dec-15 A																			
PD-EC1-7-020	PD EC1-7 Buoyancy	1	28-Dec-15 A	29-Dec-15 A																			
PD-EC1-7-030	PD EC1-7 Installation of Precast Culvert Base	0	30-Dec-15 A	30-Dec-15 A																			
PD-EC1-7-040	PD EC1-7 Removal of Buoyancy	1	31-Dec-15 A	01-Jan-16 A																			
PD-EC1-7-045	PD EC1-7 External Wall Frameworks	3	19-Jan-16 A	22-Jan-16 A																			
PD-EC1-7-050	PD EC1-7 External Wall Rebar Fixing	14	23-Jan-16 A	06-Feb-16 A																			
PD-EC1-7-060	PD EC1-7 External Wall Formwork Installation	12	26-Jan-16 A	11-Feb-16 A																			
PD-EC1-7-070	PD EC1-7 External Wall Rebar & Formwork Checking	0	12-Feb-16 A	12-Feb-16 A																			
PD-EC1-7-080	PD EC1-7 External Wall Insitu Concrete	0	13-Feb-16 A	13-Feb-16 A																			
PD-EC1-7-090	PD EC1-7 External Wall Formwork Removal	0	14-Feb-16 A	14-Feb-16 A																			
PD-EC1-7-100	PD EC1-7 External Wall Support Framework Removal	3	15-Feb-16 A	18-Feb-16 A																			
PD-EC1-7-120	PD EC1-7 Internal Wall Rebar Fixing	2	19-Feb-16 A	21-Feb-16 A																			
PD-EC1-7-110	PD EC1-7 Internal Wall Cleaning	0	19-Feb-16 A	19-Feb-16 A																			
PD-EC1-7-130	PD EC1-7 Internal Chamfer Formwork Installation	8	22-Feb-16 A	01-Mar-16 A																			
<b>EC1-8</b>		<b>54</b>	<b>02-Jan-16 A</b>	<b>29-Feb-16 A</b>																			
PD-EC1-8-010	PD EC1-8 & C4-1 Back & Delivery stg17	7	02-Jan-16 A	09-Jan-16 A																			
PD-EC1-8-020	PD EC1-8 Buoyancy	1	10-Jan-16 A	11-Jan-16 A																			
PD-EC1-8-030	PD EC1-8 Outfall Installation of Precast Culvert Base	1	13-Jan-16 A	14-Jan-16 A																			
PD-EC1-8-040	PD EC1-8 Removal of Buoyancy	1	15-Jan-16 A	16-Jan-16 A																			
PD-EC1-8-045	PD EC1-8 External Wall Frameworks	1	21-Feb-16 A	22-Feb-16 A																			
PD-EC1-8-050	PD EC1-8 External Wall Rebar Fixing	1	23-Feb-16 A	24-Feb-16 A																			
PD-EC1-8-060	PD EC1-8 External Wall Formwork Installation	3	25-Feb-16 A	26-Feb-16 A																			
PD-EC1-8-070	PD EC1-8 External Wall Rebar & Formwork Checking	1	26-Feb-16 A	27-Feb-16 A																			
PD-EC1-8-080	PD EC1-8 External Wall Insitu Concrete	0	27-Feb-16 A	27-Feb-16 A																			
PD-EC1-8-100	PD EC1-8 External Wall Support Framework Removal	1	28-Feb-16 A	29-Feb-16 A																			
PD-EC1-8-090	PD EC1-8 External Wall Formwork Removal	0	28-Feb-16 A	28-Feb-16 A																			
<b>Backfilling &amp; Reclamation</b>		<b>21</b>	<b>10-Jan-16 A</b>	<b>31-Jan-16 A</b>																			
PD-EC1-0100-0	Backfill west side of EC1-2 to EC1-6 for Handover to Other Contractors	21	10-Jan-16 A	31-Jan-16 A																			

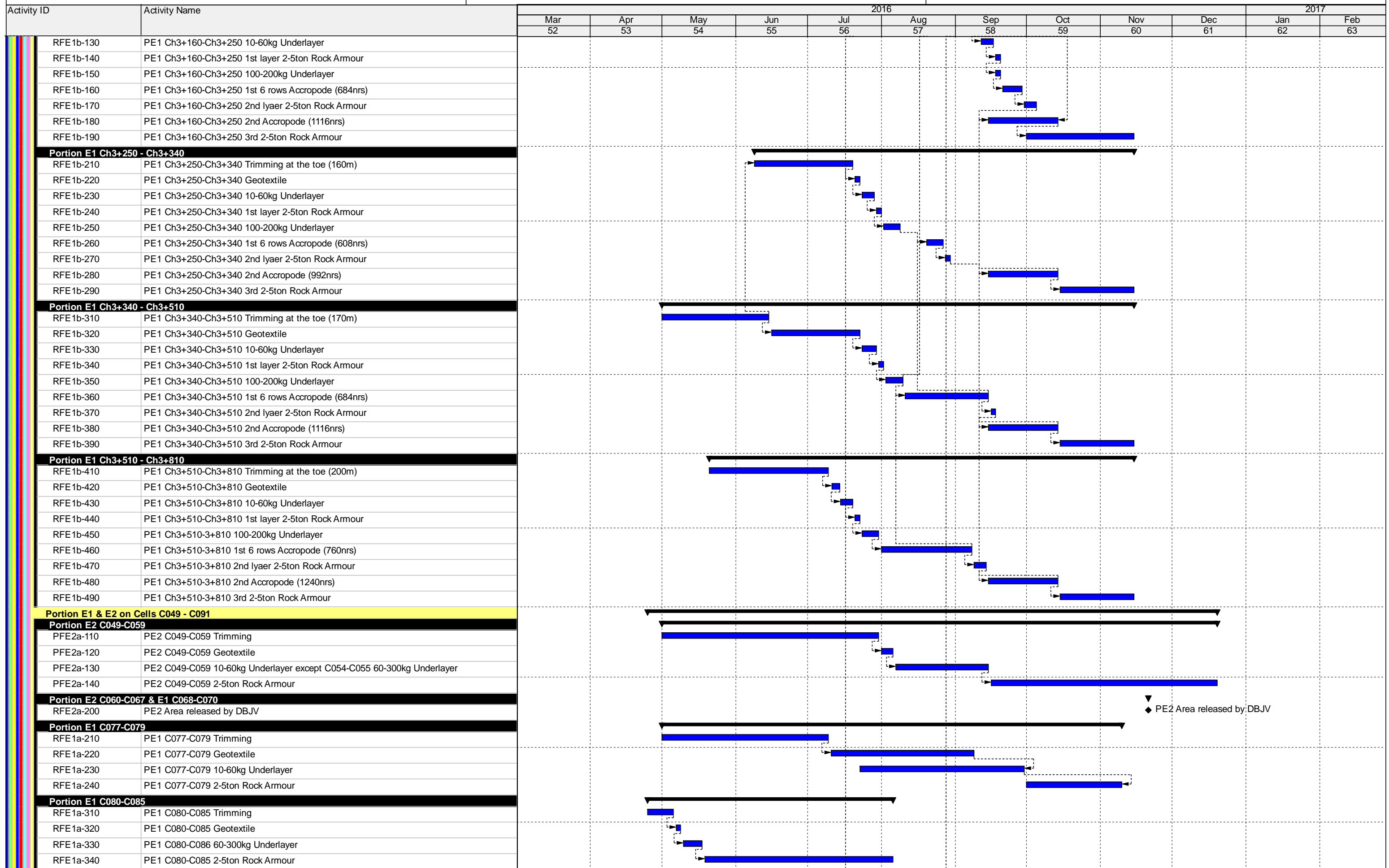
Remaining Level of Effort	◆	◆ Milestone
Actual Level of Effort	▼	▼ Summary
Actual Work	█	
Remaining Work	█	
Critical Remaining Work	█	

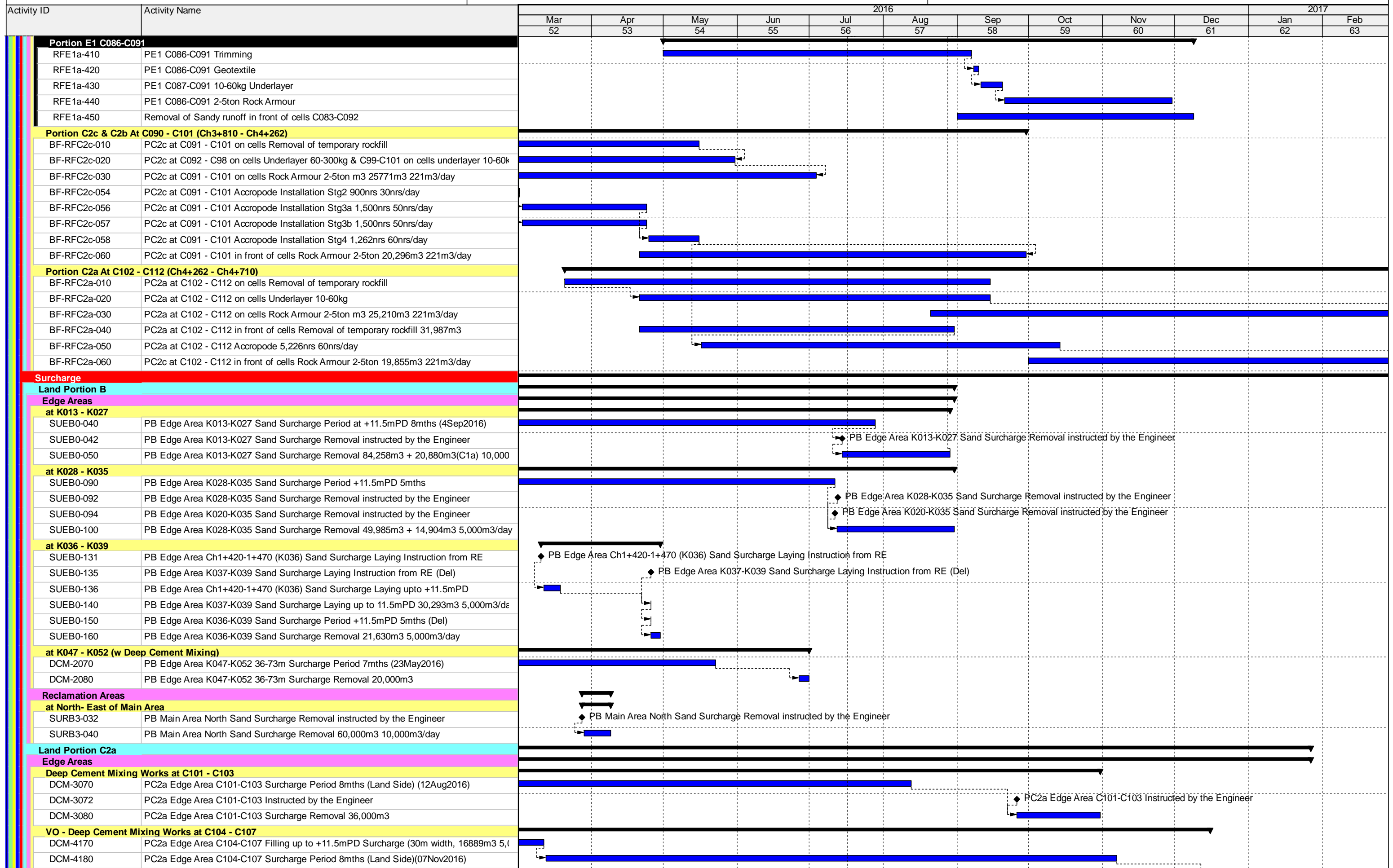
Activity ID	Activity Name
<b>66th Monthly Progress Report Status as on 21May2017</b>	
<b>Work Zone, as defined in PS Clause 1.03(6)</b>	
<b>Portion A, B, C &amp; E</b>	
<b>Portion A, B, C &amp; E</b>	
<b>Seawall</b>	
<b>Optimizing Rubble Mound Seawalls</b>	
<b>Rock Armour</b>	
<b>Seawall Portion A C120-C134 Ch5+050 - Ch5+650</b>	
RFA0-010	PA at C118 - C134 Removal of Temporary Rockfill (170,000m3, 1,500m3/day)
RFA0-020	PA at C118 - C134 Underlayer (21,600m3 1,000m3/day)
RFA0-030	PA at C118 - C134 Rock Armour (1-3ton 30,840m3 & 0.3-1ton 14,466m3 244m3/day)
<b>Seawall Portion B K013-K027 Ch0+450 - Ch1+100</b>	
RFB0-010	PB at K013 - K027 Removal of Temporary Rockfill (170,000m3, 1,500m3/day)
RFB0-020	PB at K013 - K027 Cat1 (16,900m3, 1000m3/day)
RFB0-030	PB at K013 - K027 Underlayer (200-500kg) 16,832m3 1000m3/day
RFB0-040	PB at K013 - K027 Rock Armour (0.3-1 ton 33904m3 244m3/day)
<b>Seawall Portion C2a C113-C119 Ch4+710 - Ch5+050</b>	
RFC2a010	PC2a at C113 - C117 Removal of Temporary Rockfill (190,000m3, 1,500m3/day)
RFC2a030	PC2a at C113 - C117 Underlayer 21,600m3 1000m3/day
RFC2a040	PC2a at C113 - C117 Rock Armour (2-5 ton 43,272m3 305m3/day)
<b>Conforming Sloping Seawalls</b>	
<b>Rock Armour - Before Surcharge Period</b>	
ACP1-00030	Precasting Accropode (18,092nos), 90nos/day
<b>Portion B At K028 - K039 (Ch1+102 - Ch1+600)</b>	
BF-RFB1-050	PB at K028 - K039 in front of cells Geotextile & Underlayer 10-60kg 15m/day
BF-RFB1-060	PB at K028 - K039 in front of cells Rock Armour 0.3-1ton 11,244m3 244m3/day
<b>Portion E1 &amp; E2 In Front of Cells Ch1+990 - 3+810</b>	
<b>Portion E2 Ch1+990 - Ch2+260</b>	
BF-RFE2-040	PE2 Ch1+990 - Ch2+260 in front of cells Removal of temporary rockfill 25,648m3
BF-RFE2-050	PE2 Ch1+990 - Ch2+260 in front of cells Geotextile & Underlayer 10-60kg 15m/day
BF-RFE2-060	PE2 Ch1+990 - Ch2+260 in front of cells Rock Armour 1-3ton 32,060m3 237m3/day
<b>Portion E2 Ch2+260 - Ch2+430</b>	
RFE2-110	PE2 Ch2+260 - Ch2+430 Trimming at the toe (170m)
RFE2-120	PE2 Ch2+260 - Ch2+430 Geotextile
RFE2-130	PE2 Ch2+260 - Ch2+430 10-60kg Underlayer
RFE2-140	PE2 Ch2+260 - Ch2+430 1-3ton Armour
<b>Portion E2 Ch2+430 - Ch2+630</b>	
RFE2-210	PE2 Ch2+430 - Ch2+630 Trimming at the toe (200m)
RFE2-220	PE2 Ch2+430 - Ch2+630 Geotextile
RFE2-230	PE2 Ch2+430 - Ch2+630 10-60kg Underlayer
RFE2-240	PE2 Ch2+430 - Ch2+630 1-3ton Armour
<b>Portion E2 Ch2+630 - Ch2+750</b>	
RFE2-310	PE2 Ch2+630 - Ch2+750 Trimming at the toe (120m)
RFE2-320	PE2 Ch2+630 - Ch2+750 Geotextile
RFE2-330	PE2 Ch2+630 - Ch2+750 10-60kg Underlayer
RFE2-340	PE2 Ch2+630 - Ch2+750 1-3ton Armour
<b>Portion E2 Ch2+750 - Ch2+870</b>	
RFE2-405	PE2 Ch2+750 - Ch2+870 Area Released by DBJV
RFE2-410	PE2 Ch2+750 - Ch2+870 Trimming at the toe (120m)
RFE2-420	PE2 Ch2+750 - Ch2+870 Geotextile
RFE2-430	PE2 Ch2+750 - Ch2+870 10-60kg Underlayer
<b>Portion E1 Ch2+980 - Ch3+160</b>	
RFE1b-050	PE1 Ch2+980 - Ch3+160 Removal of temporary rockfill
RFE1b-060	PE1 Ch2+980- Ch3+160 Geotextile & Underlayer 10-60kg 15m/day
RFE1b-070	PE1 Ch2+980 - Ch3+160 Rock Armour 1-3ton
<b>Portion E1 Ch3+160 - Ch3+250</b>	
RFE1b-110	PE1 Ch3+160-Ch3+250 Trimming at the toe (180m)
RFE1b-120	PE1 Ch3+160-Ch3+250 Geotextile



█ Remaining Level of Effort   
 █ Remaining Work   
 ▬ Summary  
█ Actual Level of Effort   
 █ Critical Remaining Work  
█ Actual Work   
 ◆ Milestone





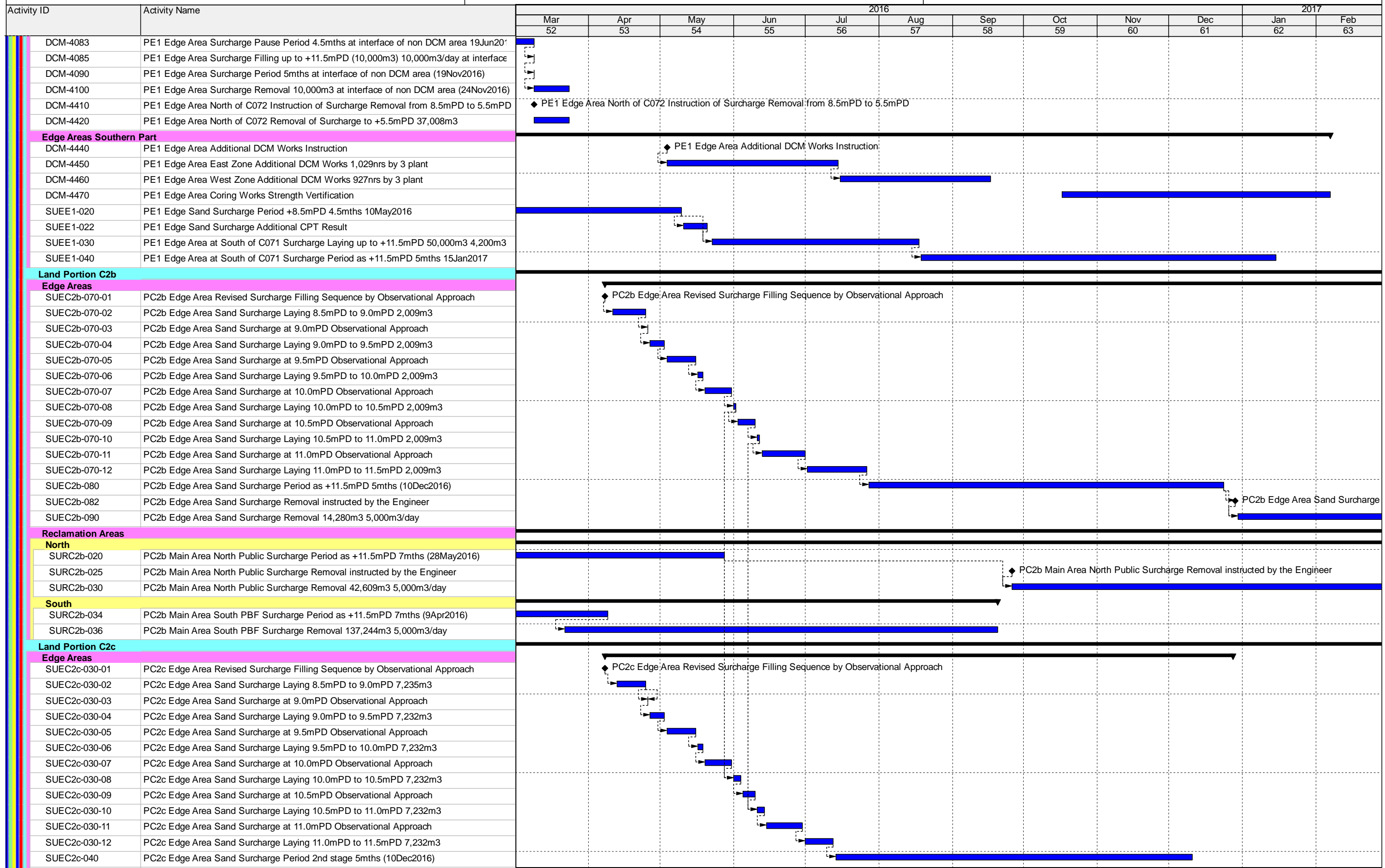


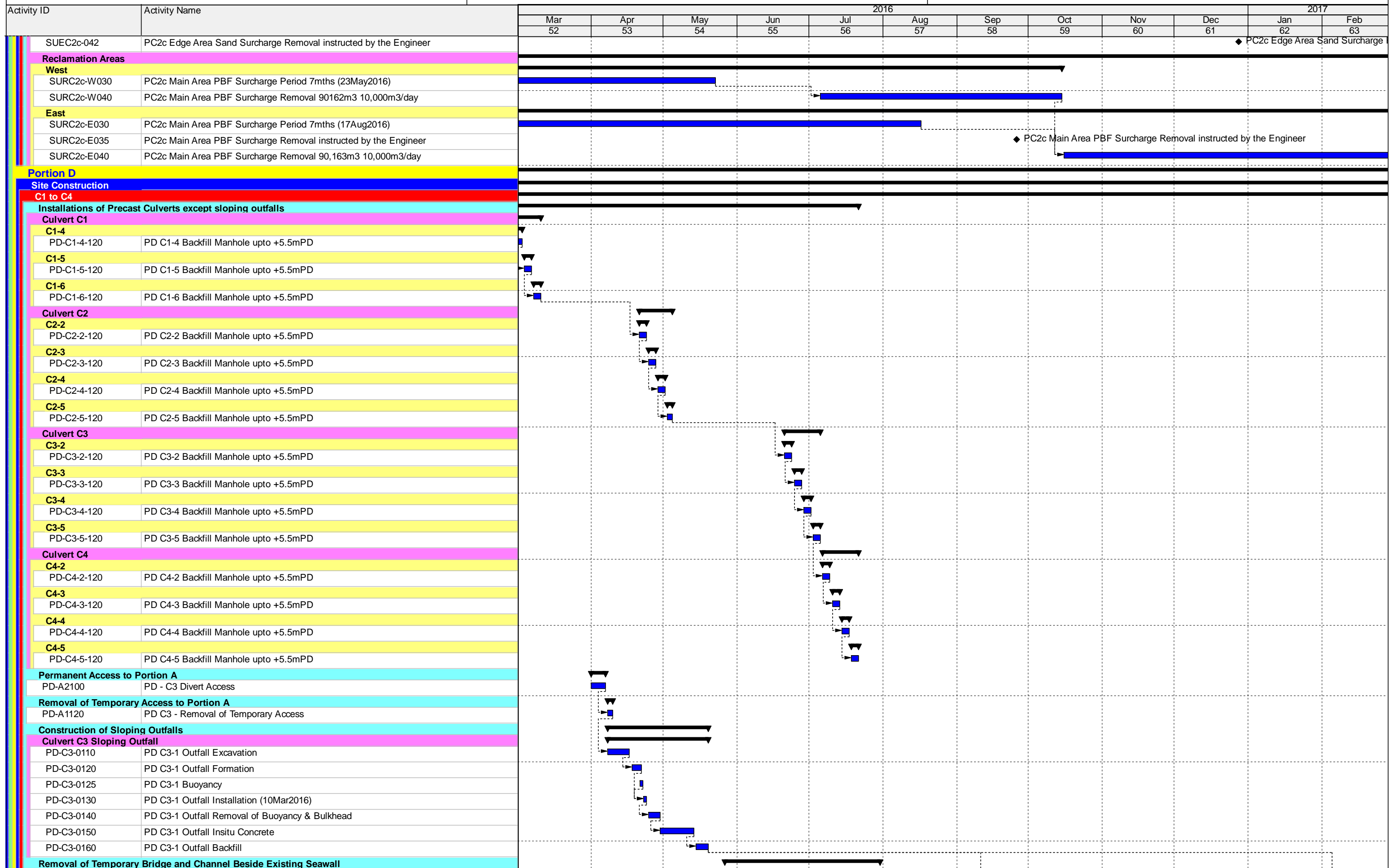
Activity ID	Activity Name	2016												2017	
		Mar 52	Apr 53	May 54	Jun 55	Jul 56	Aug 57	Sep 58	Oct 59	Nov 60	Dec 61	Jan 62	Feb 63		
DCM-4182	Blocked by other contractor C02														
DCM-4184	Removal instructed by RE														
DCM-4190	PC2a Edge Area C104-C107 Surcharge Removal 26,667m3 5,000m3/day														
<b>VO - Deep Cement Mixing Works at C108 - C109</b>															
DCM-5150	PC2a Edge Area C108-C109 Filling up to +8.5mPD Surcharge (30m width,8445m3 5,000														
DCM-5160	PC2a Edge Area C108-C109 Surcharge CPT Test														
DCM-5170	PC2a Edge Area C108-C109 Filling up to +11.5mPD Surcharge (30m width,8445m3 5,00														
DCM-5180	PC2a Edge Area C108-C109 Surcharge Period 8mths (Land Side) 15Nov2016														
DCM-5182	Blocked by other contractor C02														
DCM-5184	Removal instructed by RE														
DCM-5190	PC2a Edge Area C108-C109 Surcharge Removal 13333m3 5,000m3/day														
<b>at C110 - C112 Cellular Seawall</b>															
<b>VO - Deep Cement Mixing Works at C110 - C112</b>															
DCM-4210	PC2a Edge Area C110-C112 23m width Installation 597nrs 15nrs/day (w CNY)														
DCM-4220	PC2a Edge Area C110-C112 Hardening & Pause Period														
DCM-4230	PC2a Edge Area C110-C112 Filling up to +5.5mPD Type D (73m width, 12,820m3) 5,000														
DCM-4250	PC2a Edge Area C110-C112 Filling up to +8.5mPD Surcharge (50m width, 12,667m3 10,														
DCM-4260	PC2a Edge Area C110-C112 Surcharge CPT Test														
DCM-4270	PC2a Edge Area C110-C112 Filling up to +11.5mPD Surcharge (50m width, 12,667m3 10,														
DCM-4280	PC2a Edge Area C110-C112 Surcharge Period 8mths (Land Side) 28Dec2016														
DCM-4290	PC2a Edge Area C110-C112 Surcharge Removal 20,000m3														
<b>CH4+710 - CH5+110 Rubble Mound Seawall</b>															
<b>Deep Cement Mixing at CH4+710 - CH4+880</b>															
DCM-5040	PC2a Ch4+710 - Ch4+880 Filling up to +5.5mPD Type D 30,000m3														
DCM-5050	PC2a Ch4+710 - Ch4+880 Surcharge Filling up to +8.5mPD 30,000m3														
DCM-5060	PC2a Ch4+710 - Ch4+880 Surcharge Filling up to +11.5mPD 30,000m3														
DCM-5070	PC2a Ch4+710 - Ch4+880 Surcharge Monitoring 8mths (25Dec2016)														
DCM-5080	PC2a Ch4+710 - Ch4+880 Surcharge Removal 30,000m3 5,000m3/day														
<b>10-73m Ch4+880 - Ch5+010</b>															
SUEC2a-1120	PC2a Ch4+880 - Ch5+010 Surcharge Sand Period 8mths (16Aug2016)														
SUEC2a-1122	PC2a Ch4+880 - Ch5+010 Surcharge removal instructed by the Engineer														
SUEC2a-1130	PC2a Ch4+880 - Ch5+010 Surcharge Sand Removal 24,000m3 5,000m3/day														
<b>73-120m</b>															
SUEC2a-2090	PC2a C113-C117 73m-120m Surcharge Sand Period 8mths (10Jul2016)														
SUEC2a-2092	PC2a C113-C117 73m-120m Surcharge removal instructed by the Engineer														
SUEC2a-2100	PC2a C113-C117 73m-120m Sand Surcharge Removal 54,000m3 10,000m3/day														
<b>Reclamation Areas</b>															
<b>C2aC1</b>															
SURC2aC1-070	PC2a C2aC1 Sand Surcharge Period 8mths (20Jun2016)														
SURC2aC1-080	PC2a C2aC1 Top up to +11.5mPD 193,082m3 10,000m3/day for completion														
<b>C2aC2</b>															
SURC2aC2-070	PC2a C2aC2 Sand Surcharge Period 8mths (17May2016)														
SURC2aC2-072	PC2a C2aC2 Sand Surcharge Removal instruction by the Engineer														
SURC2aC2-080	PC2a C2aC2 Sand Surcharge Removal 60,000m3														
<b>Land Portion C1a</b>															
<b>Reclamation Areas</b>															
<b>C3</b>															
SURC1a-035	PC1a North West Land Area Sand Surcharge Instruction Removal by RE														
SURC1a-040	PC1a North West Land Area Sand Surcharge Removal 297,616m3 10,000m3/day														
<b>C4</b>															
SURC1a-150	PC1a South West Land Area Sand Surcharge Period at +11.5mPD 8mths (16Mar2016)														
SURC1a-152	PC1a South Sand Surcharge Removal instruction by the Engineer														
SURC1a-160	PC1a South East Land Area Sand Surcharge Removal (start on 23Sep2016) 16,500m3														
SURC1a-170	PC1a South West Land Area Sand Surcharge Removal 16,500m3														
<b>Land Portion C1b</b>															
<b>Reclamation Areas</b>															
<b>North Side close to Portion C2b</b>															
SURC1b-1030	PC1b Main Area Sand Surcharge Period as +11.5mPD 7mths (12Mar2016)														



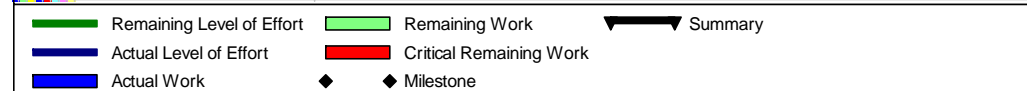
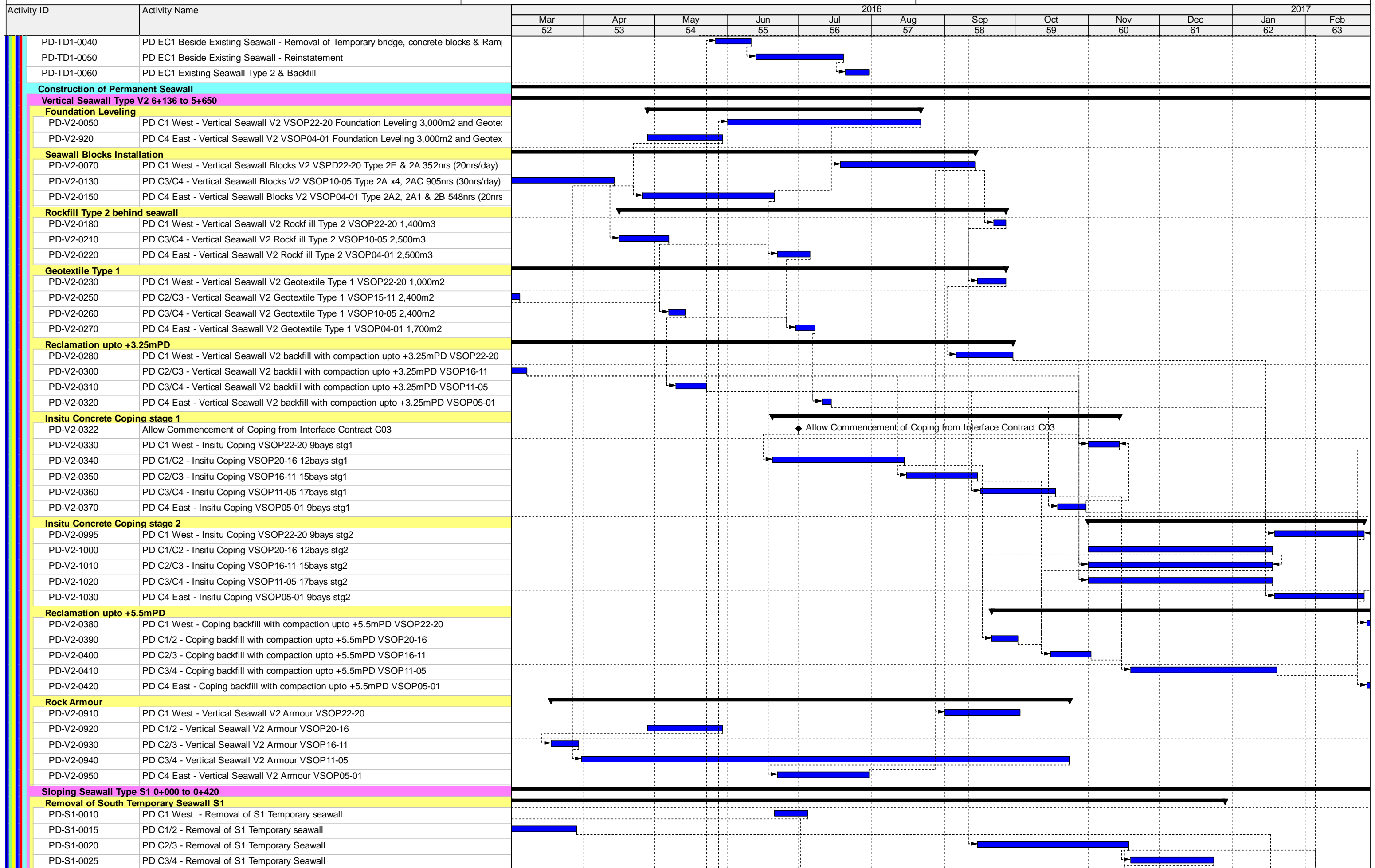
Activity ID	Activity Name	2016												2017	
		Mar 52	Apr 53	May 54	Jun 55	Jul 56	Aug 57	Sep 58	Oct 59	Nov 60	Dec 61	Jan 62	Feb 63		
SURC1b-1032	PC1b Main Area Sand Surcharge Removal instructed by the Engineer	PC1b Main Area Sand Surcharge Removal instructed by the Engineer													
SURC1b-1040	PC1b Main Area Sand Surcharge Removal 40,000m3 10,000m3/day	[Gantt bar]													
<b>North Side close to Portion C2c</b>		[Summary bar]													
SURC1b-1080	PC1b Main Area Sand Surcharge Period as +11.5mPD 7mths (28Mar2016)	[Gantt bar]													
SURC1b-1090	PC1b Main Area Sand Surcharge Removal 56,468m3 10,000m3/day	[Gantt bar]													
<b>Land Portion E2</b>		[Summary bar]													
<b>North Part</b>		[Summary bar]													
<b>Edge Areas - North (C3)</b>		[Summary bar]													
SUEE2-340	PE2 North Edge C3 Sand Surcharge Laying up to 8.5mPD 18,248m3 5,000m3/day	[Gantt bar]													
SUEE2-350	PE2 North Edge C3 Sand Surcharge Period as +8.5mPD 4.5mths (11Aug2016) (del)	[Gantt bar]													
SUEE2-360	PE2 North Edge C3 Sand Surcharge CPT Test (del)	[Gantt bar]													
SUEE2-370	PE2 North Edge C3 Sand Surcharge Laying up to +11.5mPD 18,248m3 5,000m3/day	[Gantt bar]													
SUEE2-380	PE2 North Edge C3 Sand Surcharge Period as +11.5mPD 5mths (22Dec2016)	[Gantt bar]													
SUEE2-385	PE2 North Edge C3 Sand Surcharge Removal Instruction by the Engineer	[Gantt bar]													
SUEE2-390	PE2 North Edge C3 Sand Surcharge Removal 14,600m3 5,000m3/day	[Gantt bar]													
<b>Edge Areas - North (TM)</b>		[Summary bar]													
SUEE2-470	PE2 North Edge TM Sand Surcharge Laying up to +11.5mPD 18,248m3 5,000m3/day	[Gantt bar]													
SUEE2-480	PE2 North Edge TM Sand Surcharge Period as +11.5mPD 5mths (17Sep2016)	[Gantt bar]													
SUEE2-485	PE2 North Edge TM Sand Surcharge Removal instructed by the Engineer	[Gantt bar]													
SUEE2-490	PE2 North Edge TM Sand Surcharge Removal 14,600m3 5,000m3/day	[Gantt bar]													
<b>Edge Areas - East (TM) C064-C067</b>		[Summary bar]													
SUEE2-140	PE2 East Edge C064-C067 Sand Surcharge Laying up to +11.5mPD 18,249m3 5,000m3	[Gantt bar]													
SUEE2-150	PE2 East Edge C064-C067 Sand Surcharge Period as +11.5mPD 5mths (17Sep2016)	[Gantt bar]													
SUEE2-155	PE2 North Edge C064-C067 Sand Surcharge Removal instructed by the Engineer	[Gantt bar]													
SUEE2-160	PE2 East Edge C064-C067 Sand Surcharge Removal 14,600m3 5,000m3/day	[Gantt bar]													
<b>Land Areas - East (TM) C057 - C063 Ch2+300 to Ch2+600</b>		[Summary bar]													
SURE2-055	PE2 Land C057-C063 Removal of Surcharge instructed by the Engineer	[Gantt bar]													
SURE2-060	PE2 Land C057-C063 Tunnel Sand Surcharge Removal at tunnel area 107,437m3 10,000m3/day	[Gantt bar]													
<b>Land Areas - West (C3)</b>		[Summary bar]													
SURE2-180	PE2 Land C061-C064 Non-Tunnel Sand Surcharge Period as +11.5mPD non tunnel area	[Gantt bar]													
SURE2-190	PE2 Land C061-C064 Non-Tunnel Sand Surcharge Removal non tunnel Area 147,437m3	[Gantt bar]													
<b>South Part</b>		[Summary bar]													
<b>Edge Areas East C058 to C063</b>		[Summary bar]													
SUEE2-030	PE2 Edge C058-C063 Sand Surcharge Laying up to +11.5mPD 62259m3 5,000m3/day	[Gantt bar]													
SUEE2-040	PE2 Edge C058-C063 Sand Surcharge Period as +11.5mPD 5mths (17Sep2016)	[Gantt bar]													
SUEE2-045	PE2 Edge C058-C063 Sand Surcharge Removal instructed by the Engineer	[Gantt bar]													
<b>VO DCM Edge Areas East C056 to C057</b>		[Summary bar]													
DCM-4370	PE2 Edge C056-C057 Filling up to +11.5mPD Surcharge (30m width, 8,547m3 5,000m3/day)	[Gantt bar]													
DCM-4380	PE2 Edge C056-C057 Surcharge Period 7mths (Land Side) (17Sep2016)	[Gantt bar]													
DCM-4385	PE2 Edge C056-C057 Sand Surcharge Removal instructed by the Engineer	[Gantt bar]													
DCM-4390	PE2 Edge C056-C057 Surcharge Removal 5,000m3	[Gantt bar]													
<b>Edge Areas East C052 to C055</b>		[Summary bar]													
SURE2-425	PE2 Edge C052-C055 300m Zone Sand Surcharge CPT Test at 8.5mPD	[Gantt bar]													
SURE2-430	PE2 Edge C052-C055 300m Zone Sand Surcharge Laying upto 11.5mPD 49,801m3 5,000m3/day	[Gantt bar]													
SURE2-440	PE2 Edge C052-C055 300m Zone Sand Surcharge Period as +11.5mPD 5mths	[Gantt bar]													
SURE2-445	PE2 Edge C052-C055 Sand Surcharge Removal instructed by the Engineer	[Gantt bar]													
SURE2-450	PE2 Edge C052-C055 300m Zone Sand Surcharge Removal 52,891m3 10,000m3/day	[Gantt bar]													
<b>Land Areas</b>		[Summary bar]													
<b>300m to 100m Zone</b>		[Summary bar]													
SURE2-530	PE2 Land C052-C056 300m Zone Sand Surcharge Period as +11.5mPD 7mths 18Apr2016	[Gantt bar]													
SURE2-532	PD2 Land C052-C056 300m Zone Sand Surcharge Removal Instruction	[Gantt bar]													
SURE2-540	PE2 Land C052-C056 300m Zone Sand Surcharge Removal 105,782m3 10,000m3/day	[Gantt bar]													
<b>Out of K052 300m</b>		[Summary bar]													
SURE2-020	PE2 Land C052-C060 Non-Tunnel Sand Surcharge Period as +11.5mPD 7mths 13Mar2016	[Gantt bar]													
SURE2-022	PE2 Land C052-C060 Non-Tunnel Sand Surcharge Removal instructed by the Engineer	[Gantt bar]													
SURE2-030	PE2 Land C052-C060 Non-Tunnel Sand Surcharge Removal 158,673m3 + 28,116m3(C11)	[Gantt bar]													
<b>Land Portion E1</b>		[Summary bar]													
<b>Edge Areas Northern - DCM C077 - C080 150m (Exclude VB &amp; RS)</b>		[Summary bar]													

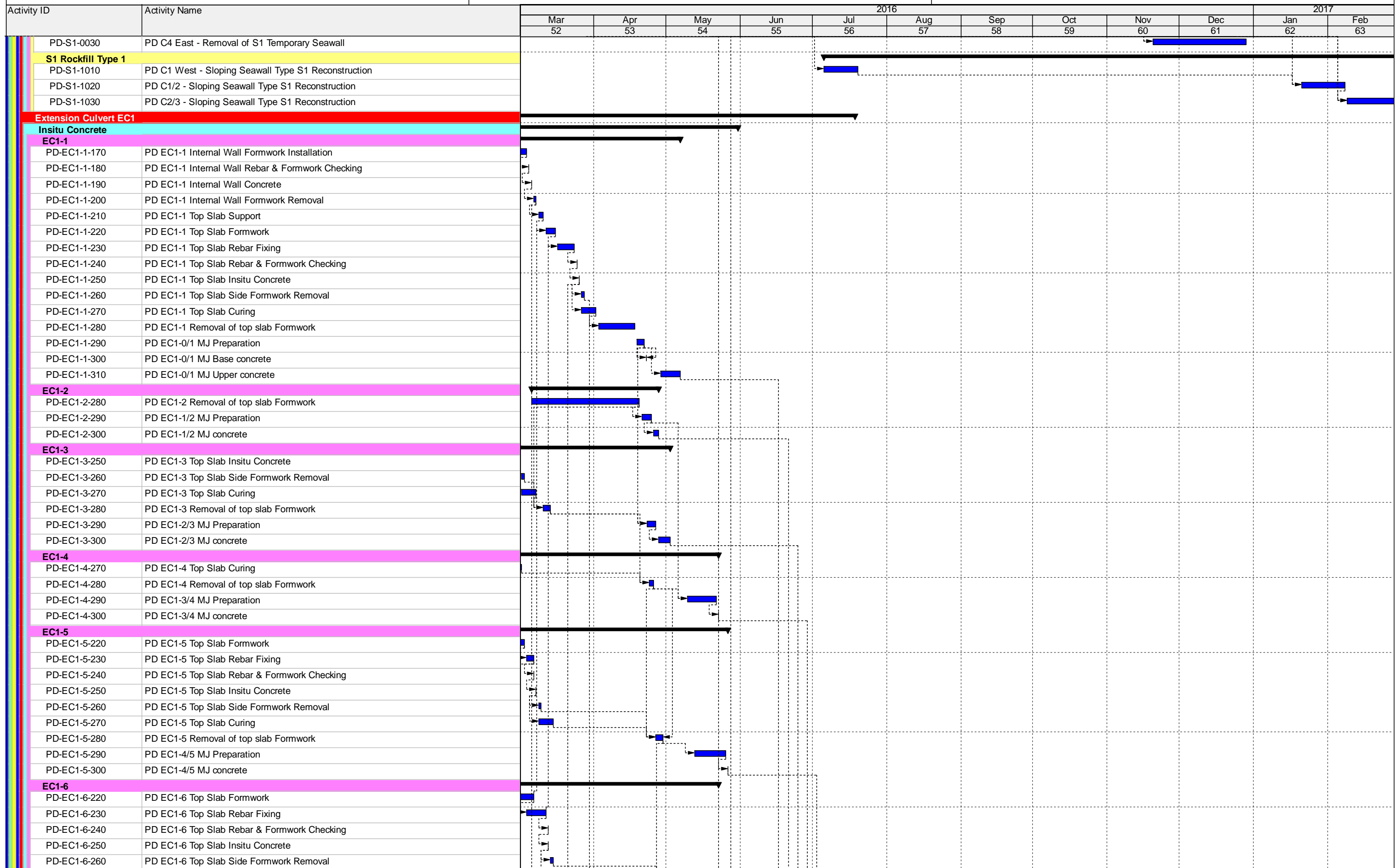
Remaining Level of Effort	Remaining Work	Summary
Actual Level of Effort	Critical Remaining Work	
Actual Work	Milestone	



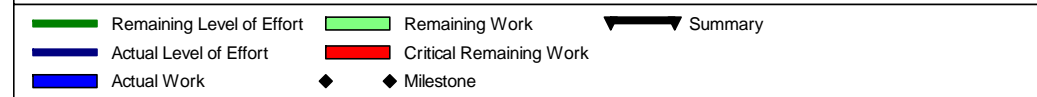
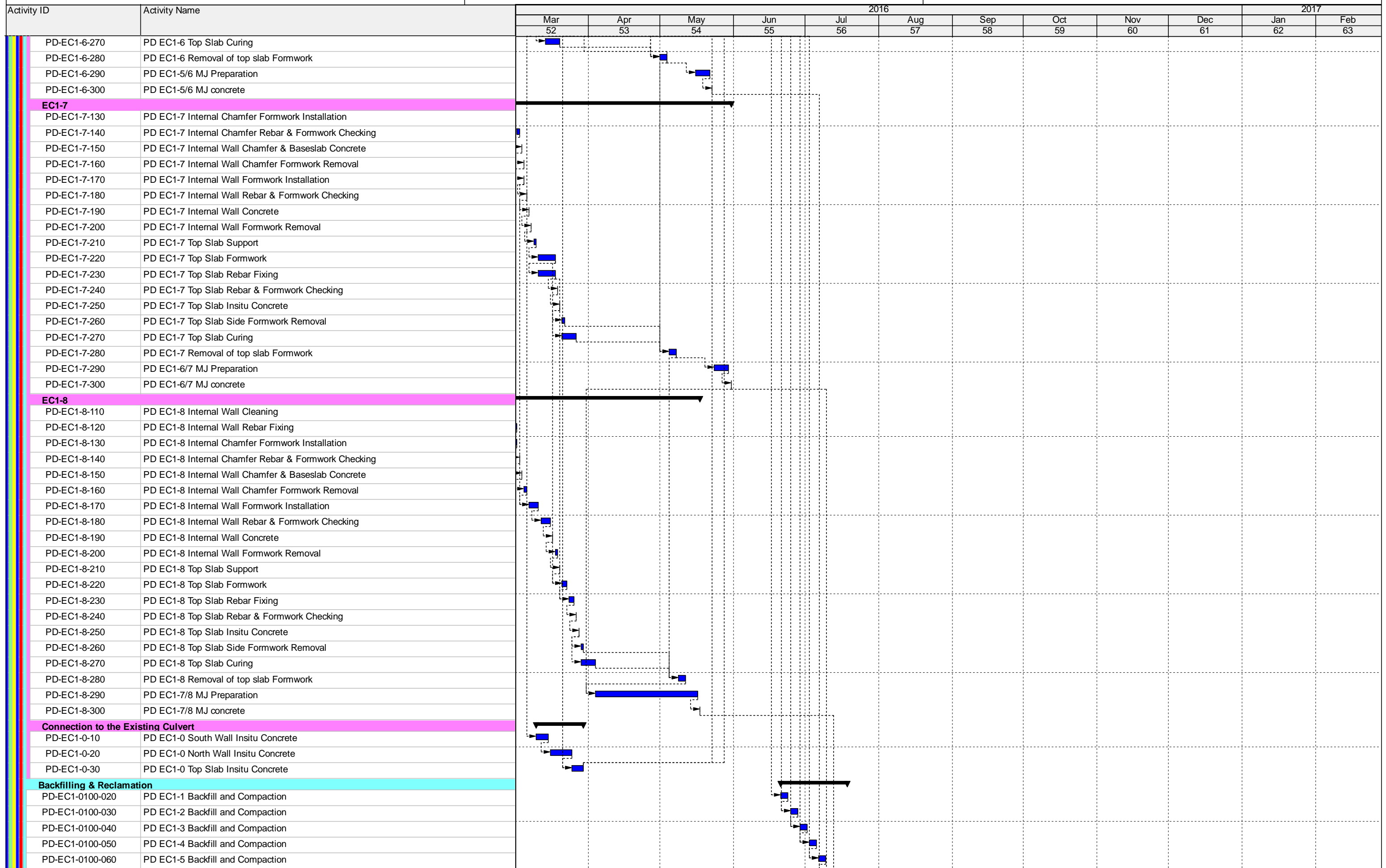


█ Remaining Level of Effort   
 █ Remaining Work   
 ▶ Summary  
█ Actual Level of Effort   
 █ Critical Remaining Work  
█ Actual Work   
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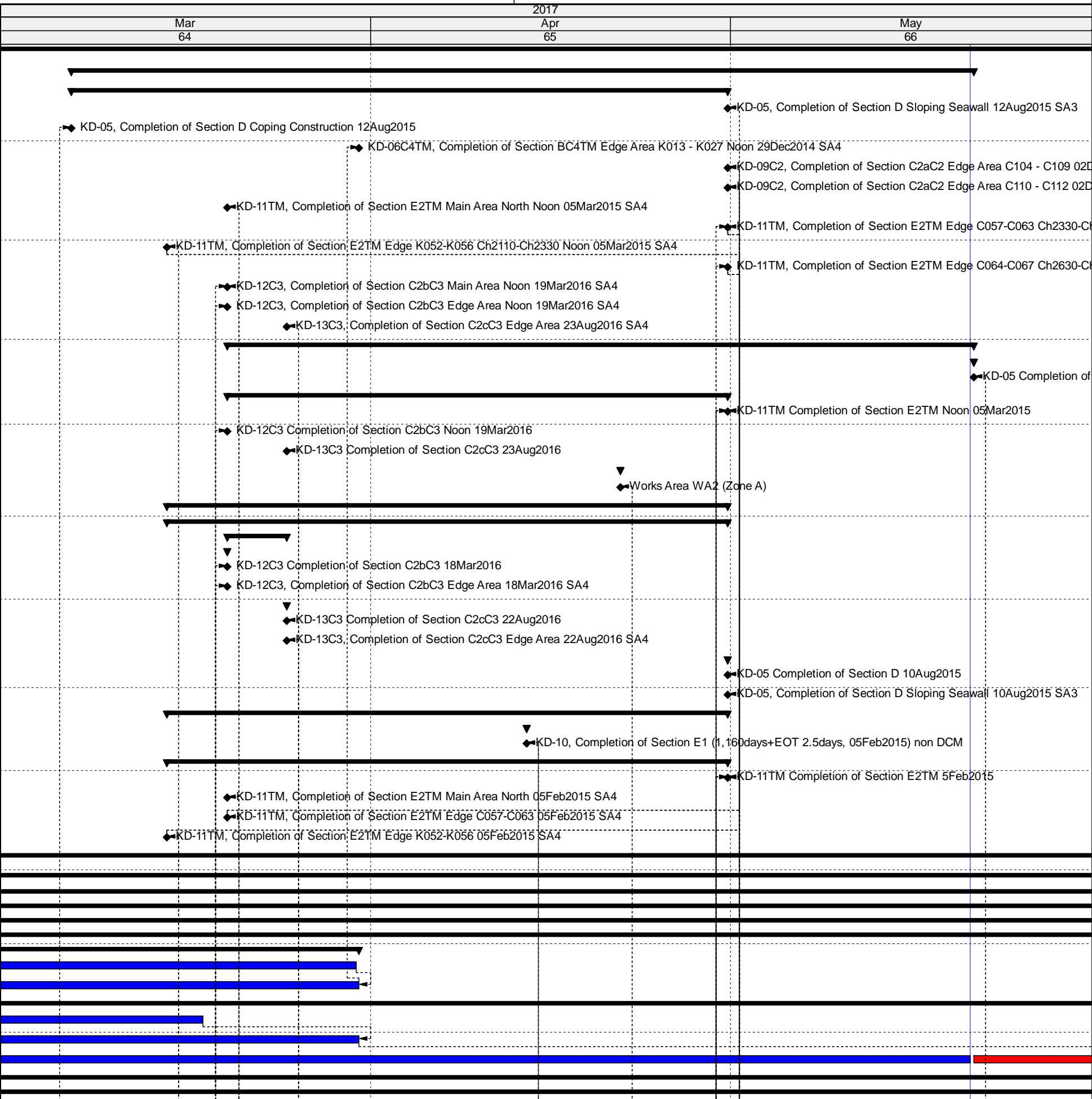




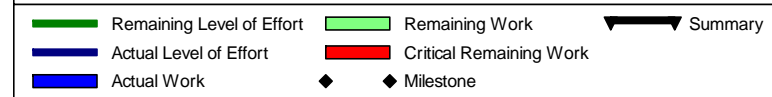
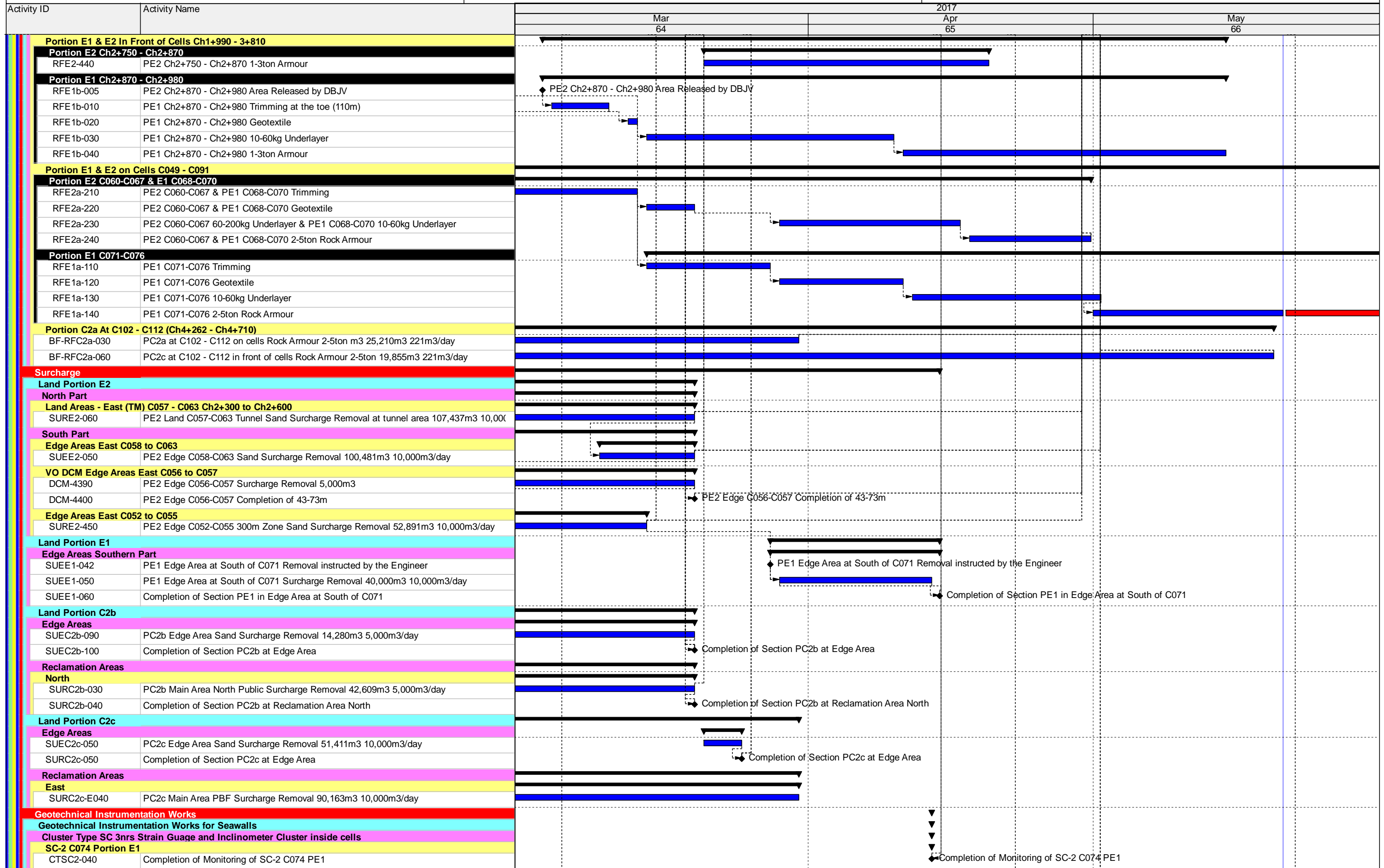




Activity ID	Activity Name	2016										2017	
		Mar 52	Apr 53	May 54	Jun 55	Jul 56	Aug 57	Sep 58	Oct 59	Nov 60	Dec 61	Jan 62	Feb 63
PD-EC1-0100-070	PD EC1-6 Backfill and Compaction												
PD-EC1-0100-080	PD EC1-7 Backfill and Compaction												
PD-EC1-0100-090	PD EC1-8 Outfall Backfill and Compaction												
<b>Works Area WA2 (Tung Chung)</b>													
<b>Zone A</b>													
A1880	Maintenance of Engineer's Accommodation (28Feb2017)												
<b>Works Area TKO Fill Bank</b>													
WA-TKO-1040	Operate and Maintain Public Fill Sorting Facilities in Zone A, B1 & B2 (30Nov2016)												

Activity ID	Activity Name
<b>66th Monthly Progress Report Status as on 21May2017</b>	
<b>Contract Key Dates</b>	
<b>Key Dates for achievement of Stages and completion of Sections</b>	
G1076	KD-05, Completion of Section D Sloping Seawall 12Aug2015 SA3
G1078	KD-05, Completion of Section D Coping Construction 12Aug2015
G1082	KD-06C4TM, Completion of Section BC4TM Edge Area K013 - K027 Noon 29Dec2014 S
G1111	KD-09C2, Completion of Section C2aC2 Edge Area C104 - C109 02Dec2015 SA3 43-73M
G1118	KD-09C2, Completion of Section C2aC2 Edge Area C110 - C112 02Dec2015 SA3 23-73n
G1130	KD-11TM, Completion of Section E2TM Main Area North Noon 05Mar2015 SA4
G1134	KD-11TM, Completion of Section E2TM Edge C057-C063 Ch2330-Ch2630 Noon 05Mar2
G1135	KD-11TM, Completion of Section E2TM Edge K052-K056 Ch2110-Ch2330 Noon 05Mar2
G1136	KD-11TM, Completion of Section E2TM Edge C064-C067 Ch2630-Ch2790 Noon 05Mar2
G1140	KD-12C3, Completion of Section C2bC3 Main Area Noon 19Mar2016 SA4
G1142	KD-12C3, Completion of Section C2bC3 Edge Area Noon 19Mar2016 SA4
G1152	KD-13C3, Completion of Section C2cC3 Edge Area 23Aug2016 SA4
<b>Supplementary Agreement</b>	
<b>SA3</b>	
SA3-KD05-010	KD-05 Completion of Section D 12Aug2015
<b>SA4</b>	
SA4-KD11-040	KD-11TM Completion of Section E2TM Noon 05Mar2015
SA4-KD12-010	KD-12C3 Completion of Section C2bC3 Noon 19Mar2016
SA4-KD13-010	KD-13C3 Completion of Section C2cC3 23Aug2016
<b>Vacation of Site</b>	
G1280	Works Area WA2 (Zone A)
<b>Summary Programme</b>	
<b>Portion Summary</b>	
<b>Portion C</b>	
<b>Portion C2b</b>	
SSA4-KD12-010	KD-12C3 Completion of Section C2bC3 18Mar2016
SSC2b-1142	KD-12C3, Completion of Section C2bC3 Edge Area 18Mar2016 SA4
<b>Portion C2c</b>	
SSA4-KD13-010	KD-13C3 Completion of Section C2cC3 22Aug2016
SSC2c-1152	KD-13C3, Completion of Section C2cC3 Edge Area 22Aug2016 SA4
<b>Portion D</b>	
SSA3-KD05-010	KD-05 Completion of Section D 10Aug2015
SSD-1076	KD-05, Completion of Section D Sloping Seawall 10Aug2015 SA3
<b>Portion E</b>	
<b>Portion E1</b>	
SSE1-1120	KD-10, Completion of Section E1 (1,160days+EOT 2.5days, 05Feb2015) non DCM
<b>Portion E2</b>	
SSA4-KD11-040	KD-11TM Completion of Section E2TM 5Feb2015
SSE2-1130	KD-11TM, Completion of Section E2TM Main Area North 05Feb2015 SA4
SSE2-1134	KD-11TM, Completion of Section E2TM Edge C057-C063 05Feb2015 SA4
SSE2-1135	KD-11TM, Completion of Section E2TM Edge K052-K056 05Feb2015 SA4
<b>Work Zone, as defined in PS Clause 1.03(6)</b>	
<b>Portion A, B, C &amp; E</b>	
<b>Seawall</b>	
<b>Optimizing Rubble Mound Seawalls</b>	
<b>Rock Armour</b>	
<b>Seawall Portion B K013-K027 Ch0+450 - Ch1+100</b>	
RFB0-030	PB at K013 - K027 Underlayer (200-500kg) 16,832m3 1000m3/day
RFB0-040	PB at K013 - K027 Rock Armour (0.3-1 ton 33904m3 244m3/day)
<b>Seawall Portion C2a C113-C119 Ch4+710 - Ch5+050</b>	
RFC2a010	PC2a at C113 - C117 Removal of Temporary Rockfill (190,000m3, 1,500m3/day)
RFC2a030	PC2a at C113 - C117 Underlayer 21,600m3 1000m3/day
RFC2a040	PC2a at C113 - C117 Rock Armour (2-5 ton 43,272m3 305m3/day)
<b>Conforming Sloping Seawalls</b>	
<b>Rock Armour - Before Surcharge Period</b>	



	Remaining Level of Effort		Remaining Work		Summary
	Actual Level of Effort		Critical Remaining Work		Milestone
	Actual Work				



Activity ID	Activity Name	2017		
		Mar 64	Apr 65	May 66
<b>Portion D</b>				
<b>Site Construction</b>				
<b>C1 to C4</b>				
<b>Construction of Permanent Seawall</b>				
<b>Vertical Seawall Type V2 6+136 to 5+650</b>				
<b>Reclamation upto +5.5mPD</b>				
PD-V2-0380	PD C1 West - Coping backfill with compaction upto +5.5mPD VSOP22-20			
PD-V2-0420	PD C4 East - Coping backfill with compaction upto +5.5mPD VSOP05-01			
PD-V2-0430	PD Completion of Coping before end June 2017	 PD Completion of Coping before end June 2017		
<b>Sloping Seawall Type S1 0+000 to 0+420</b>				
<b>S1 Rockfill Type 1</b>				
PD-S1-1030	PD C2/3 - Sloping Seawall Type S1 Reconstruction			
PD-S1-1040	PD C3/4 - Sloping Seawall Type S1 Reconstruction			
PD-S1-1045	PD C4 East - Sloping Seawall Type S1 Reconstruction			
PD-S1-1050	Completion of Southern Sloping Seawall	 Completion of Southern Sloping Seawall		
<b>Works Area WA2 (Tung Chung)</b>				
<b>Zone A</b>				
A1880	Maintenance of Engineer's Accommodation (28Feb2017)			

Activity ID	Activity Name	2017		
		Jun	Jul	Aug
		67	68	69
<b>67th Monthly Progress Report Status as on 21Jun2017</b>				
<b>Additional Works</b>				
<b>Reinstatement of Seawall After Removal of Temporary Jetty by C2 contractor</b>				
OS01-0020	Reinstatement of seawall			
<b>Effluent Discharge Pipe K047/048</b>				
OS02-0010	Removal of top soil of existing cell at K047/048			
OS02-0020	Cut Down existing steel sheet pile & capping beam			
OS02-0030	300mm Rockfill bedding			
OS02-0040	Discharge pipe laying			
OS02-0050	Discharge Pipe Concrete Surrounding			
OS02-0060	Outfall Precast Concrete			
OS02-0070	Outfall Curing			
OS02-0080	Outfall Installation			
<b>Additional GI Works</b>				
OS03-0010	Outstanding Land Based GI Works 13nos from 1 July 2017			
OS03-0020	Outstanding Marine Based GI Works 37nos from 1 July 2017			

█ Remaining Level of Effort    █ Remaining Work    S...  
█ Actual Level of Effort    █ Critical Remaining Work  
█ Actual Work    ◆ Milestone

Activity ID	Activity Name	2017			
		Sep	Oct	Nov	Dec
		70	71	72	73
<b>70th Monthly Progress Report Status as on 21September2017</b>					
<b>Additional Works</b>					
<b>Reinstatement of Seawall After Removal of Temporary Jetty by C2 contractor</b>					
OS01-0030	Removal of Temp Rockfill Seaside				
OS01-0040	Removal of Temp Rockfill Landside				
OS01-0050	Installation Underlayer				
OS01-0060	Installation of Rock Armour				
<b>Effluent Discharge Pipe K047/048</b>					
OS02-0020	Cut Down existing steel sheet pile & capping beam				
OS02-0030	300mm Rockfill bedding				
OS02-0040	Discharge pipe laying				
OS02-0050	Discharge Pipe Concrete Surrounding				
OS02-0060	Outfall Precast Concrete				
OS02-0070	Outfall Curing				
OS02-0080	Outfall Installation				
OS02-0100	Flexible Joint				
OS02-0110	Backfill				
OS02-0120	Reinstatement at K047/048				
<b>Additional GI Works</b>					
OS03-0020	Outstanding Marine Based GI Works 194nos				

█ Remaining Level of Effort    █ Remaining Work    S...  
█ Actual Level of Effort    █ Critical Remaining Work  
█ Actual Work    ◆ ◆ Milestone

Activity ID	Activity Name	2017		2018	
		Dec 73	Jan 74	Feb 75	Mar 76
<b>73rd Monthly Progress Report Status as on 21December2017</b>					
<b>Additional Works</b>					
<b>Reinstatement of Seawall After Removal of Temporary Jetty by C2 contractor</b>					
OS01-0050	Installation Underlayer				
OS01-0060	Installation of Rock Armour				
<b>Effluent Discharge Pipe K047/048</b>					
OS02-0120	Reinstatement at K047/048 (SRT)				
<b>Additional GI Works</b>					
OS03-0020	Outstanding Marine Based GI Works 194nos				

█ Remaining Level of Effort    █ Remaining Work    S...  
█ Actual Level of Effort    █ Critical Remaining Work  
█ Actual Work    ◆ ◆ Milestone



Activity ID	Activity Name
<b>74th Monthly Progress Report Status as on 21 January 2018</b>	
<b>Additional Works</b>	
<b>Effluent Discharge Pipe K047/048</b>	
OS02-0120	Reinstatement at K047/048 (SRT)

2	2018			
	Jan	Feb	Mar	Apr
	74	75	76	77

**Appendix C - Implementation Schedule of Environmental Mitigation Measures**

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
<b>Air Quality</b>				
S5.5.6.1 of HKBCFEIA	A1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	All construction sites	V
S5.5.6.2 of HKBCFEIA and S4.8.1 of TKCLKLEIA	A2	Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> <li>• When there are open excavation and reinstatement works, hoarding of not</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<p>less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</p> <ul style="list-style-type: none"> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> <li>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</li> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash</li> </ul>		

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<p>(PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</p> <ul style="list-style-type: none"> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• All unpaved roads/exposed area shall be watered which results in dust suppression by forming moist cohesive films among the discrete grains of road surface material.</li> <li>• No burning of debris or other materials on the works areas is allowed;</li> <li>• Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created;</li> <li>• Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading;</li> <li>• During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport. Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA</li> </ul>		

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and <ul style="list-style-type: none"> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>		
S5.5.6.3 of HKBCFEIA and S4.8.1 of TKCLKLEIA	A3	The Contractor should undertake proper watering on all exposed spoil and associated work areas (with at least 8 times per day) throughout the construction phase.	All construction sites	V
S5.5.6.4 of HKBCFEIA and S4.11 of TKCLKLEIA	A4	Implement regular dust monitoring under EM&A programme during the construction stage.	Selected representative dust monitoring station	V (Monitoring works between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.)

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
S5.5.7.1 of HKBCFEIA	A5	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant:</p> <ul style="list-style-type: none"> <li>• Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system;</li> <li>• All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP;</li> <li>• Vents for all silos and cement/ pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system;</li> <li>• The materials which may generate airborne dusty emissions should be wetted by water spray system;</li> <li>• All receiving hoppers should be enclosed on three sides up to 3m above unloading point;</li> <li>• All conveyor transfer points should be totally enclosed;</li> <li>• All access and route roads within the premises should be paved and wetted; and</li> <li>• Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body.</li> </ul>	All construction sites	N/A
S5.5.2.7 of	A6	The following mitigation measures should be adopted to prevent	All construction	N/A

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
HKBCFEIA		fugitive dust emissions at barging point: <ul style="list-style-type: none"> <li>• All road surface within the barging facilities will be paved;</li> <li>• Dust enclosures will be provided for the loading ramp;</li> <li>• Vehicles will be required to pass through designated wheels wash facilities; and</li> <li>• Continuous water spray at the loading points.</li> </ul>	sites	(Construction in process)
<b>Construction Noise (Air borne)</b>				
S6.4.10 of HKBCFEIA	N1	Use of good site practices to limit noise emissions by considering the following: <ul style="list-style-type: none"> <li>• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>• machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>• silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>• mobile plant should be sited as far away from NSRs as possible and practicable;</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<ul style="list-style-type: none"> <li>material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>		
S6.4.11 of HKBCFEIA	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	All construction sites	V
S6.4.12 of HKBCFEIA	N3	Install movable noise barriers (typically density @14kg/m <sup>2</sup> ), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw.	For plant items listed in Appendix 6D of the EIA report at all construction sites	N/A
S6.4.13 of HKBCFEIA	N4	Select “Quiet plants” which comply with the BS 5228 Part 1 or TM standards.	For plant items listed in Appendix 6D of the EIA report at all construction sites	V
S6.4.14 of HKBCFEIA	N5	Sequencing operation of construction plants where practicable.	All construction sites where practicable	V



EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
S5.1 of TMCLKLEIA	N6	Implement a noise monitoring under EM&A programme.	Selected representative noise monitoring station	V (Monitoring works between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.)
<b>Waste Management (Construction Waste)</b>				
S12.6 of TMCLKLEIA	WM1	The Contractor shall identify a coordinator for the management of waste.	All construction sites	V
S12.6 of TMCLKLEIA	WM2	The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	All construction sites	V
S12.6 of TMCLKLEIA	WM3	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.	All construction sites	V
S8.3.8 of HKBCFEIA and S12.6 of TMCLKLEIA	WM4	<p><i>Construction and Demolition Material</i></p> <p>The following mitigation measures should be implemented in handling the waste:</p> <ul style="list-style-type: none"> <li>Maintain temporary stockpiles and reuse excavated fill material for</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		backfilling and reinstatement; <ul style="list-style-type: none"> <li>• Carry out on-site sorting;</li> <li>• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>• Adopt ‘Selective Demolition’ technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> <li>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified;</li> <li>• Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction;</li> <li>• In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation; and</li> <li>• The surplus surcharge should be transferred to a fill bank.</li> </ul>		
S8.3.9- S8.3.11 of	WM5	<u>C&amp;D Waste</u> <ul style="list-style-type: none"> <li>• Standard formwork or pre-fabrication should be used as far as practicable</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
HKBCFEIA and S12.6 of TMCLKLEIA		<p>in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding and falsework should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</p> <ul style="list-style-type: none"> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</li> </ul>		
S8.2.12- S8.3.15 of HKBCFEIA and S12.6 of TMCLKLEIA	WM6	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<p>unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</p> <ul style="list-style-type: none"> <li>• The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.</li> <li>• Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>		
S8.3.16 of HKBCFEIA and S12.6 of TMCLKLEIA	WM7	<p><u>Sewage</u></p> <ul style="list-style-type: none"> <li>• Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly.</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
S8.3.17 of HKBCFEIA and S12.6 of TMCLKLEIA	WM8	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>• The site and surroundings shall be kept tidy and litter free. General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>• A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>• Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</li> <li>• Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans, plastic bottles etc., should be provided.</li> <li>• Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.</li> <li>• Sufficient dustbins shall be provided for storage of waste as</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<p>required under the Public Cleansing and Prevention of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station.</p> <ul style="list-style-type: none"> <li>All waste containers shall be in a secure area on hardstanding.</li> </ul>		
<b>Water Quality (Construction Phase)</b>				
	W1	<p>Mitigation during the marine works to reduce impacts to within acceptable levels have been recommended and will comprise a series of measures that restrict the method and sequencing of backfilling, as well as protection measures. Details of the measures are provided below:</p> <ul style="list-style-type: none"> <li>Reclamation filling for the Project shall not proceed until at least 200m of leading seawall at the reclamation area formed above +2.2mPD, unless otherwise agreement was obtained from EPD, except for the 300m gaps for marine access. All underwater filling works shall be carried out behind seawalls to avoid dispersion of suspended solids outside the Project limit;</li> </ul>	During filling	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<ul style="list-style-type: none"> <li>• Except for the filling of the cellular structures, not more than 15% public fill shall be used for reclamation filling below +2.5mPD during construction of the seawall;</li> <li>• After the seawall is completed except for the 300m marine access as indicated in the EPs, not more than 30% public fill shall be used for reclamation filling below +2.5mPD, unless otherwise agreement from EPD was obtained;</li> <li>• Upon completion of 200m leading seawall, no more than a total of 60 filling barge trips per day shall be made with a cumulative maximum daily filling rate of 60,000 m<sup>3</sup> for HKBCF and TMCLKL southern landfall reclamation during the filling operation; and</li> <li>• Upon completion of the whole section of seawall except for the 300m marine access as indicated in the EPs, no more than a total of 190 filling barge trips per day shall be made with a cumulative maximum daily filling rate of 190,000 m<sup>3</sup> for the remaining filling operations for HKBCF and TMCLKL southern landfall reclamation.</li> <li>• Floating type perimeter silt curtains shall be around the HKBCF site before the commencement of marine works. Staggered layers of silt curtain shall be provided to prevent sediment loss at navigation accesses. The length of each staggered layers shall be at least 200m;</li> </ul>		

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<ul style="list-style-type: none"> <li>• Single layer silt curtain to be applied around the North-east airport water intake;</li> <li>• The silt-curtains should be maintained in good condition to ensure the sediment plume generated from filling be confined effectively within the site boundary;</li> <li>• The filling works shall be scheduled to spread the works evenly over a working day;</li> <li>• Cellular structure shall be used for seawall construction;</li> <li>• A layer of geotextile shall be placed on top of the seabed before any filling activities take place inside the cellular structures to form the seawall;</li> <li>• The conveyor belts shall be fitted with windboards and conveyor release points shall be covered with curtain to prevent any spillage of filling materials onto the surrounding waters; and</li> <li>• An additional layer of silt curtain shall be installed near the active stone column installation points. A layer of geotextile with stone blanket on top shall be placed on the seabed prior to stone column installation works.</li> <li>• All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or</li> </ul>		



EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		propeller wash		
S9.11.1.3 of HKBCFEIA and S6.10 of TMCLKLEIA	W2	<p><u>Land Works</u></p> <p>General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include:</p> <ul style="list-style-type: none"> <li>• wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;</li> <li>• sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided;</li> <li>• storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks;</li> </ul>	All land-based construction sites	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<ul style="list-style-type: none"> <li>• silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm;</li> <li>• temporary access roads should be surfaced with crushed stone or gravel;</li> <li>• rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;</li> <li>• measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;</li> <li>• open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;</li> <li>• manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers;</li> <li>• discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;</li> <li>• all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit;</li> </ul>		

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<ul style="list-style-type: none"> <li>• wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain;</li> <li>• the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel;</li> <li>• wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects;</li> <li>• vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for offsite disposal;</li> <li>• the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately;</li> <li>• waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance;</li> <li>• all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and</li> </ul>		

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<ul style="list-style-type: none"> <li>• surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the storm water system..</li> </ul>		
S9.14 of HKBCFEIA and S6.10 of TMCLKLEIA	W3	Implement a water quality monitoring programme	At identified monitoring location	V (Monitoring works between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.)
S6.10 of TMCLKLEIA	W4	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All construction site areas	V
<b>Ecology (Construction Phase)</b>				
S10.7 of HKBCFEIA and S8.14 of TMCLKLEIA	E1	<ul style="list-style-type: none"> <li>• Install silt curtain during the construction</li> <li>• Limit works fronts</li> <li>• Construct seawall prior to reclamation filling where practicable</li> <li>• Good site practices</li> <li>• Strict enforcement of no marine dumping</li> </ul>	Seawall, reclamation area	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<ul style="list-style-type: none"> <li>• Site runoff control</li> <li>• Spill response plan</li> </ul>		
S10.7 of HKBCFEIA	E2	<ul style="list-style-type: none"> <li>• Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater.</li> </ul>	Land-based works areas	V
S10.7 of HKBCFEIA and S8.14 of TMCLKLEIA	E3	<ul style="list-style-type: none"> <li>• Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time.</li> </ul>	Land-based works areas	V
S10.7 of HKBCFEIA and S8.14 of TMCLKLEIA	E4	<ul style="list-style-type: none"> <li>• Dolphin Exclusion Zone</li> <li>• Dolphin watching plan</li> </ul>	Marine works	V (Monitoring works and monitoring data between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.)

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
S10.7 of HKBCFEIA and S8.14 of TMCLKLEIA	E5	<ul style="list-style-type: none"> <li>• Decouple compressors and other equipment on working vessels</li> <li>• Proposal on design and implementation of acoustic decoupling measures applied during reclamation works</li> <li>• Avoidance of percussive piling</li> </ul>	Marine works	V
S10.7 of HKBCFEIA and S8.14 of TMCLKLEIA	E6	<ul style="list-style-type: none"> <li>• Control vessel speed</li> <li>• Skipper training</li> <li>• Predefined and regular routes for working vessels; avoid Brothers Islands</li> </ul>	Marine traffic	V
S10.10 of HKBCFEIA and S8.14 of TMCLKLEIA	E7	<ul style="list-style-type: none"> <li>• Vessel based dolphin monitoring</li> </ul>	Northeast and Northwest Lantau	V (Monitoring works and monitoring data between September 2017 and April 2018 for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai Macao Bridge HKBCF –Passenger Clearance Building.)
<b>Fisheries</b>				
S11.7 of HKBCFEIA	F1	<ul style="list-style-type: none"> <li>• Reduce re-suspension of sediments</li> </ul>	Seawall, reclamation	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
		<ul style="list-style-type: none"> <li>• Limit works fronts</li> <li>• Good site practices</li> <li>• Strict enforcement of no marine dumping</li> <li>• Spill response plan</li> </ul>	area	
S11.7 of HKBCFEIA	F2	<ul style="list-style-type: none"> <li>• Install silt-grease trap in the drainage system collecting surface runoff</li> </ul>	Reclamation area	V
<b>Landscape &amp; Visual (Construction Phase)</b>				
S14.3.3. 3 of HKBCFEIA and S10.9 of TMCLKLEIA	LV1	<p><u>Mitigate Landscape Impacts</u></p> <p>G1/CM4 Grass-hydroseed or sheeting bare soil surface and stock pile areas.</p> <p>G9 Reserve of loose natural granite rocks for re-use. Provide new coastline to adopt “natural-look” by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance “natural-look” of new coastline.</p>	All construction site areas	N/A
S10.9 of TMCLKLEIA	LV2	<p><u>Mitigate Landscape Impacts</u></p> <p>CM7 Ensure no run-off into water body adjacent to the Project Area.</p>	All construction site areas	V
S14.3.3. 3 of HKBCFEIA	LV4	<p><u>Mitigate Visual Impacts</u></p> <p>V1 Minimize time for construction activities during construction period.</p>	All construction site areas	V

EIA Ref.	EM&A Log Ref	Environmental Mitigation Measures	Location	Implementation Status
S10.9 of TMCLKLEIA	LV5	<u>Mitigate Visual Impacts</u> CM6 Control night-time lighting and glare by hooding all lights.	All construction site areas	V
<b>EM&amp;A</b>				
S15.2.2 of HKBCFEIA	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	All construction site areas	V
S15.5 - S15.6 of HKBCFEIA	EM2	<ul style="list-style-type: none"> <li>An Environmental Team needs to be employed as per the EM&amp;A Manual.</li> <li>Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</li> <li>An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&amp;A Manual are fully complied with.</li> </ul>	All construction site areas	V

Legend: V = implemented;

x = not implemented;

N/A = not applicable



## Appendix D - Summary of Action and Limit Levels

Table 1 – Action and Limit Levels for 1-hour TSP

Location	Action Level	Limit Level
AMS2	374 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>
AMS3A/AMS3B*	368 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>
AMS6	360 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>
AMS7/AMS7A/AMS7B	370 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>

Remarks: \* Action Level set out at AMS3 Ho Yu College is adopted.

Table 2 – Action and Limit Levels for 24-hour TSP

Location	Action Level	Limit Level
AMS2	176 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>
AMS3A/AMS3B*	167 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>
AMS6	173 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>
AMS7/AMS7A/AMS7B	183 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>

Remarks: \* Action Level set out at AMS3 Ho Yu College is adopted.

Table 3 – Action and Limit Levels for Construction Noise (0700-1900 hrs of normal weekdays)

Location	Action Level	Limit Level
NMS2	When one documented complaint, related to 0700 – 1900 hours on normal weekdays, is received from any one of the sensitive receivers	75 dB(A)
NMS3A/NMS3B		*65 / 70 dB(A)

\*Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

Table 4 – Action and Limit Levels for Water Quality

Parameters	Action	Limit
DO in mg L <sup>-1</sup> (Surface, Middle & Bottom)	<u>Surface and Middle</u> 5.0 <u>Bottom</u> 4.7	<u>Surface and Middle</u> 4.2 (except 5 mg/L for FCZ) <u>Bottom</u> 3.6
SS in mg L <sup>-1</sup> (depth-averaged)	23.5 and 120% of upstream control station's SS at the same tide of the same day	34.4 and 130% of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes
Turbidity in NTU (depth-averaged)	27.5 and 120% of upstream control station's turbidity at the same tide of the same day	47.0 and 130% of upstream control station's turbidity at the same tide of the same day

Notes:

1. "depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.
2. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
3. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

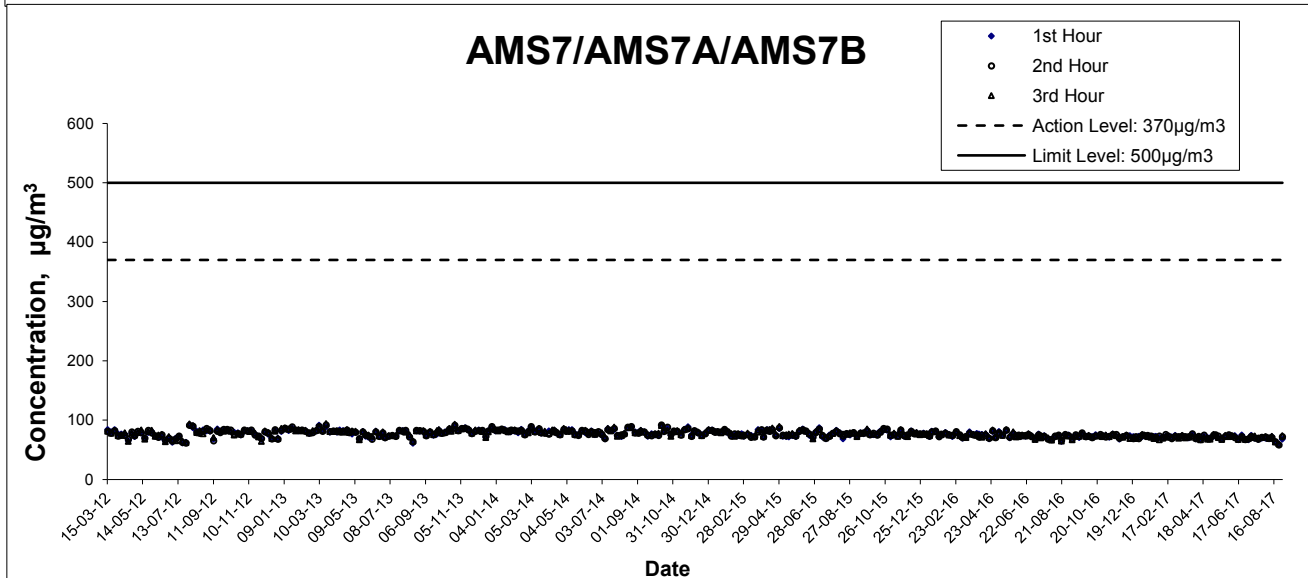
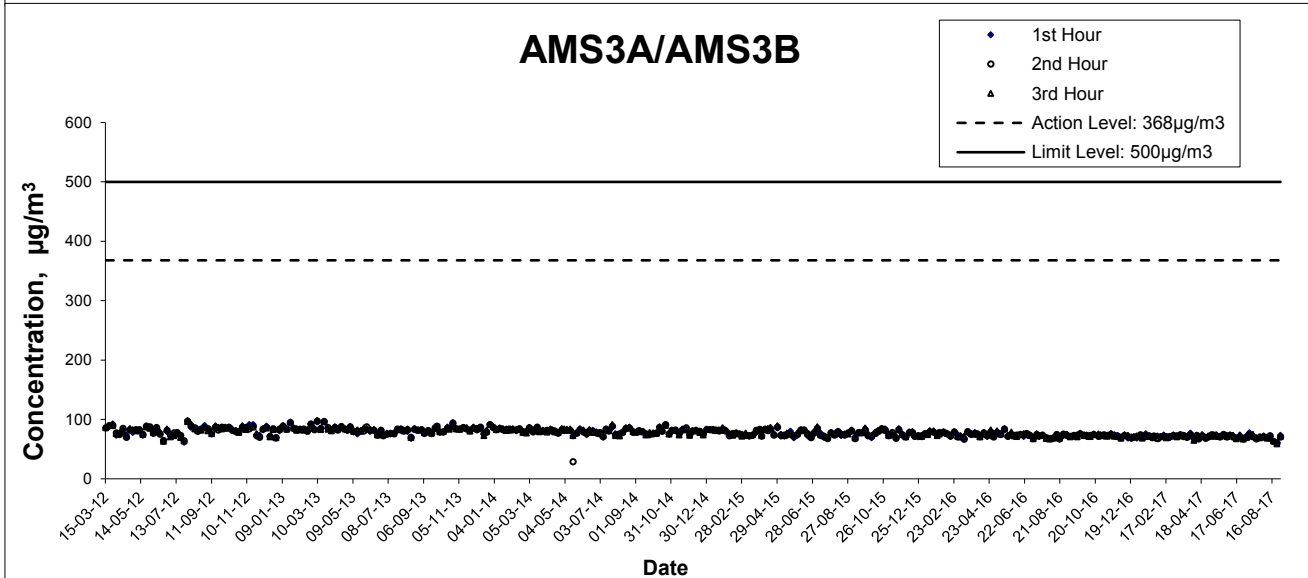
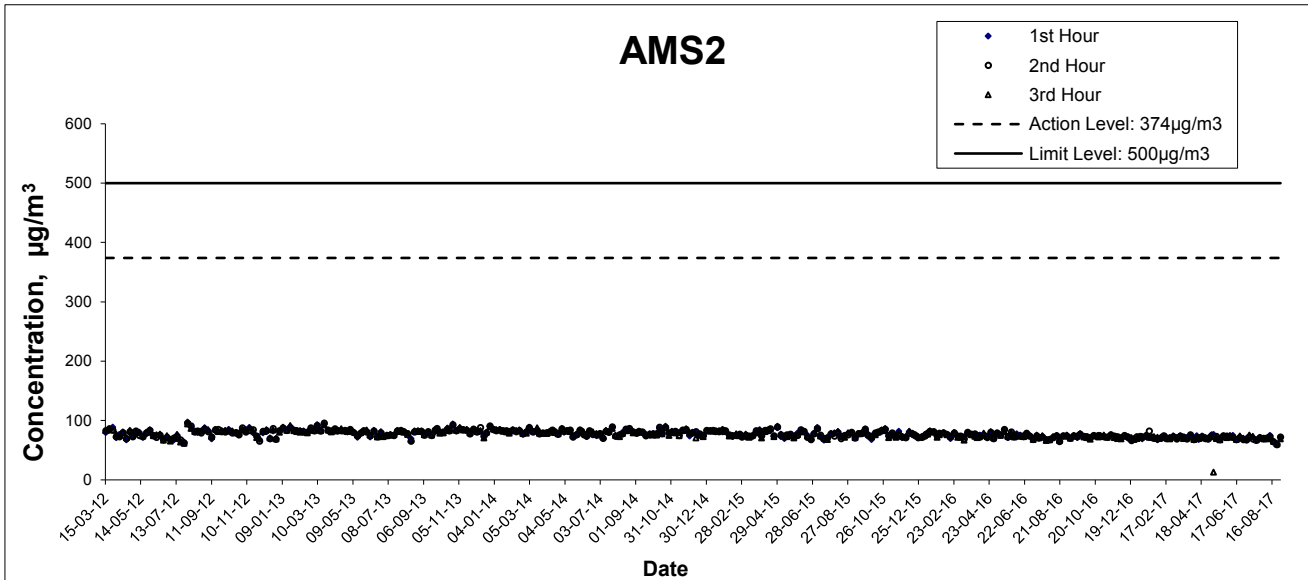
Table 5(a) Action and Limit Levels for Chinese White Dolphin Monitoring - Approach to Define Action Level (AL) and Limit Level (LL):

	<b>North Lantau Social Cluster</b>	
	<b>NEL</b>	<b>NWL</b>
Action Level	(STG < 70% of baseline) & (ANI < 70% of baseline)	(STG < 70% of baseline) & (ANI < 70% of baseline)
Limit Level	[(STG < 40% of baseline) & (ANI < 40% of baseline)] AND [ (STG < 40% of baseline) & (ANI < 40% of baseline)]	

For North Lantau Social Cluster, action level will be trigger if either NEL **or** NWL fall below the criteria; limit level will be triggered if both NEL **and** NWL fall below the criteria.

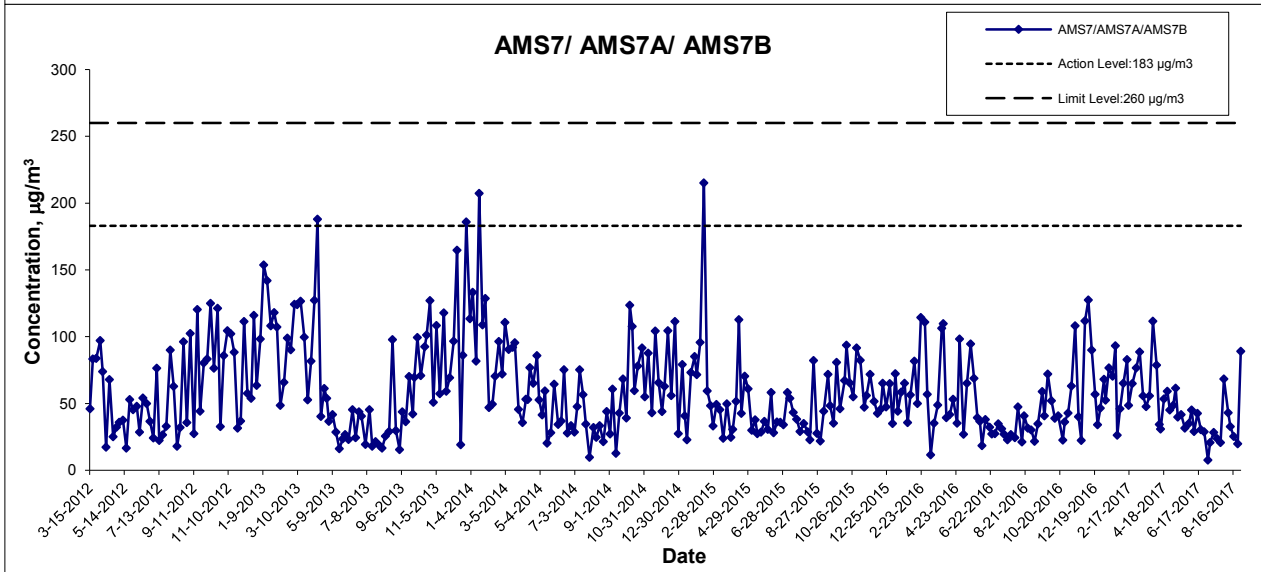
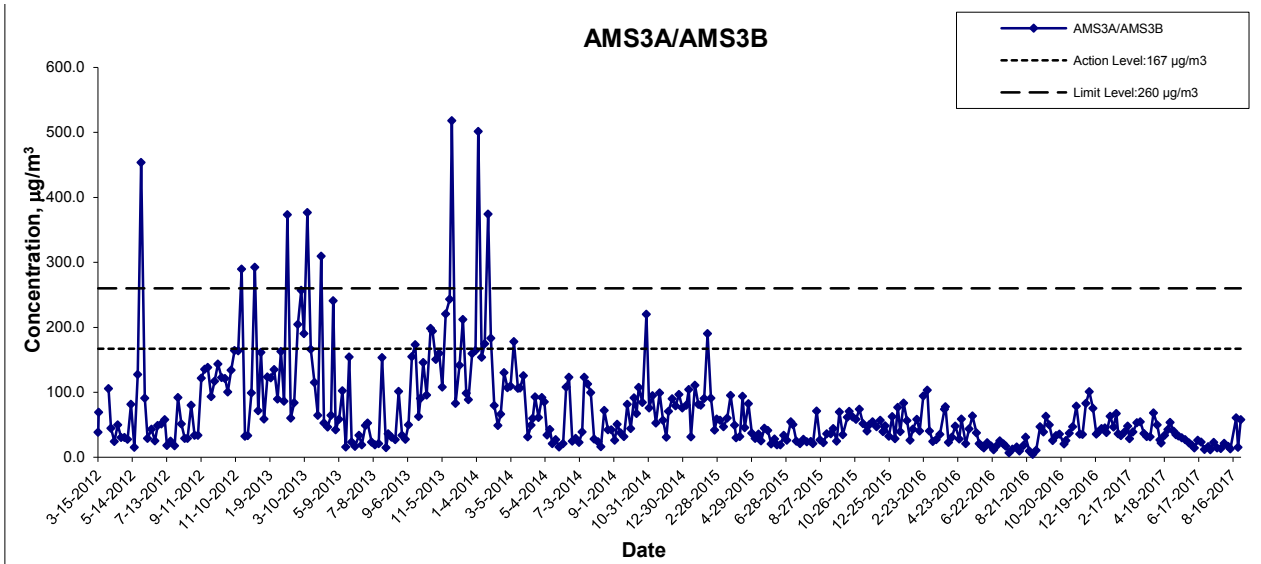
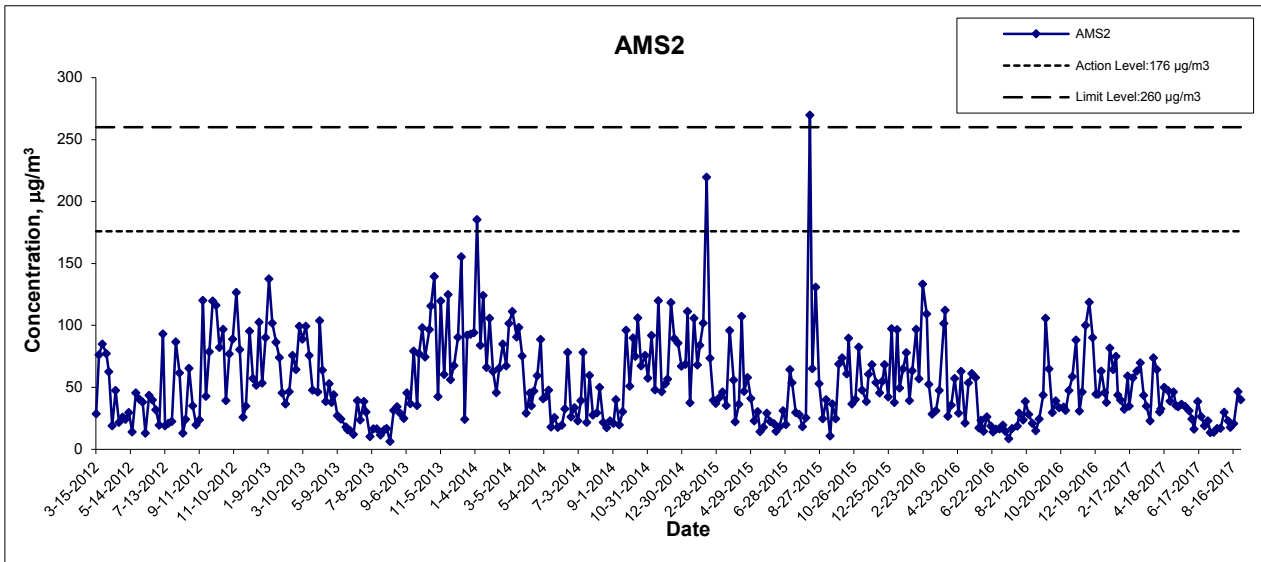
Table 5(b) Derived Value of Action Level (AL) and Limit Level (LL) for Chinese White Dolphin Monitoring

	<b>North Lantau Social Cluster</b>	
	<b>NEL</b>	<b>NWL</b>
Action Level	(STG < 4.2) & (ANI < 15.5)	(STG < 6.9) & (ANI < 31.3)
Limit Level	[(STG < 2.4) & (ANI < 8.9)] AND [ (STG < 3.9) & (ANI < 17.9)]	



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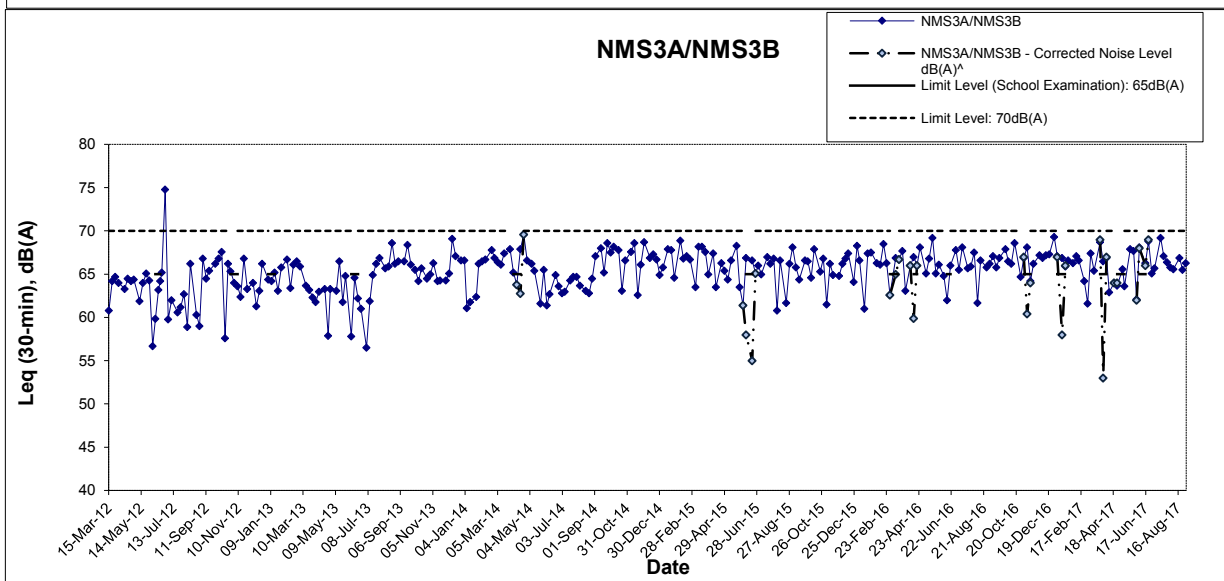
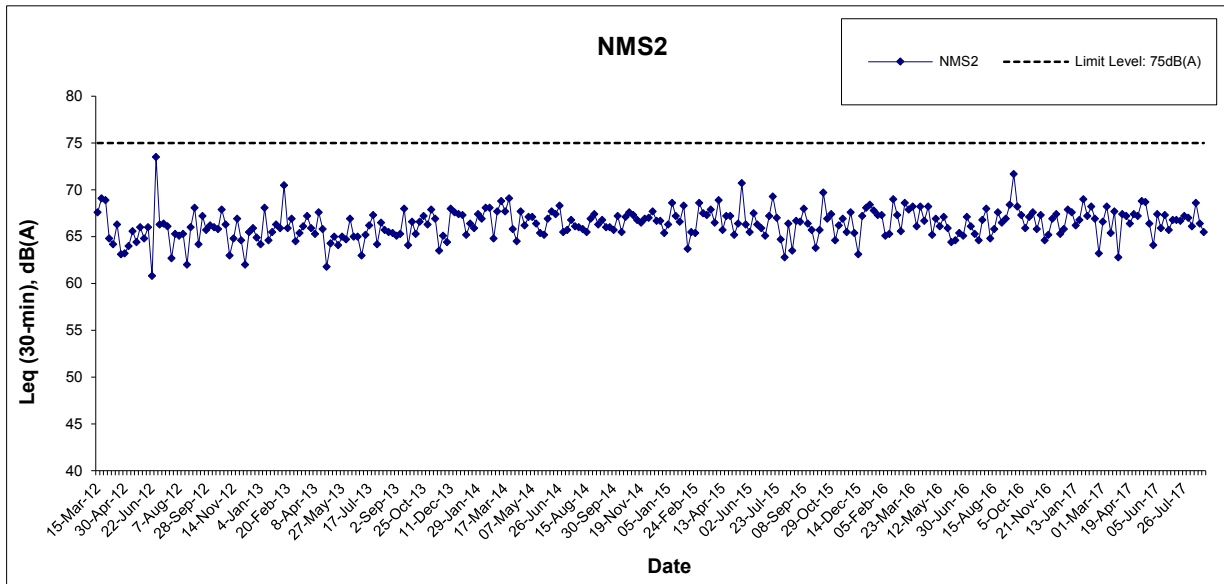
HONG KONG BOUNDARY CROSSING FACILITIES

- RECLAMATION WORKS

Graphical Presentation of Impact 24-hour TSP

Monitoring Results





Remarks: Effective from July 2012, the Limit Level at NMS3A was revised to 70dB(A). Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

>The measured noise level on 5 May 2017 at NMS3B exceeded the noise level of 65dB(A) during examination period but it was below the baseline level. Therefore, it is not considered as an exceedance. As such the EAP was not triggered.

#The measured noise level on 5 Jun 2017 at NMS3B exceeded the noise level of 65dB(A) during examination period. Therefore, baseline correction was carried out and the corrected noise level which solely represent the noise level of Construction works 63.4 dB(A) respectively which is lower than the exceedance level of 65dB(A) . As such the EAP was not triggered.

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Graphical Presentation of Impact Daytime  
 Construction Noise Monitoring Results

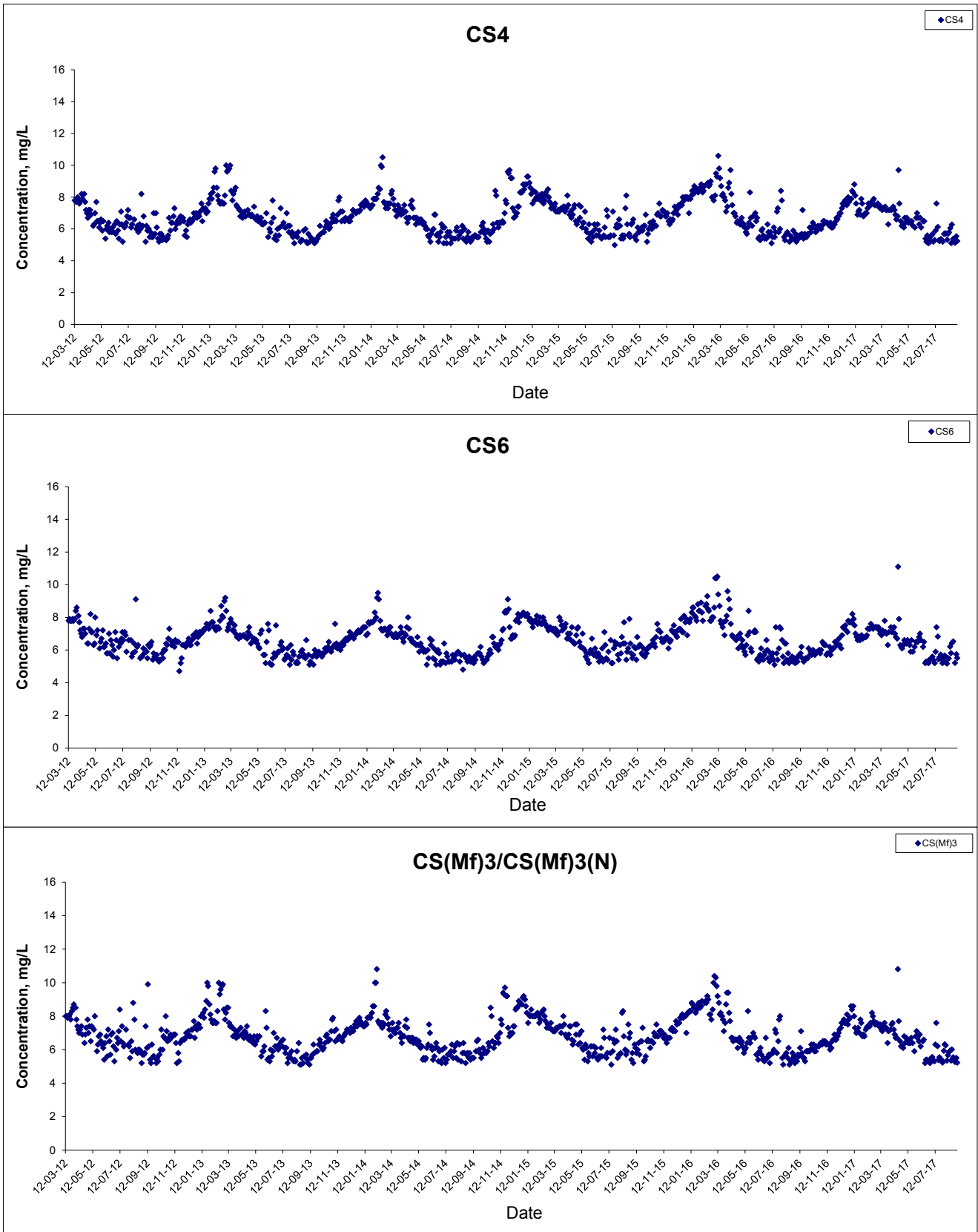


Project No.: 60249820

Date: Nov 2018

Appendix F

## Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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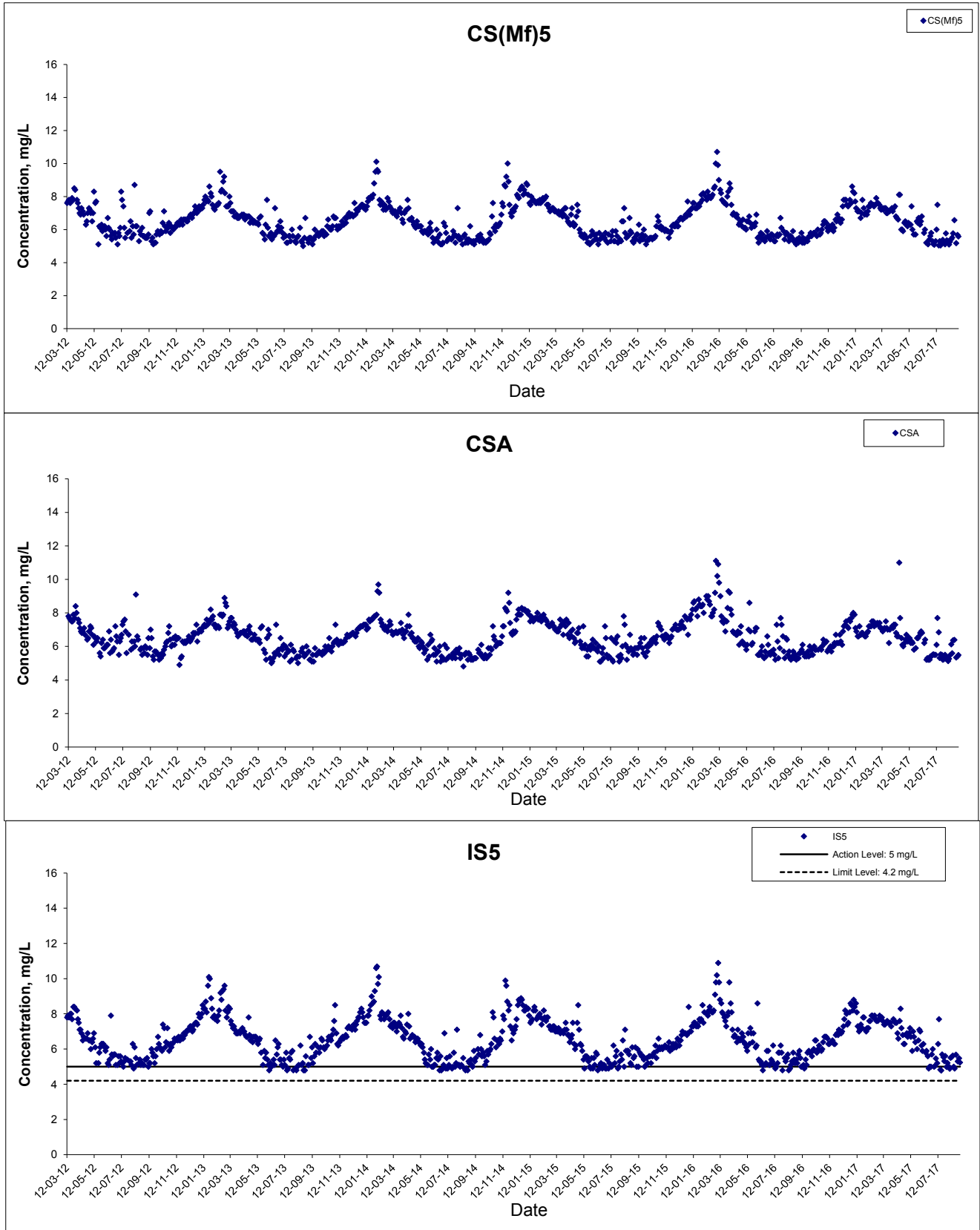
HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS

Graphical Presentation of Impact Water Quality  
 Monitoring Results



\*Water quality monitoring works for the Contract were covered by Contract No. HY/2013/01 Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building effective since 1 September 2017.

## Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS

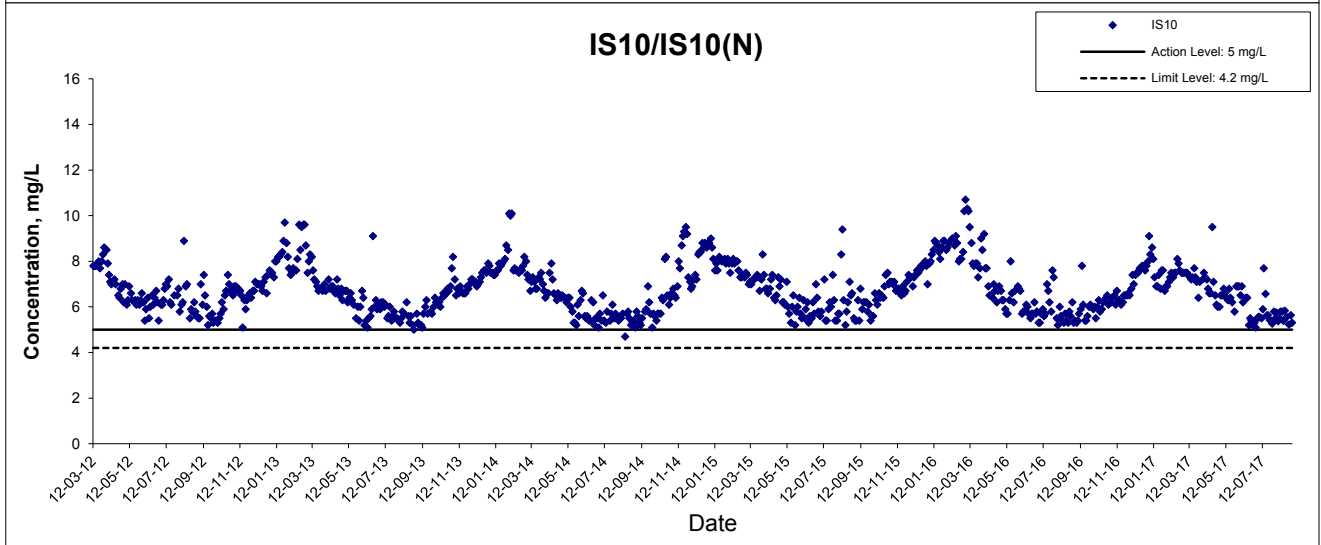
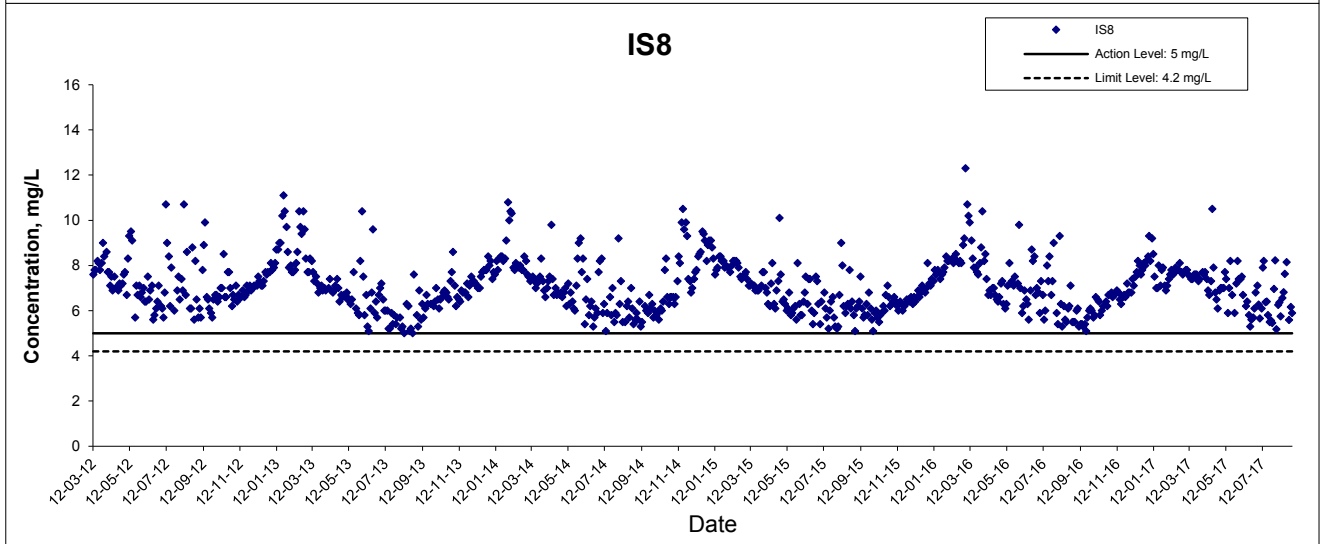
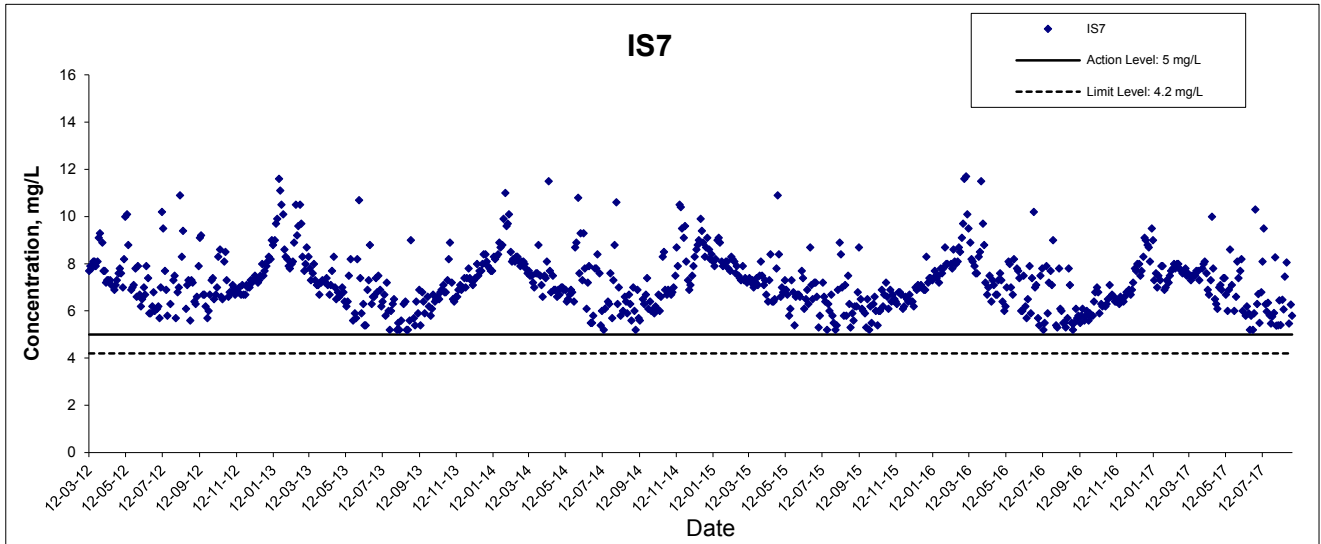
### Graphical Presentation of Impact Water Quality Monitoring Results



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## Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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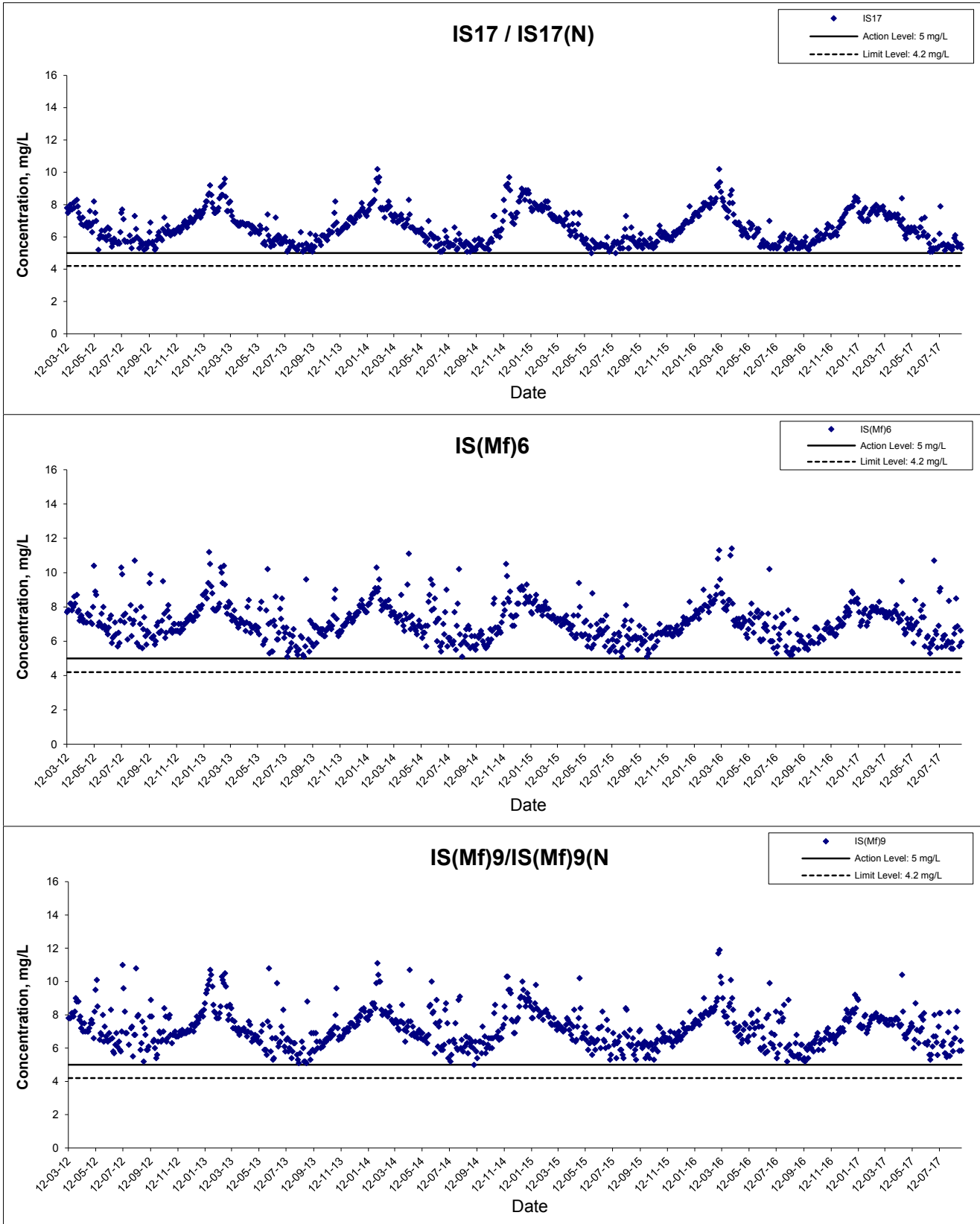
**HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
 Monitoring Results**



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## Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
Monitoring Results**



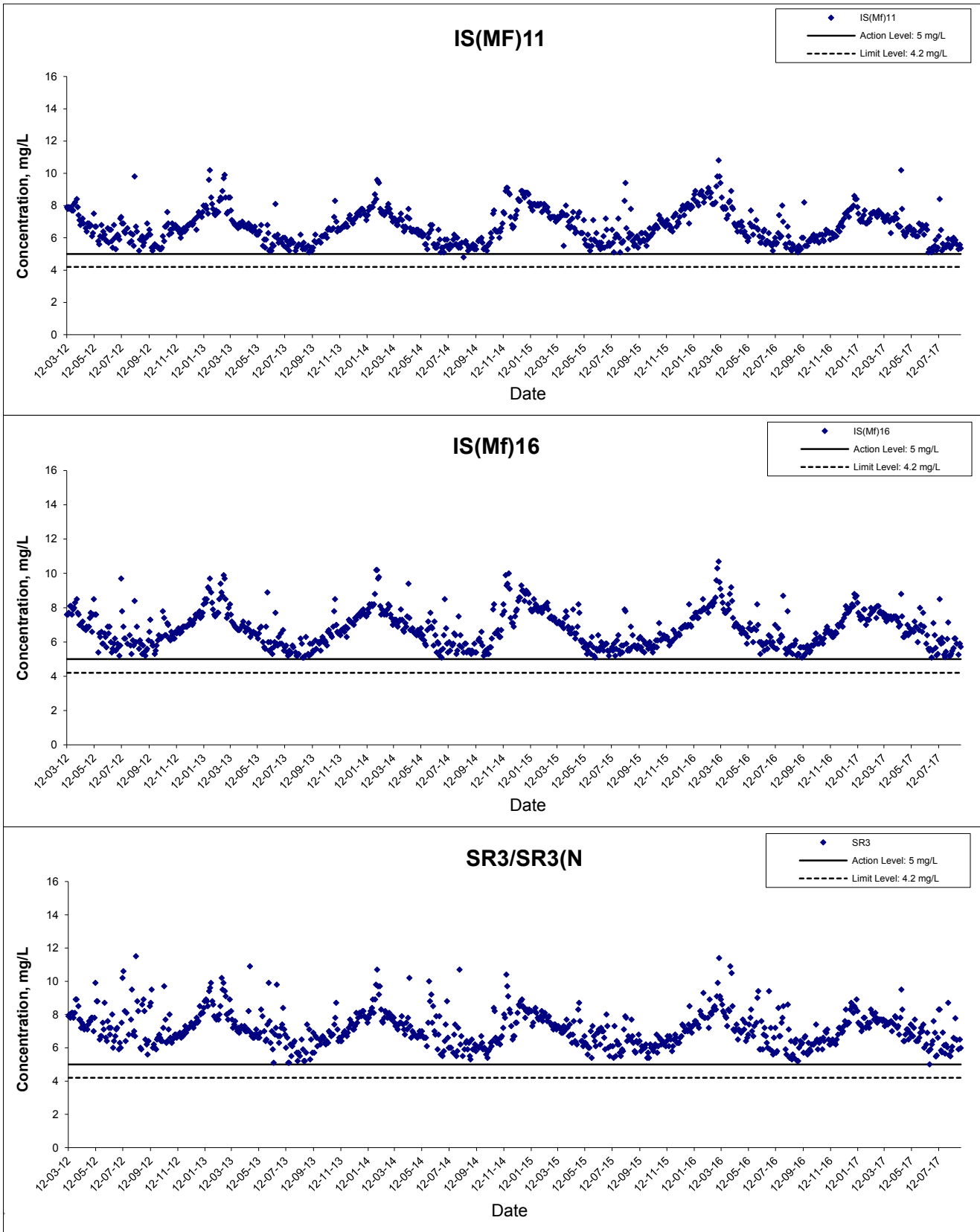
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Project No.: 60249820

Date: November 2018

Appendix G

## Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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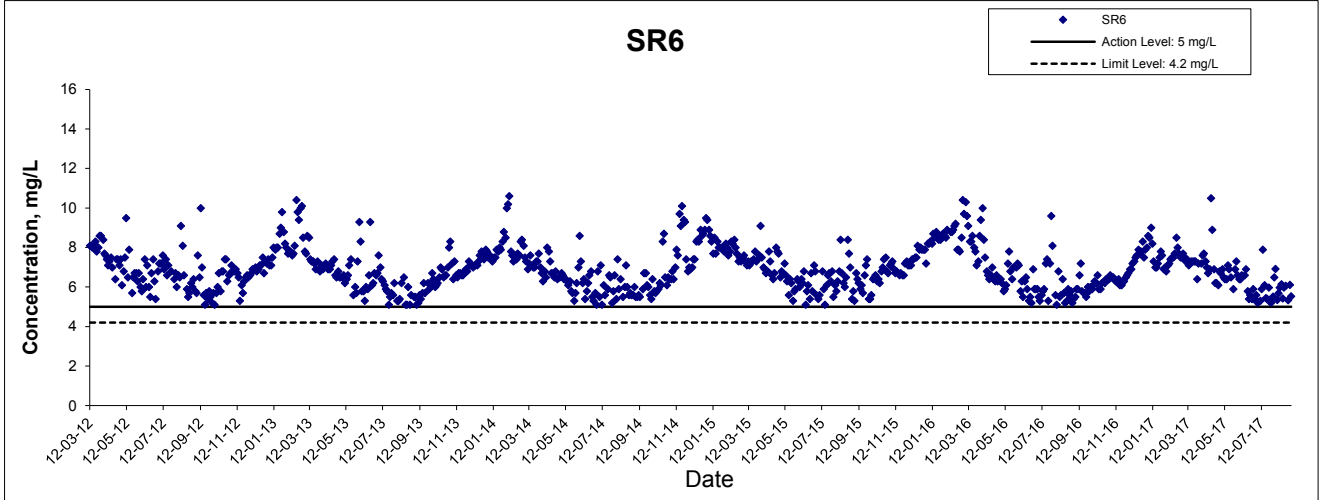
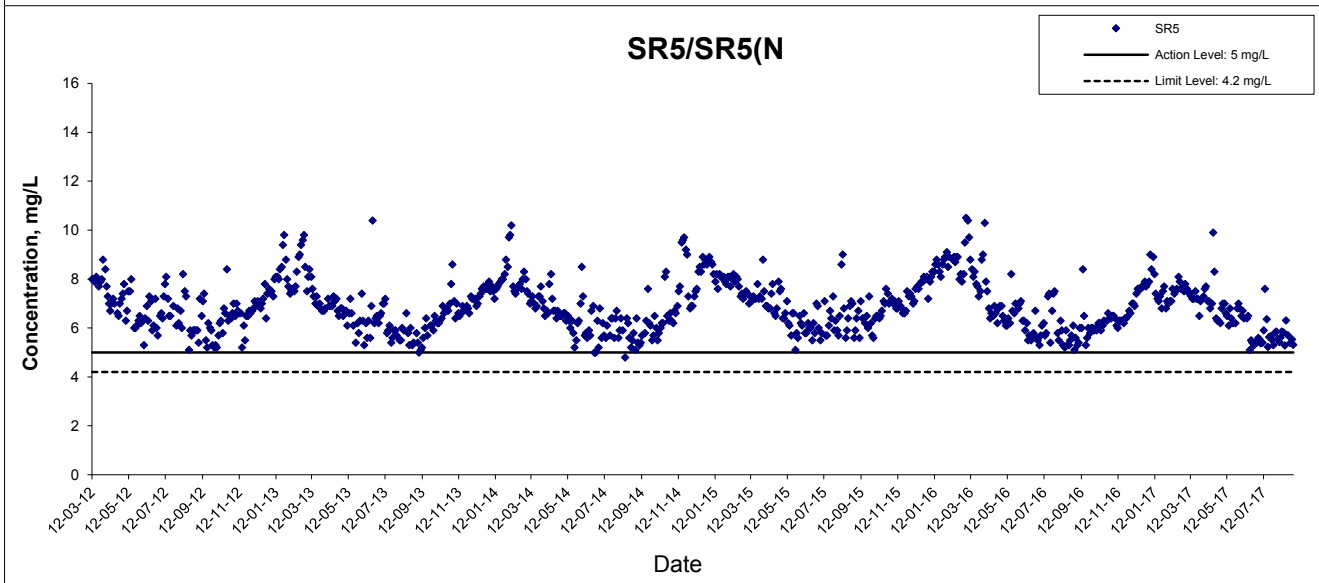
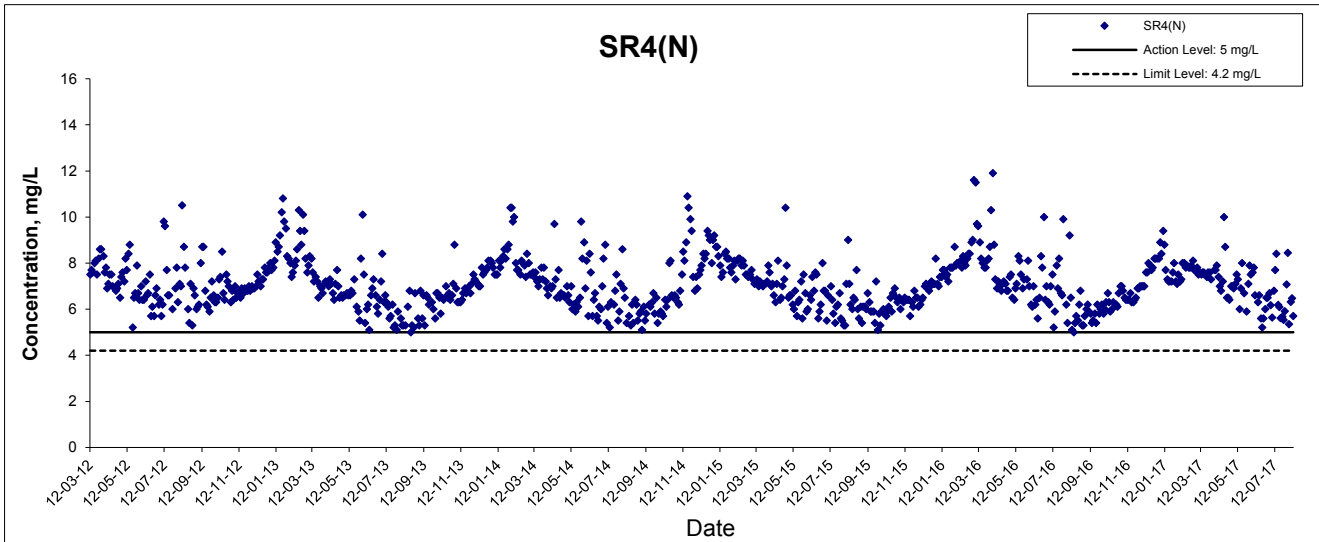
HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS

### Graphical Presentation of Impact Water Quality Monitoring Results



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## Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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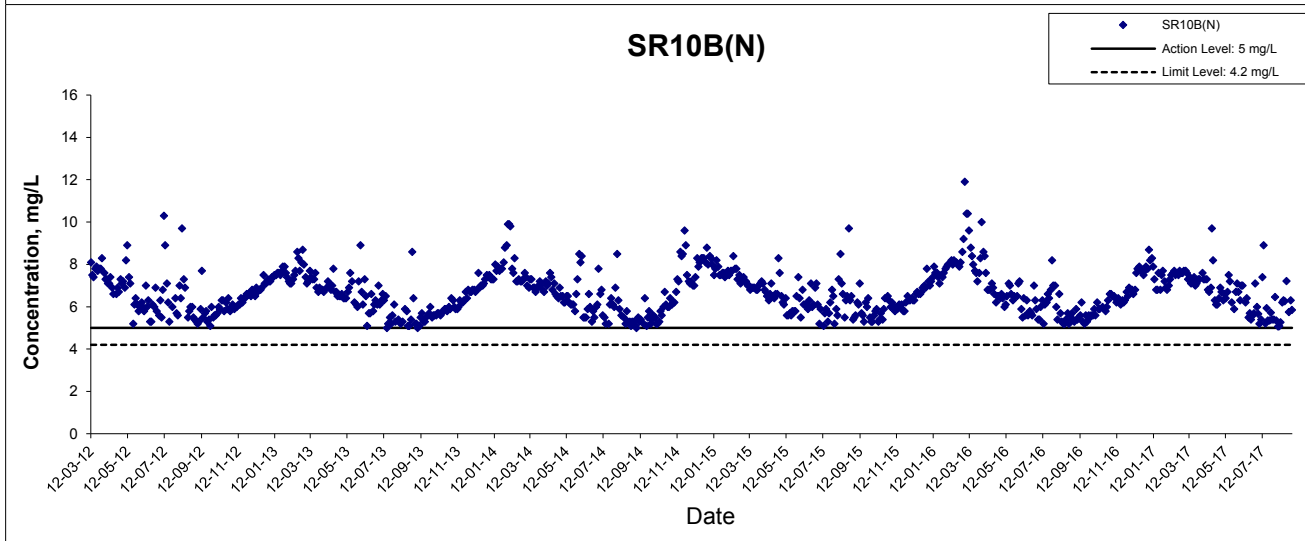
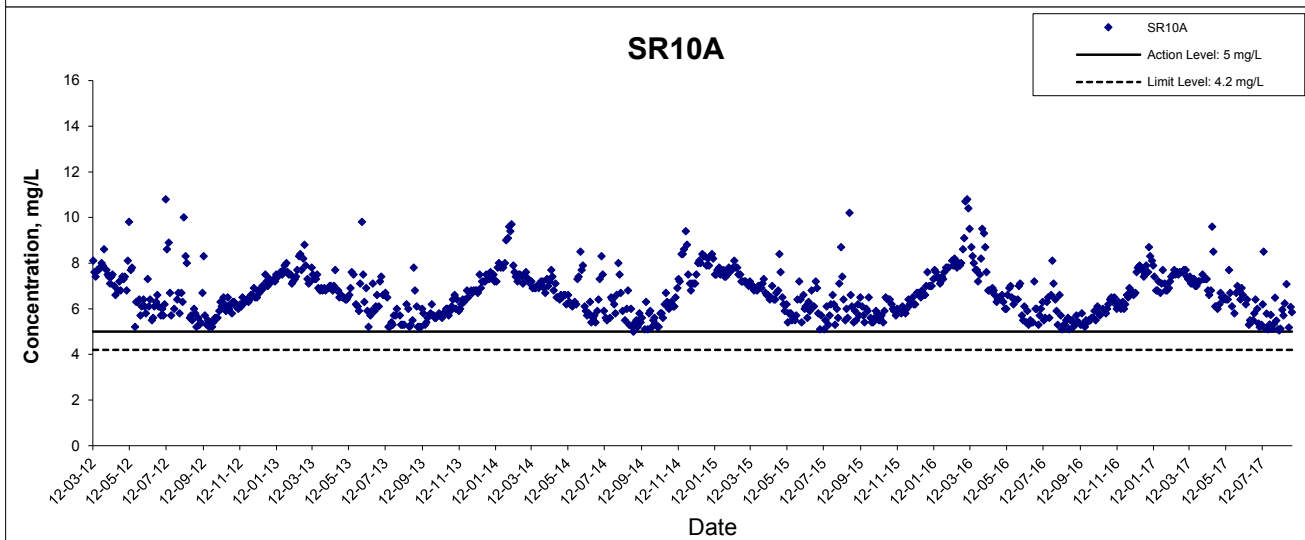
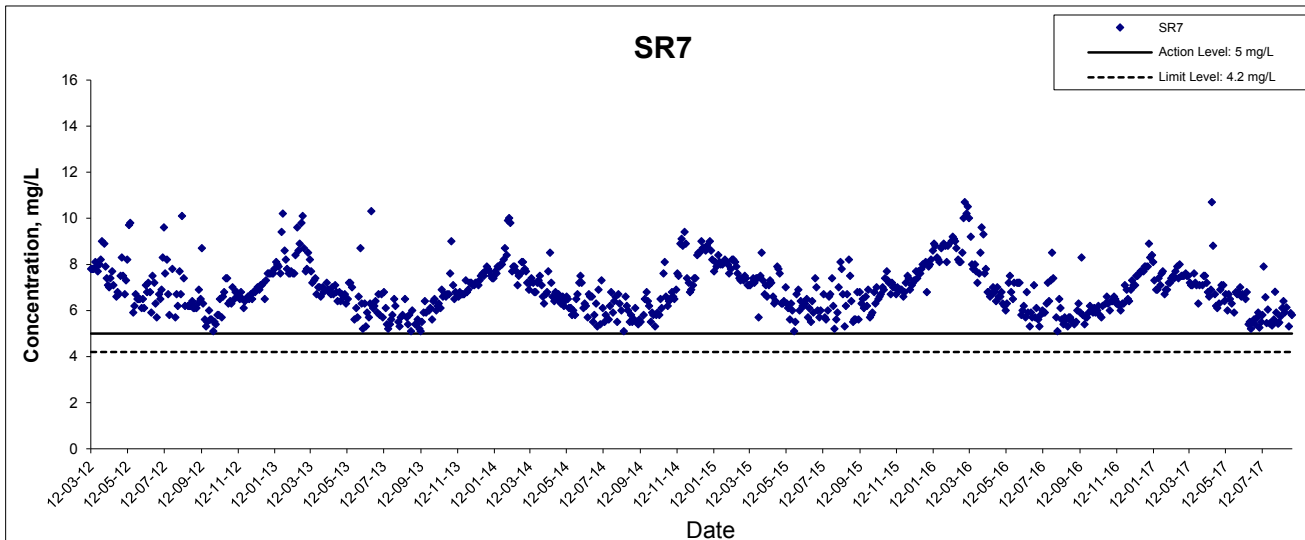
**HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS**

### Graphical Presentation of Impact Water Quality Monitoring Results



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## Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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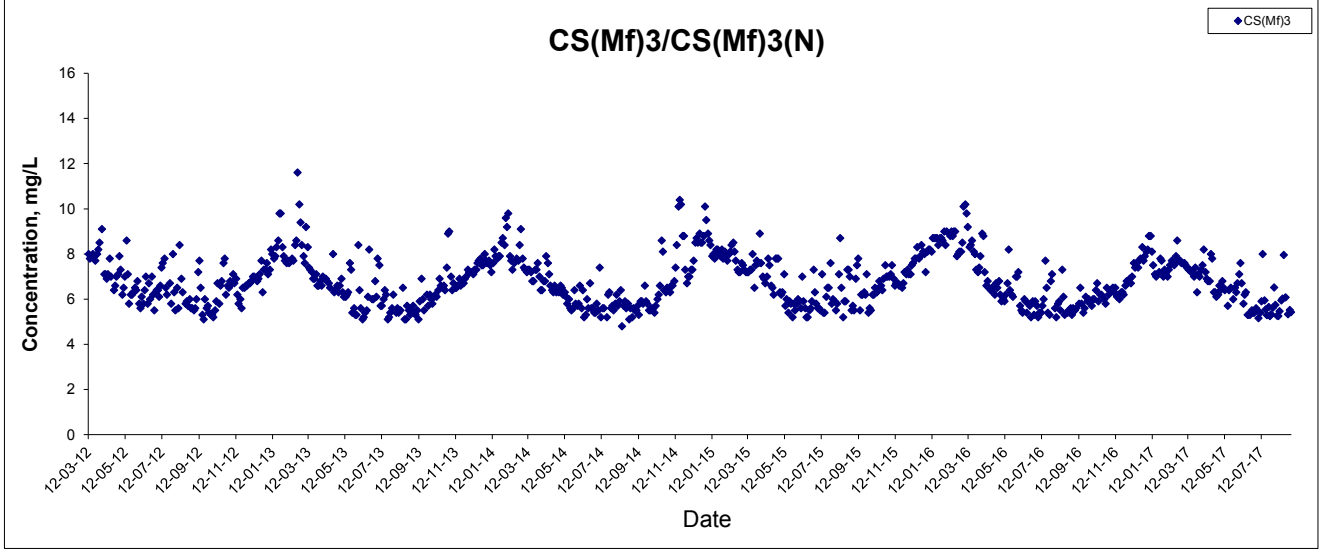
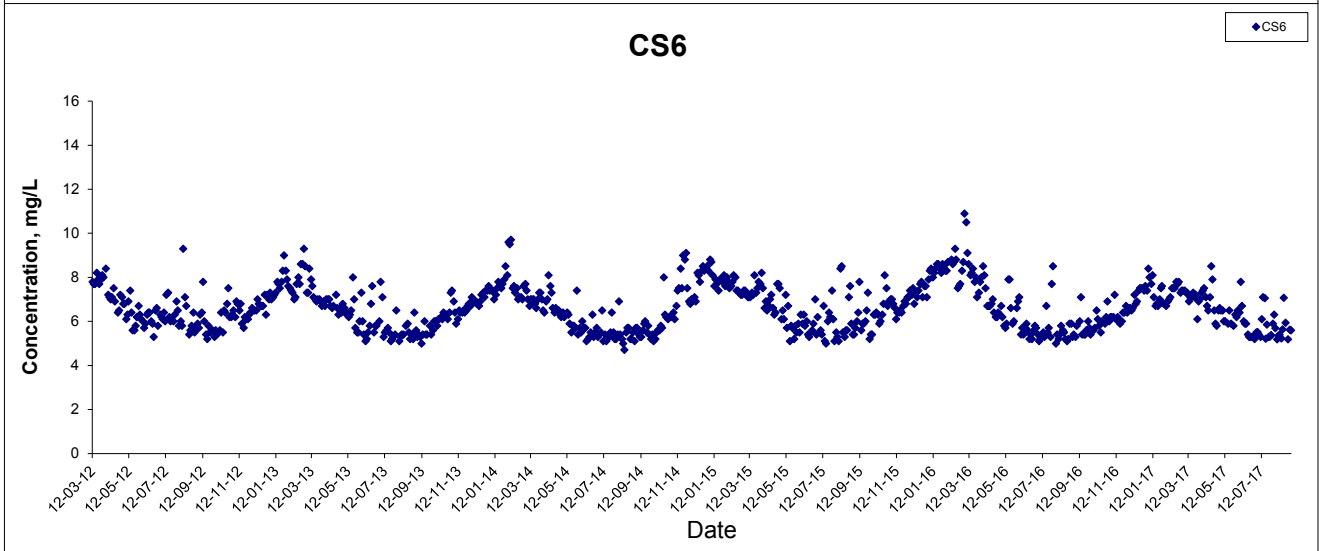
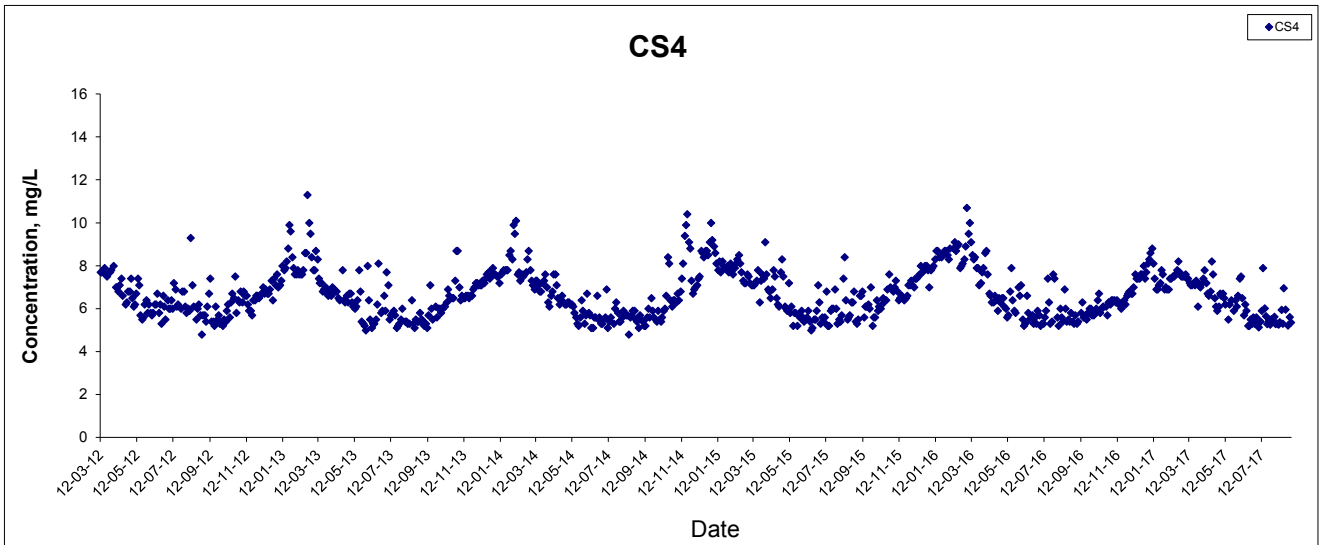
**HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
 Monitoring Results**



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## Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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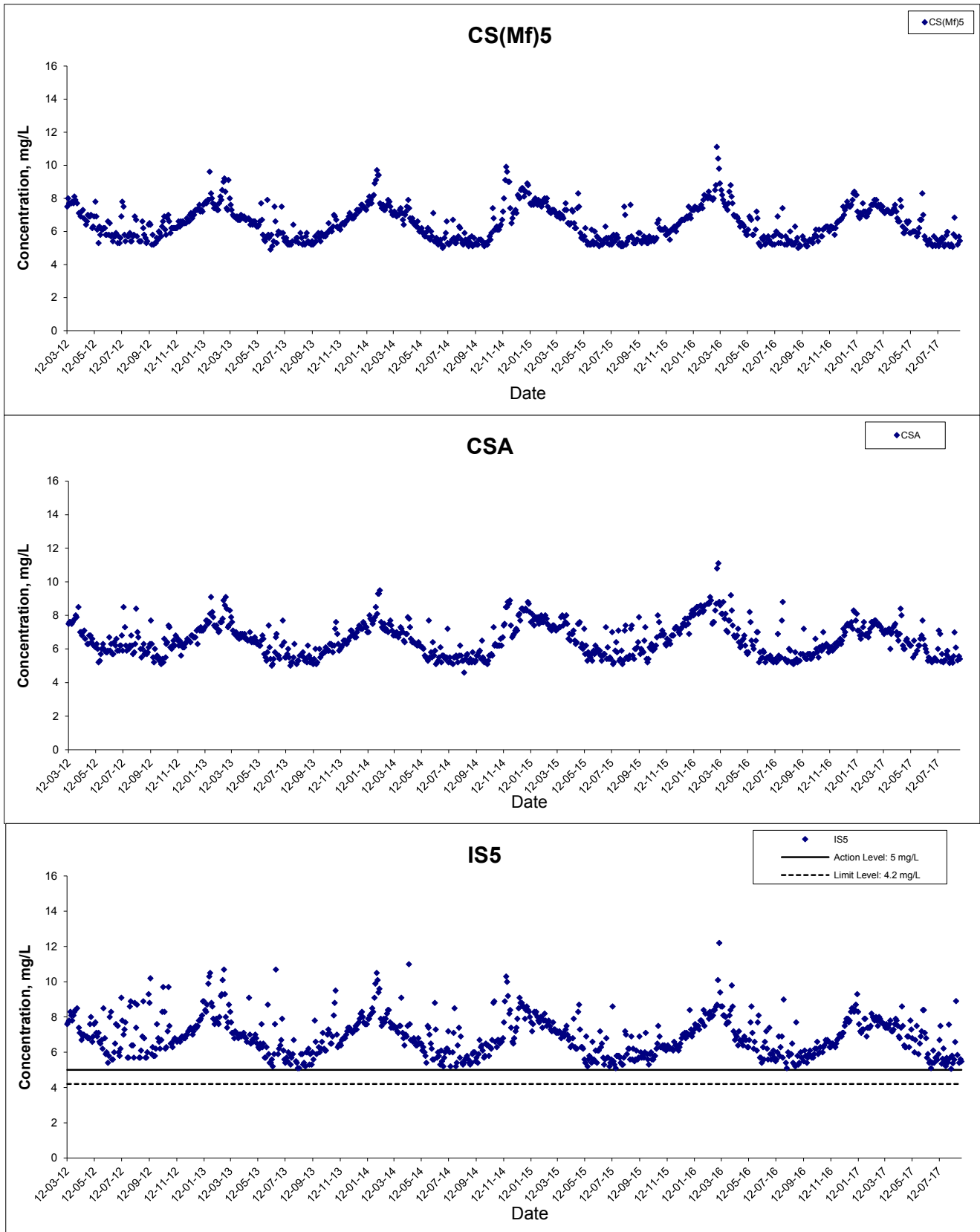
**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
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### Graphical Presentation of Impact Water Quality Monitoring Results

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## Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
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### Graphical Presentation of Impact Water Quality Monitoring Results

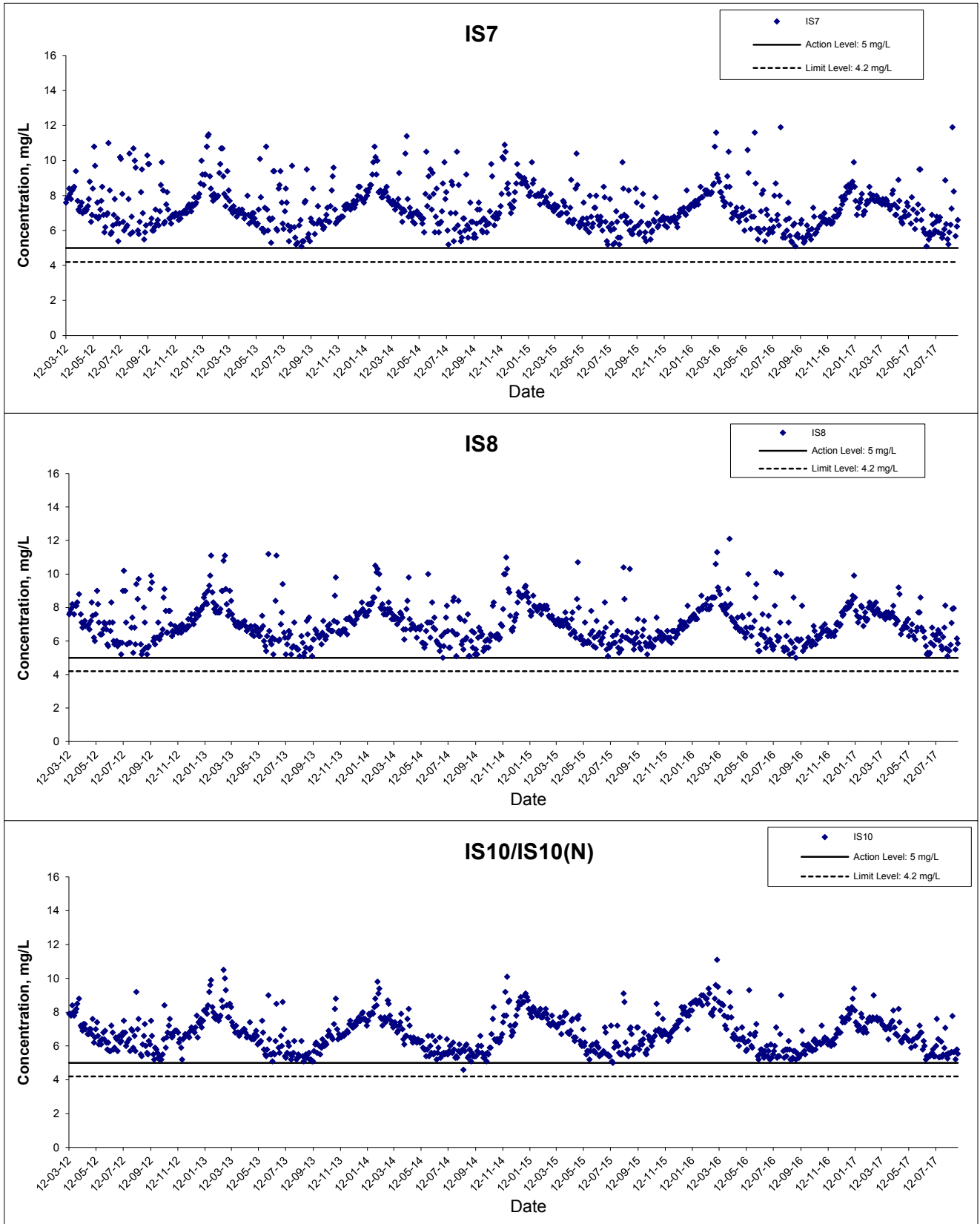
\*Water quality monitoring works for the Contract were covered by Contract No. HY/2013/01 Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building effective since 1 September 2017.

Project No.: 60249820

Date: November 2018

Appendix G

## Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

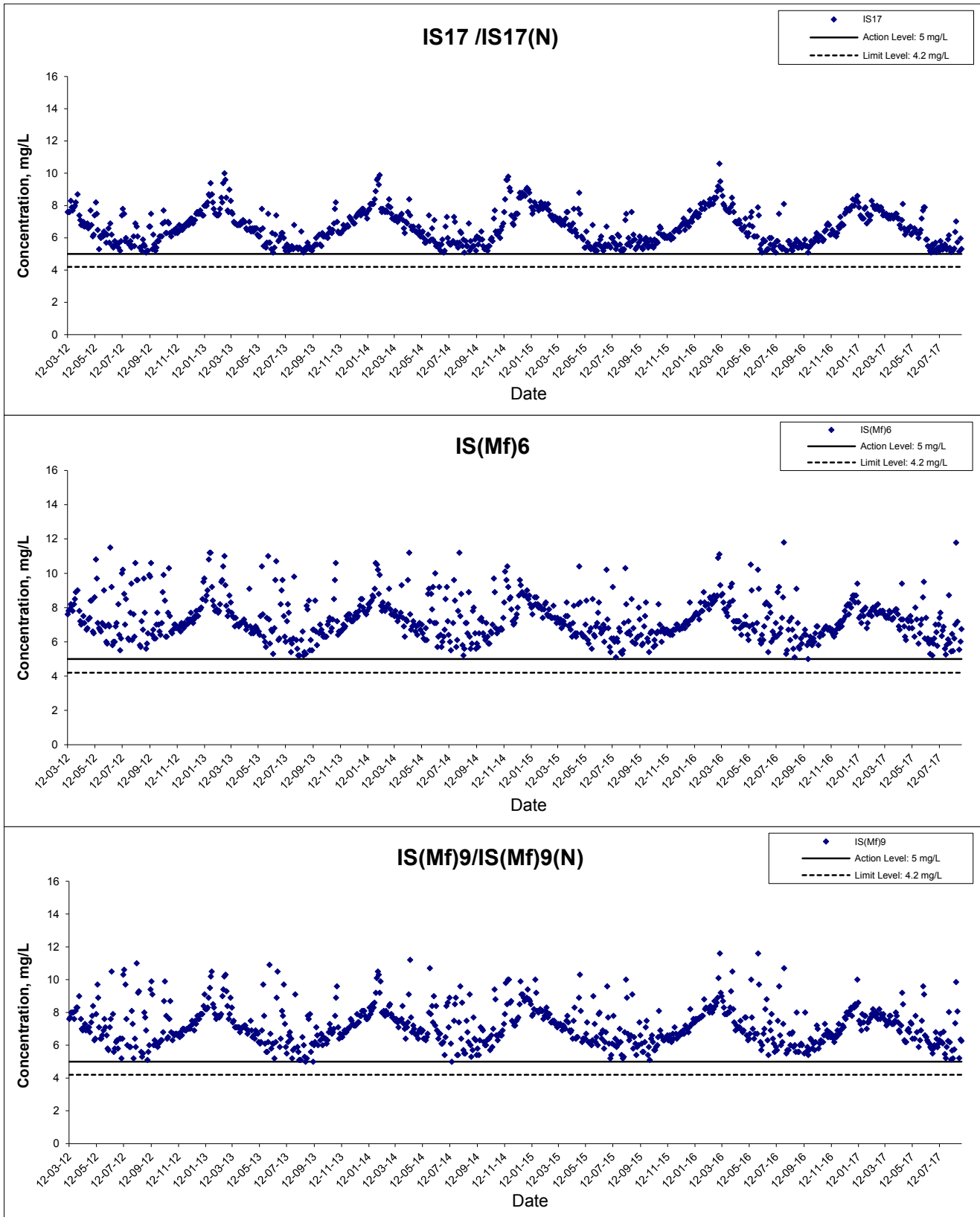


### Graphical Presentation of Impact Water Quality Monitoring Results

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## Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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**HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
Monitoring Results**



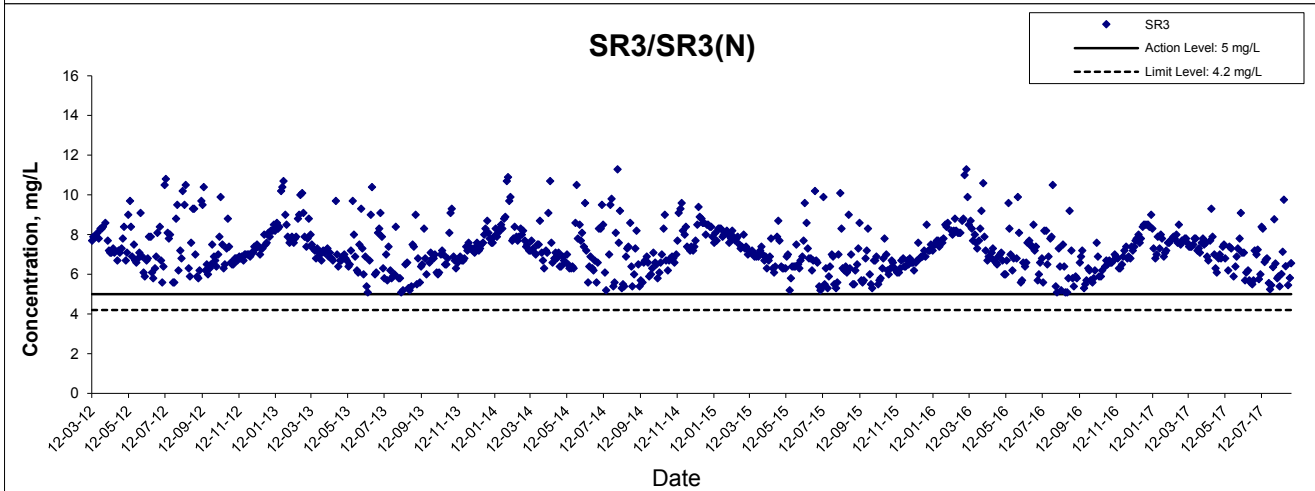
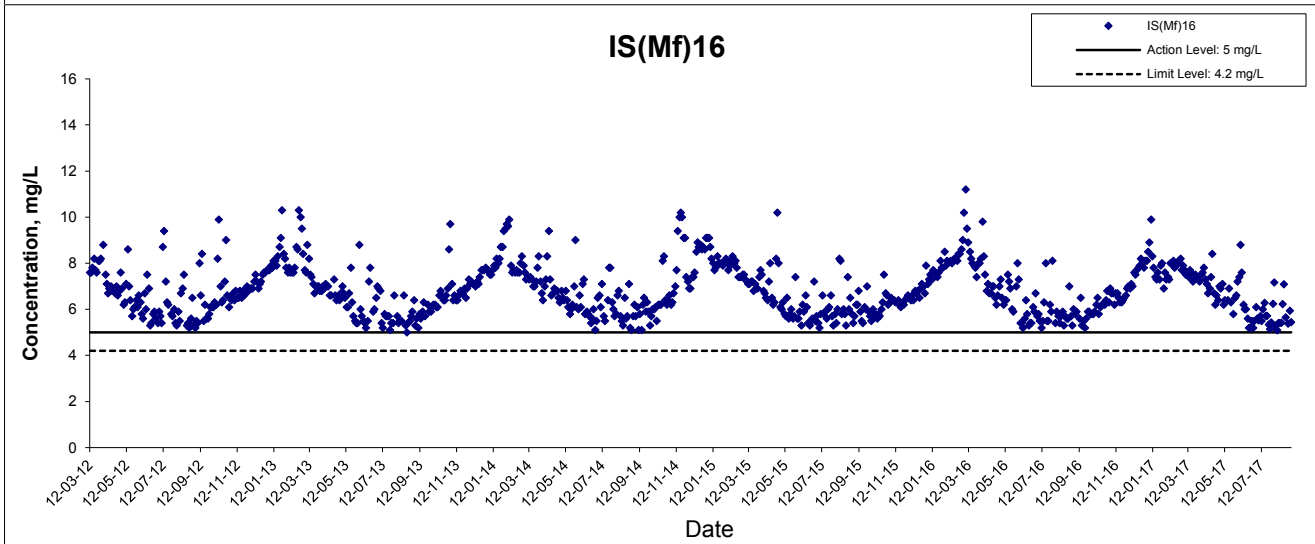
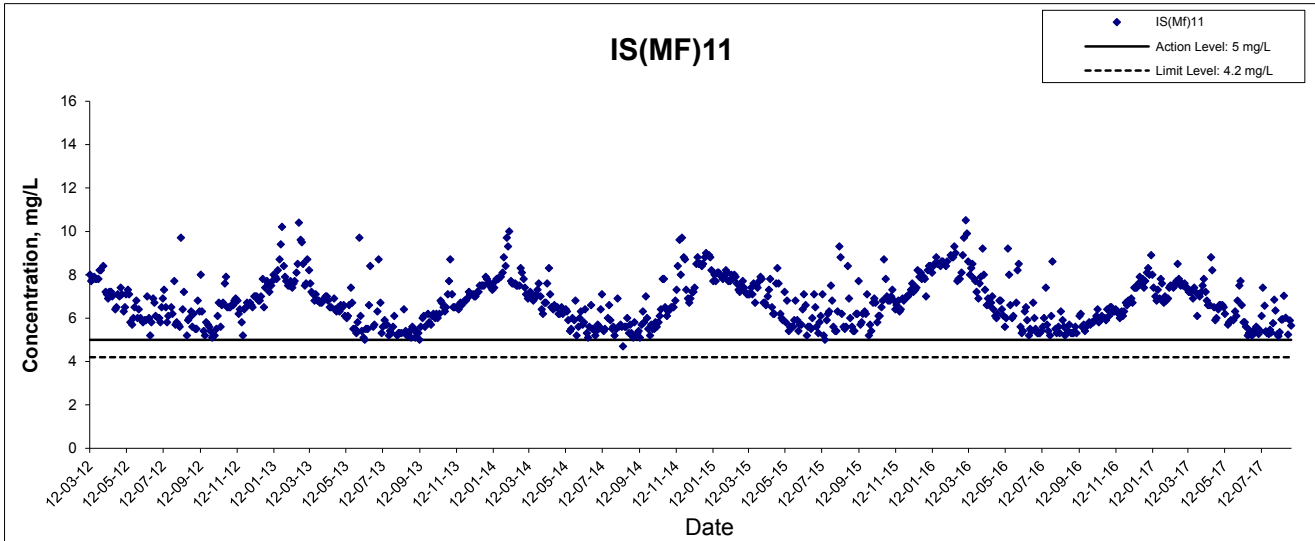
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Project No.: 60249820

Date: November 2018

Appendix G

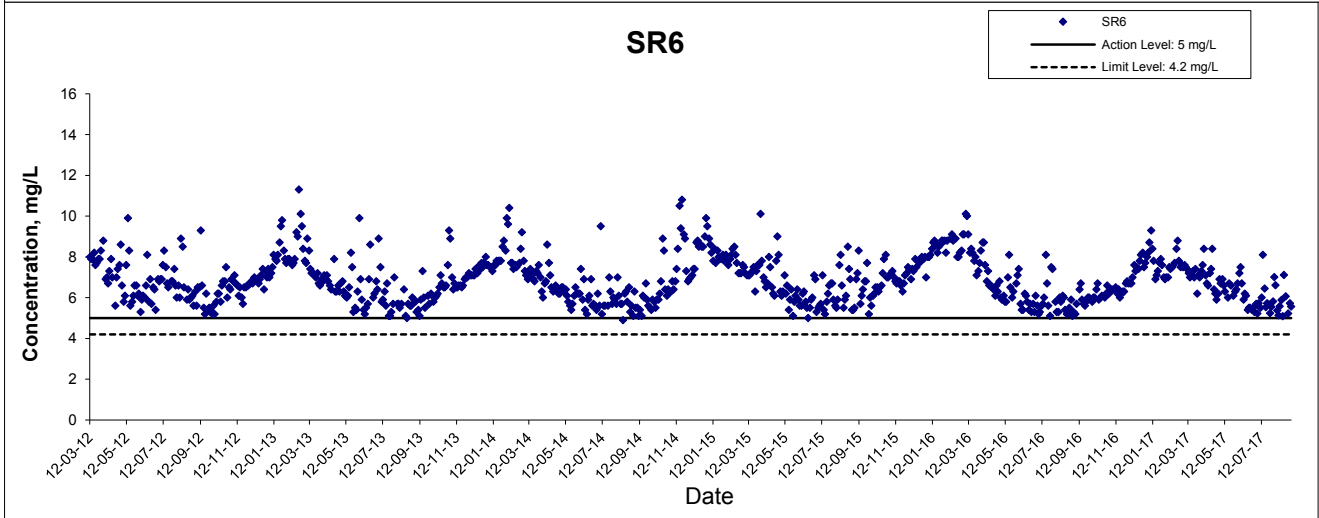
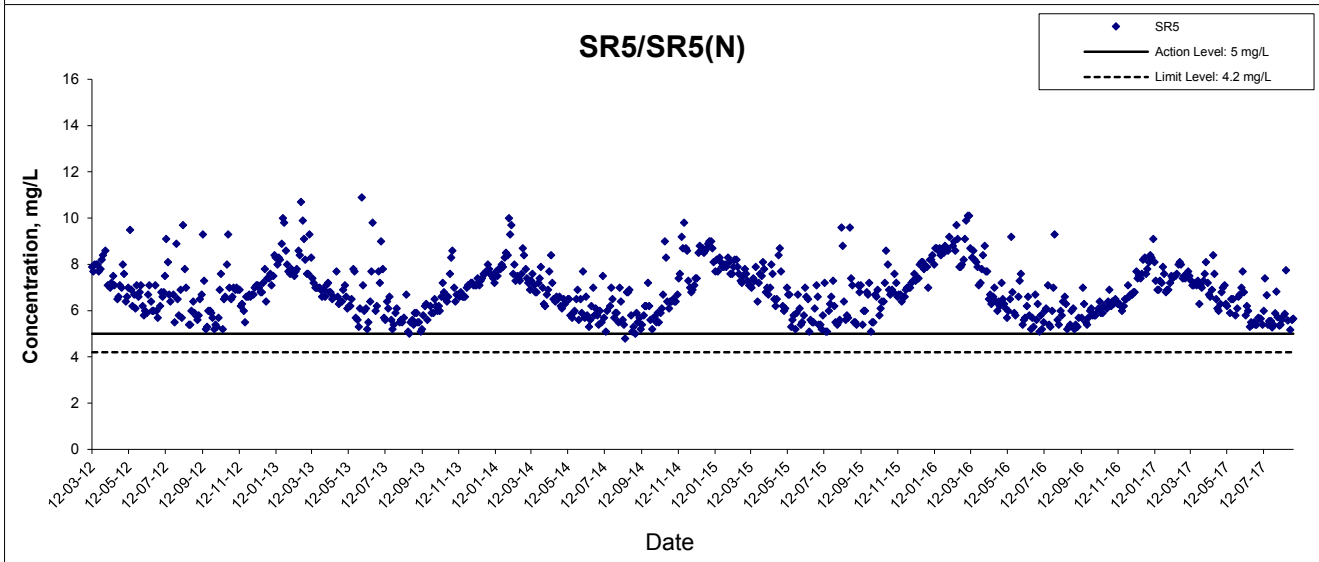
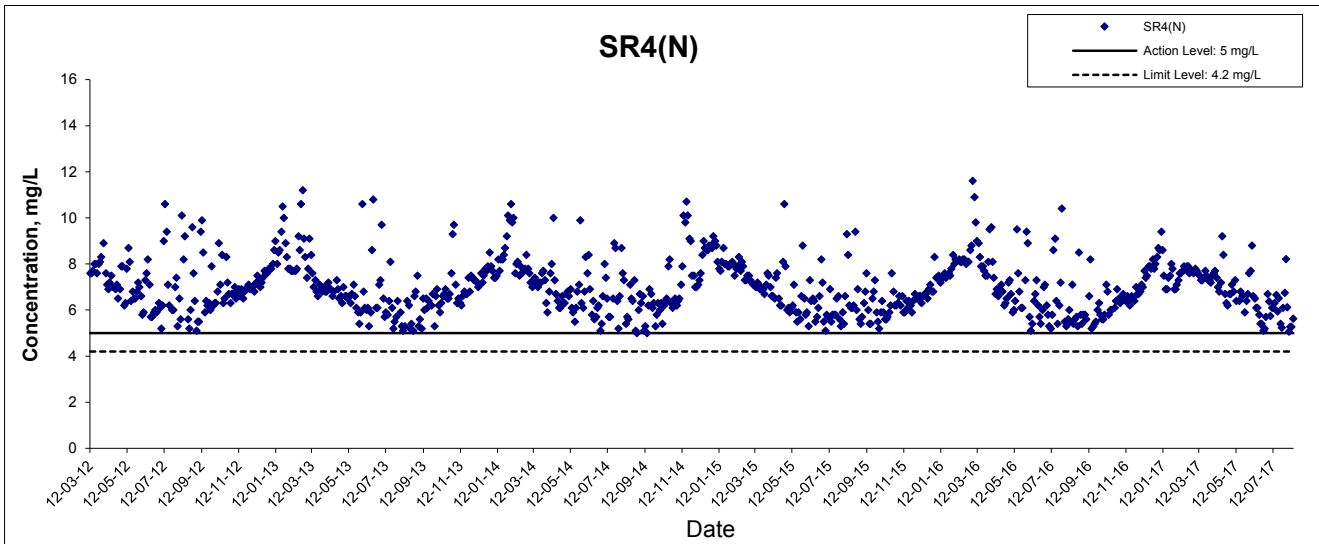
## Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



As the measured water depths were less than 3 m during all monitoring days, water samples are collected at mid-depth only .

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## Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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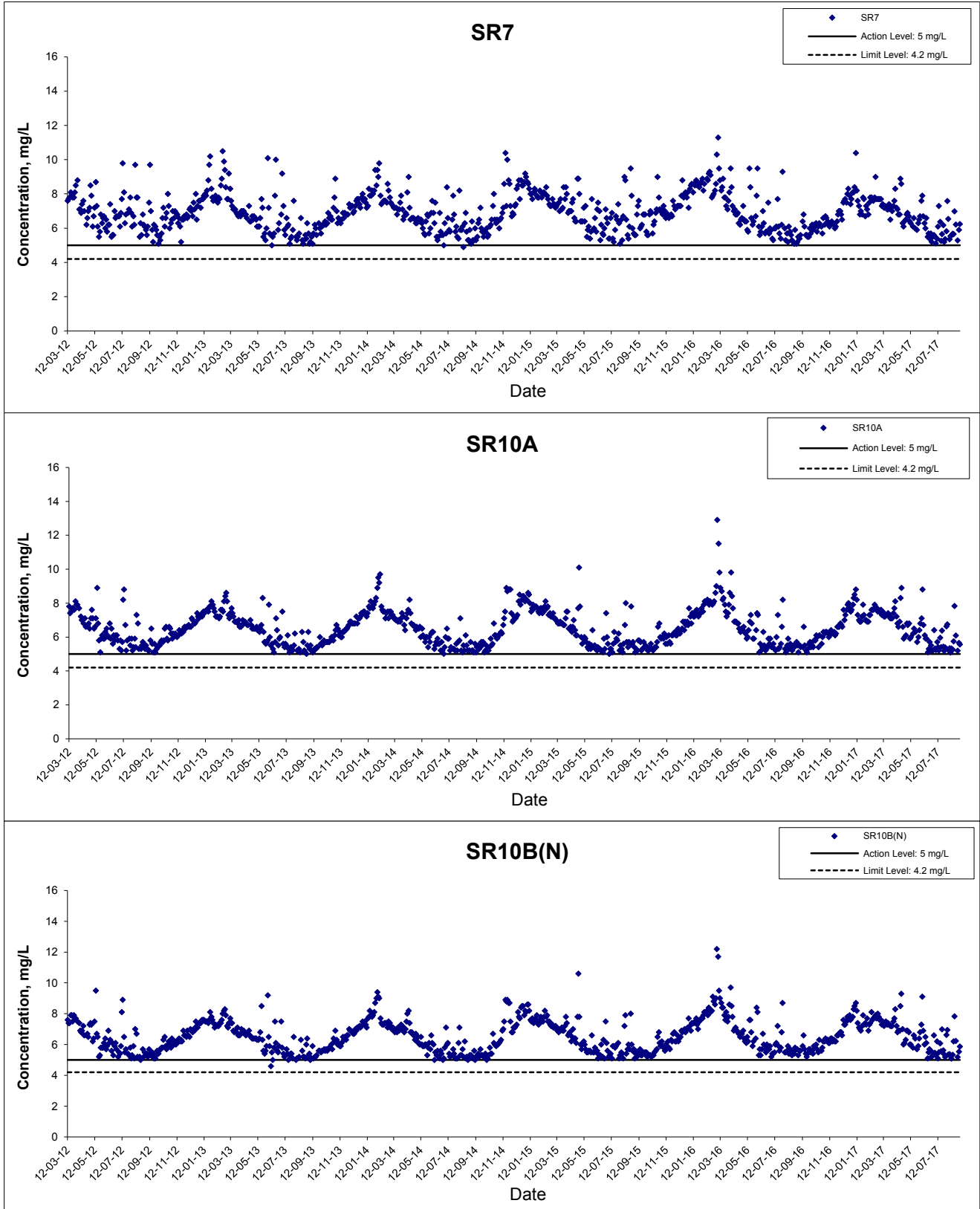
**HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
Monitoring Results**



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## Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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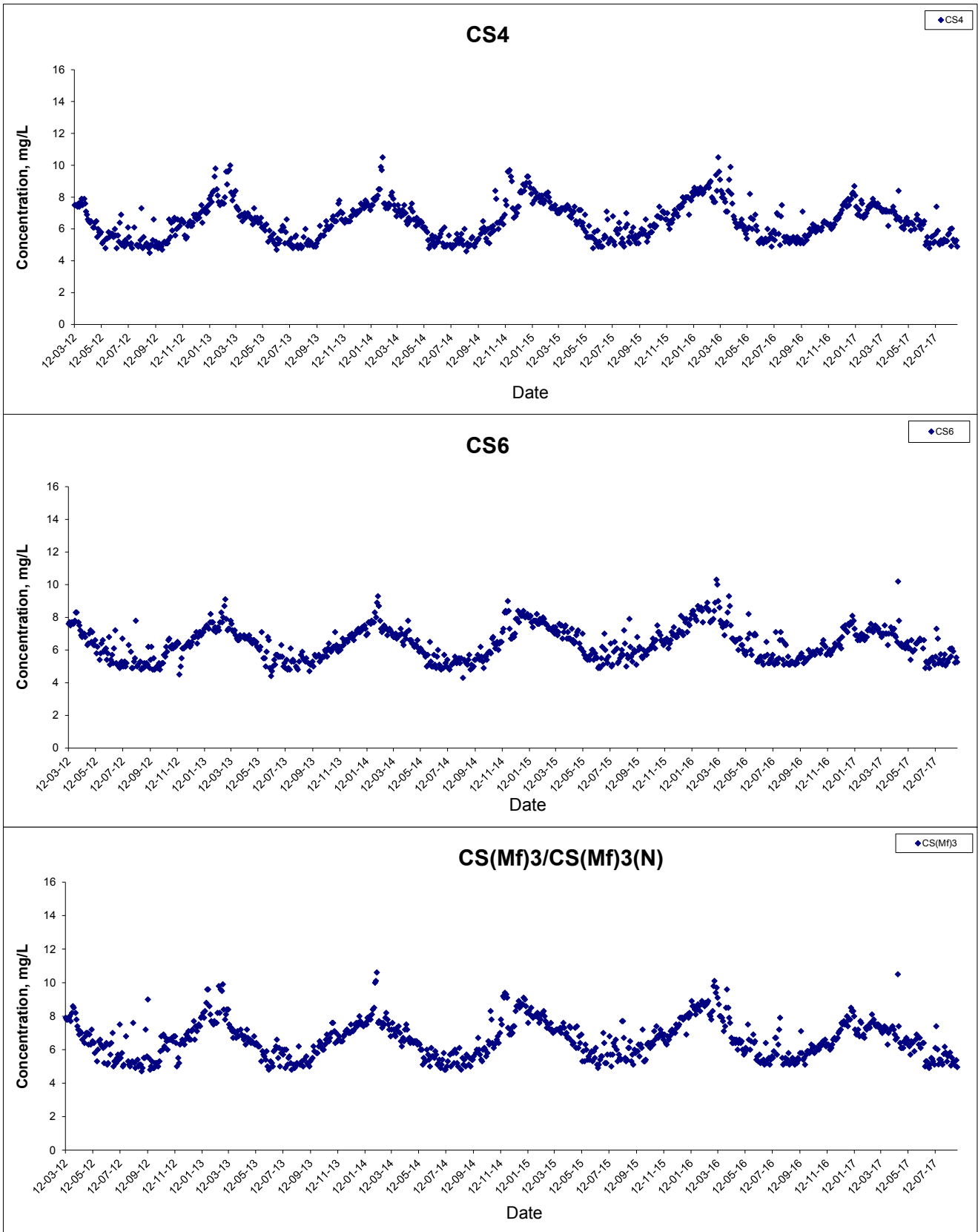
**HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
Monitoring Results**



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## Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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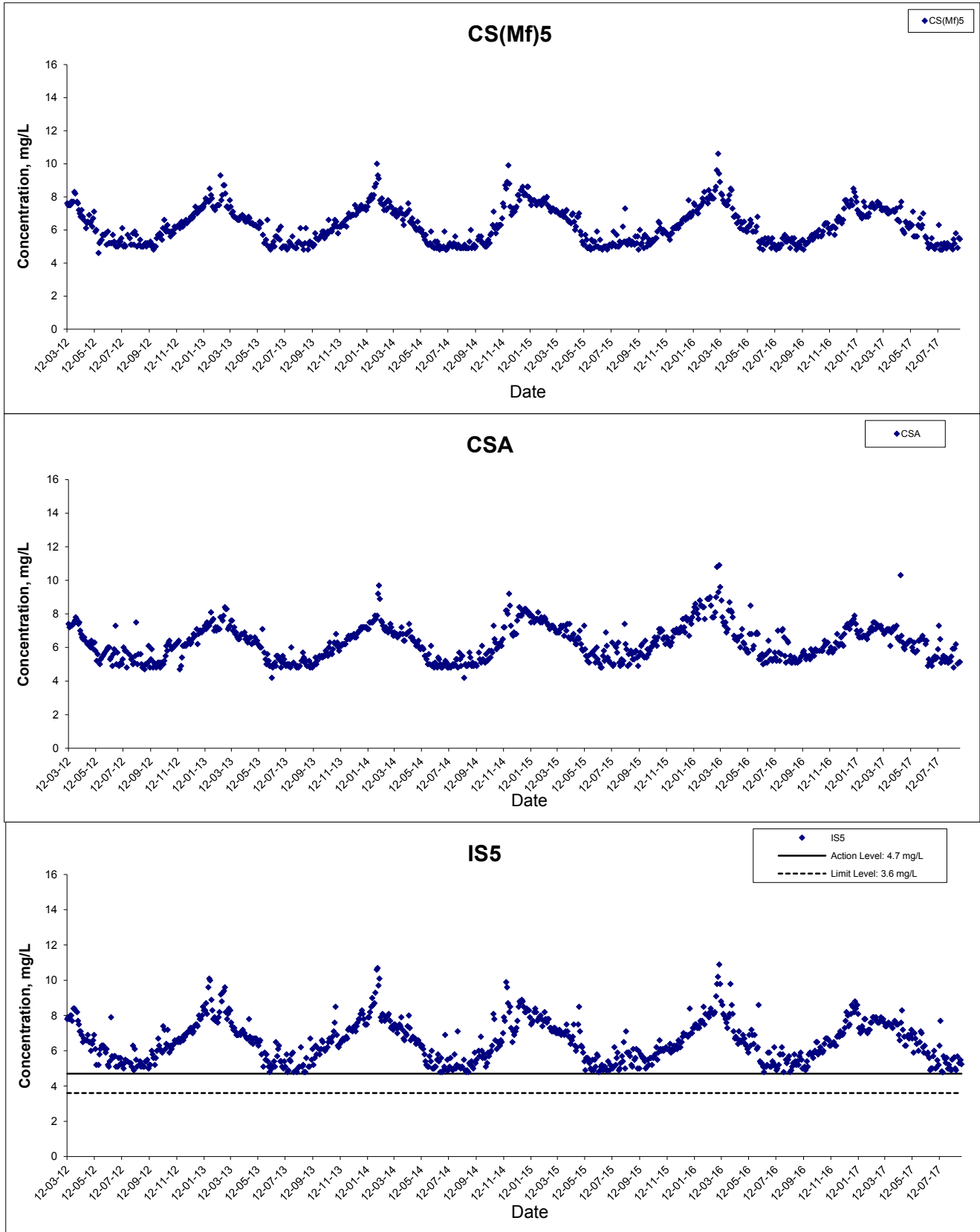
**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

### Graphical Presentation of Impact Water Quality Monitoring Results



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## Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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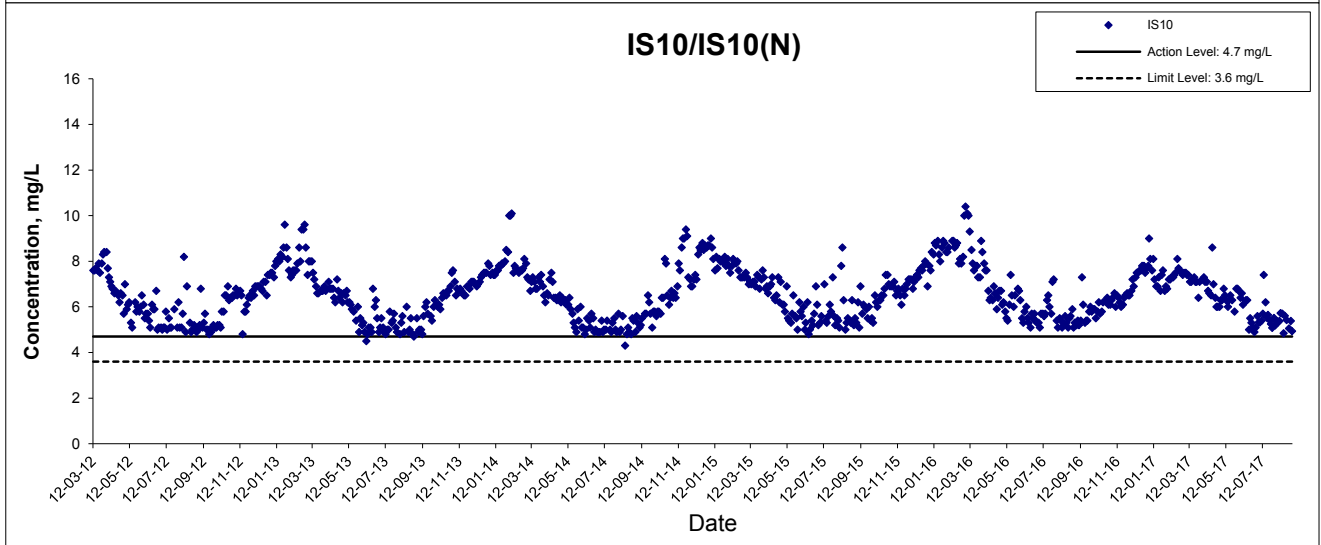
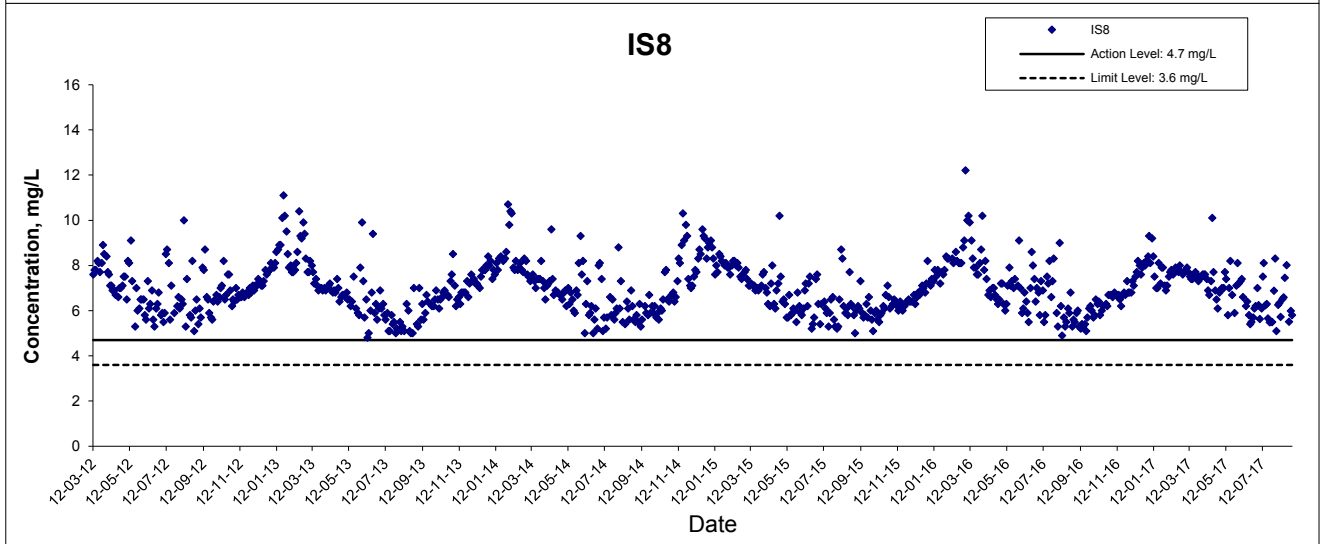
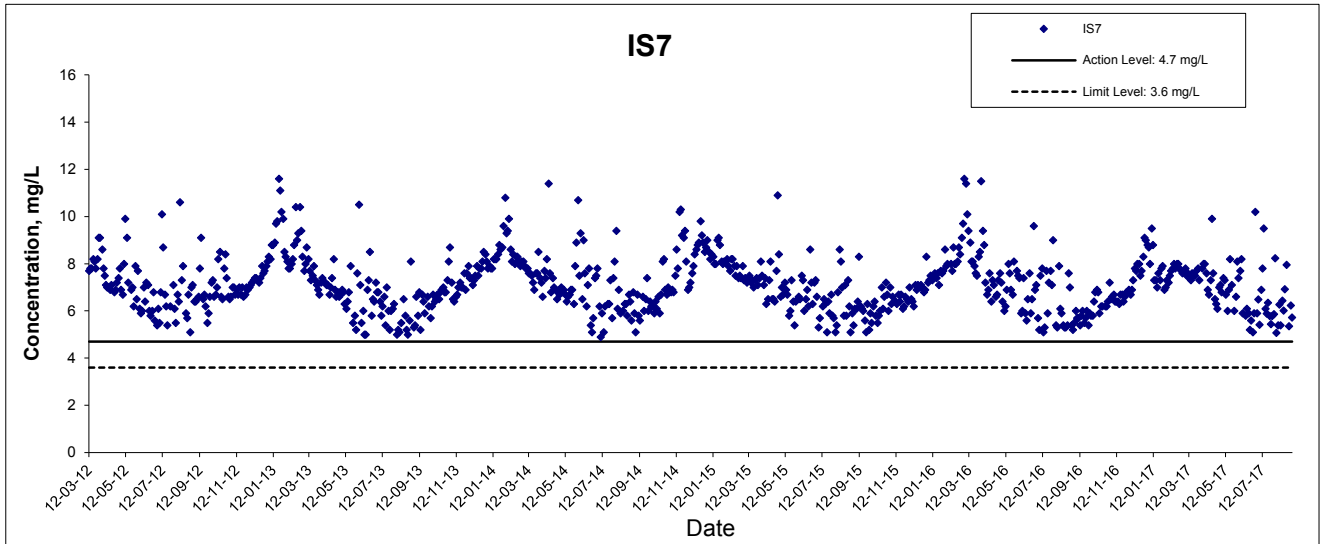
HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS

### Graphical Presentation of Impact Water Quality Monitoring Results



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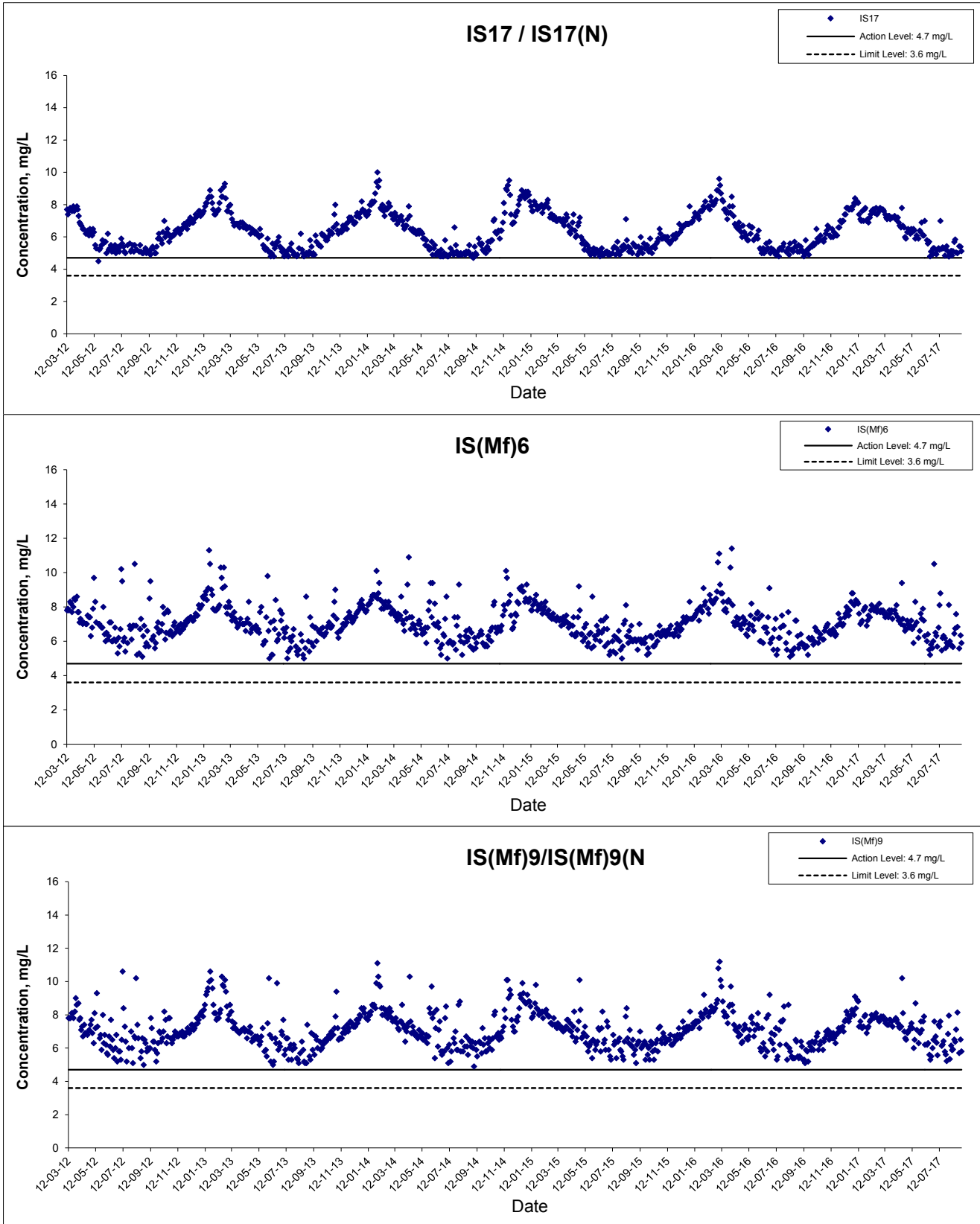
**HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS**

### Graphical Presentation of Impact Water Quality Monitoring Results



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## Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

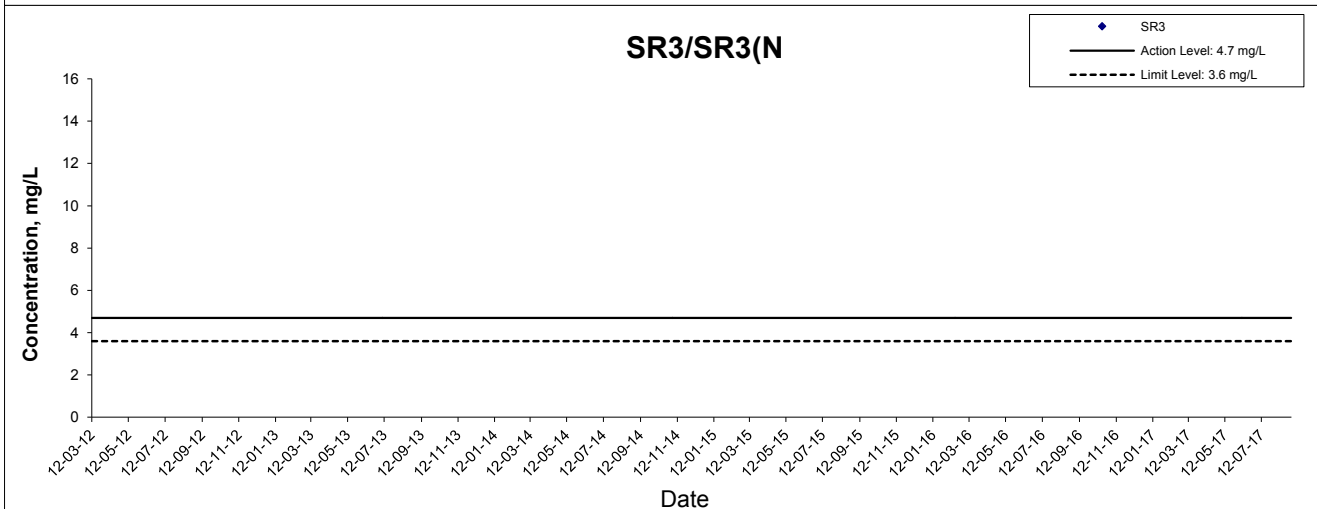
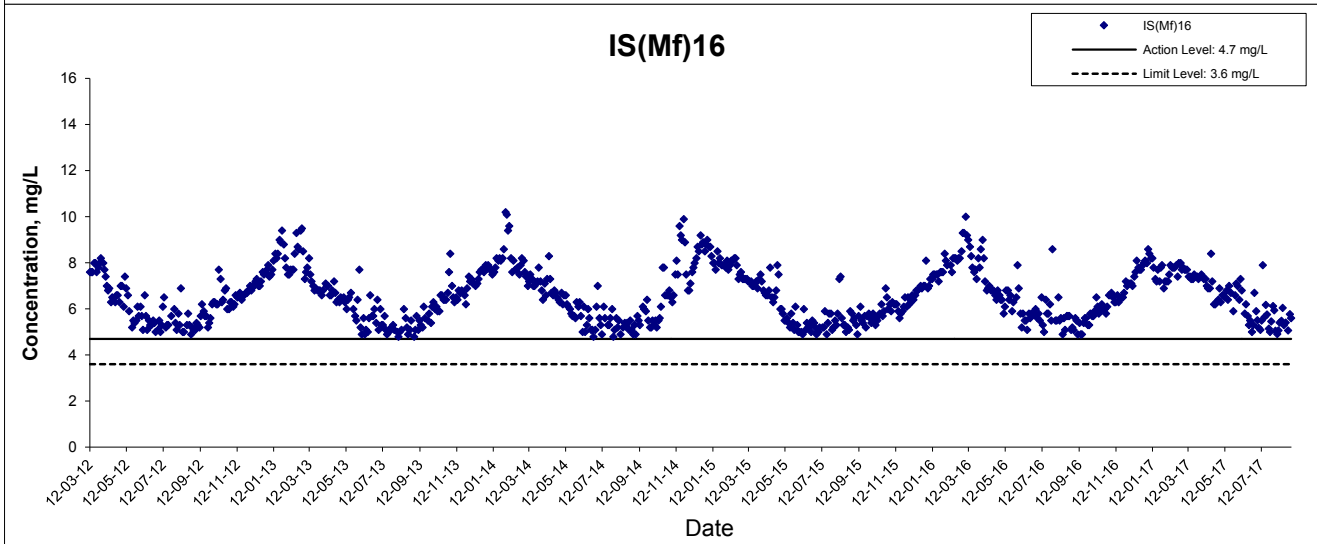
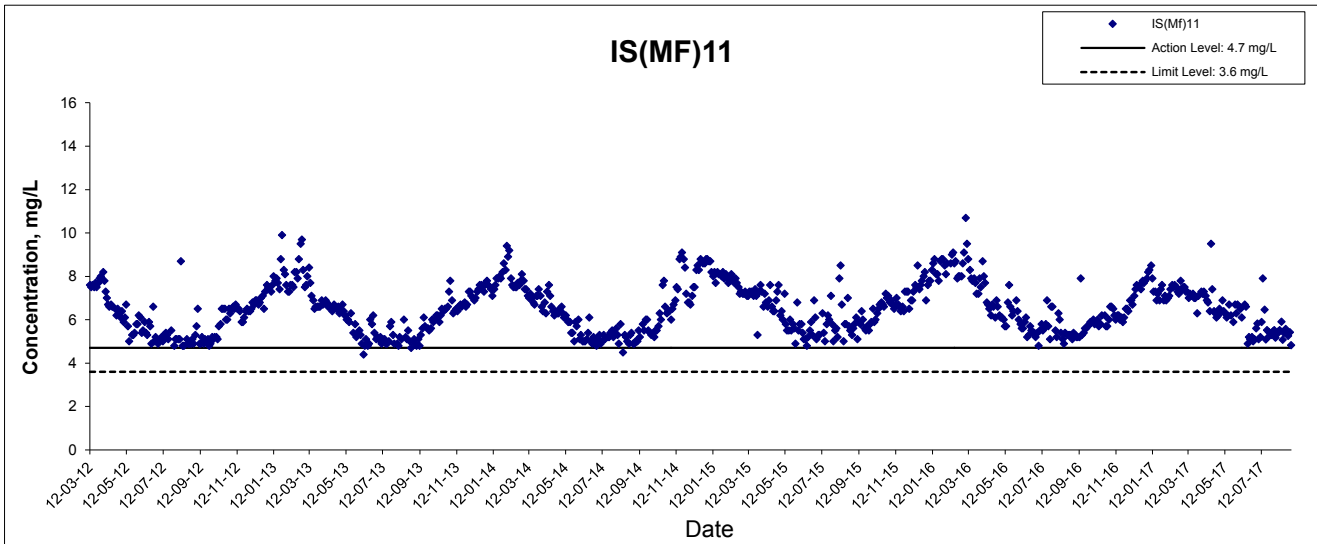
**Graphical Presentation of Impact Water Quality  
Monitoring Results**



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## Dissolved Oxygen (Bottom) at Mid-Ebb Tide



As the measured water depths were less than 3 m during all monitoring days, water samples are collected at mid-depth only.

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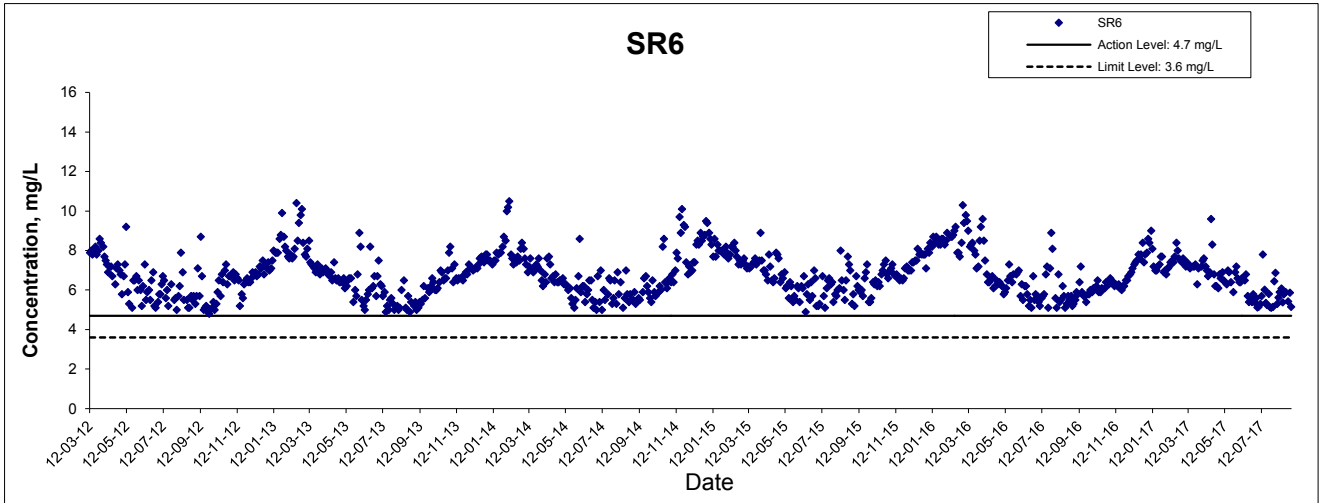
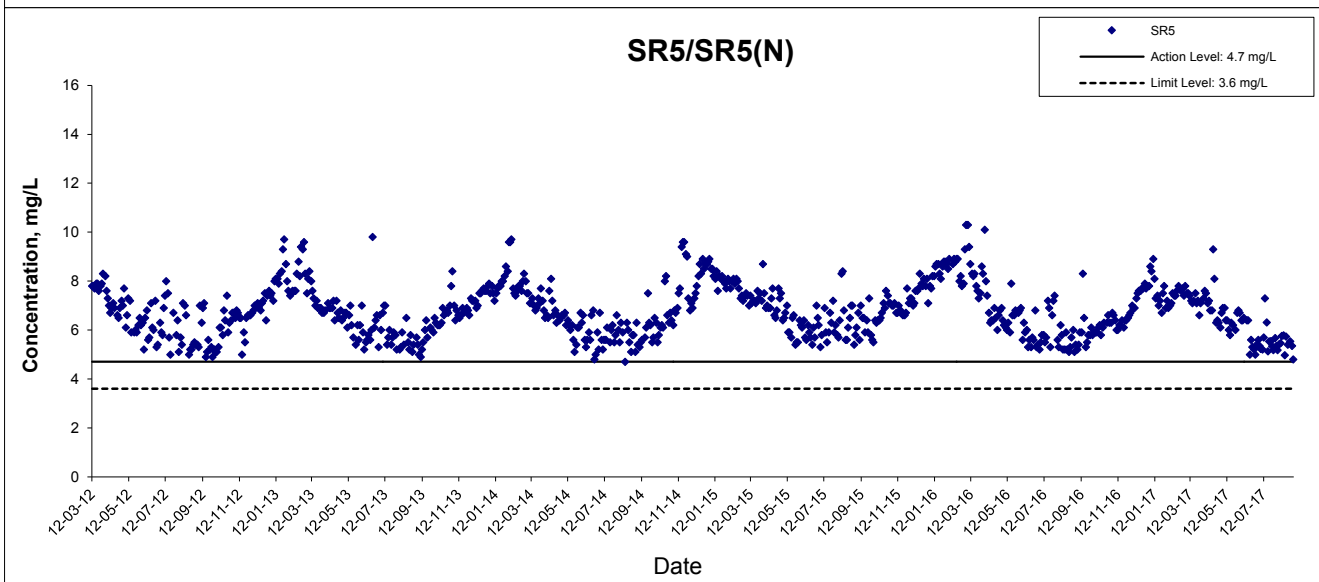
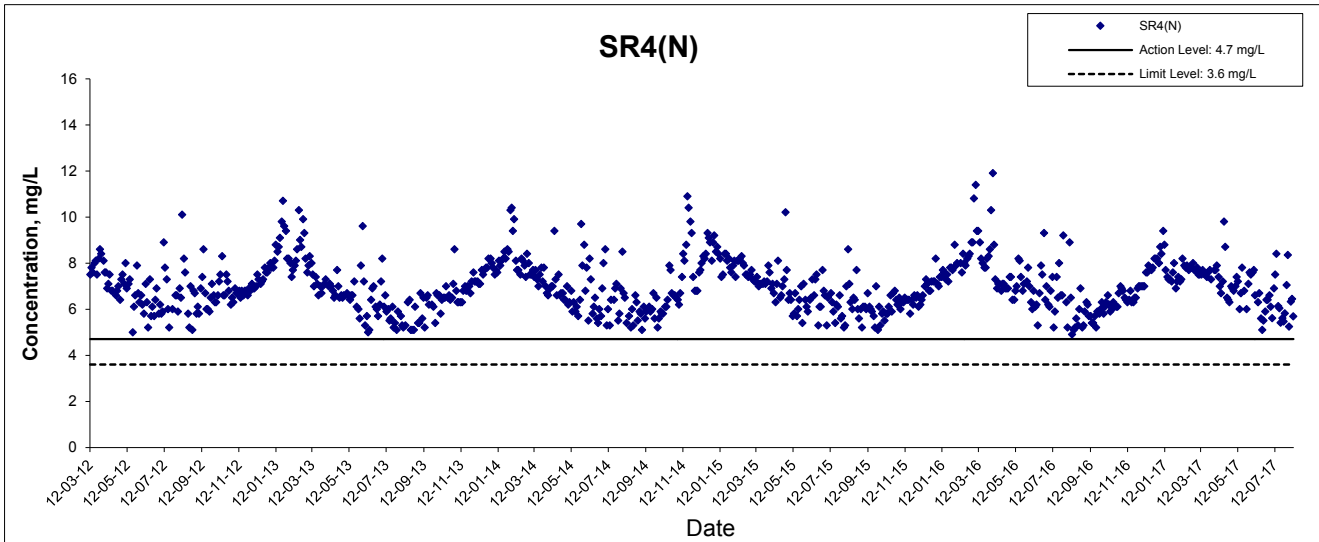
**HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
 Monitoring Results**



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## Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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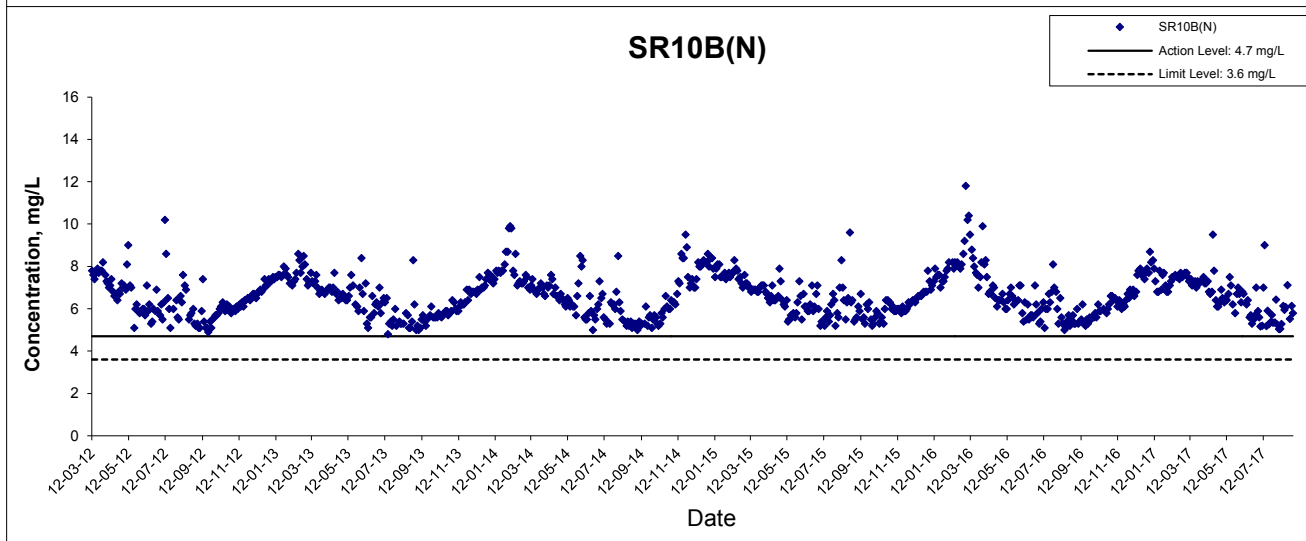
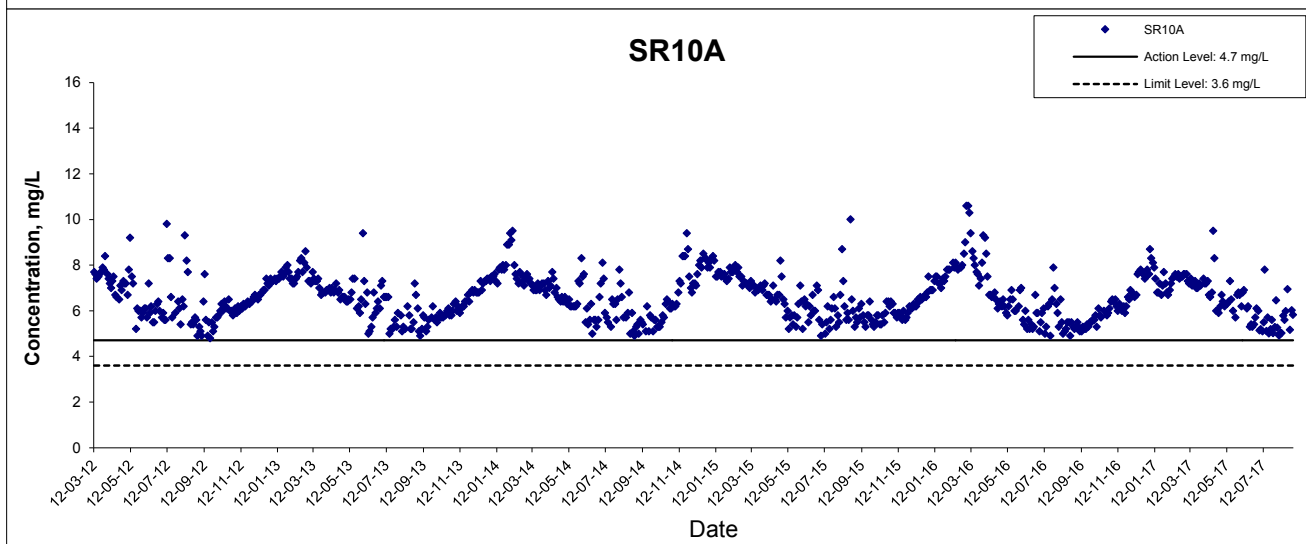
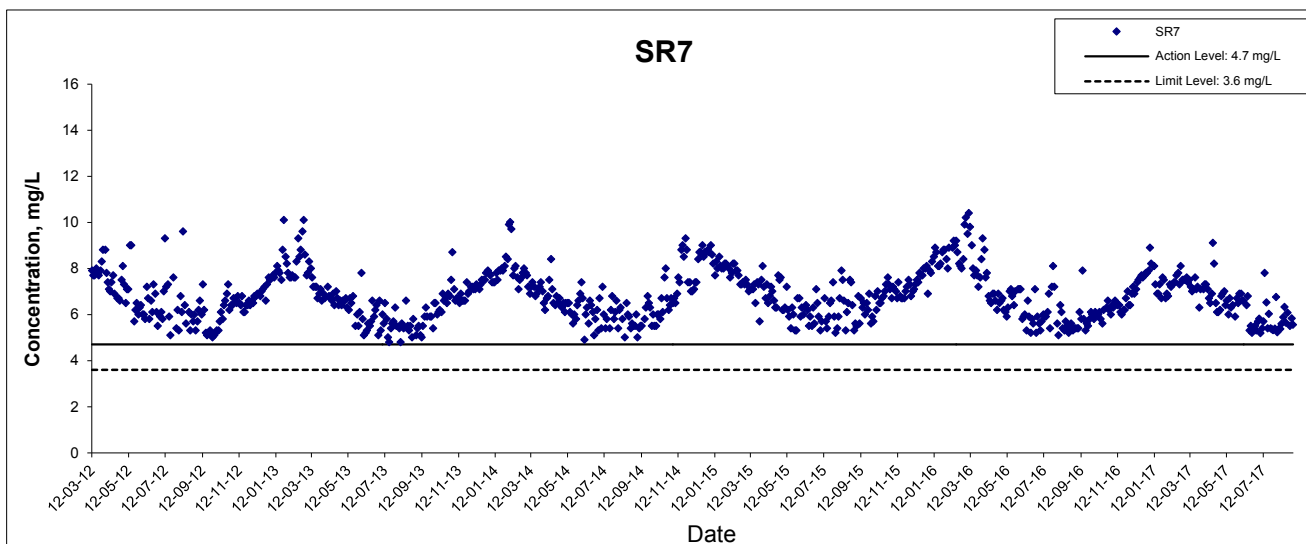
HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS

### Graphical Presentation of Impact Water Quality Monitoring Results



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## Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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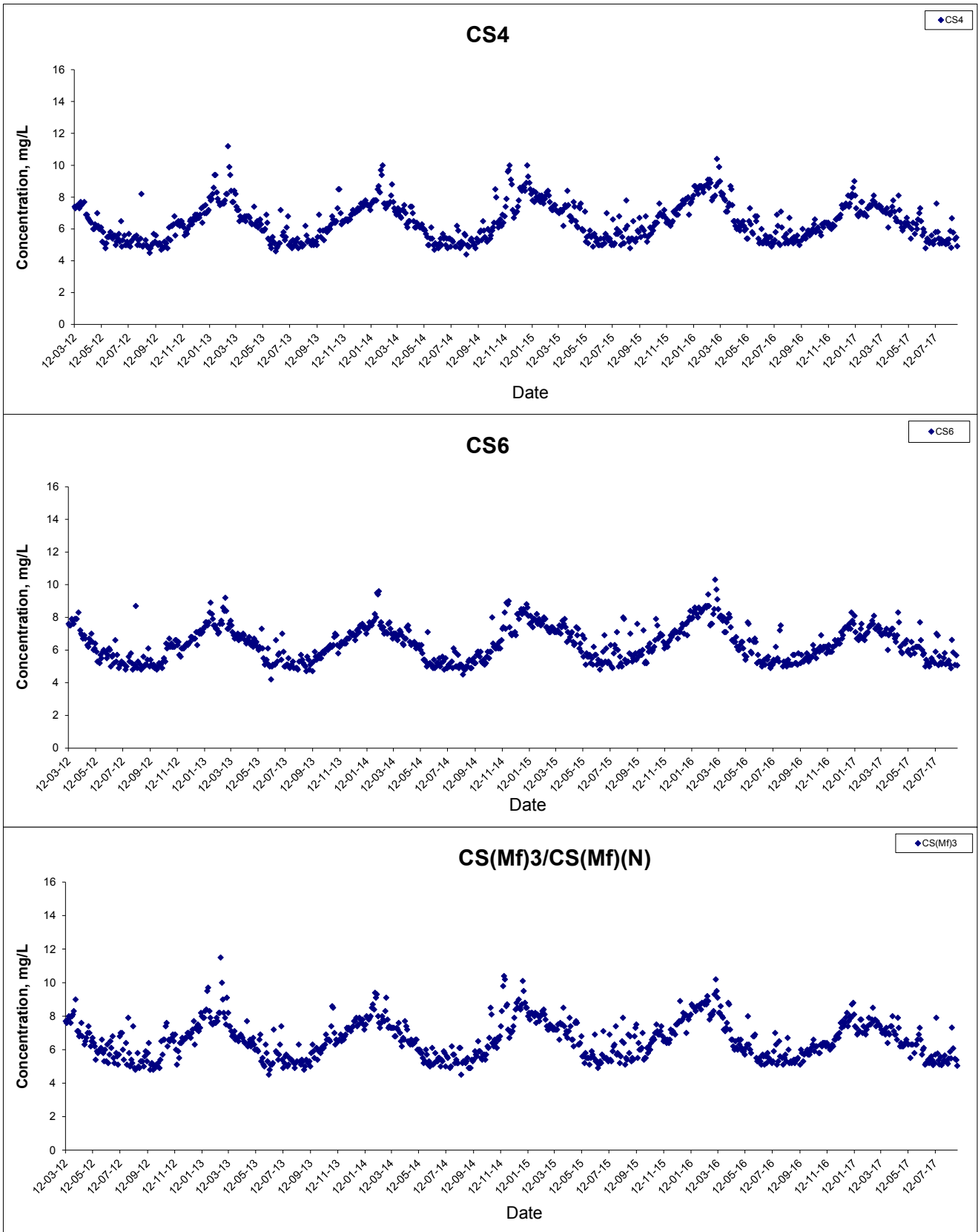
**HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
 Monitoring Results**



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## Dissolved Oxygen (Bottom) at Mid-Flood Tide



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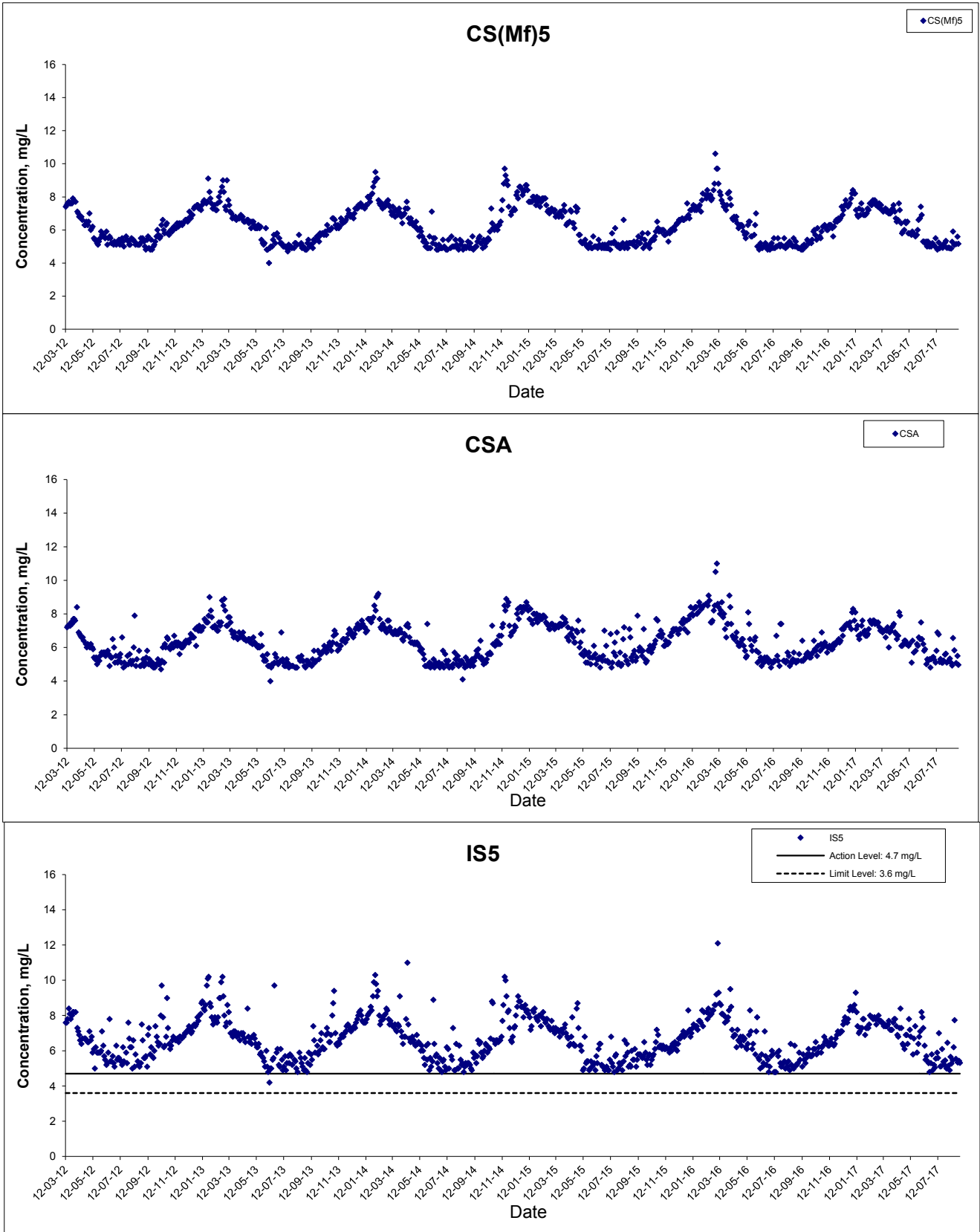
**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
Monitoring Results**



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## Dissolved Oxygen (Bottom) at Mid-Flood Tide



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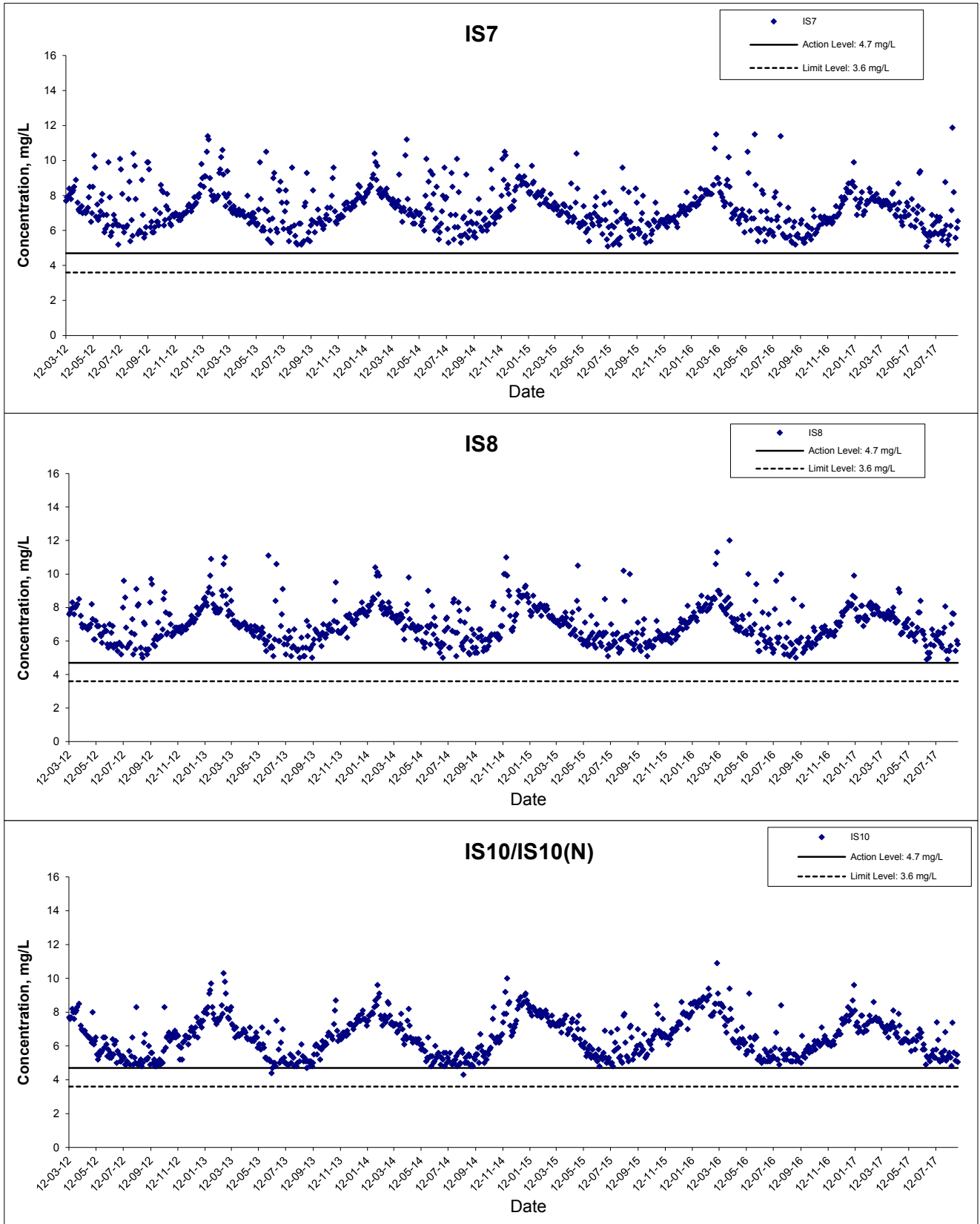
HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS



### Graphical Presentation of Impact Water Quality Monitoring Results

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## Dissolved Oxygen (Bottom) at Mid-Flood Tide



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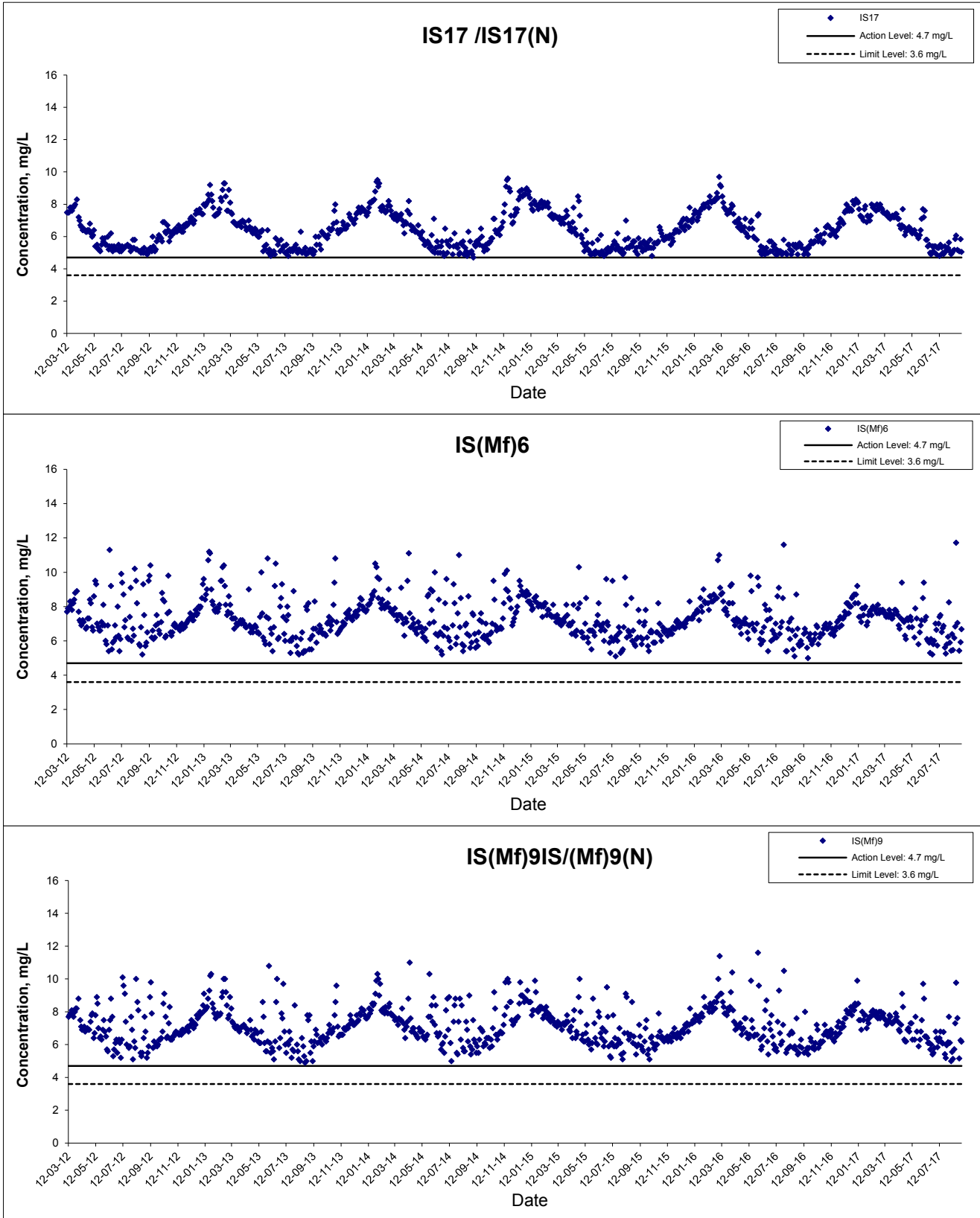
**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

### Graphical Presentation of Impact Water Quality Monitoring Results



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## Dissolved Oxygen (Bottom) at Mid-Flood Tide



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**HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
Monitoring Results**



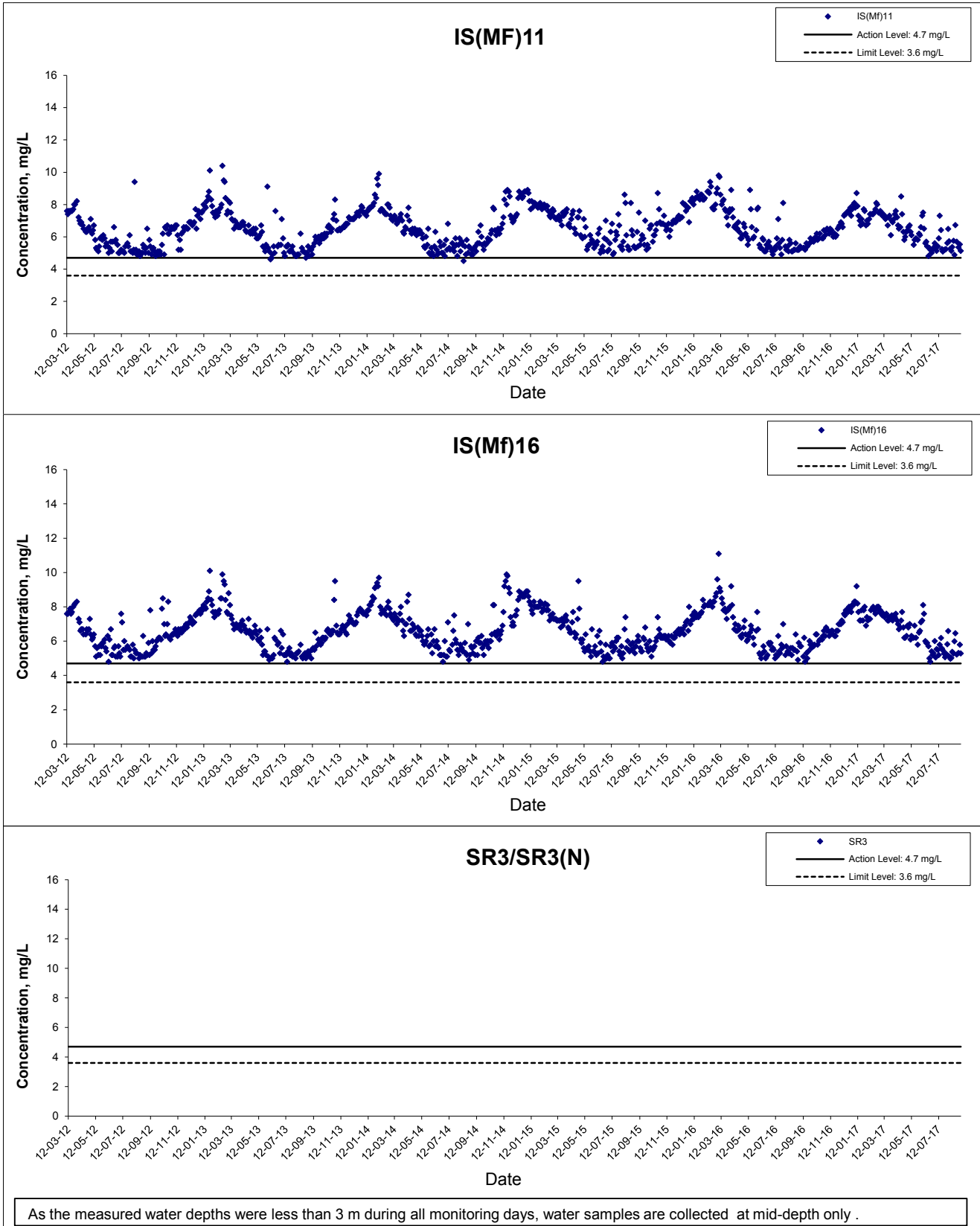
\*Water quality monitoring works for the Contract were covered by Contract No. HY/2013/01 Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building effective since 1 September 2017.

Project No.: 60249820

Date: November 2018

Appendix G

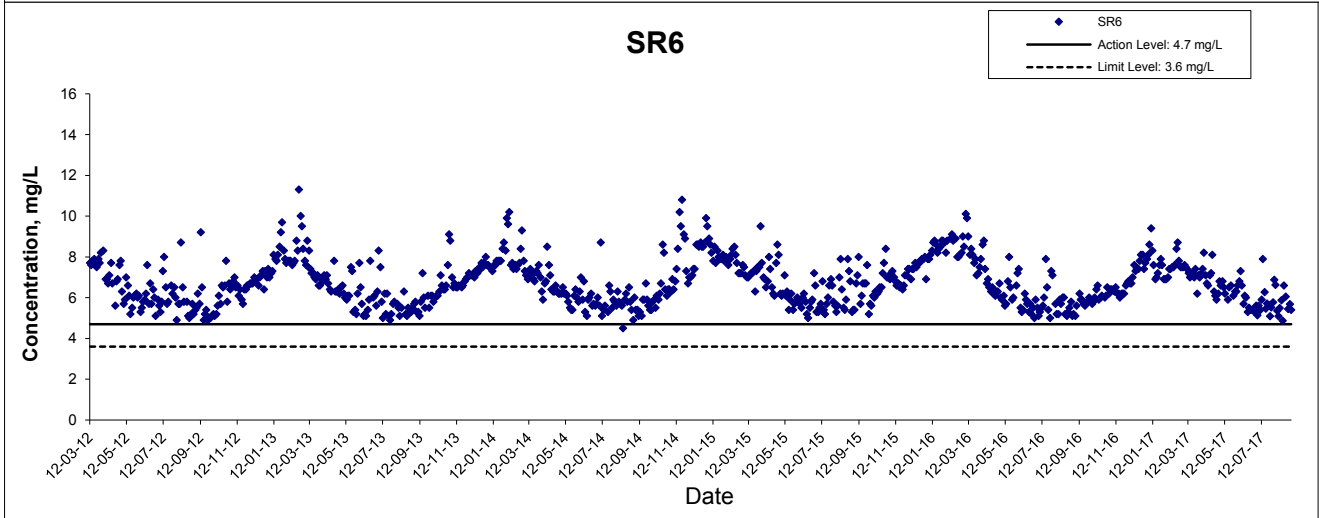
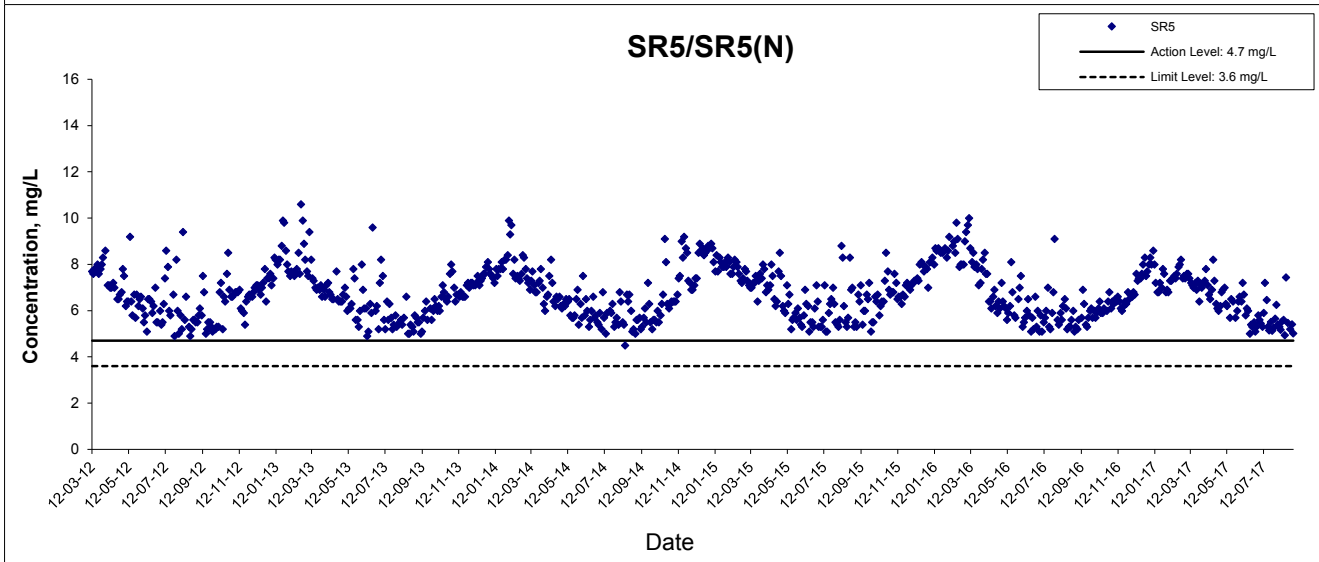
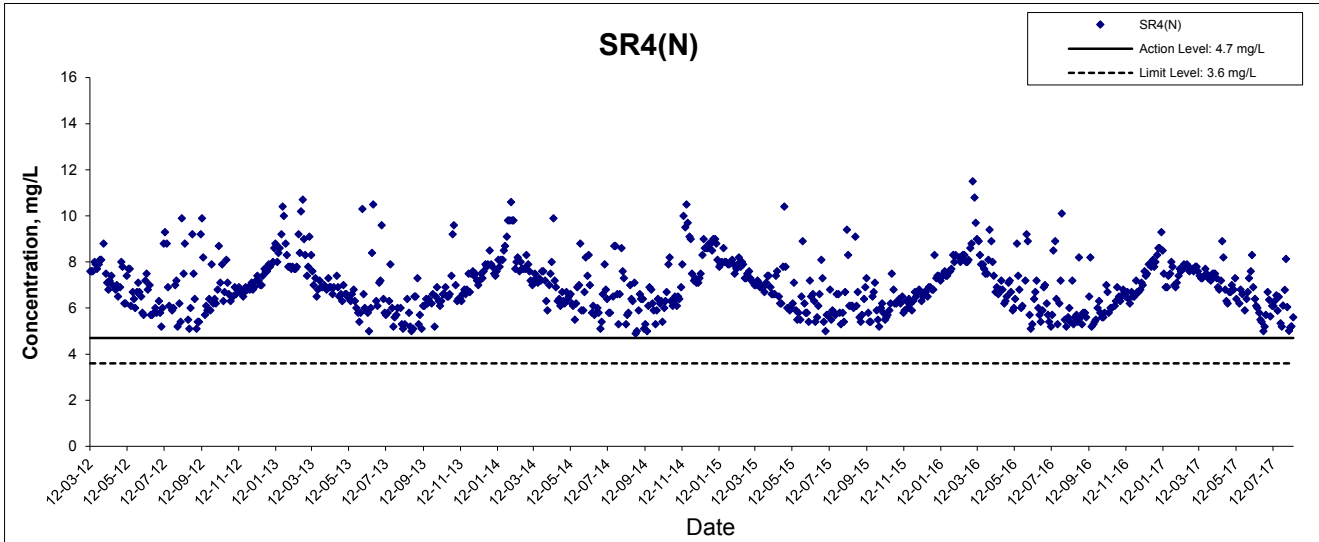
## Dissolved Oxygen (Bottom) at Mid-Flood Tide



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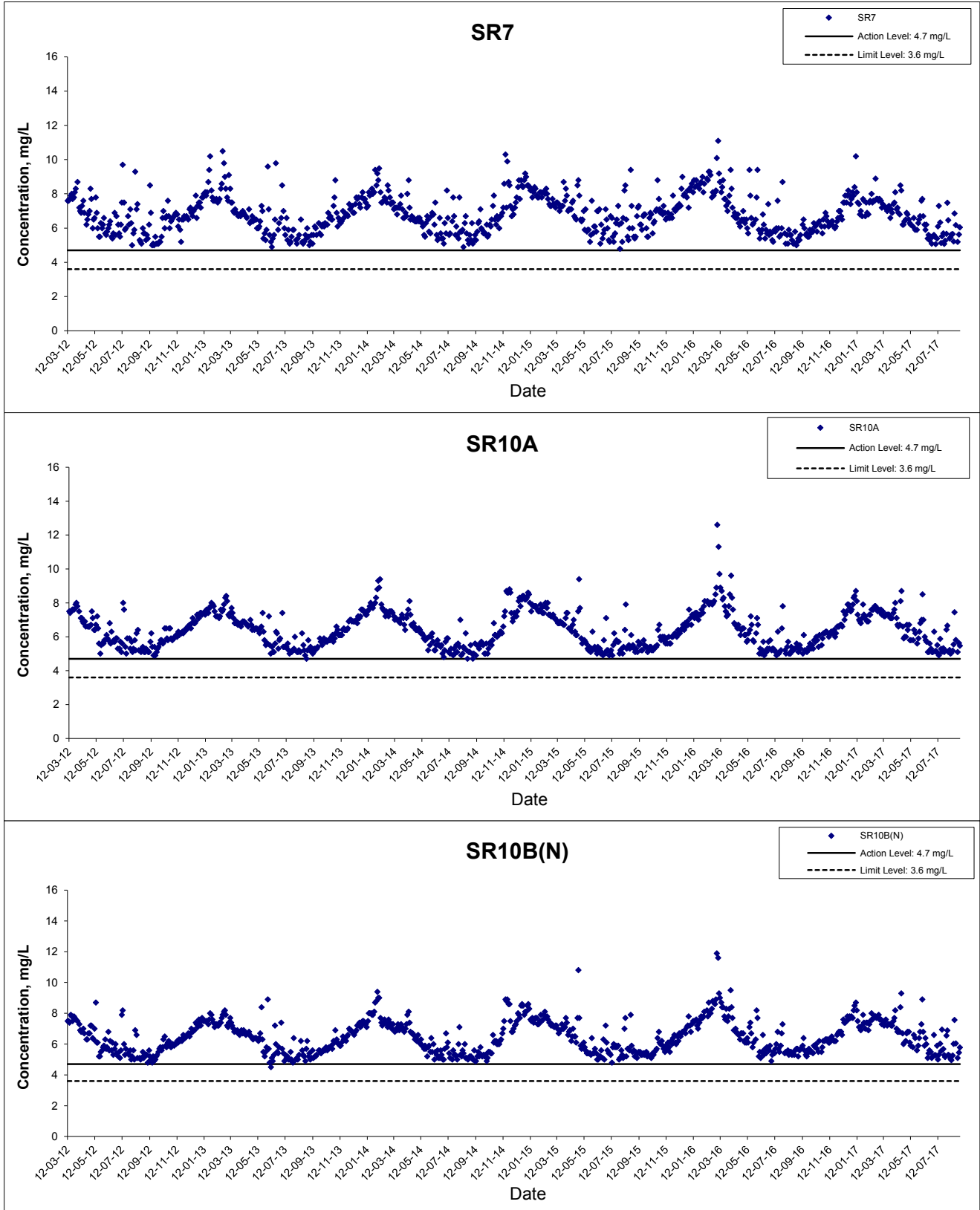


## Dissolved Oxygen (Bottom) at Mid-Flood Tide



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## Dissolved Oxygen (Bottom) at Mid-Flood Tide



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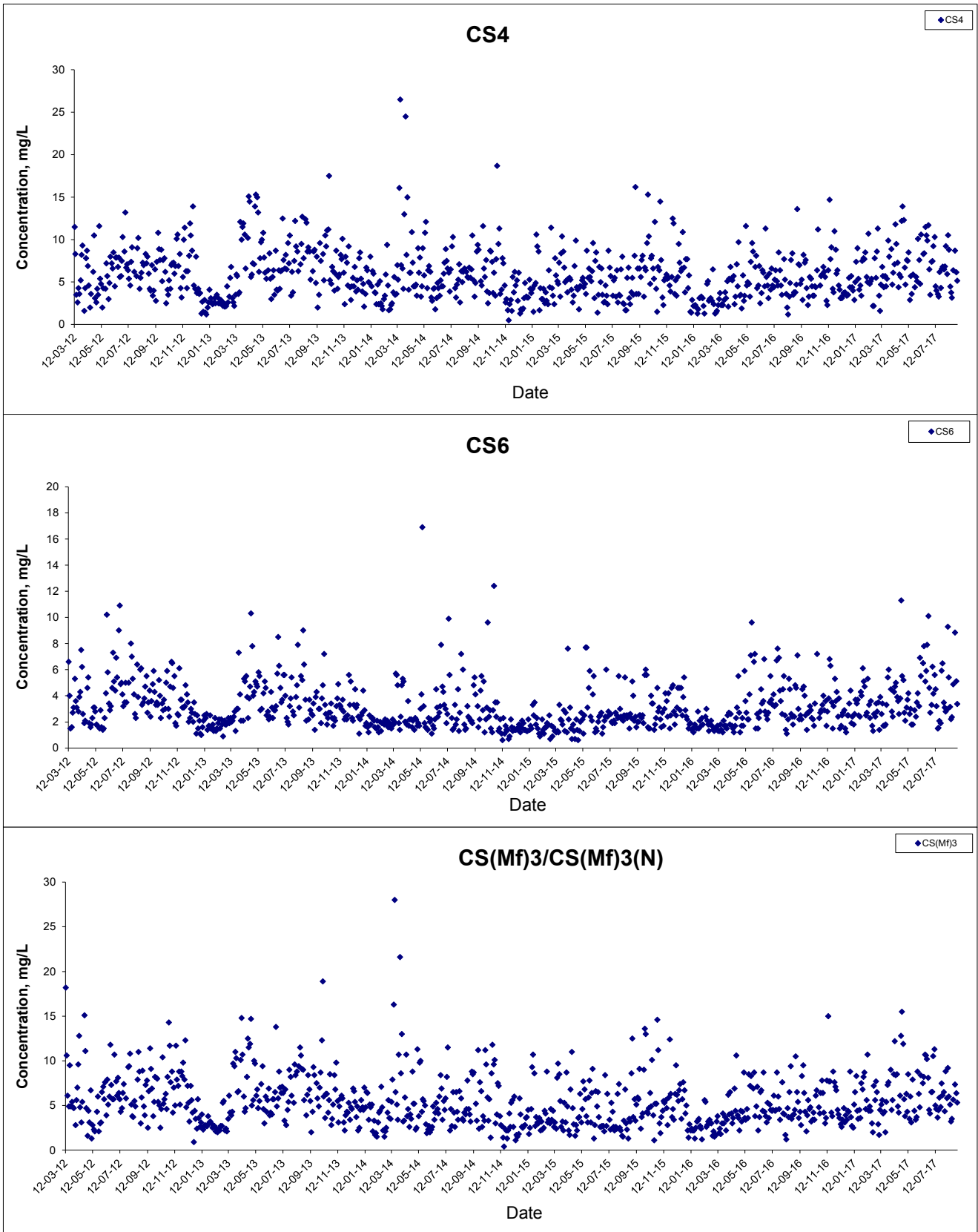
**HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
Monitoring Results**



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### Turbidity at Mid-Ebb Tide



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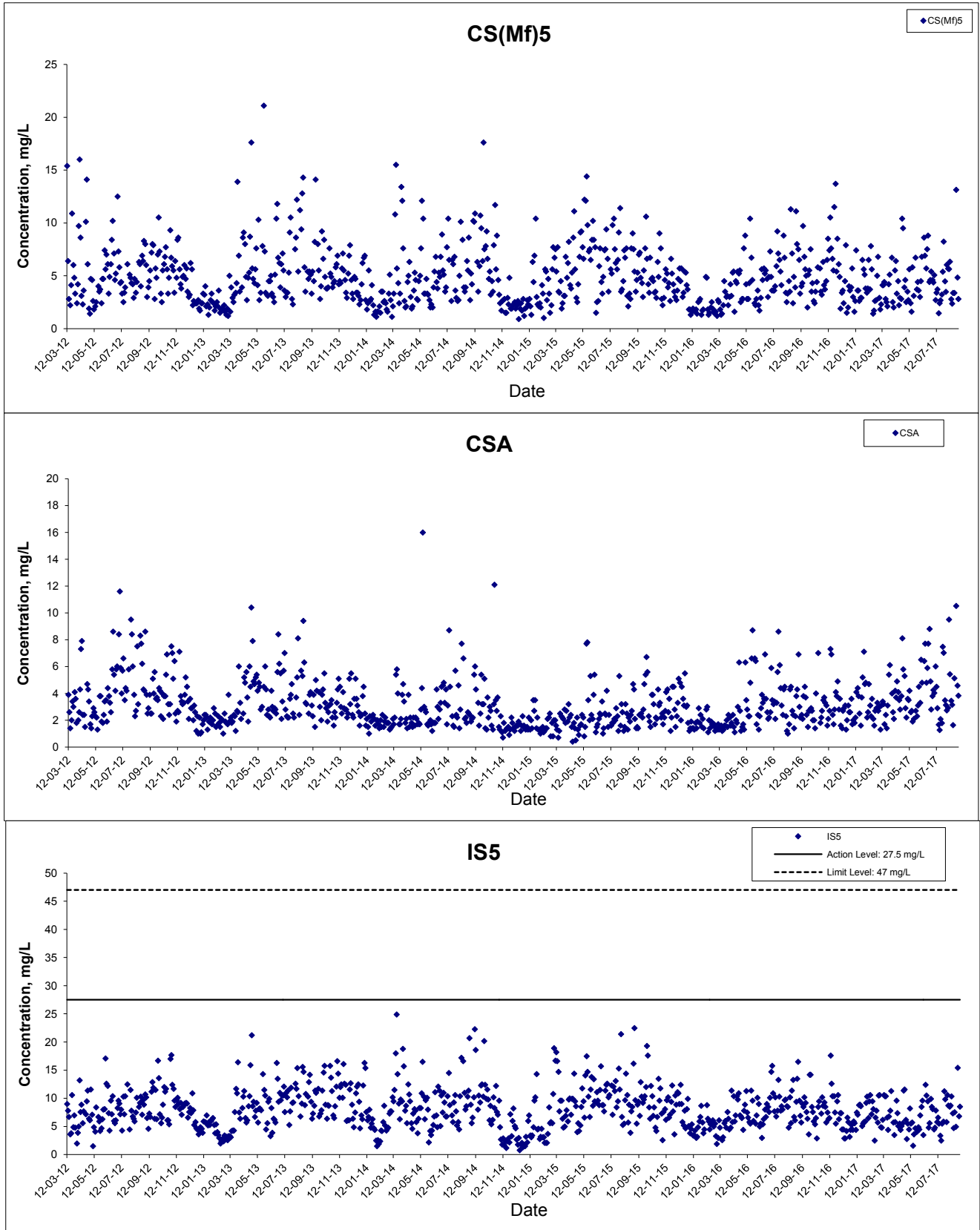
HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS

### Graphical Presentation of Impact Water Quality Monitoring Results



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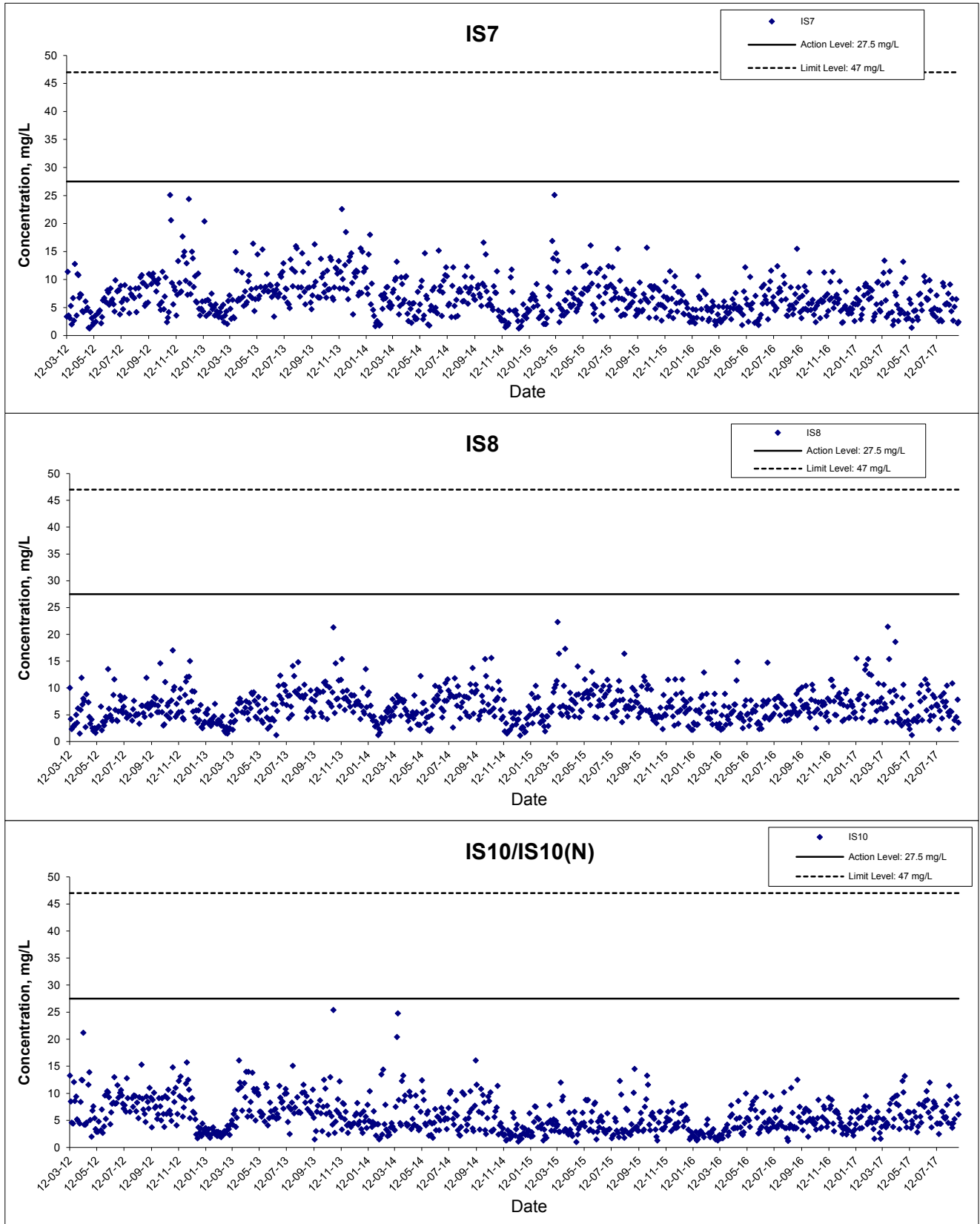
HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS

### Graphical Presentation of Impact Water Quality Monitoring Results



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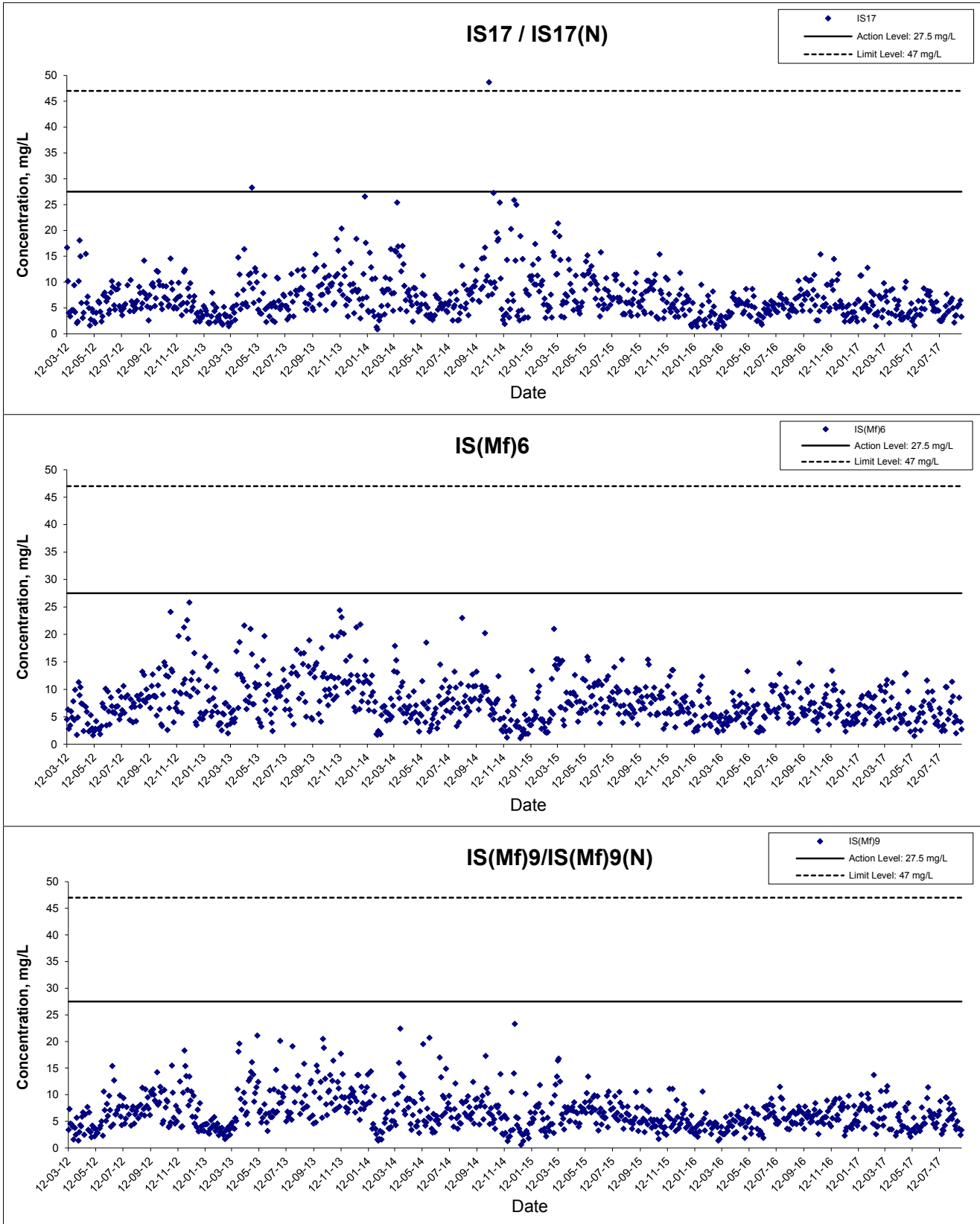
HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
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**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
Monitoring Results**



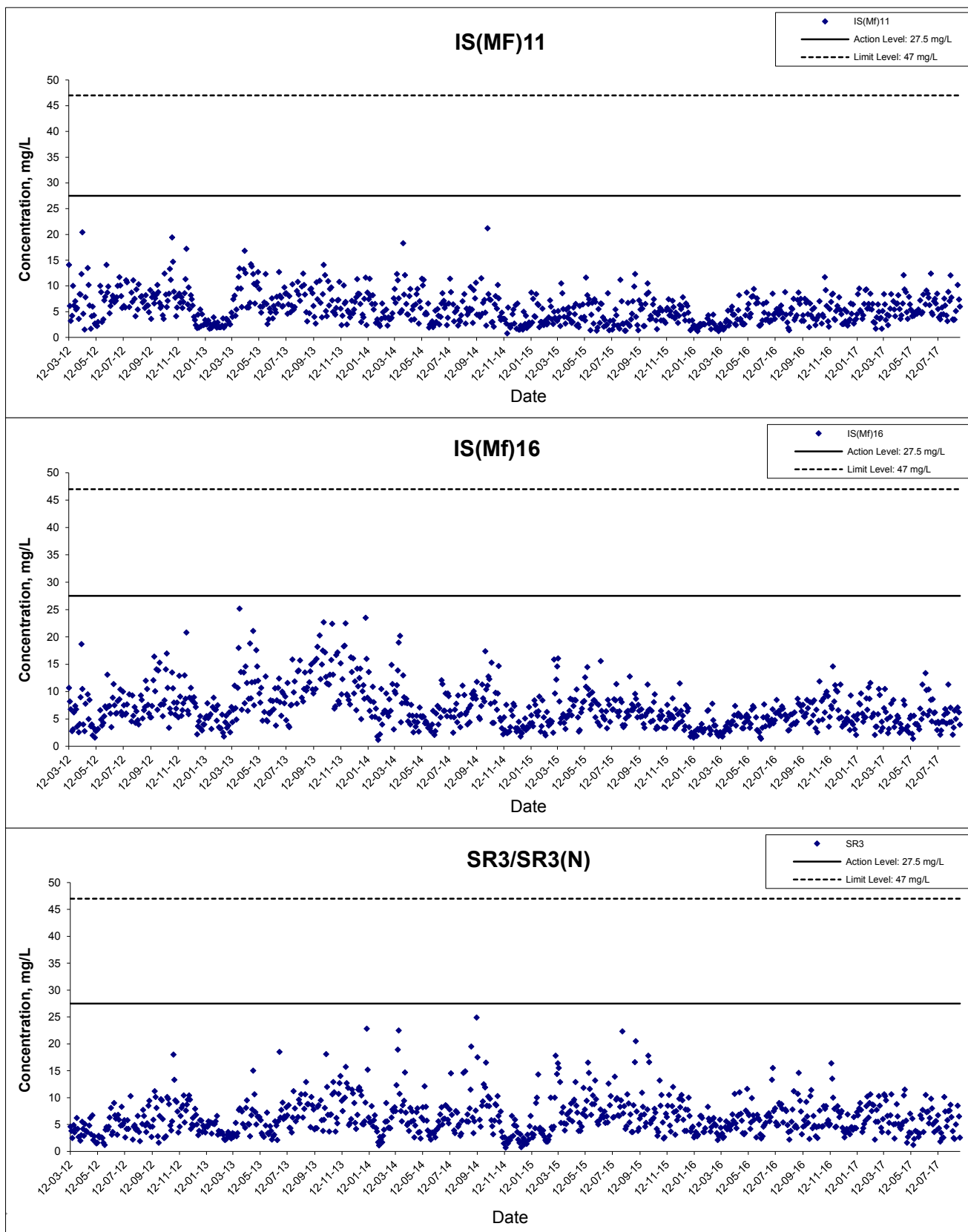
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Project No.: 60249820

Date: November 2018

Appendix G

## Turbidity at Mid-Ebb Tide



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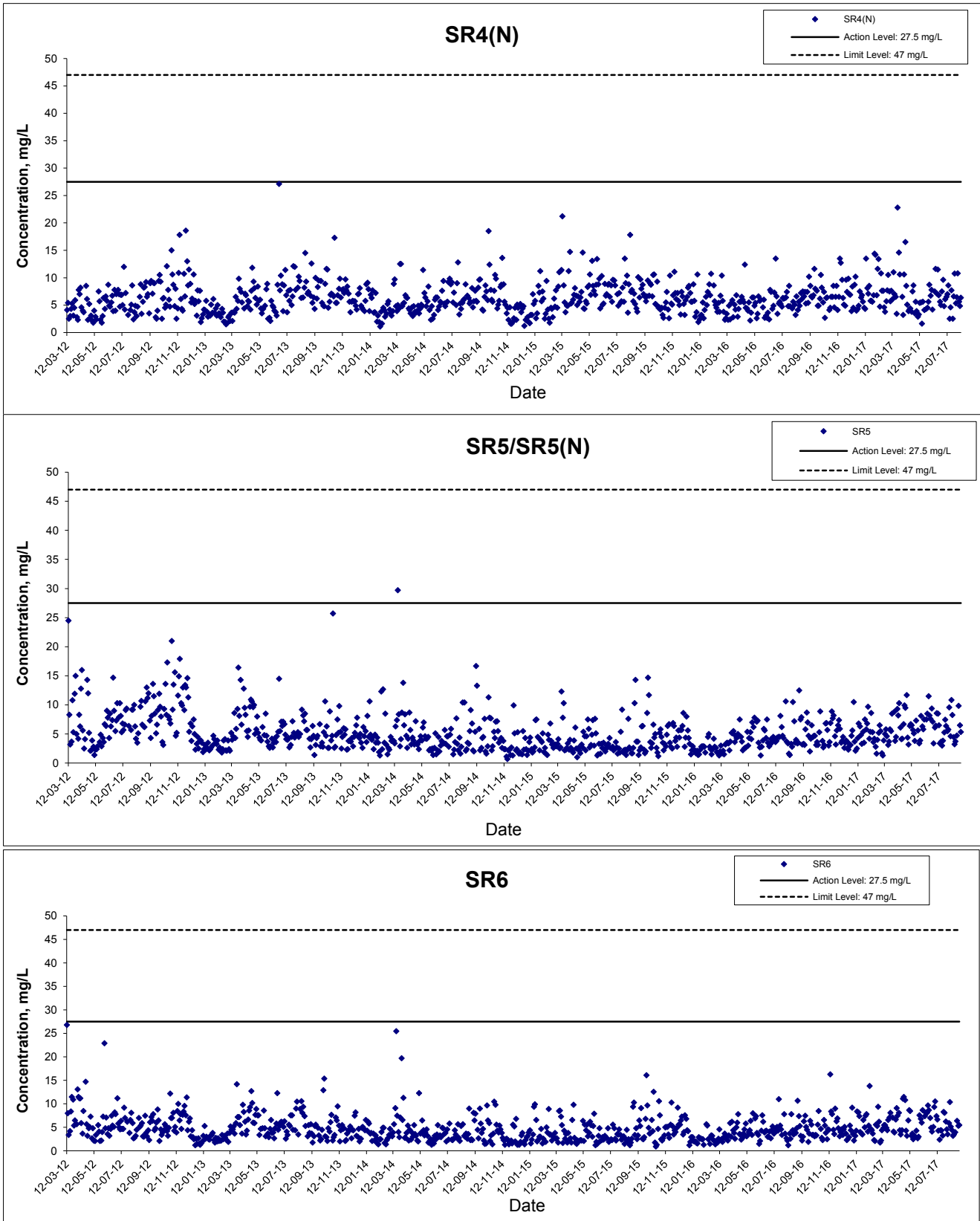
**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**



### Graphical Presentation of Impact Water Quality Monitoring Results

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## Turbidity at Mid-Ebb Tide



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**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**

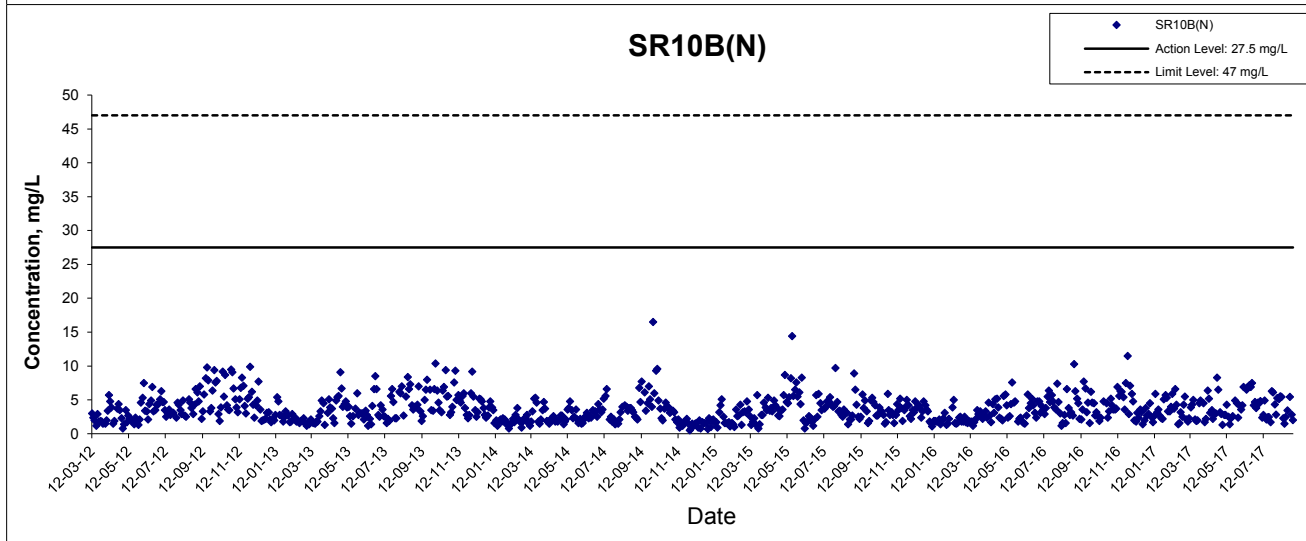
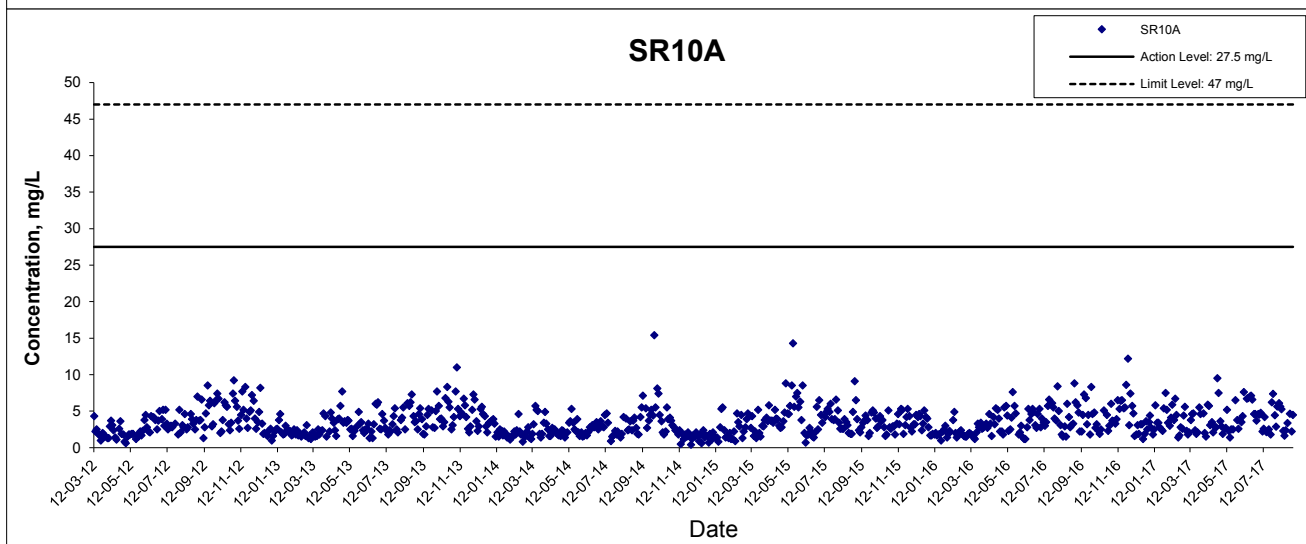
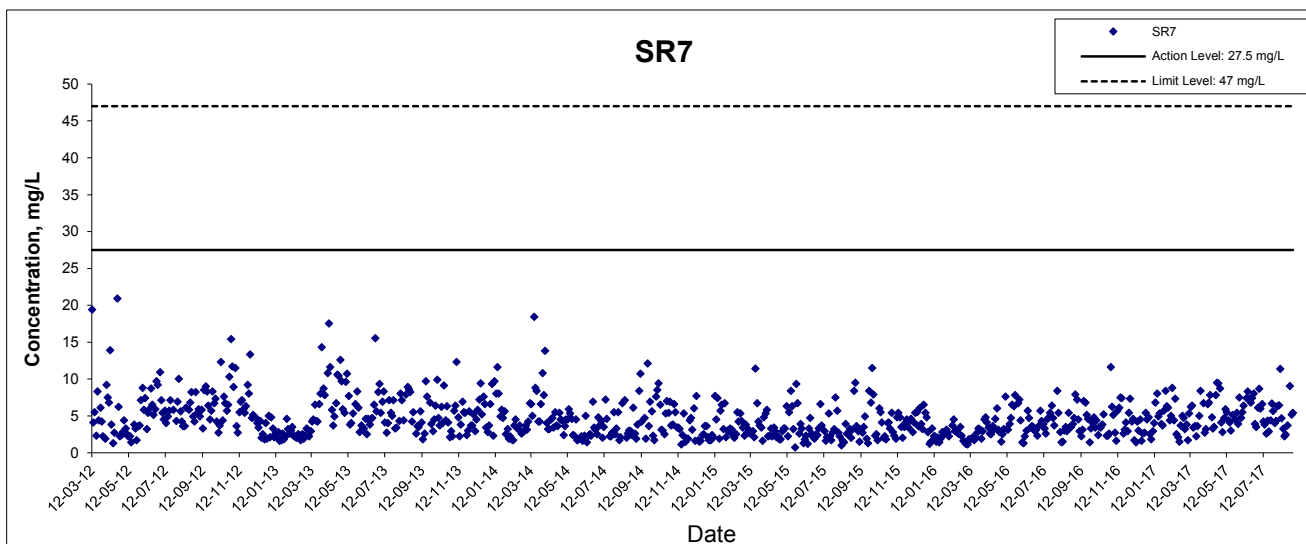
### Graphical Presentation of Impact Water Quality Monitoring Results



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## Turbidity at Mid-Ebb Tide



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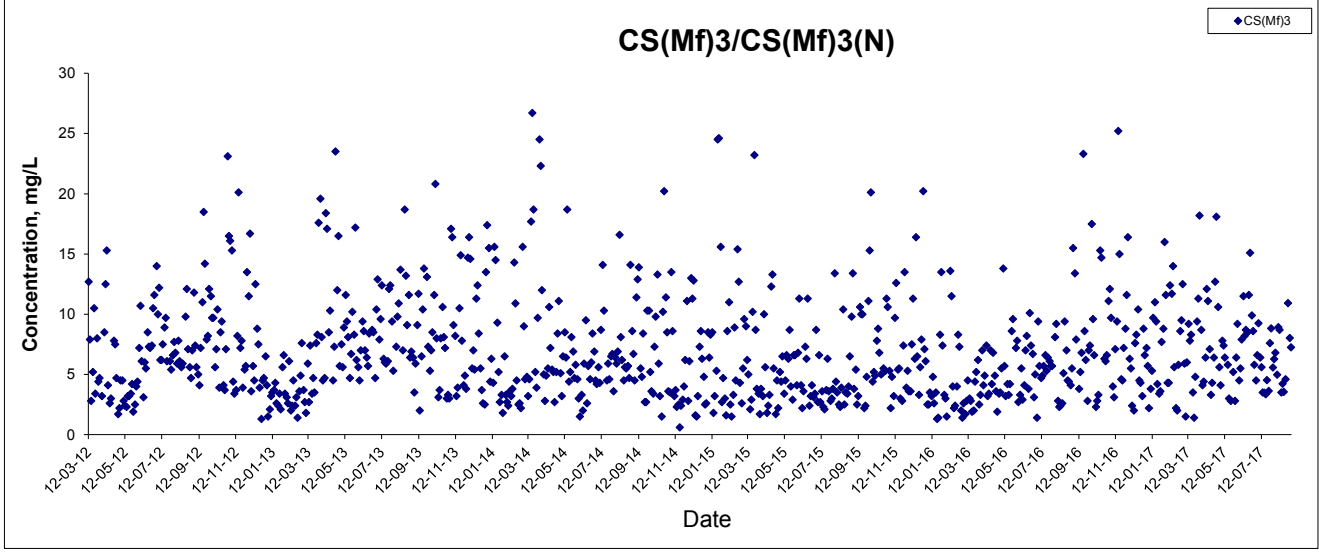
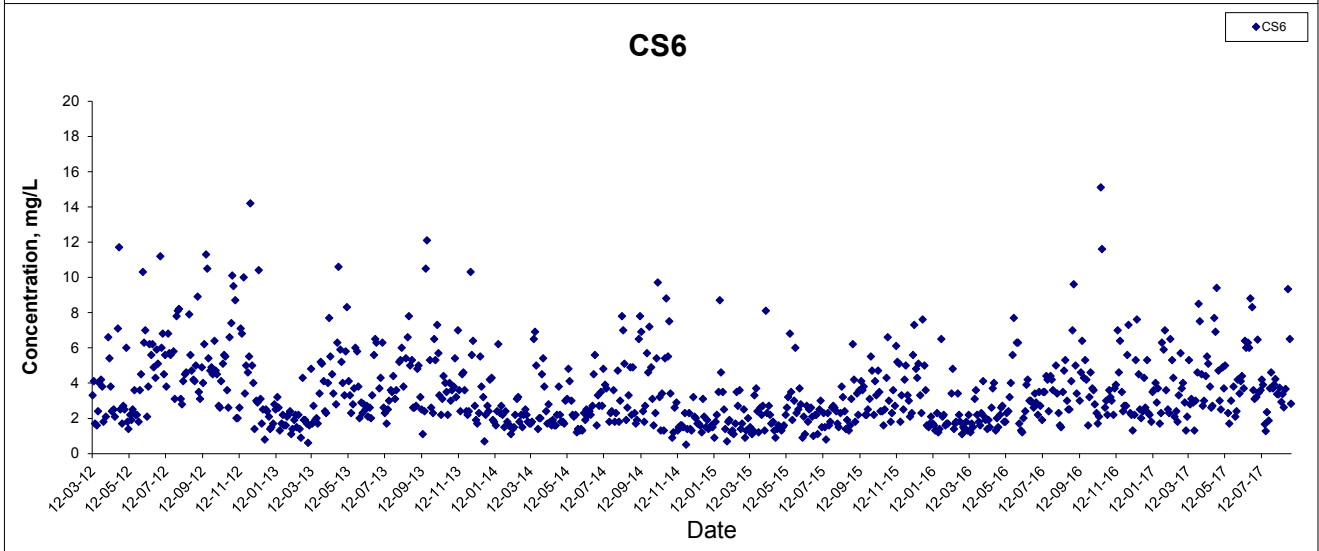
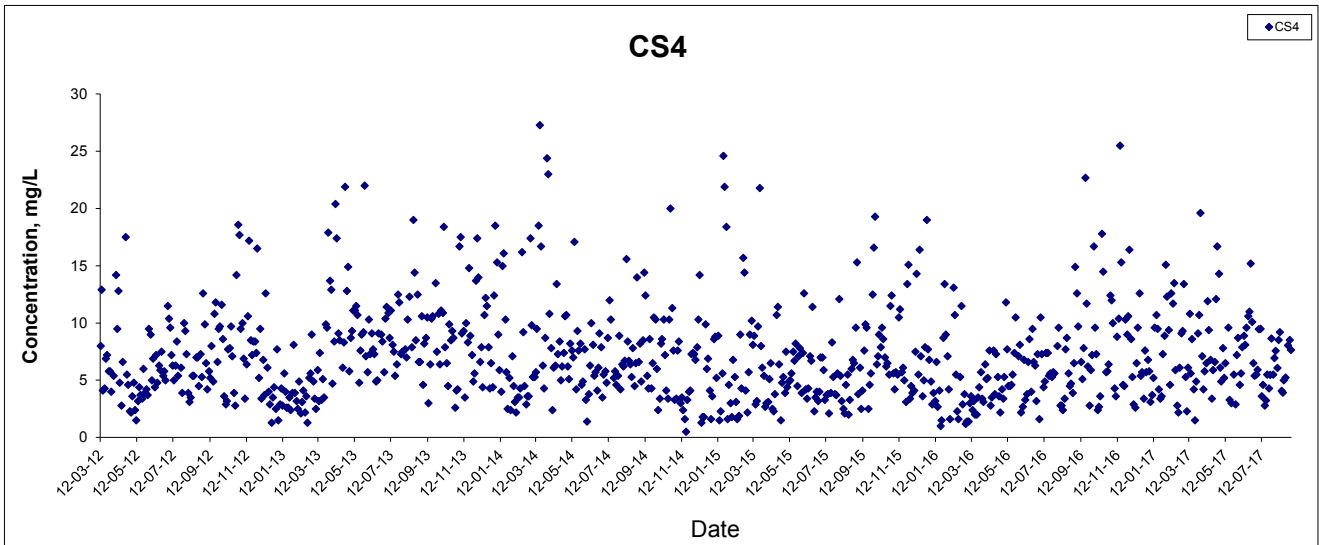
**HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS**

**Graphical Presentation of Impact Water Quality  
 Monitoring Results**



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## Turbidity at Mid-Flood Tide



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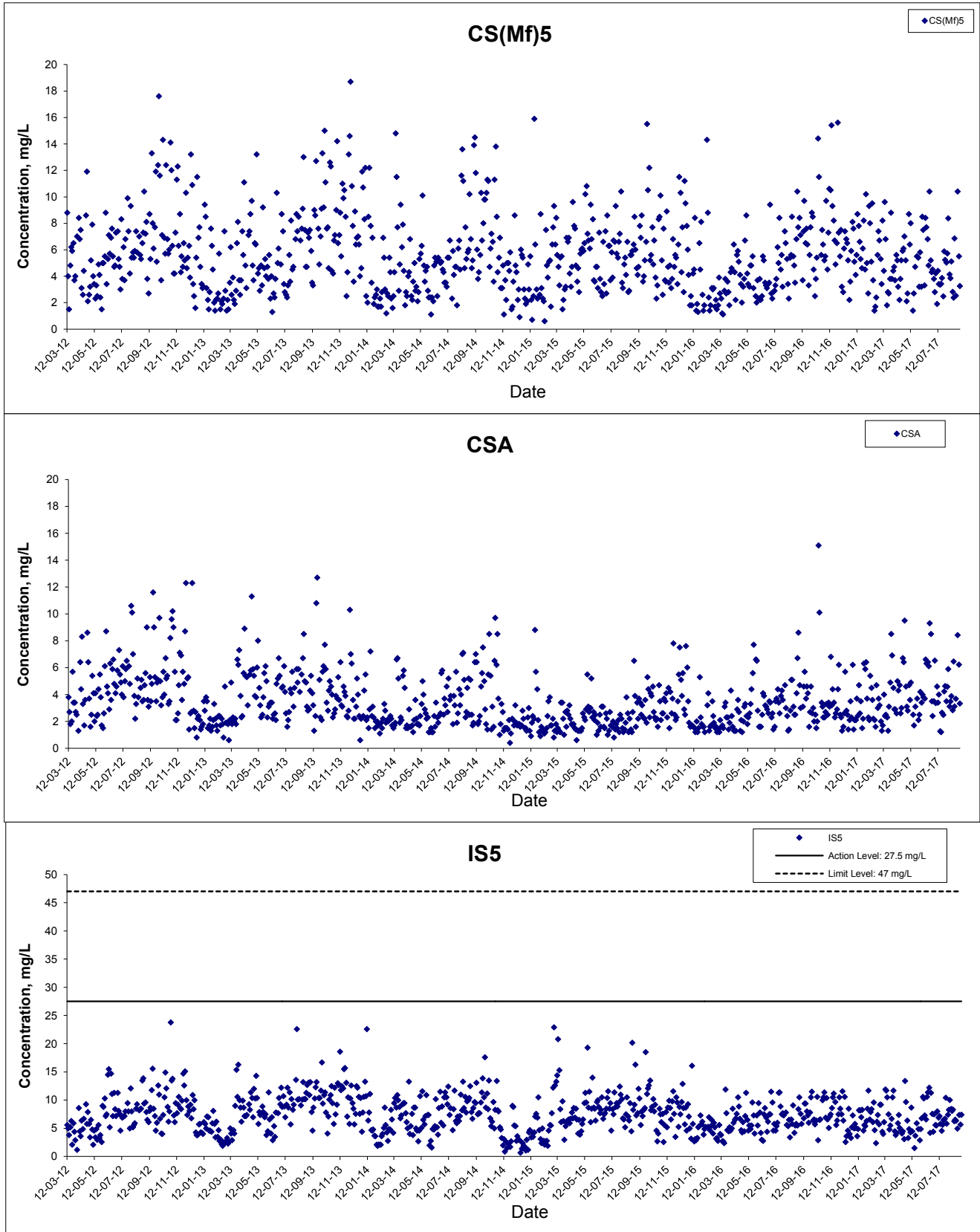
**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- RECLAMATION WORKS**



### Graphical Presentation of Impact Water Quality Monitoring Results

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## Turbidity at Mid-Flood Tide



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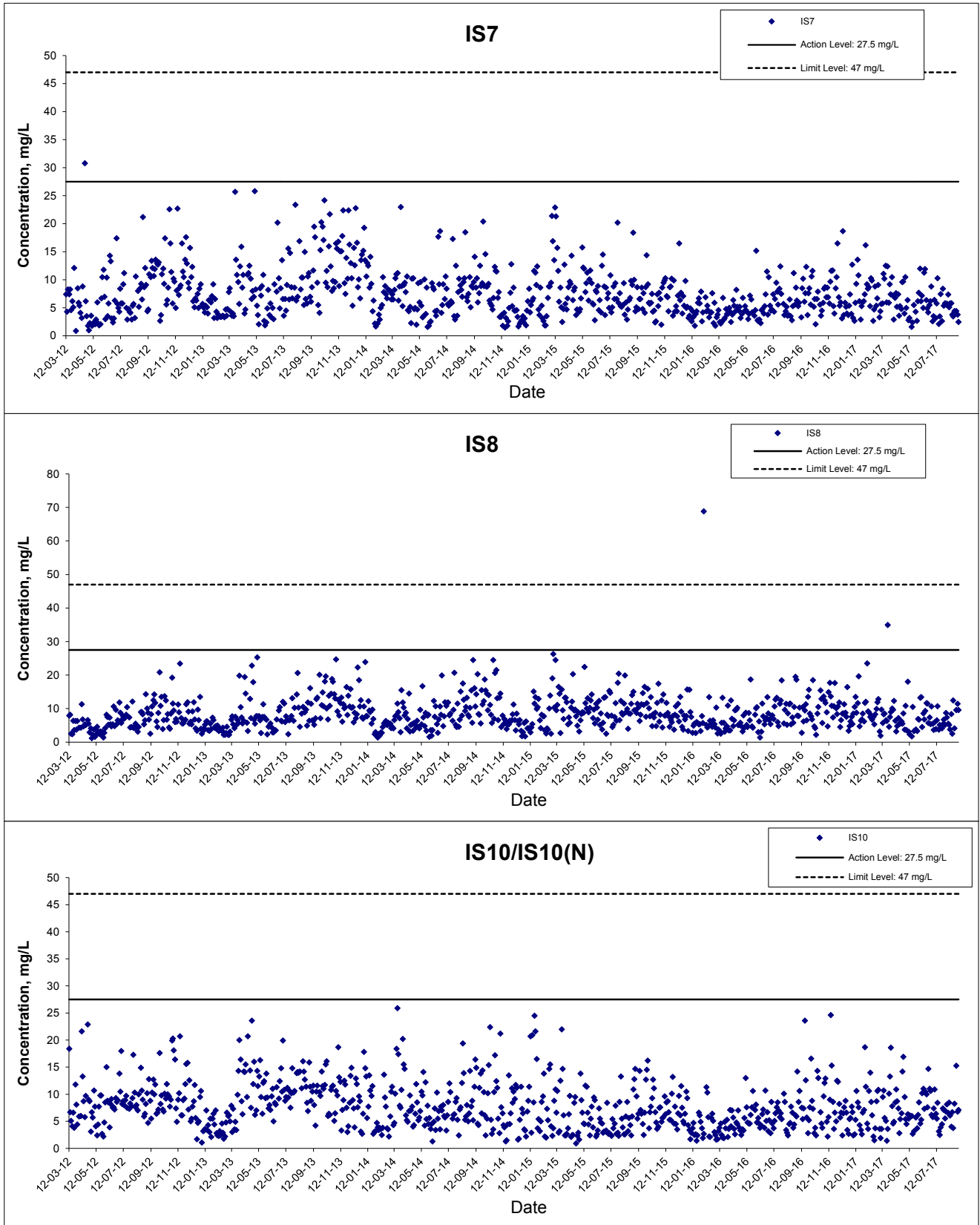
HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS



### Graphical Presentation of Impact Water Quality Monitoring Results

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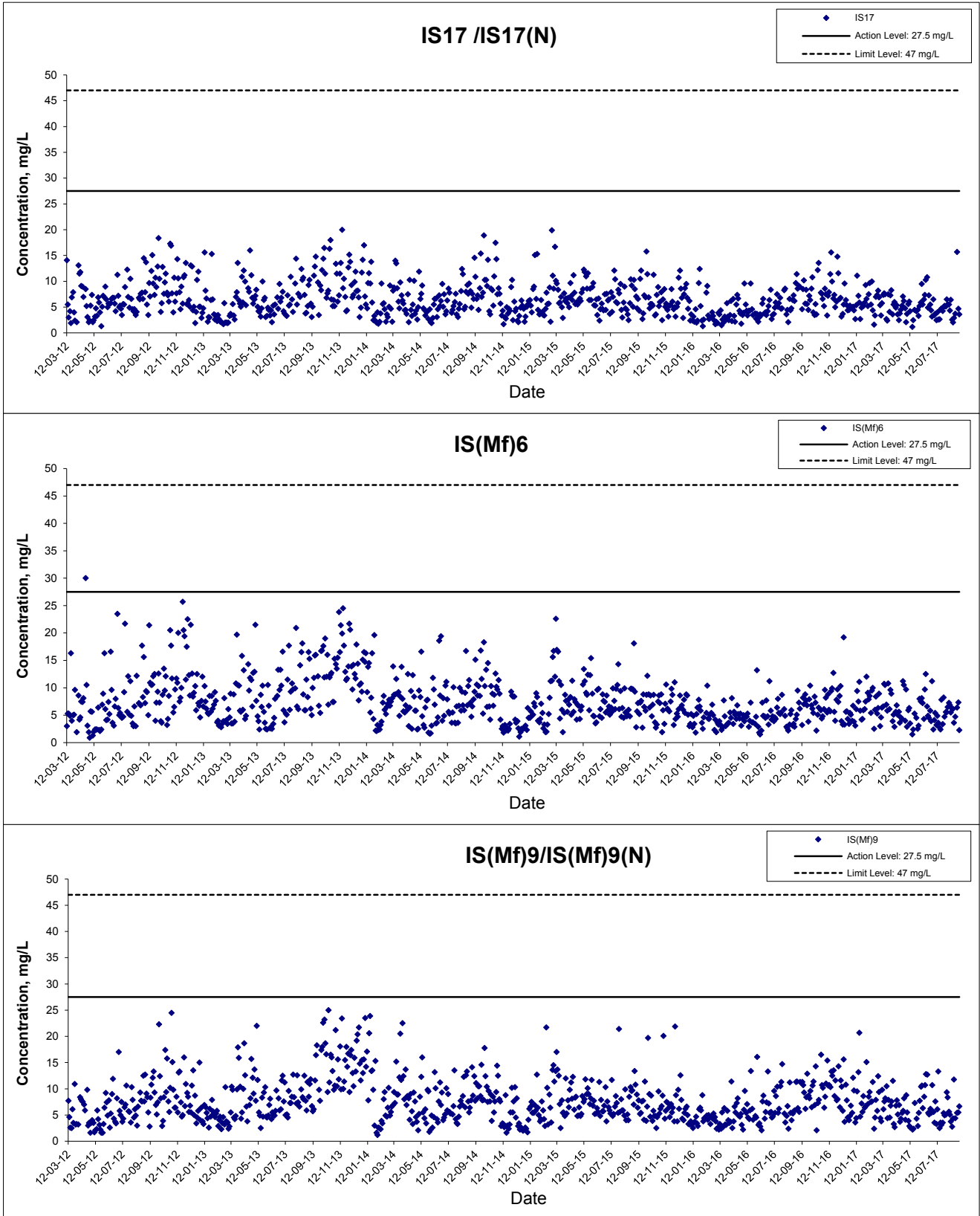
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 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS



### Graphical Presentation of Impact Water Quality Monitoring Results

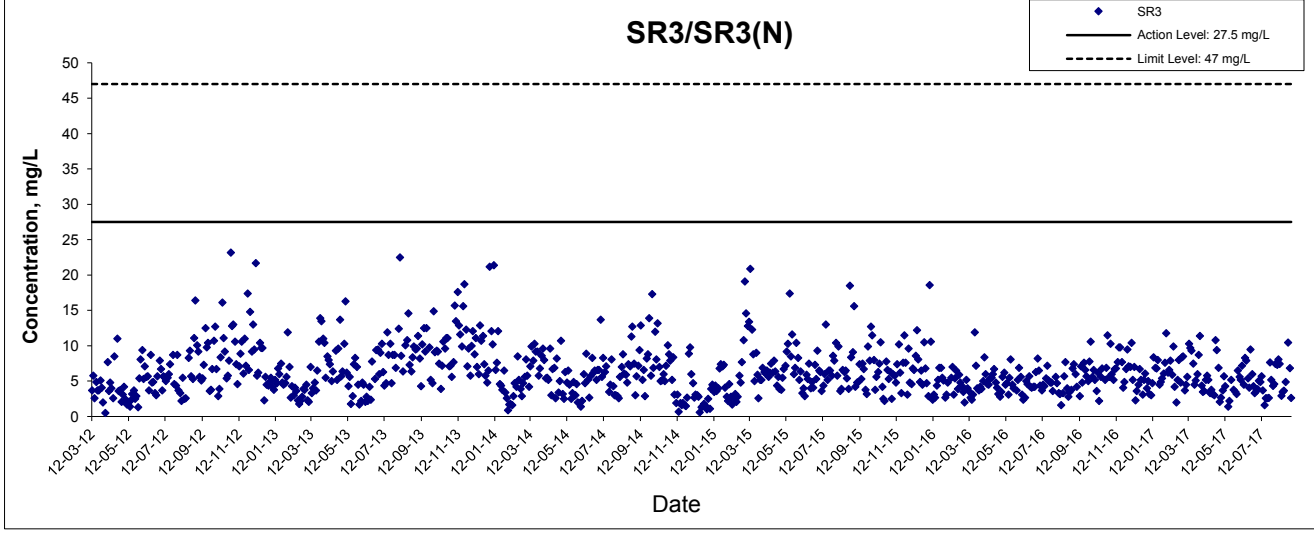
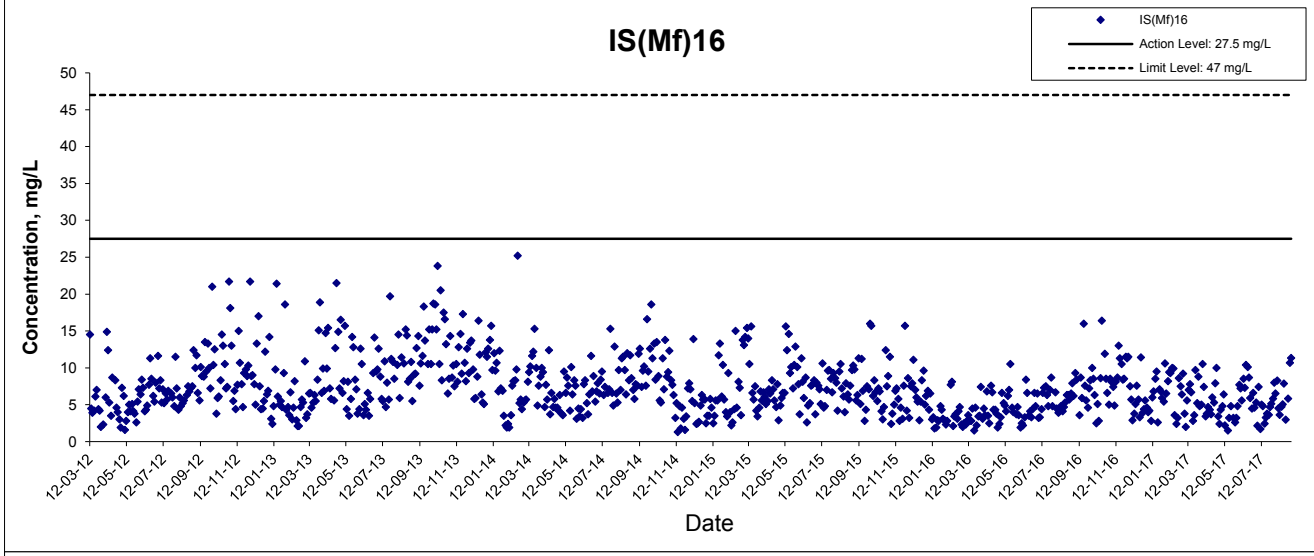
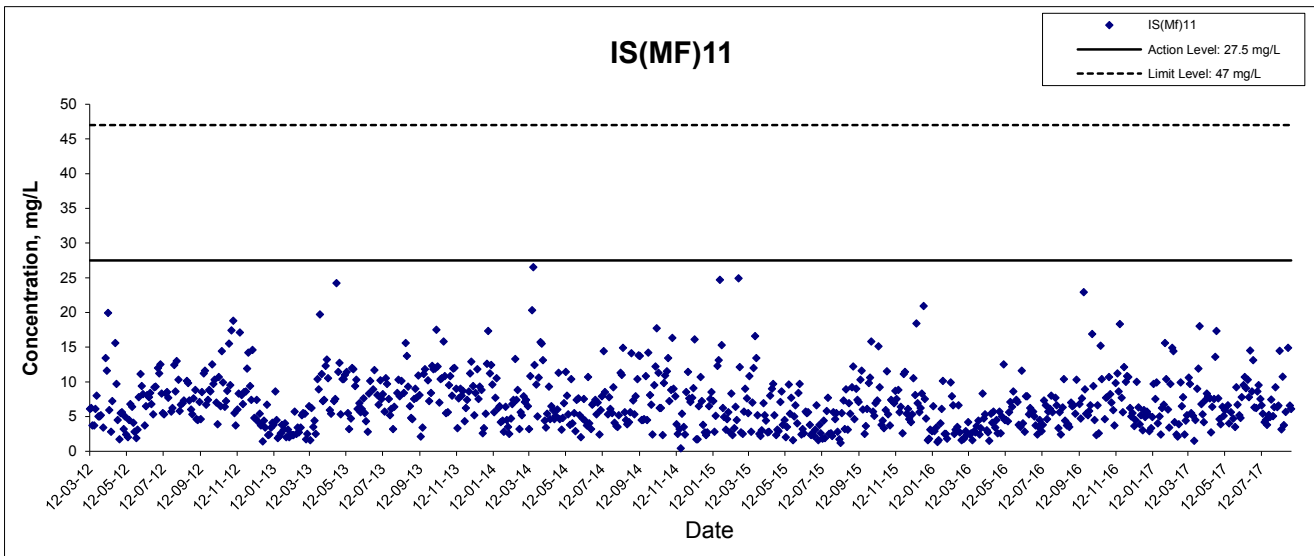
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## Turbidity at Mid-Flood Tide



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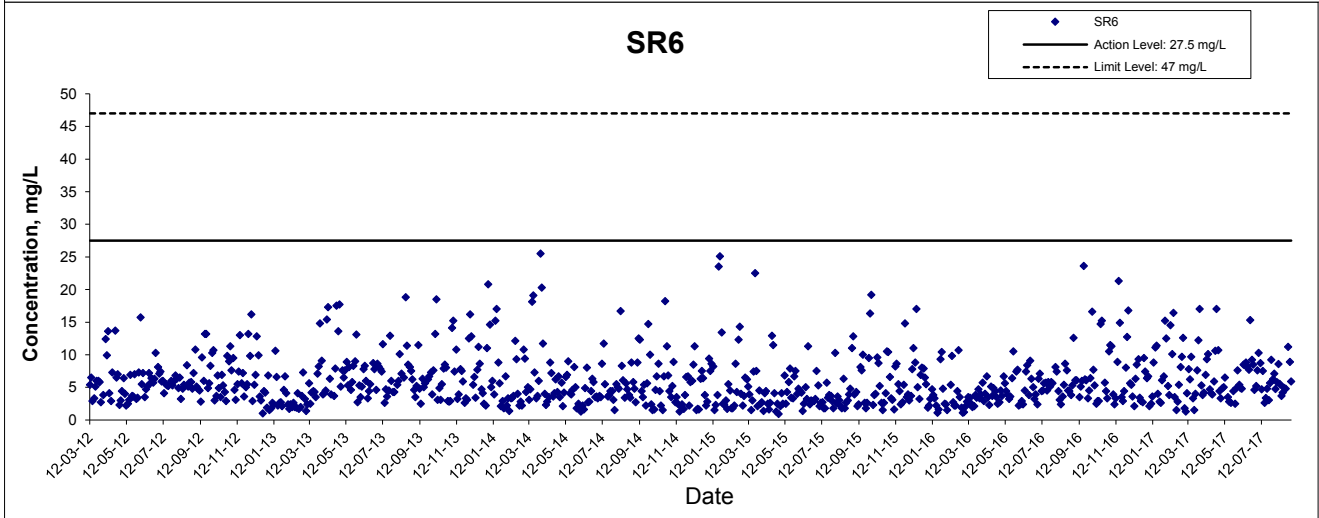
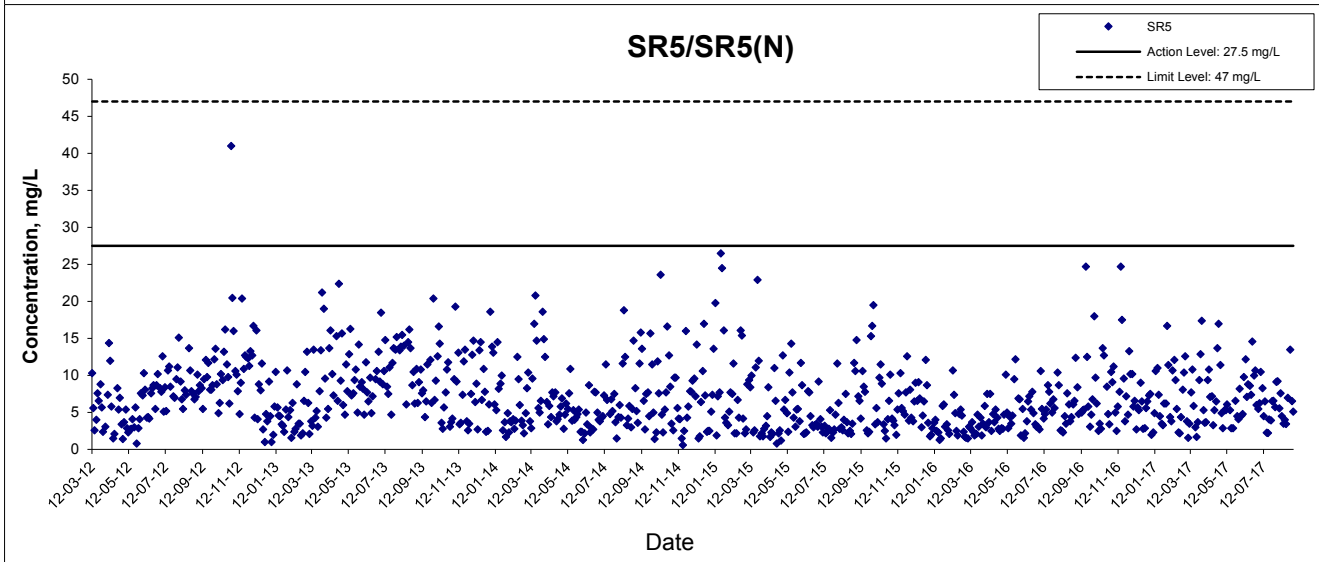
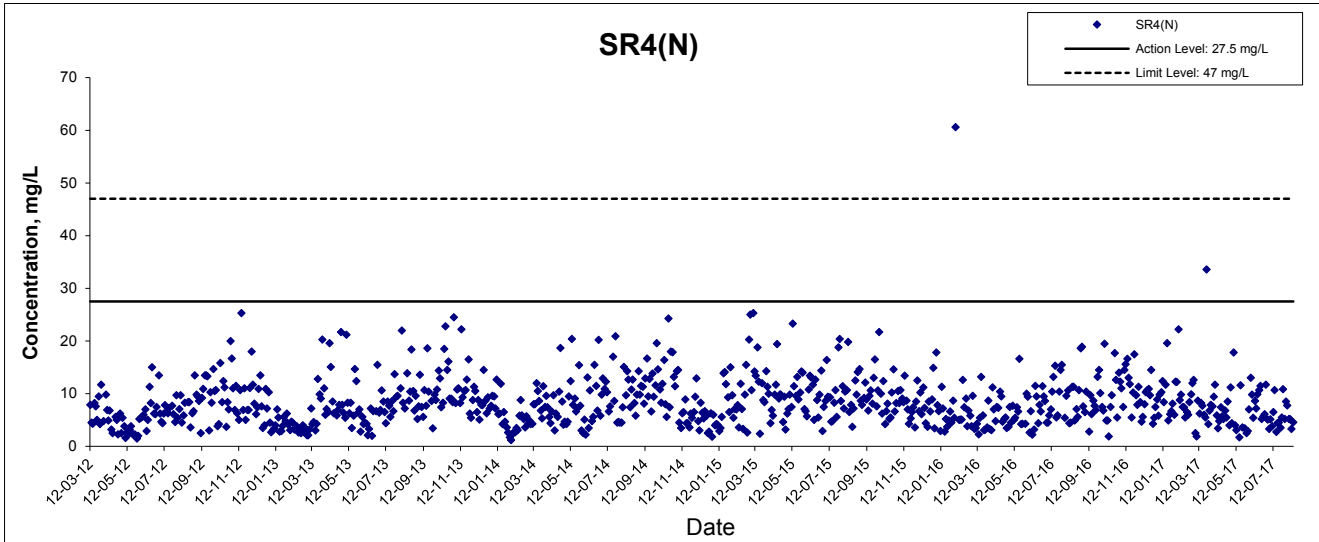
**HONG KONG BOUNDARY CROSSING FACILITIES  
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**Graphical Presentation of Impact Water Quality  
Monitoring Results**



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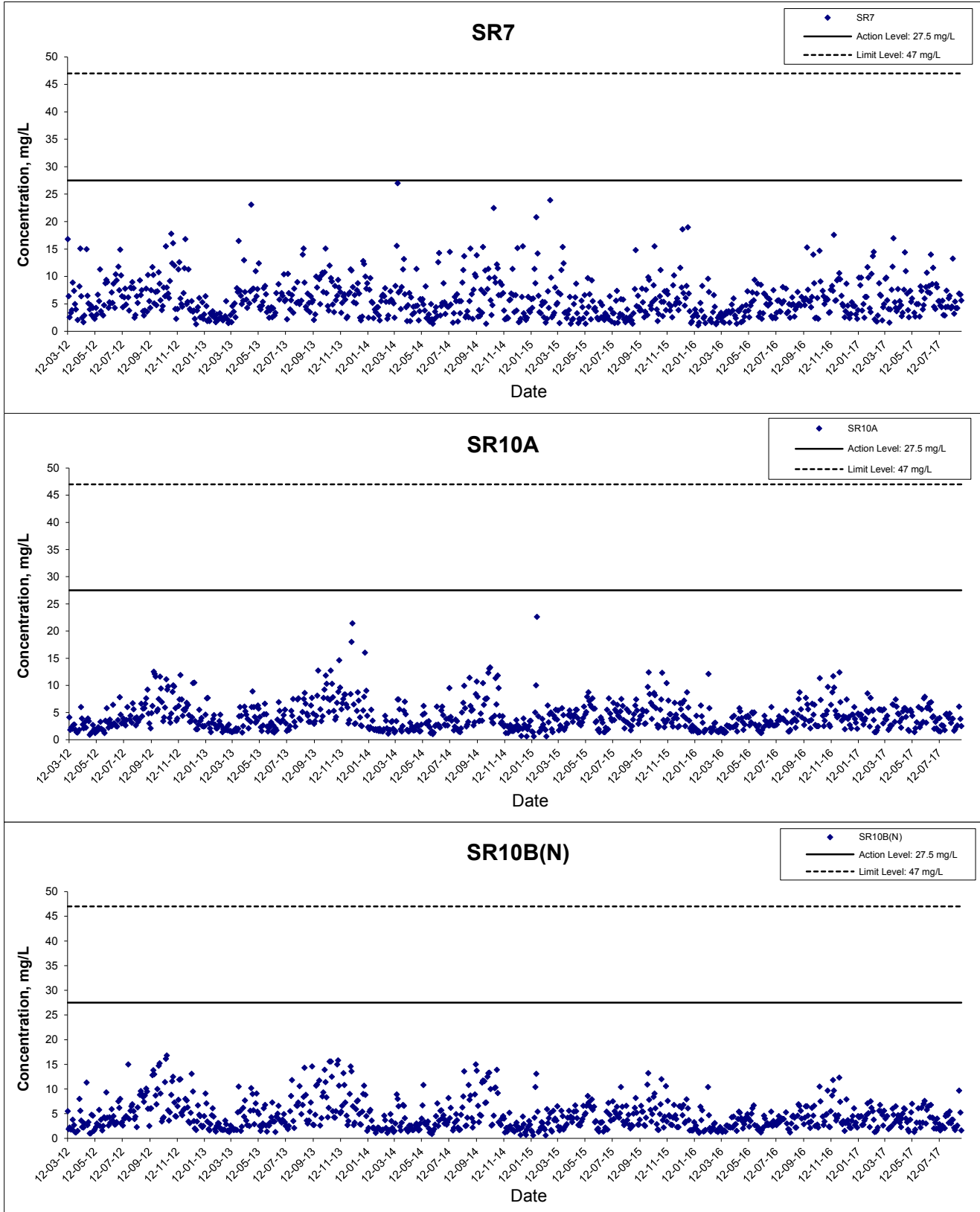
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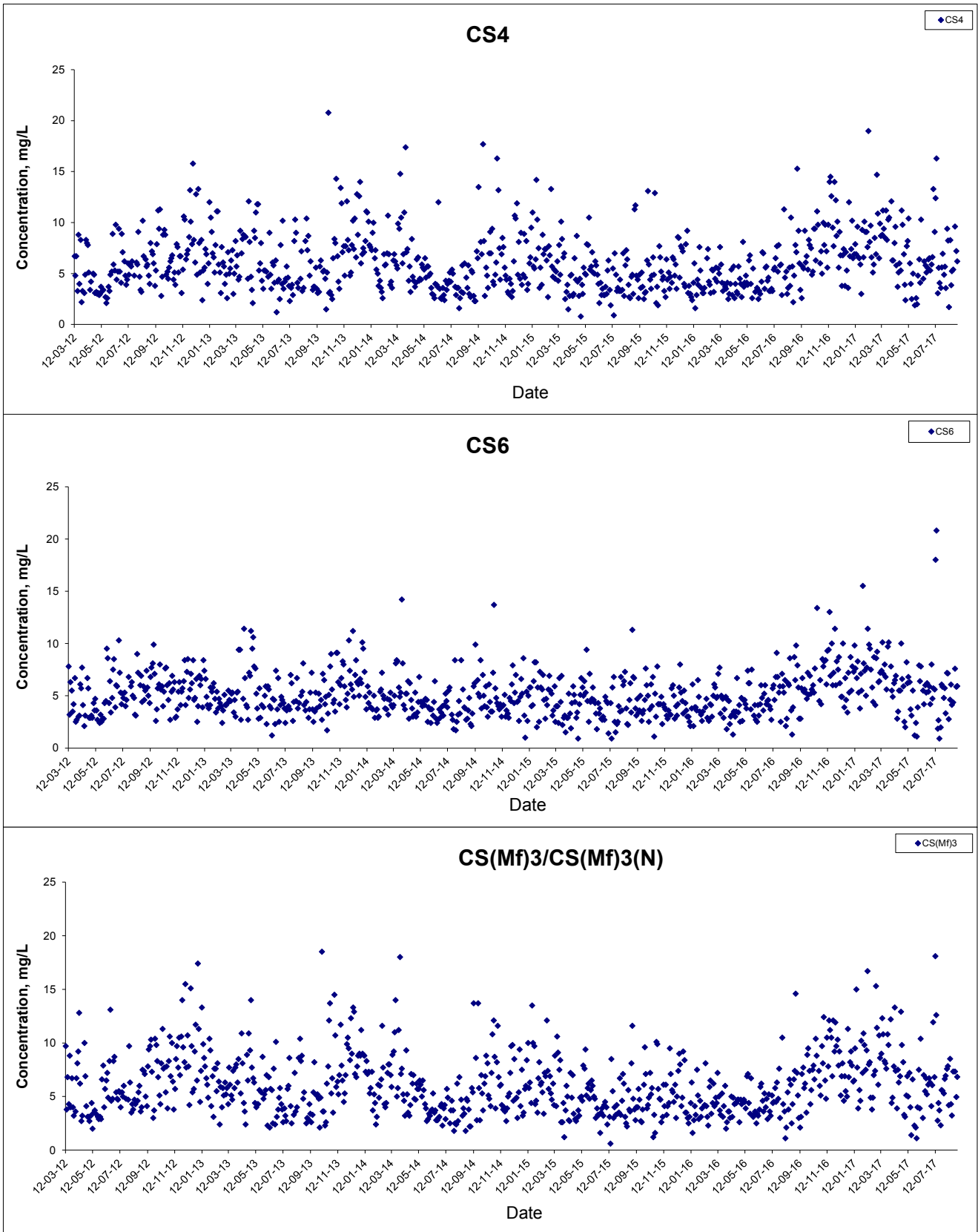
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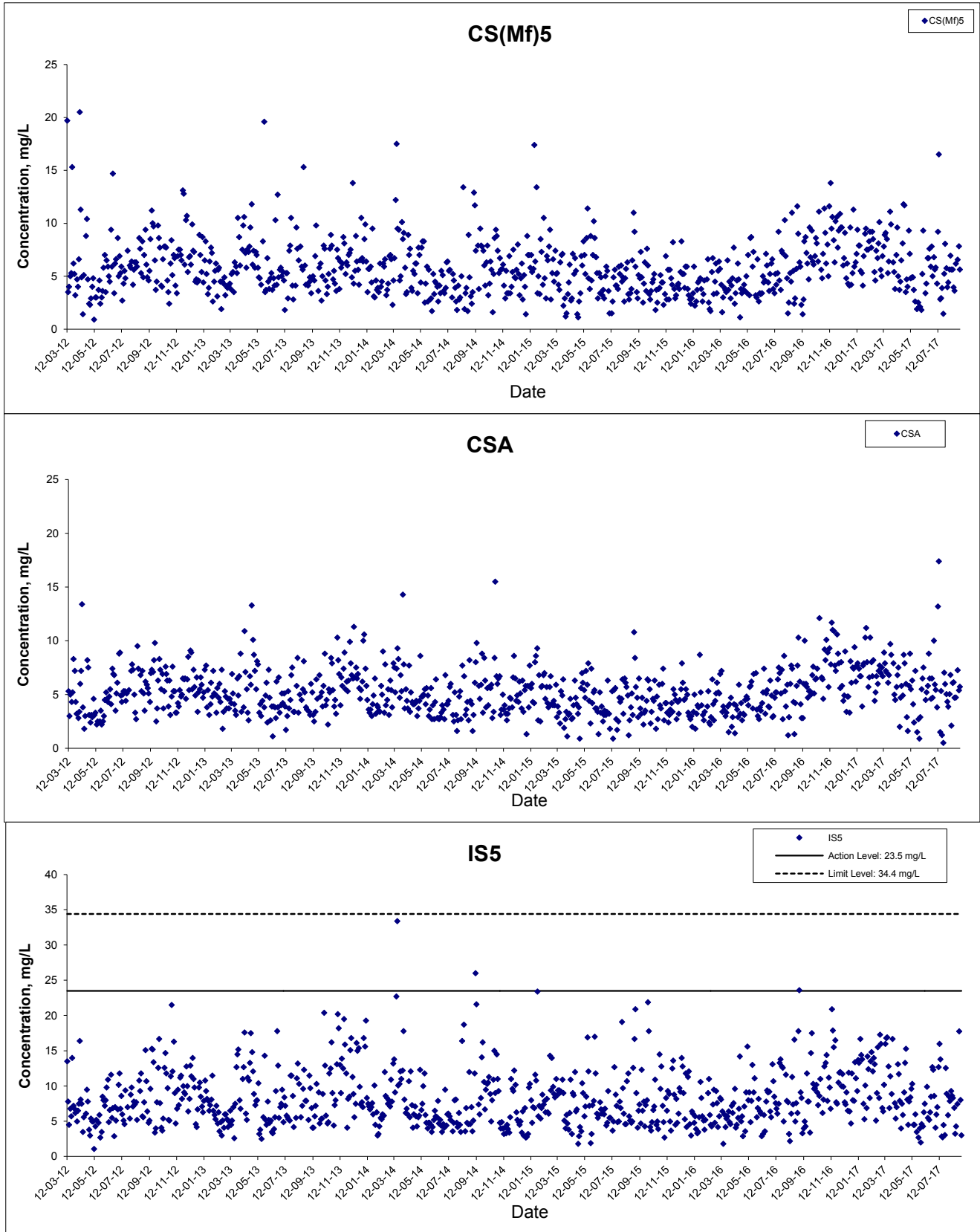
**HONG KONG - ZHUHAI - MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
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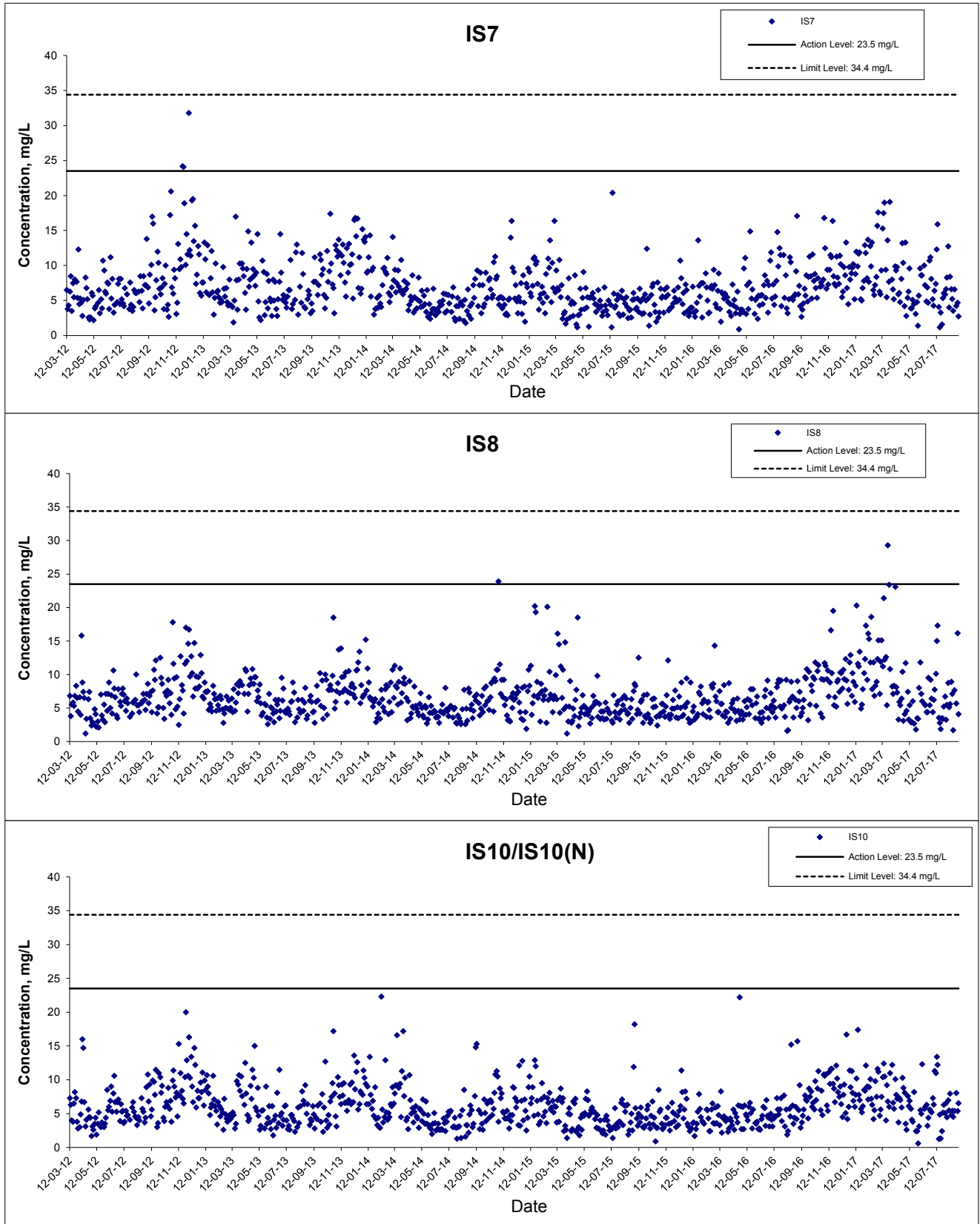
HONG KONG - ZHUHAI - MACAO BRIDGE  
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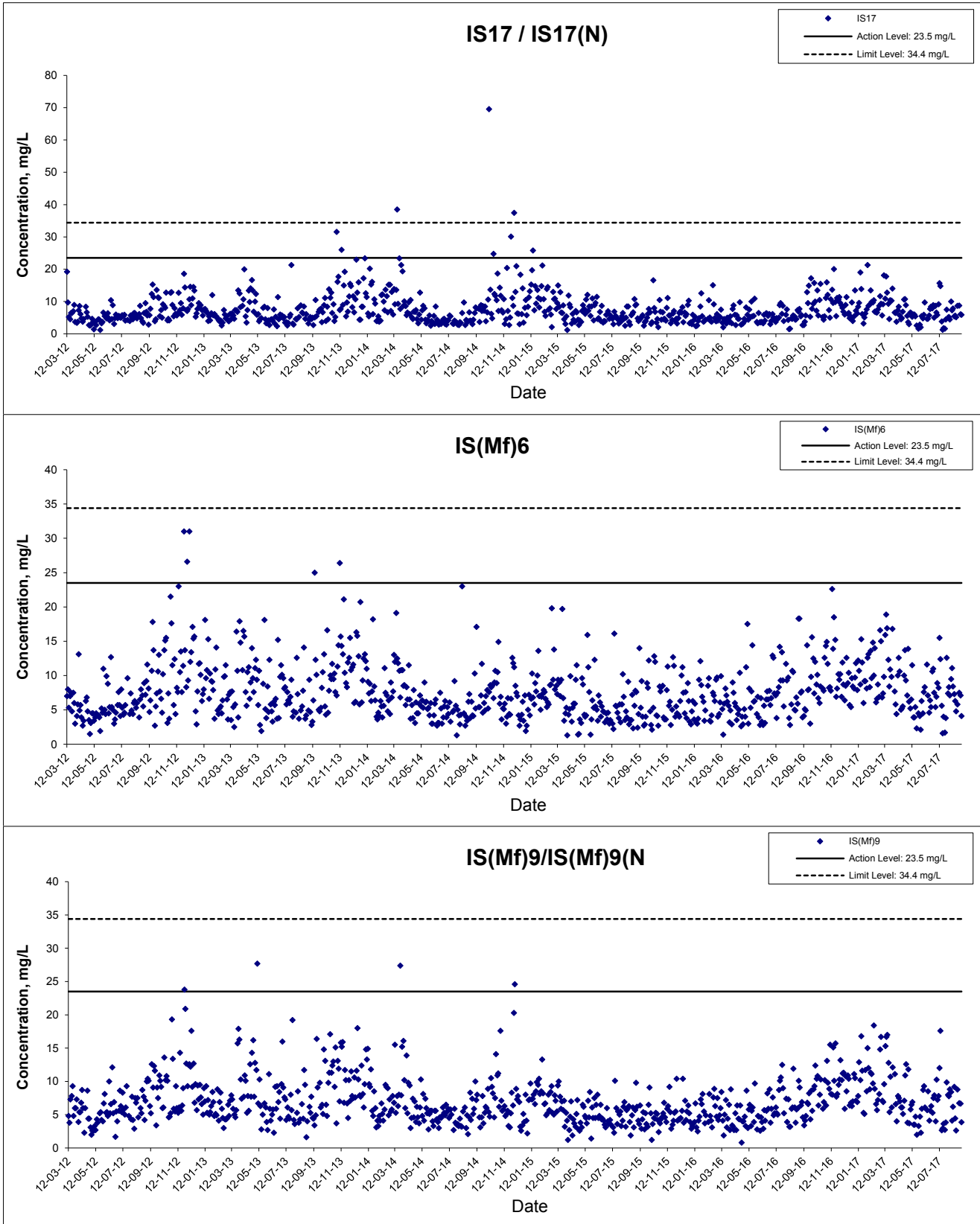
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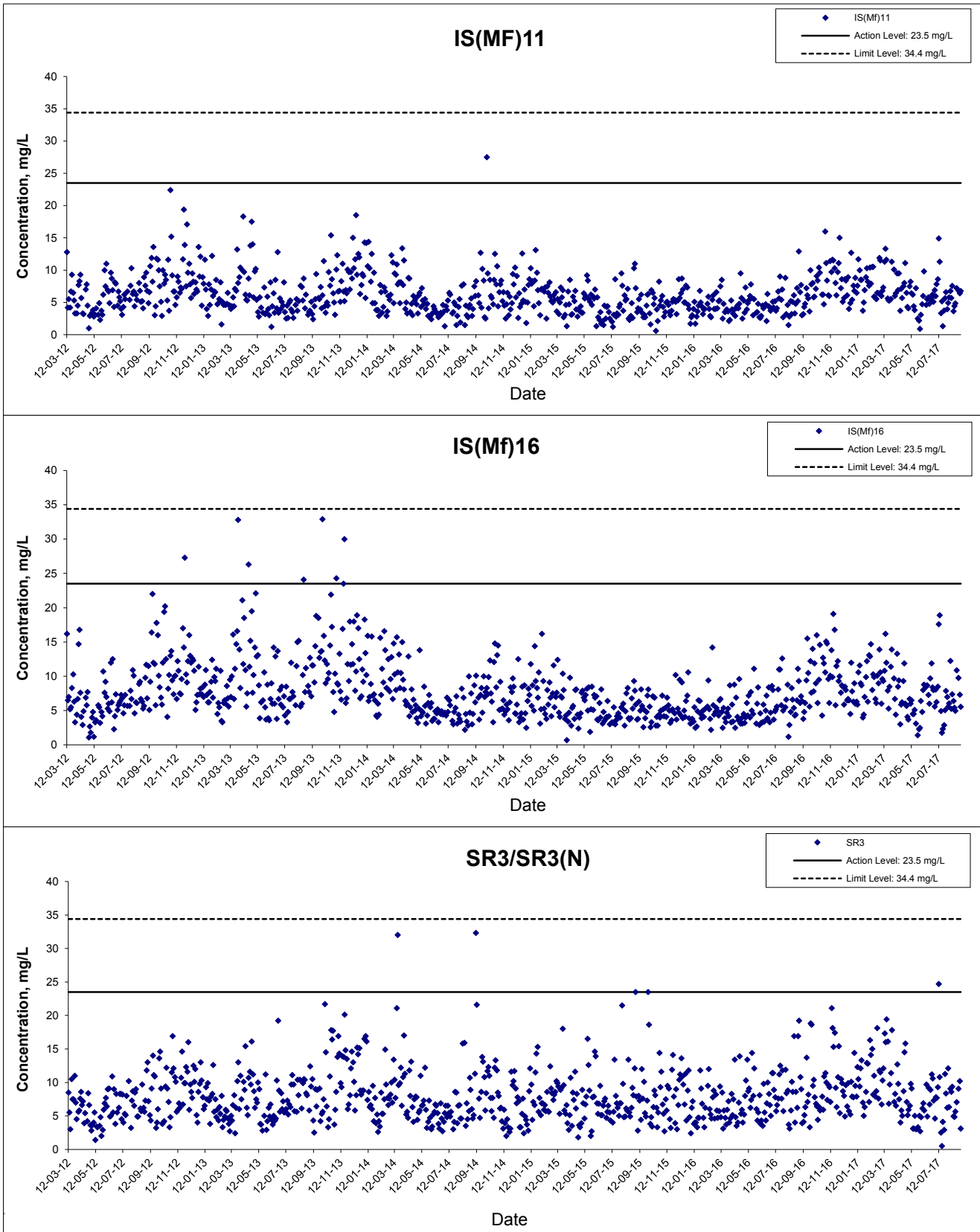
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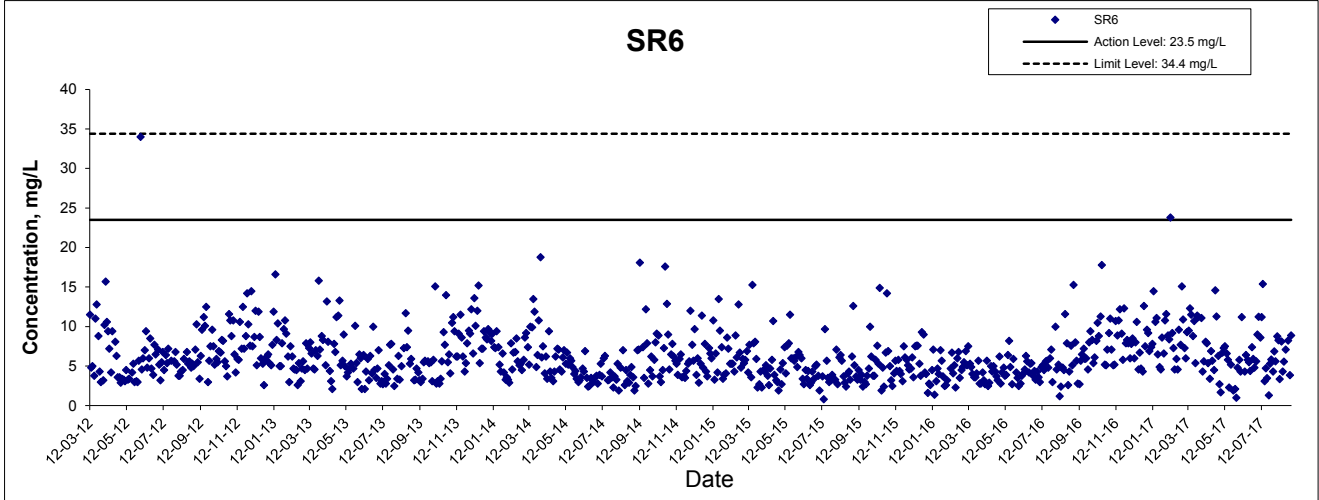
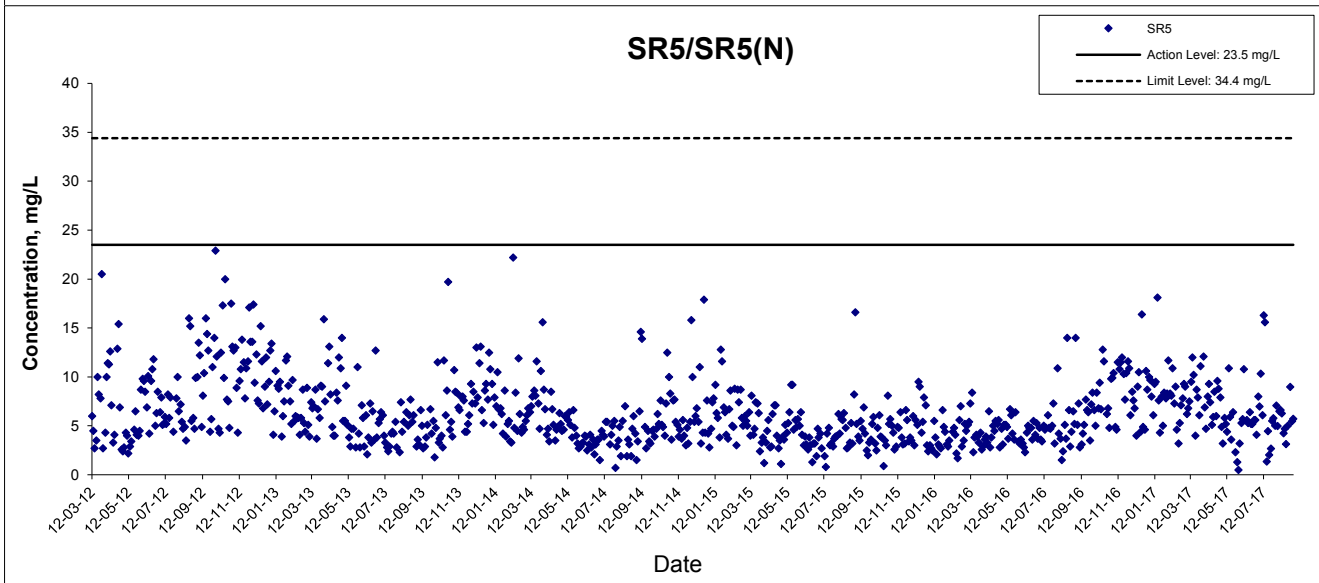
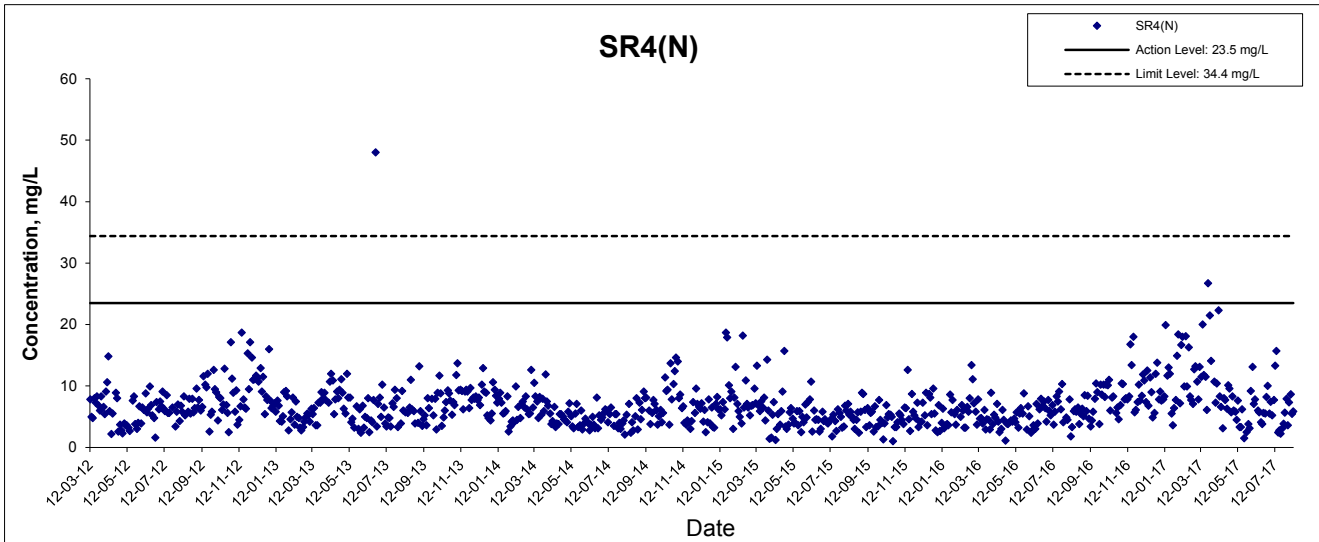
**HONG KONG - ZHUHAI - MACAO BRIDGE  
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### Graphical Presentation of Impact Water Quality Monitoring Results

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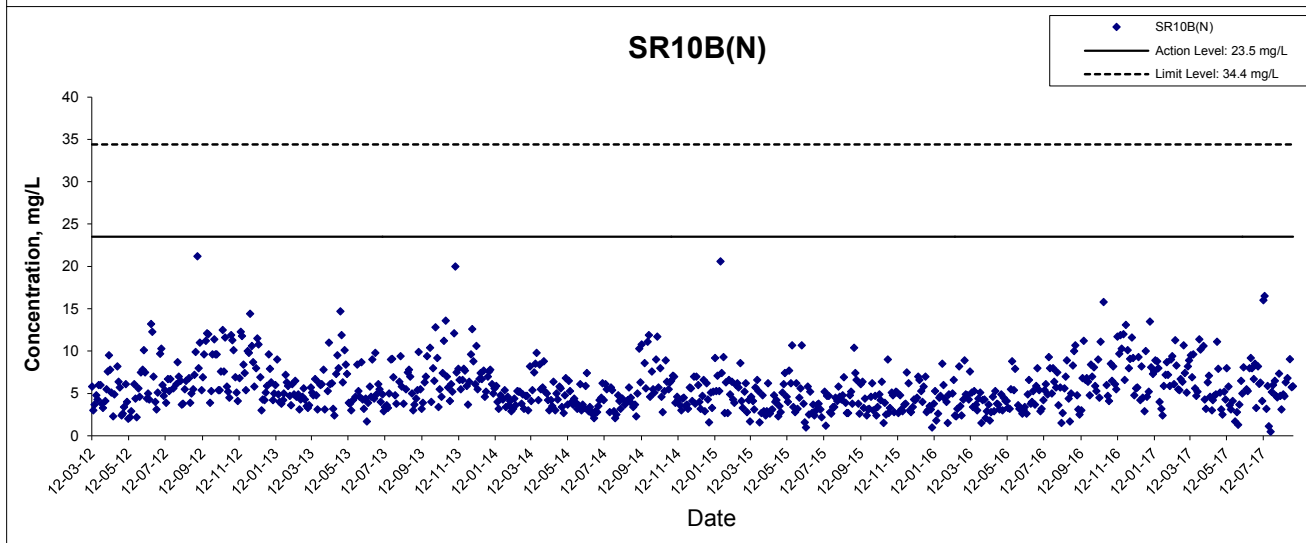
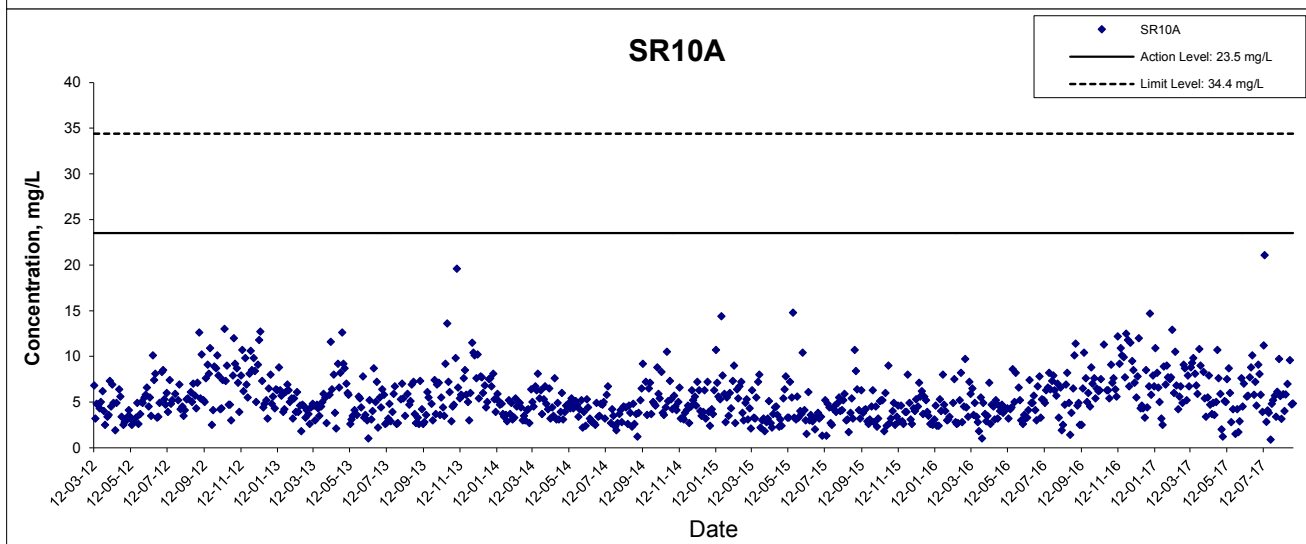
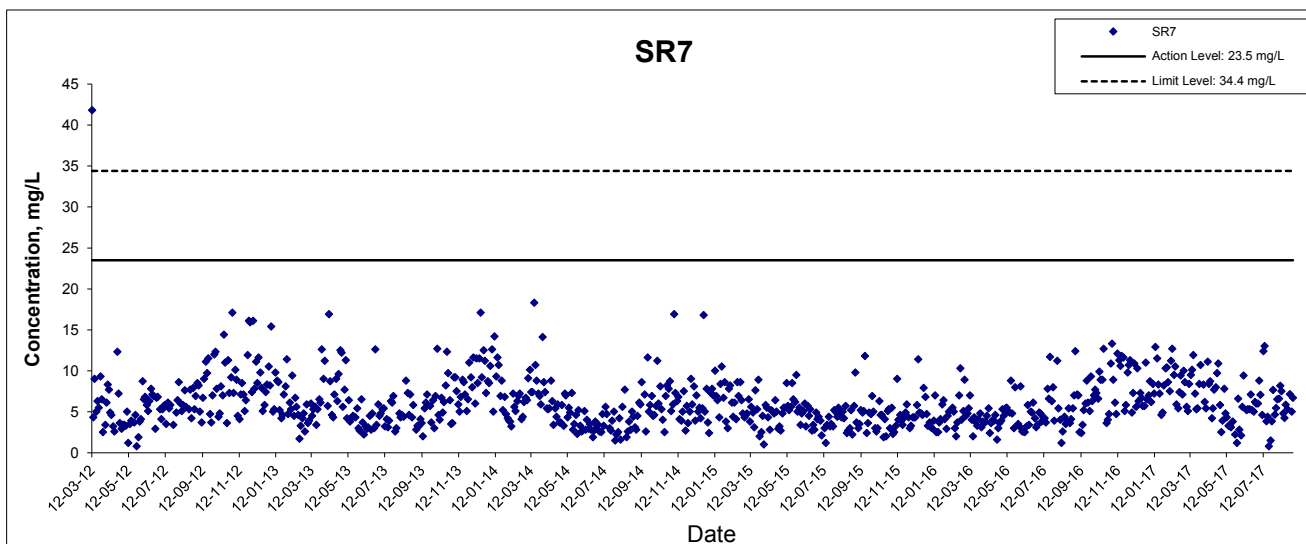
**HONG KONG - ZHUHAI - MACAO BRIDGE  
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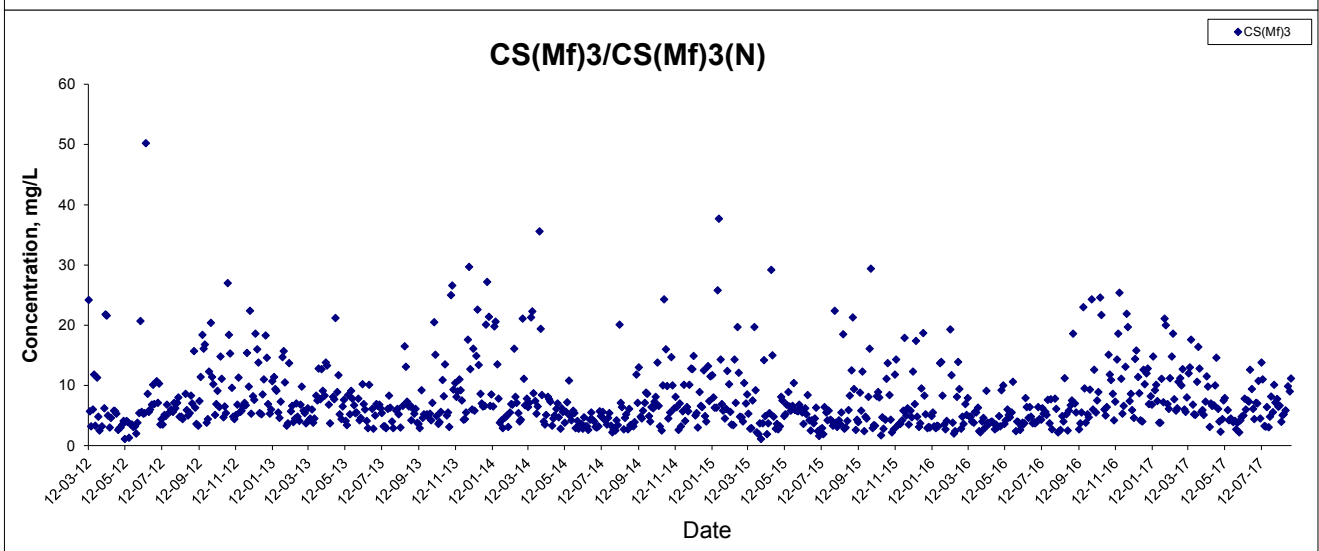
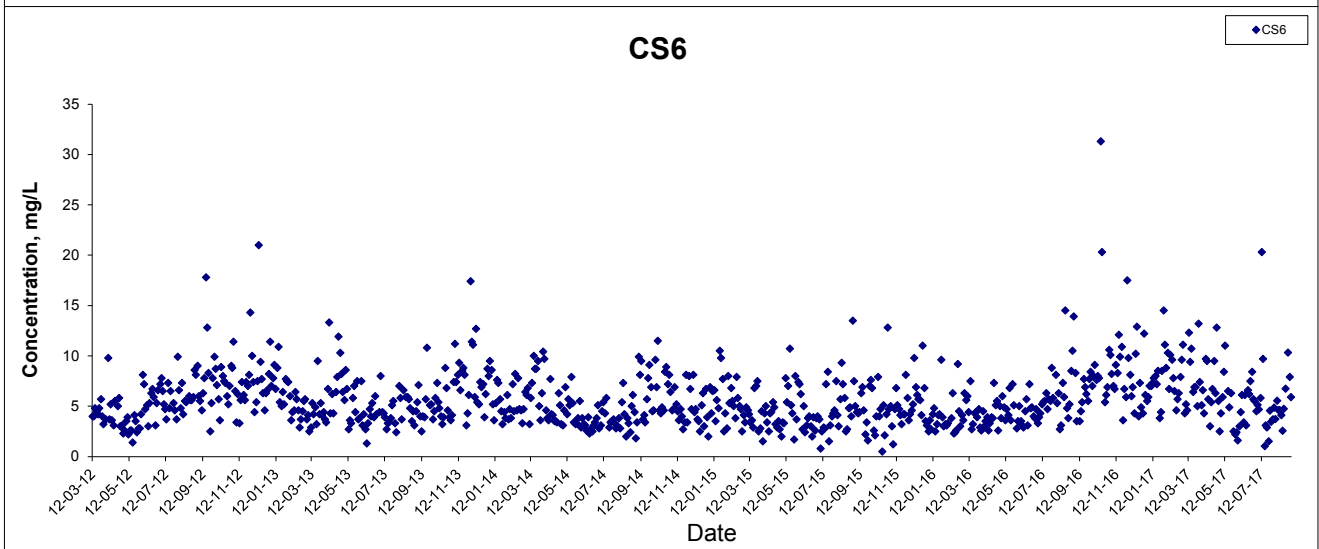
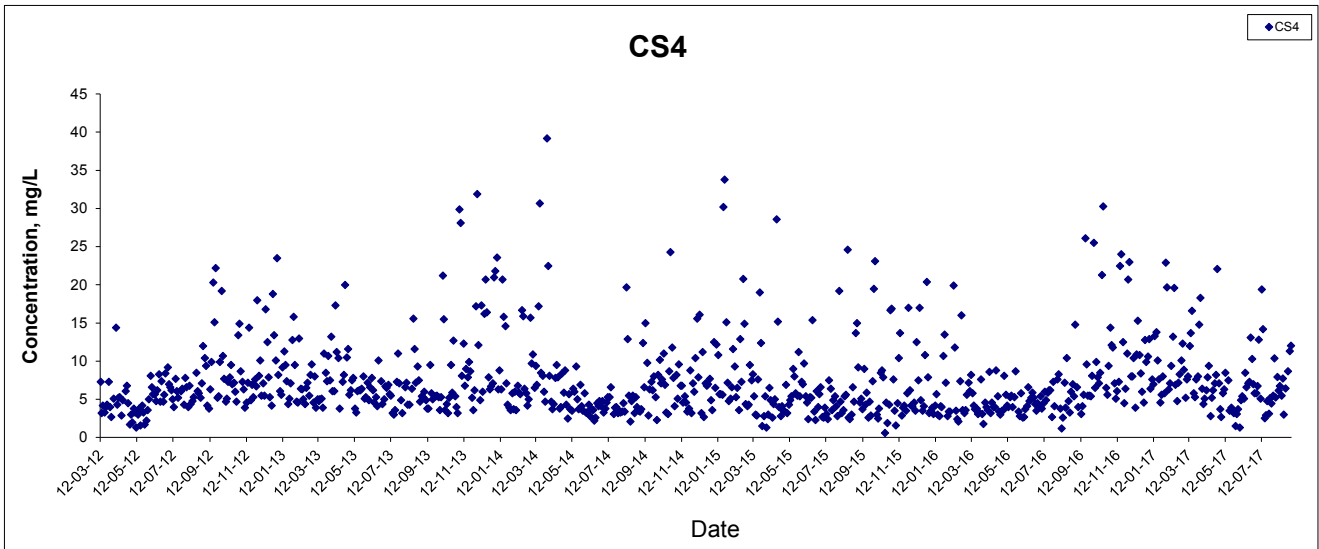
**HONG KONG - ZHUHAI - MACAO BRIDGE  
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**Graphical Presentation of Impact Water Quality  
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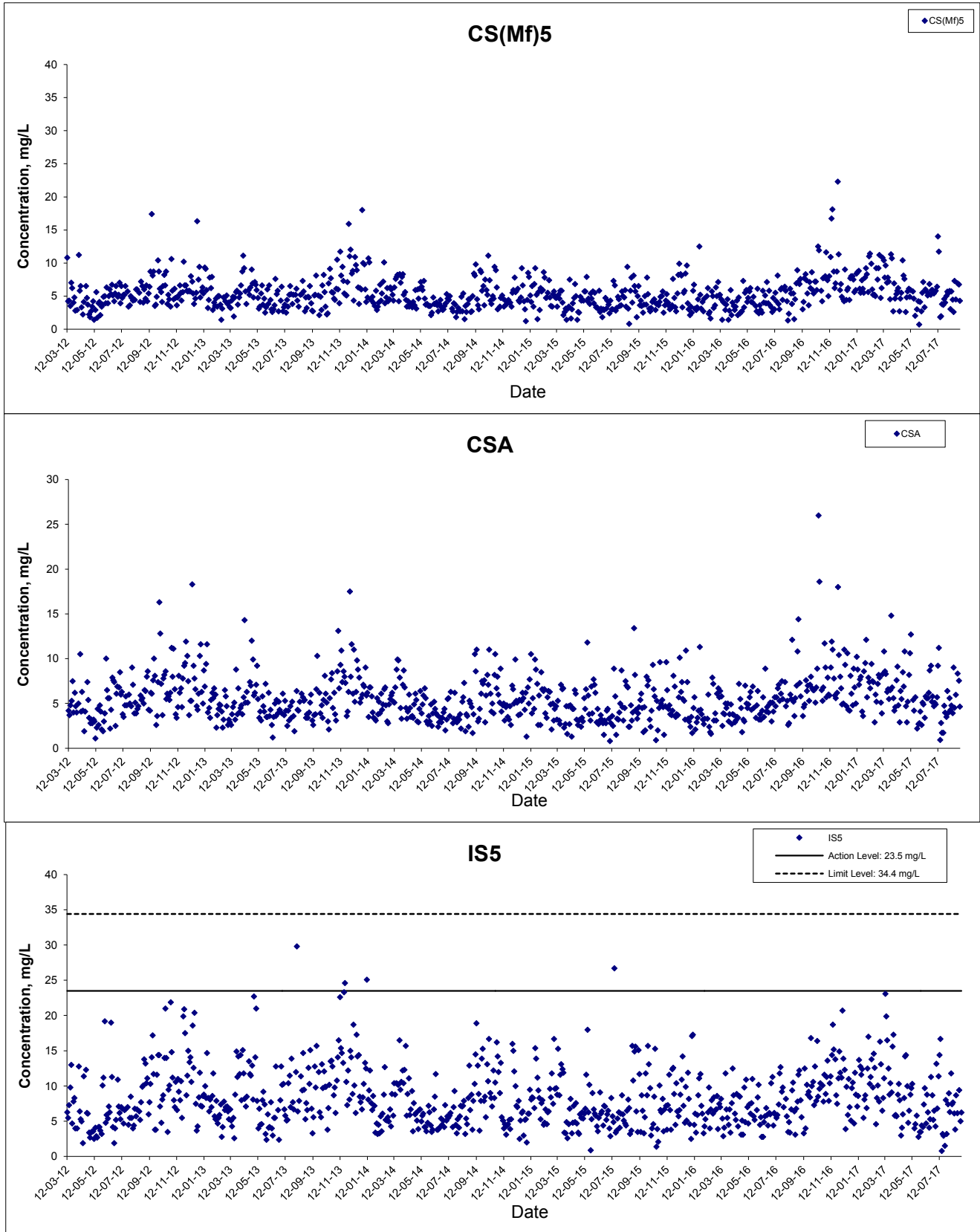
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### Graphical Presentation of Impact Water Quality Monitoring Results



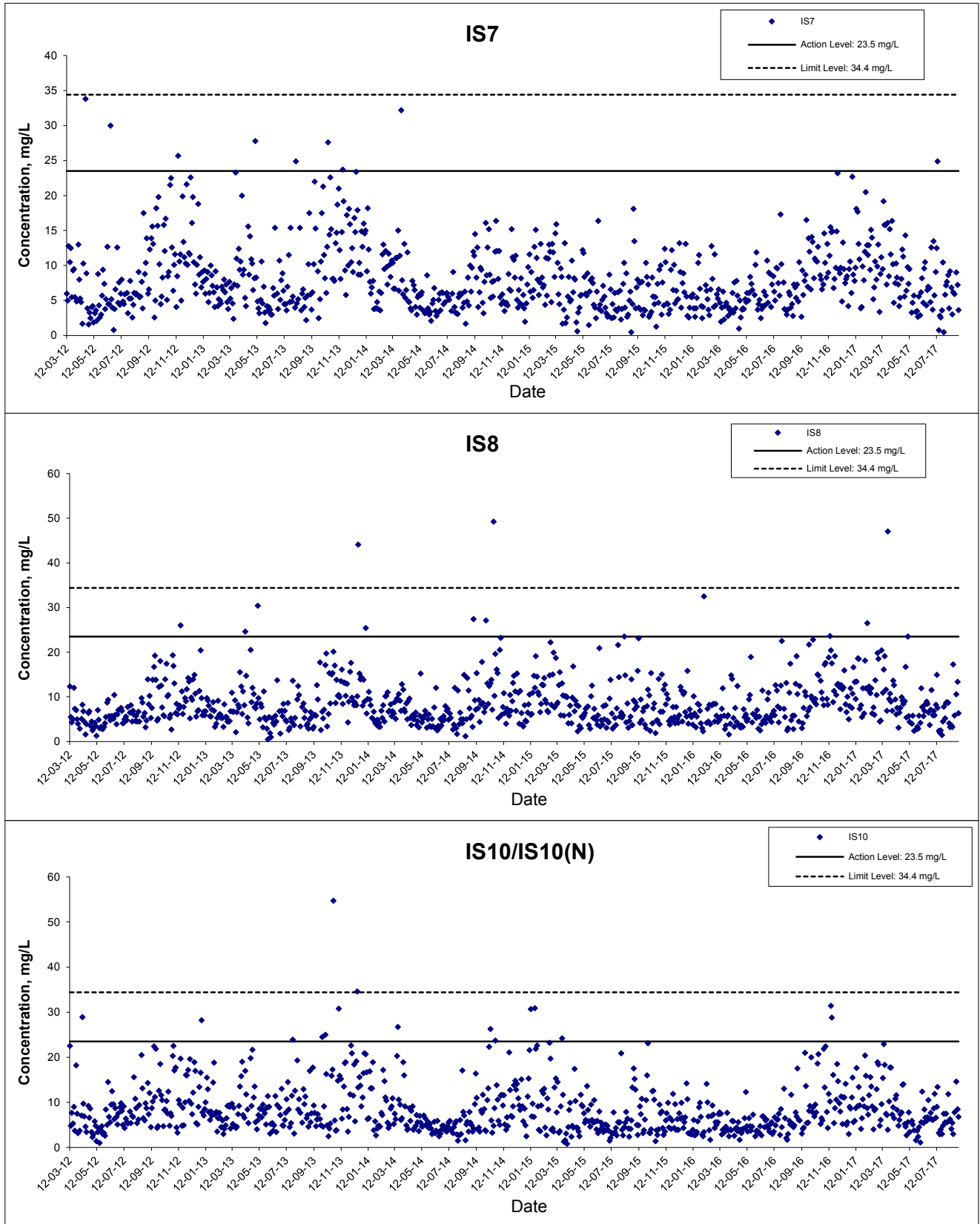
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Project No.: 60249820

Date: November 2018

Appendix G

## Suspended Solids at Mid-Flood Tide



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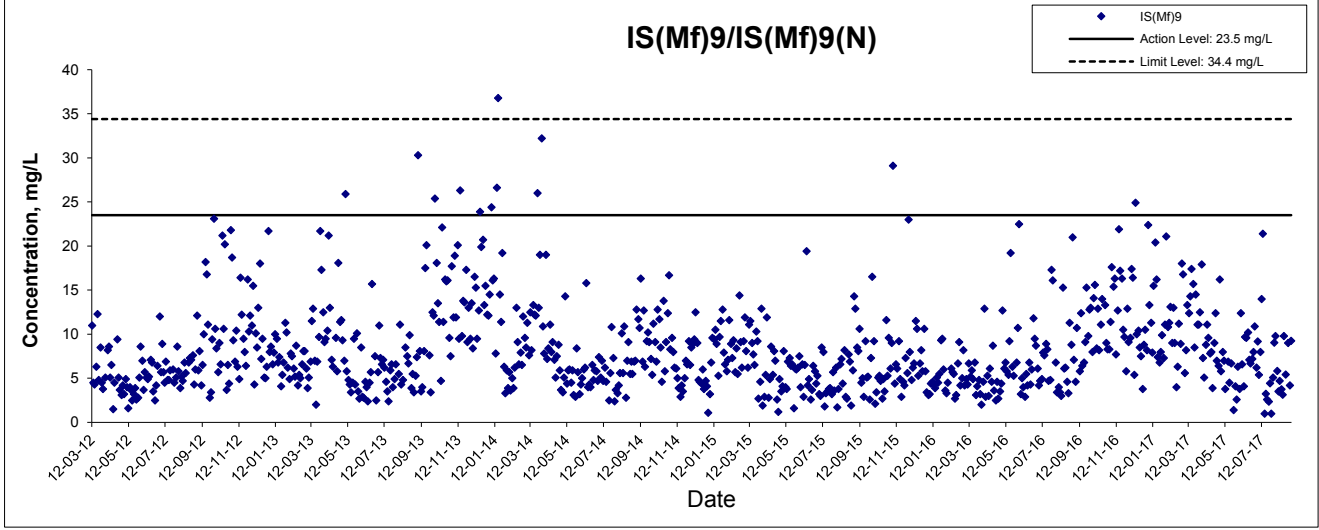
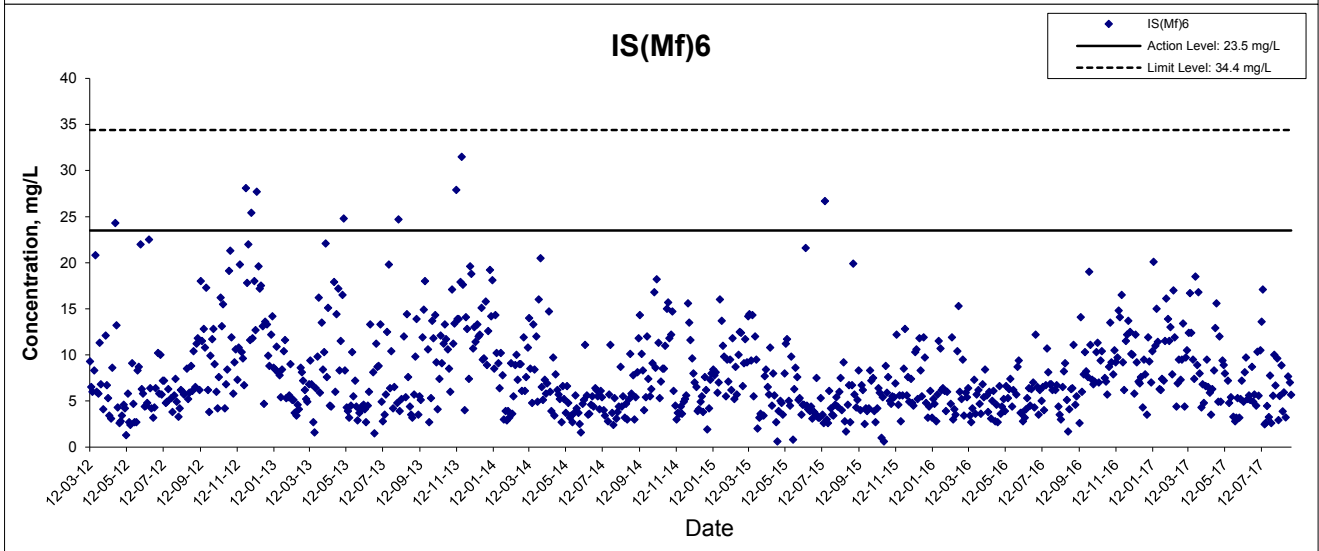
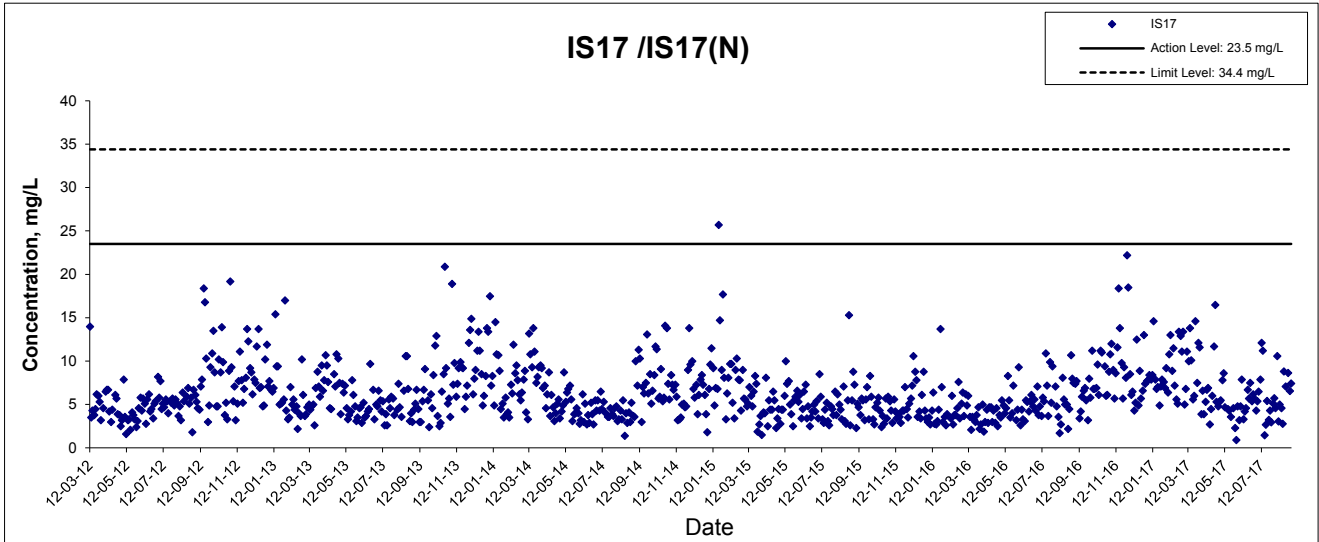
HONG KONG - ZHUHAI - MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - RECLAMATION WORKS

Graphical Presentation of Impact Water Quality  
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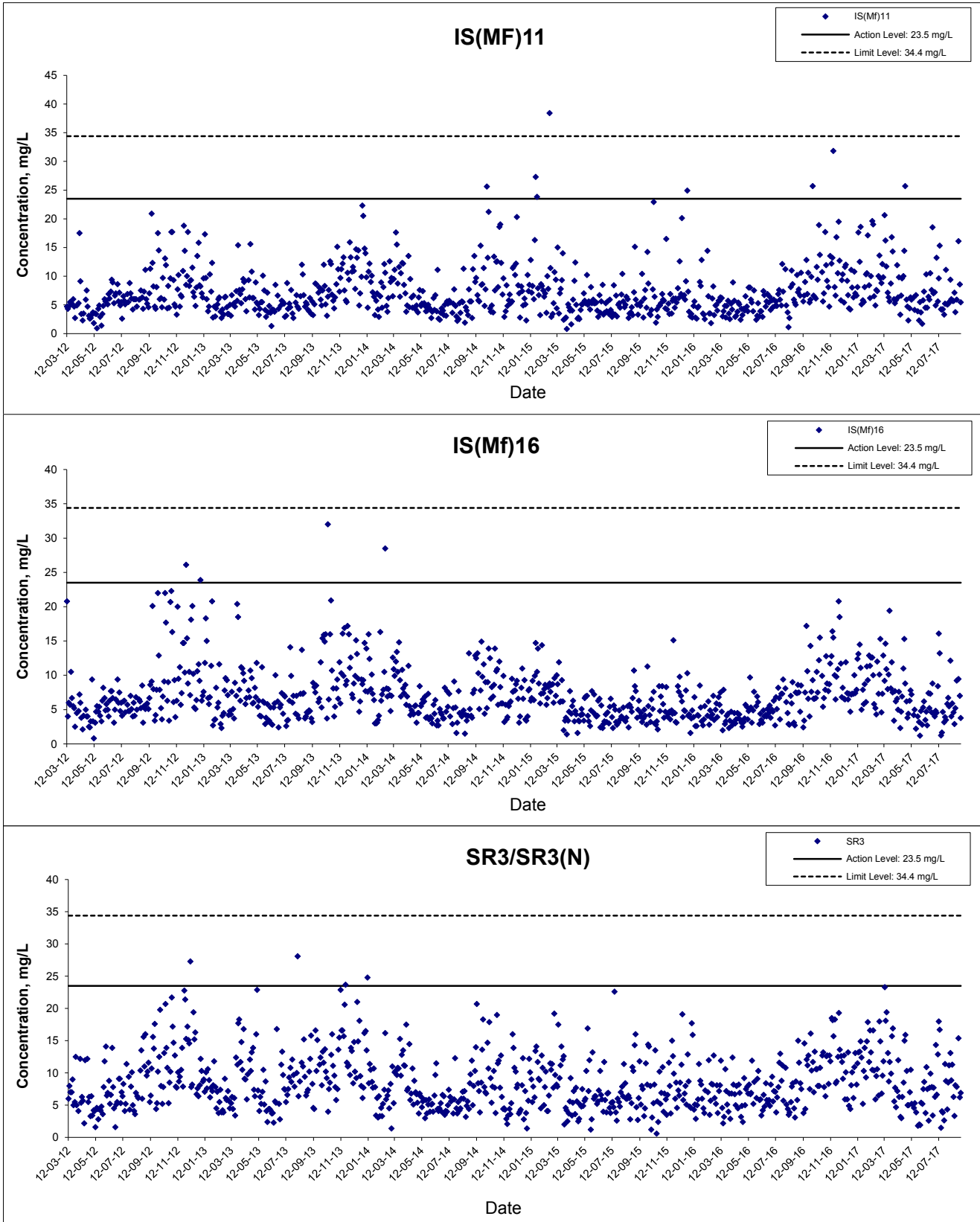
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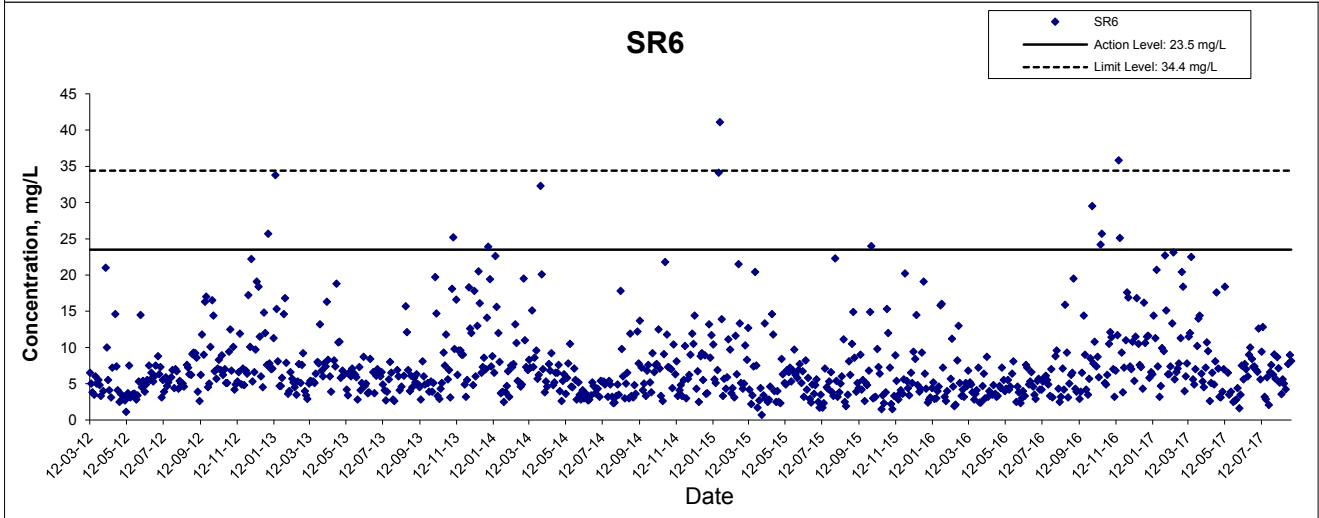
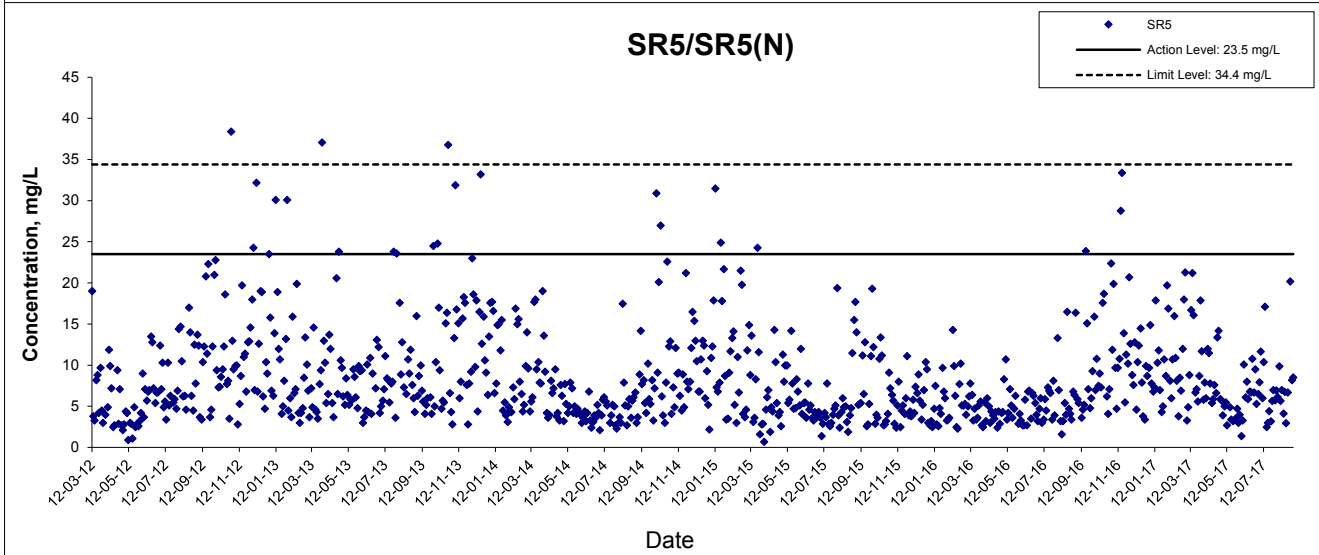
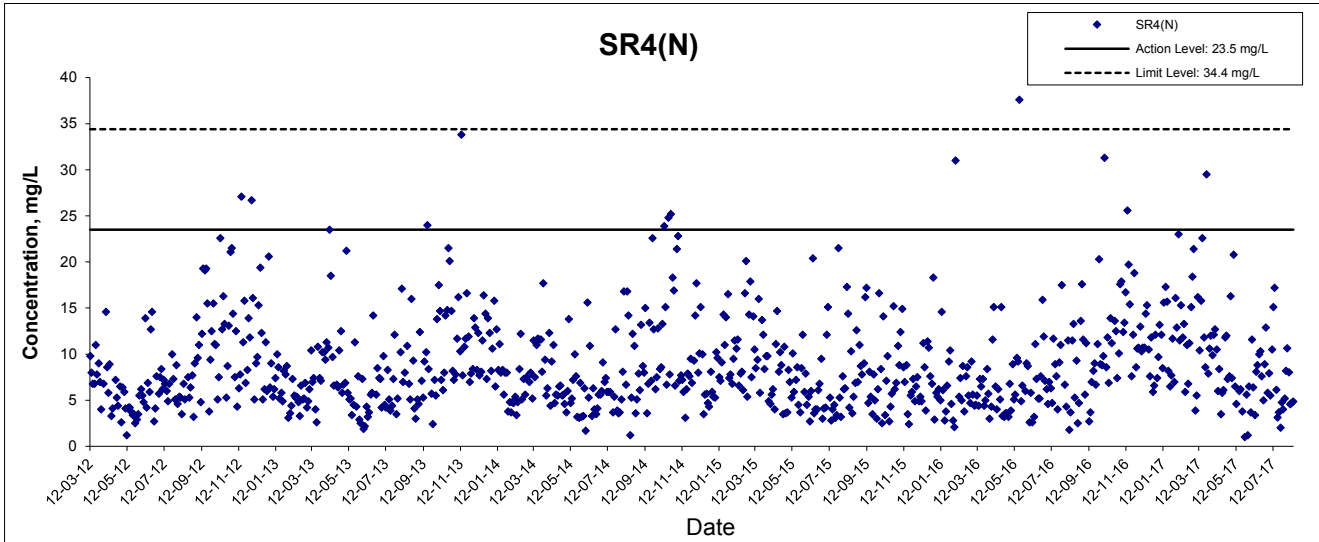
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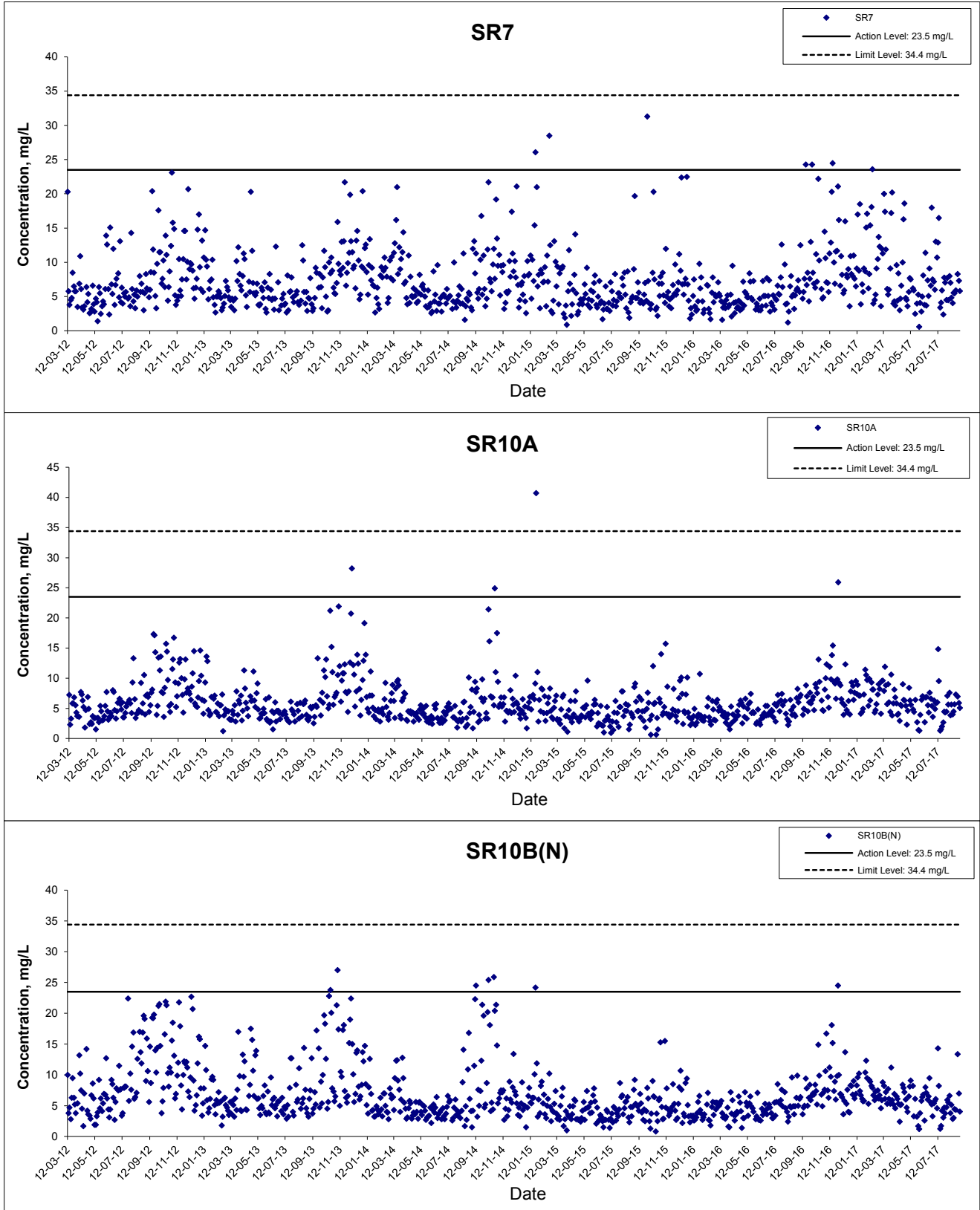
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## Appendix H Impact Dolphin Monitoring Survey Findings and Analysis

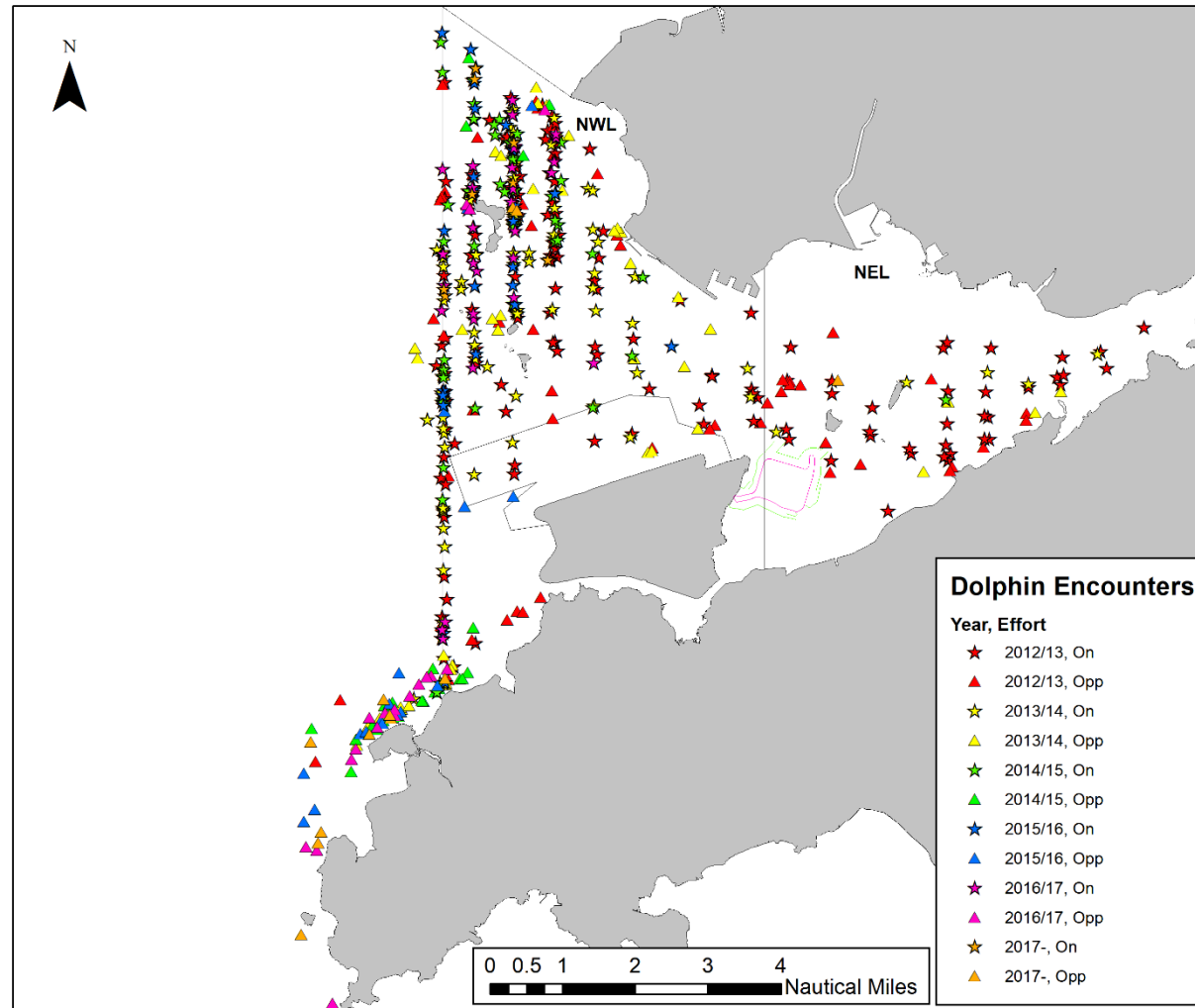
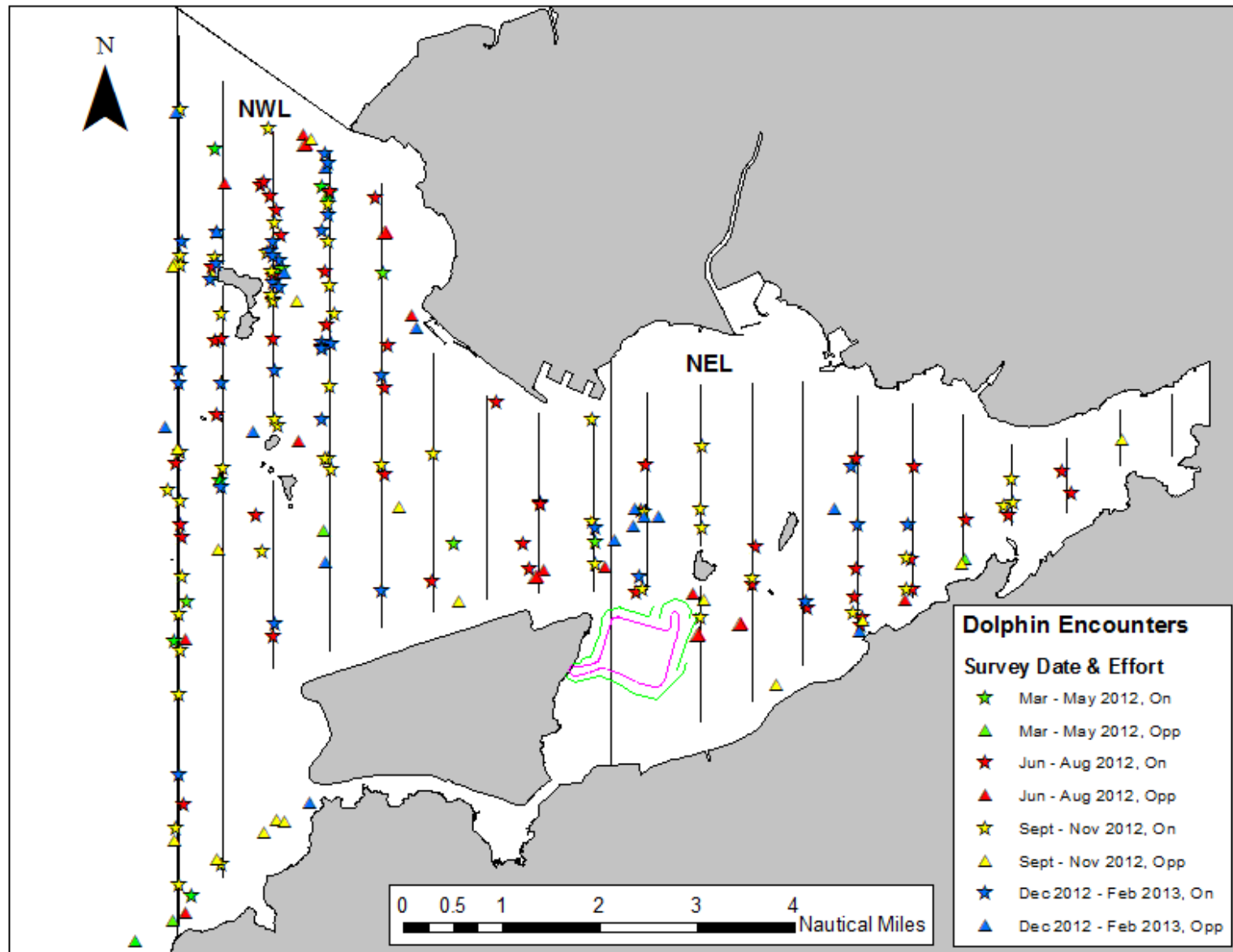
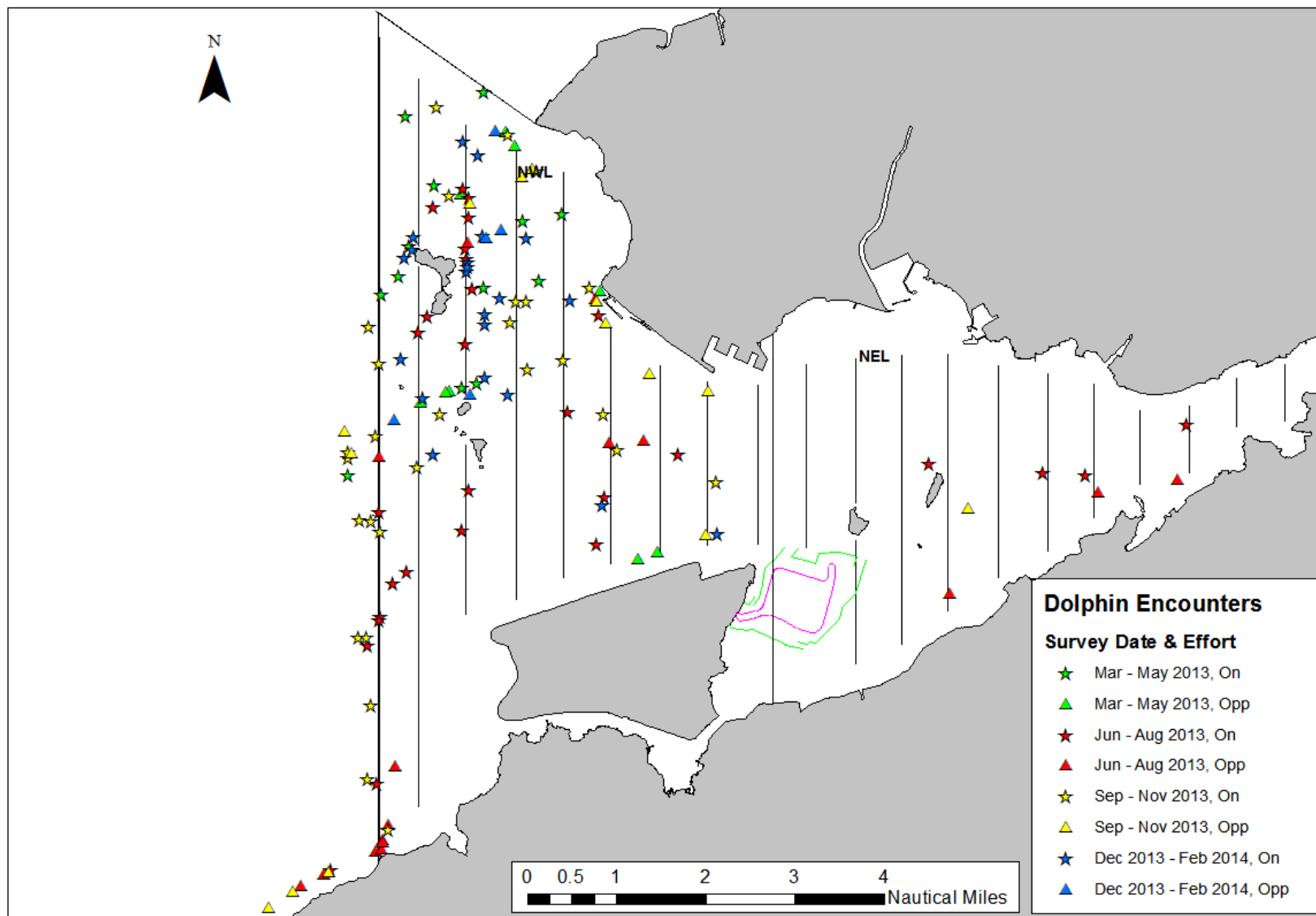


Figure 1 Dolphin Sightings Recorded During Impact Monitoring Surveys, March 2012 -August 2017

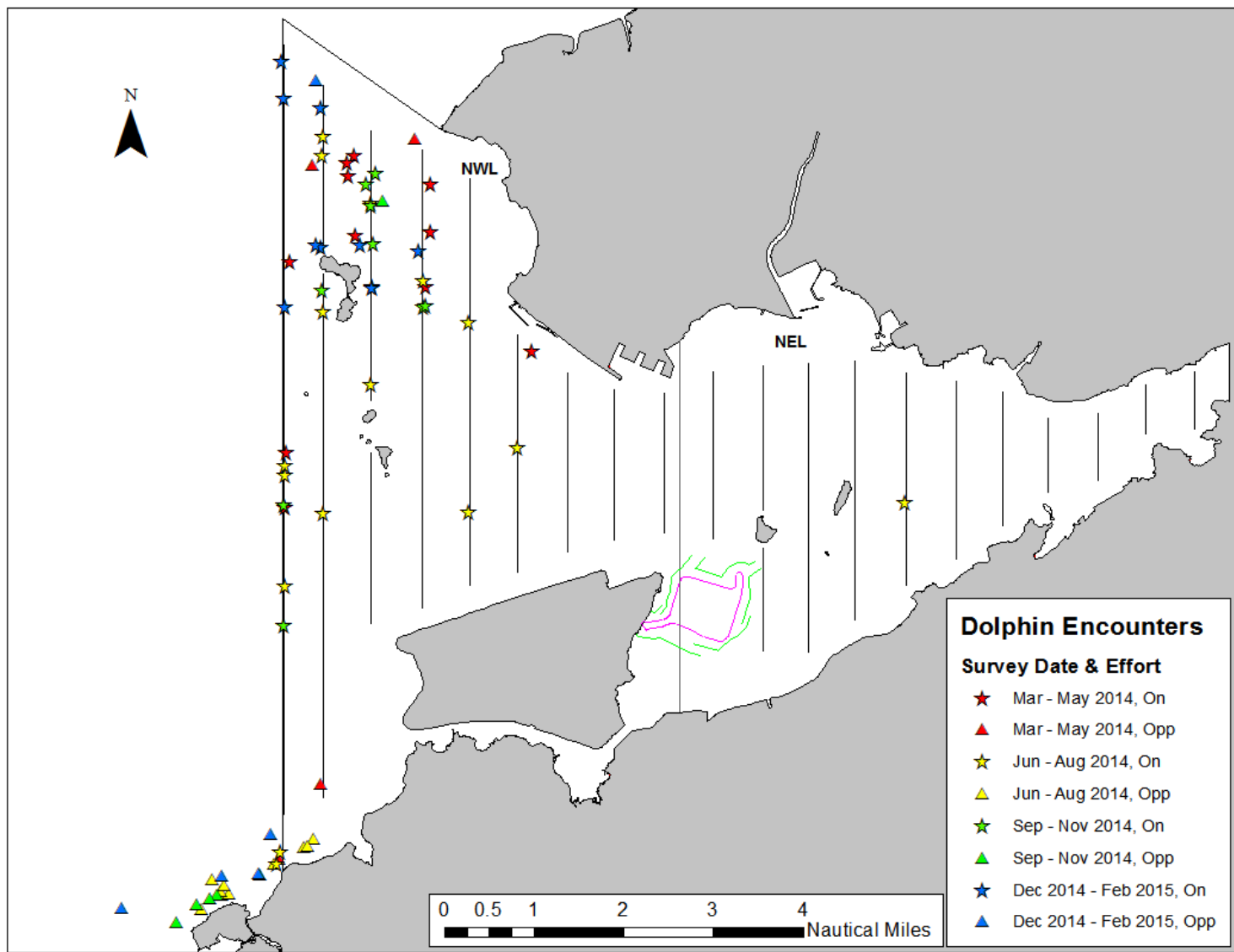


Appendix H Impact Dolphin Monitoring – Result Tables and Graphical Presentations

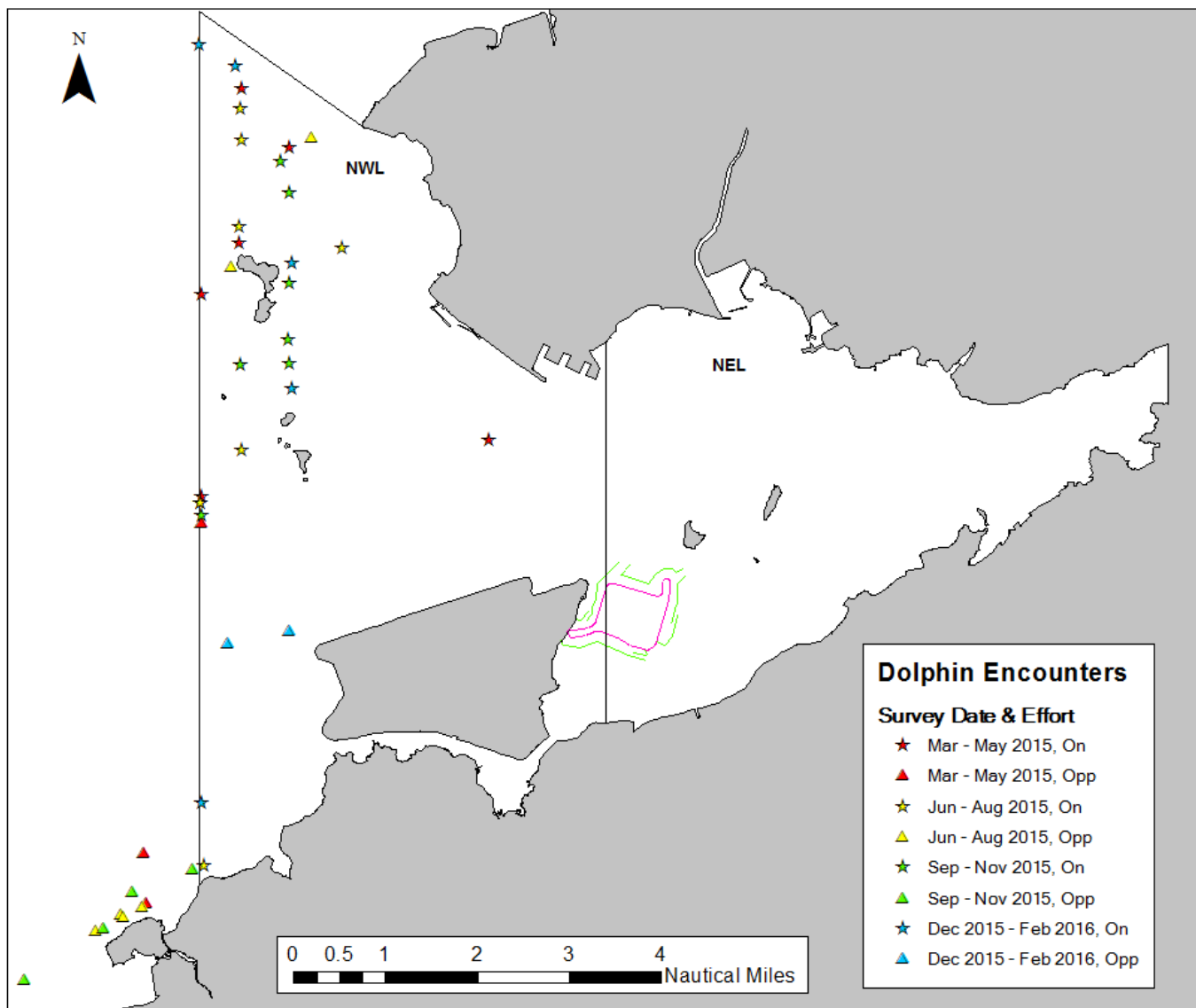


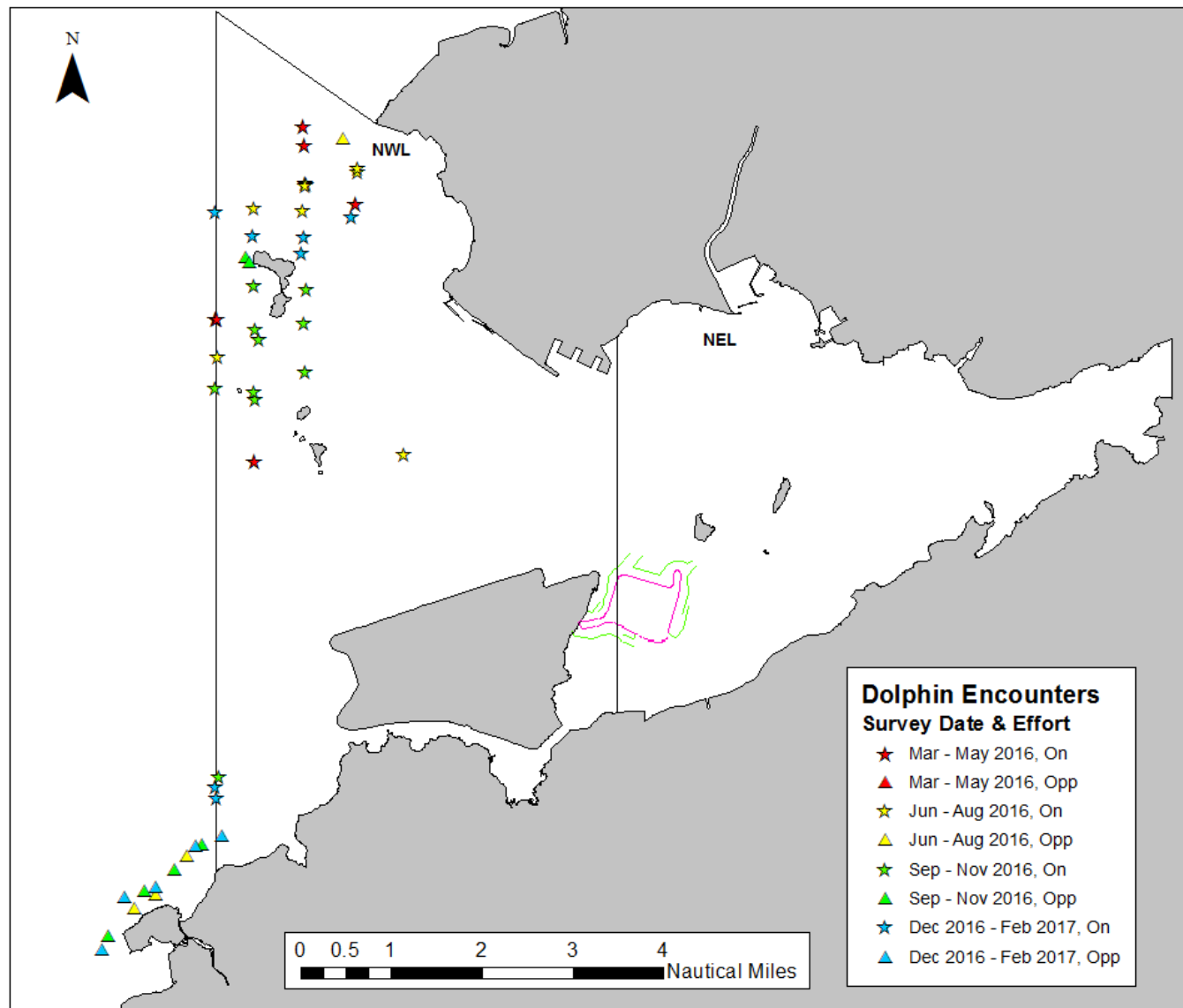


Appendix H Impact Dolphin Monitoring – Result Tables and Graphical Presentations



Appendix H Impact Dolphin Monitoring – Result Tables and Graphical Presentations





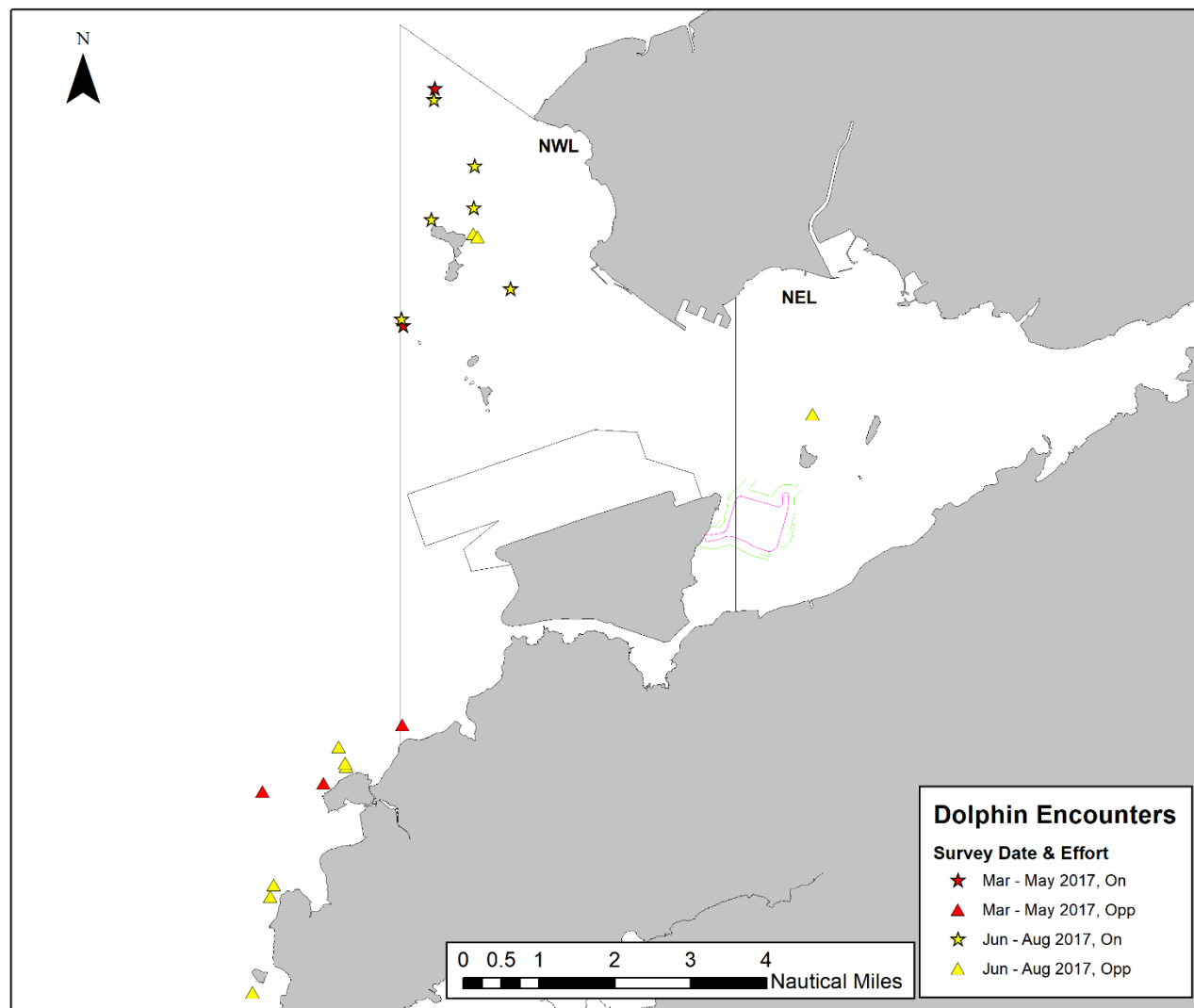
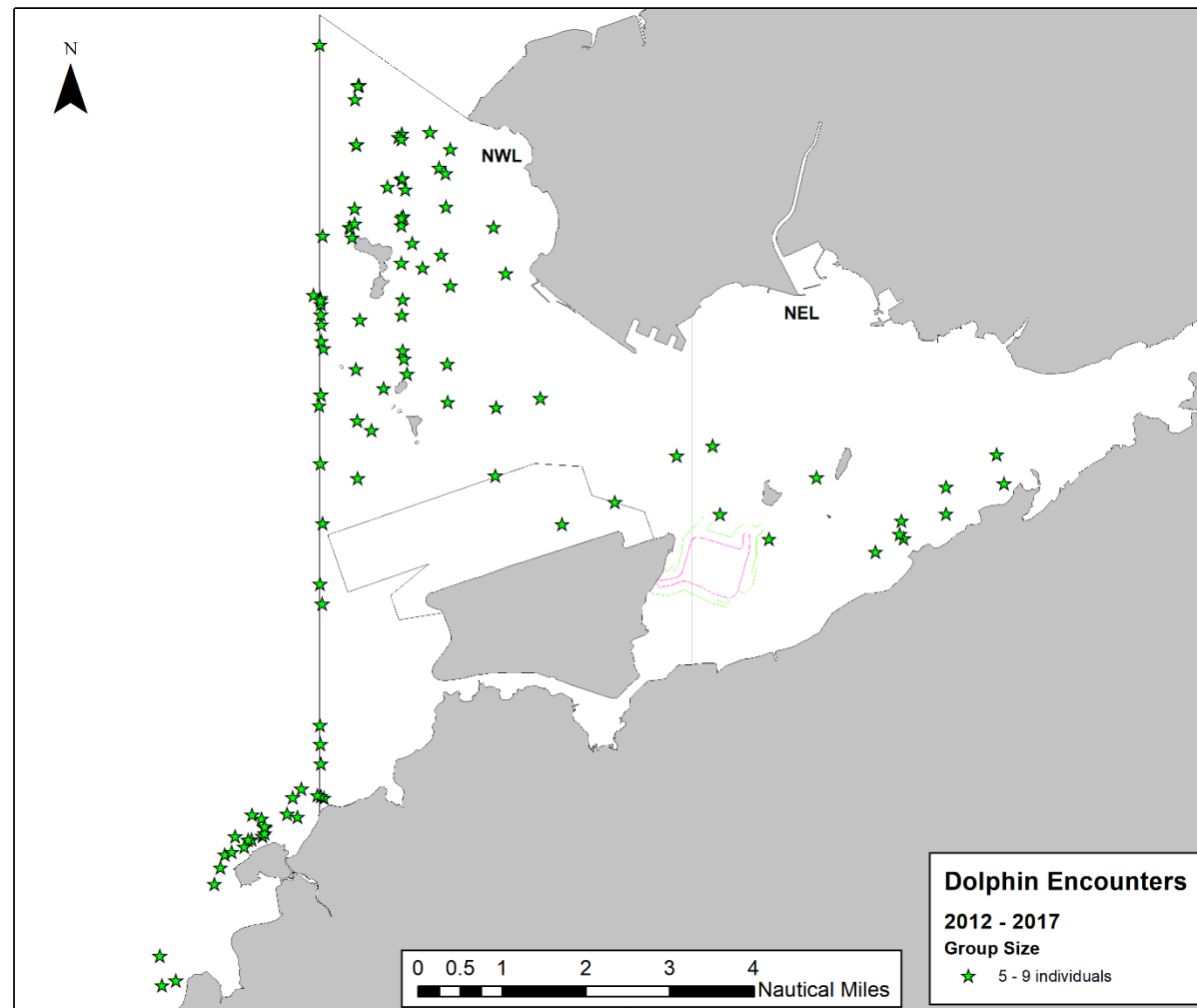


Figure 2 Dolphin Sightings Recorded per Year (2012-13, 2013-14, 2014-15, 2015-16, 2016-17 and March – August 2017)



**Figure 3      Dolphin Groups Sizes of Five (5) to Nine (9) Individuals, recorded between March 2012 and August 2017**

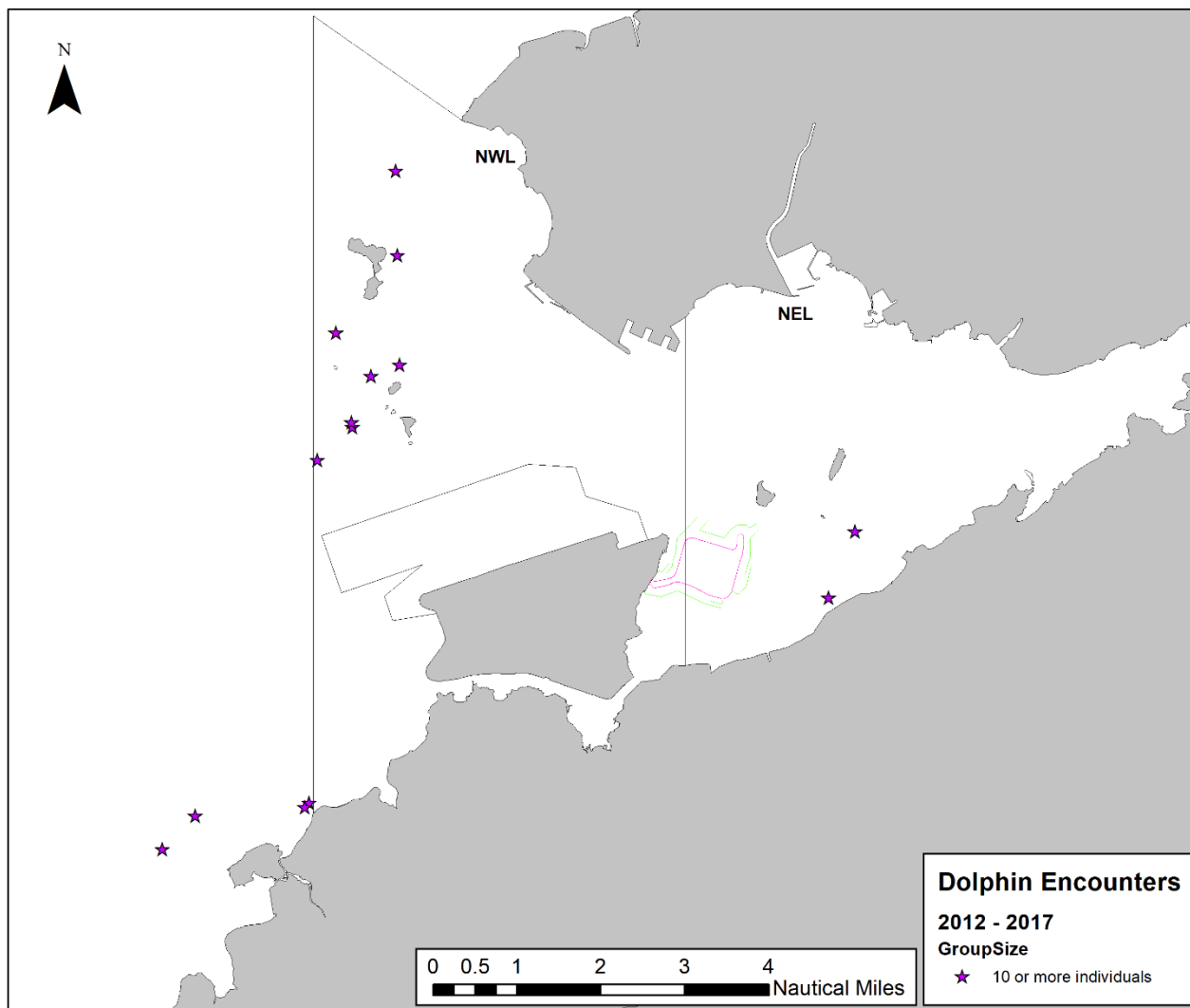
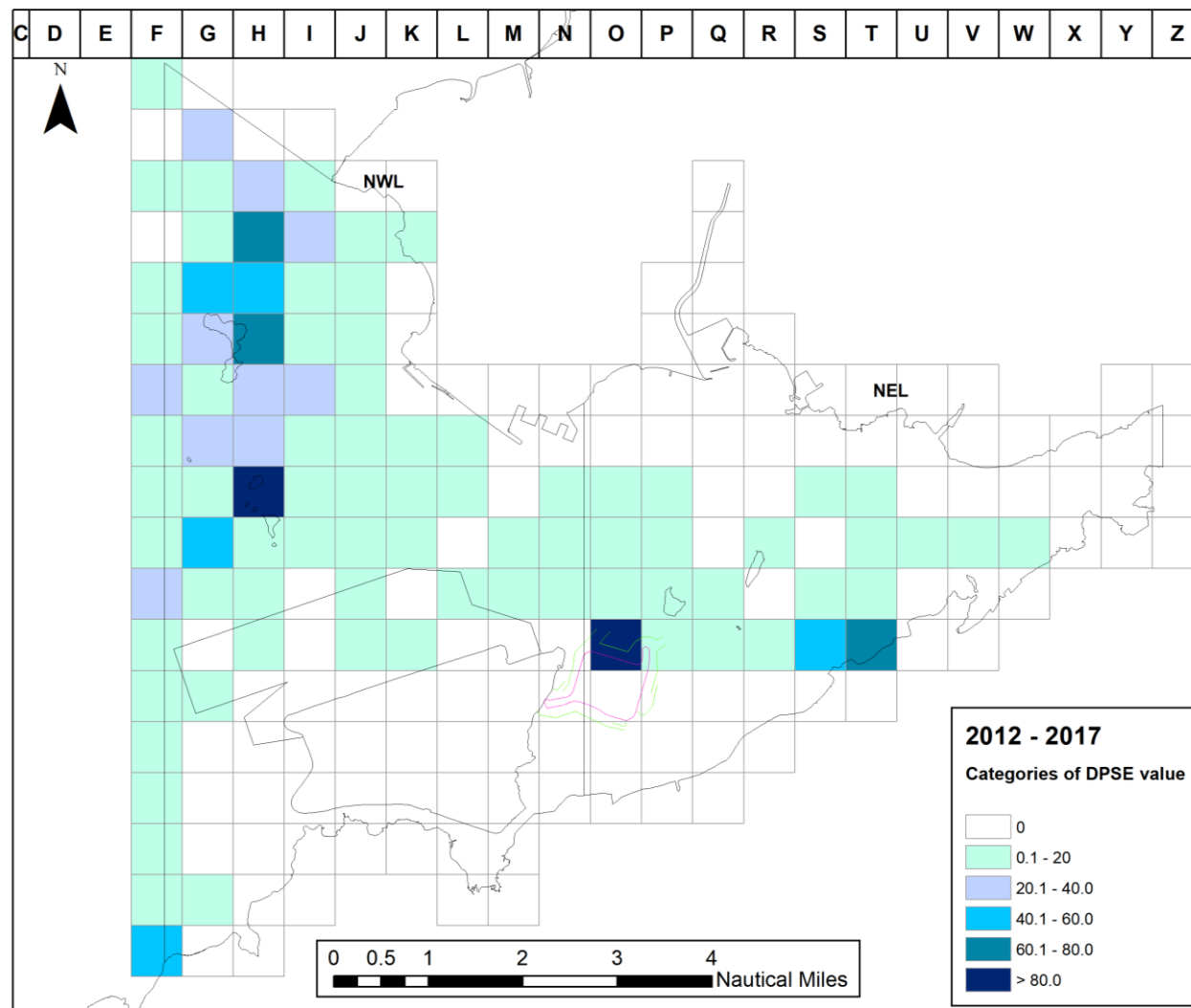
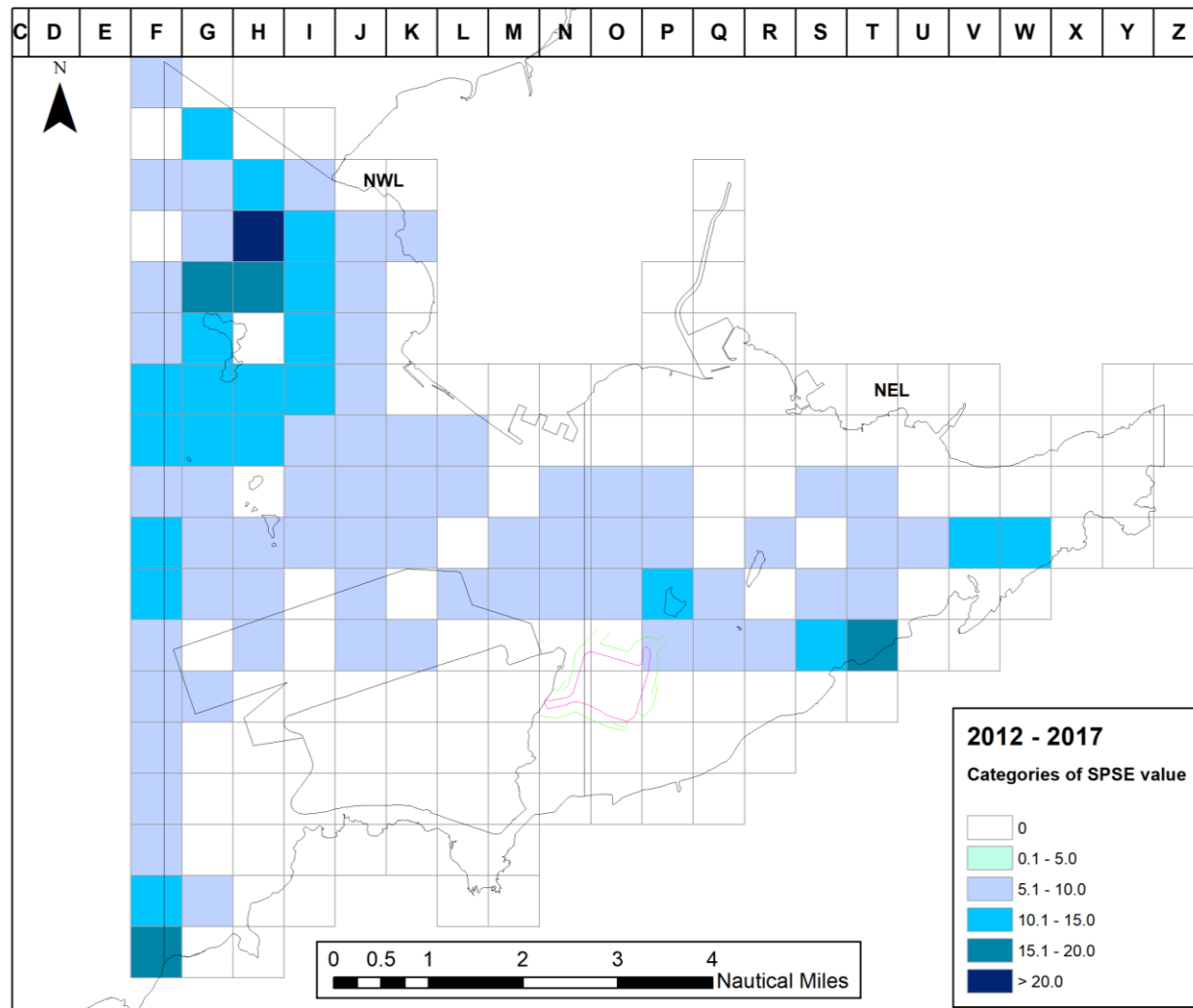


Figure 4 Dolphin Groups Sizes of Ten (10) or More Individuals, recorded between March 2012 and August 2017

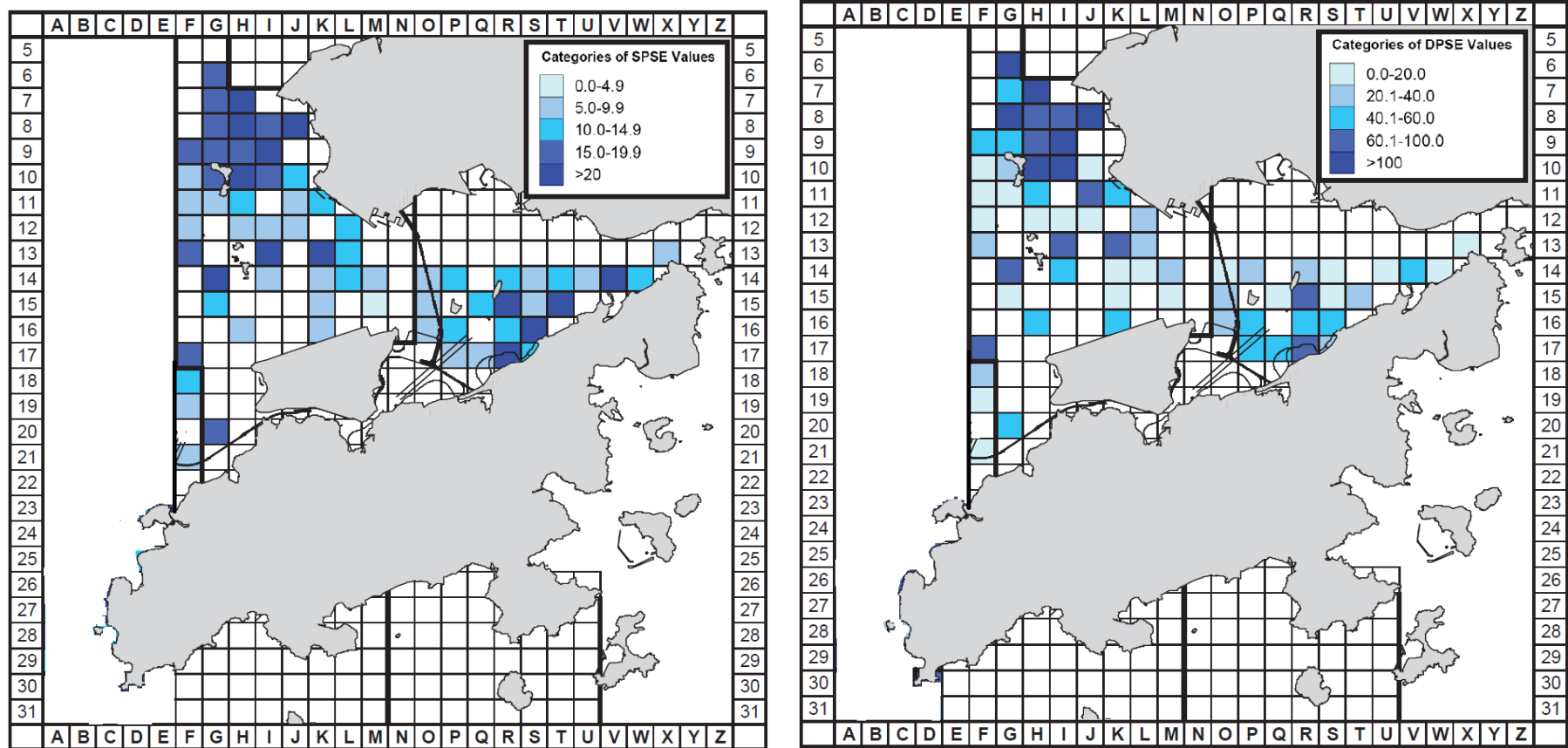


**Figure 5** Dolphin density DPSE (number of dolphins per 100 units of survey effort) for March 2012 – August 2017





**Figure 6 Sighting density SPSE (number of sightings per 100 units of survey effort) for March 2012 – August 2017**



**Figure 7. Yearly Dolphin Density Maps (number of dolphins/dolphin groups per 100 units of survey effort). Derived from Baseline and Advanced Chinese White Dolphin Monitoring for the period between February 2011 – January 2012**

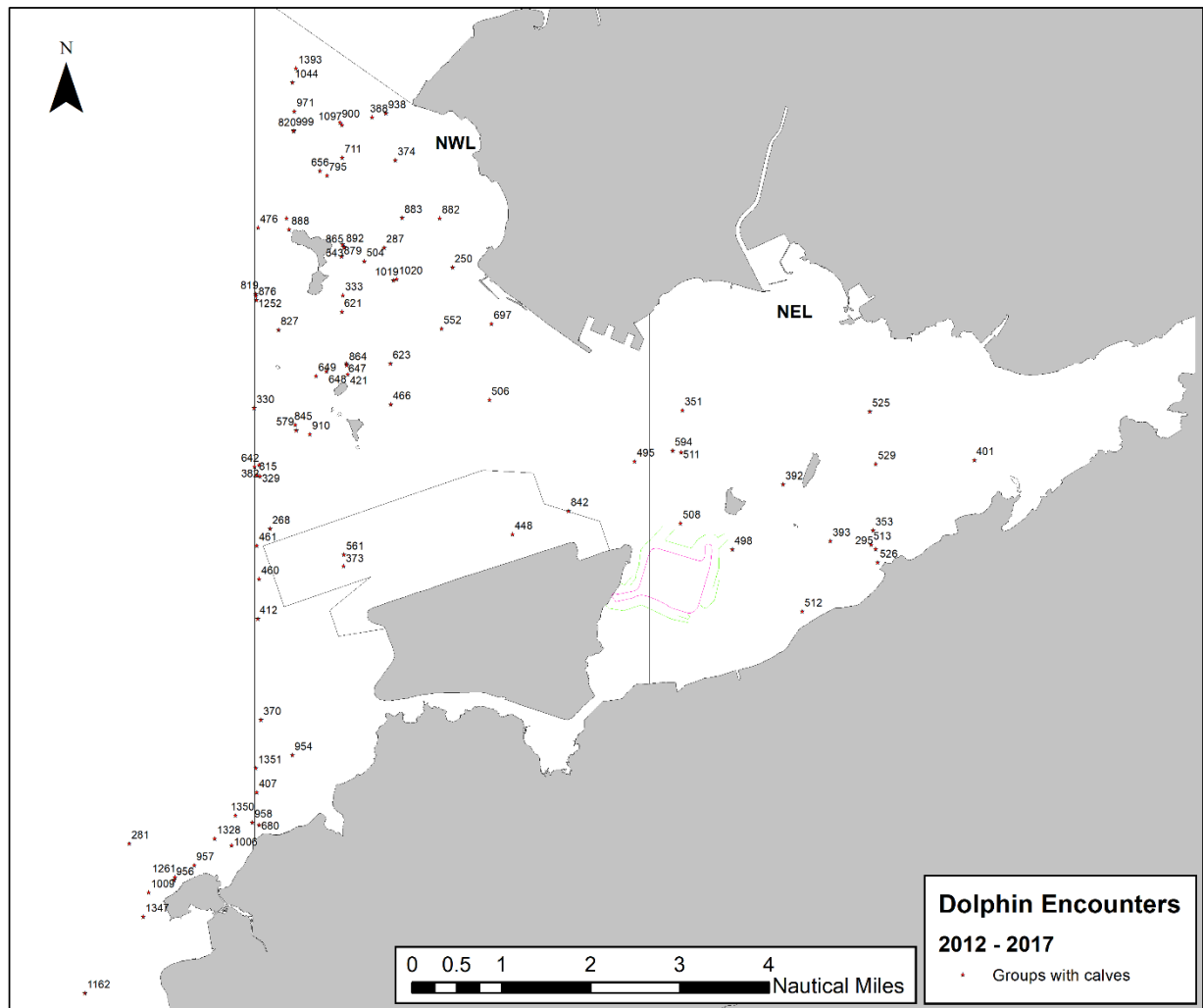
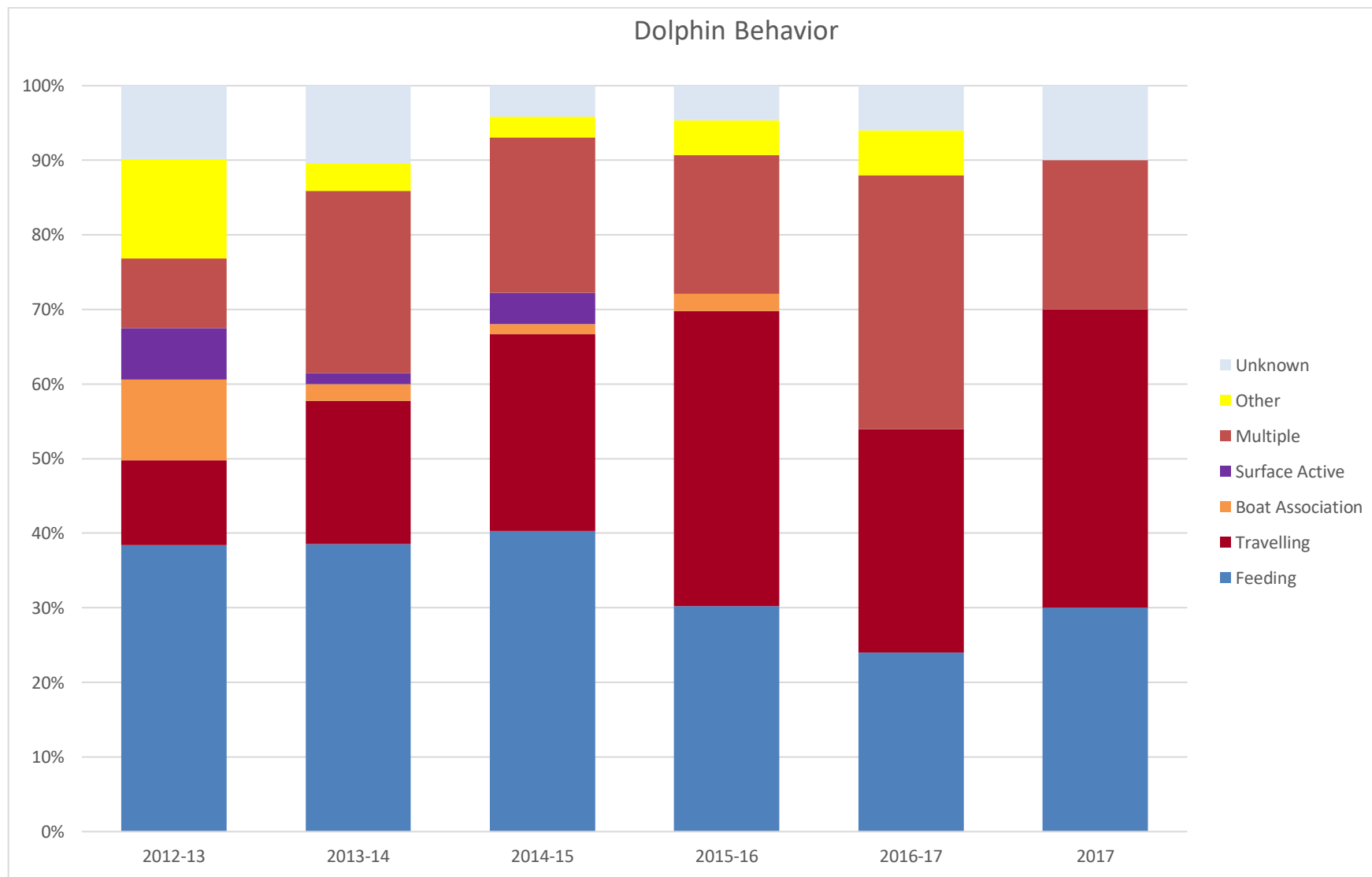


Figure 8 Mother and Calf Pairs Sighted During Impact Monitoring Surveys, March 2012 -August 2017



**Figure 9 Dolphin Behavioural Activities Recorded between March 2012 and August 2017**

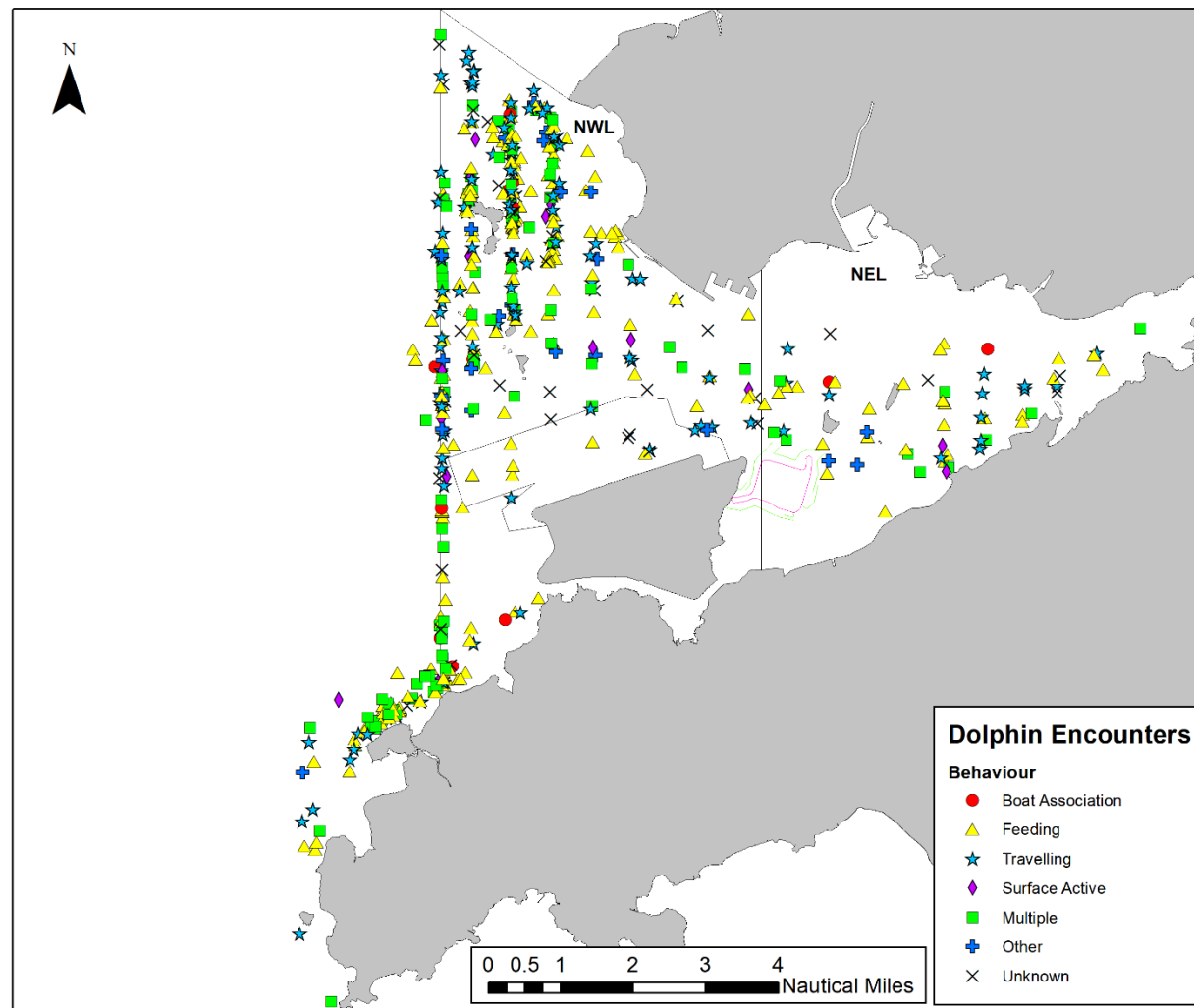


Figure10 The Location of Different Dolphin Behavioural Activities Recorded between March 2012 and August 2017

**Table 1. Summary of Yearly Impact Monitoring Survey Effort, Sightings and Encounter Rates (March 2012 – August 2017)**

<b>Year</b>	<b>No Sightings On Effort</b>	<b>No. Sightings Opportunistic</b>	<b>Total km On Effort (Favourable Conditions)</b>	<b>Yearly Encounter Rate (per 100km)</b>
March - February 2012-13	145	58	2601.4	5.57
March - February 2013-14	91	44	2595.4	3.51
March - February 2014-15	46	26	2637.1	1.74
March - February 2015-16	26	17	2572	1.01
March - February 2016-17	32	18	2520.9	1.27
March - August 2017	8	12	1190.1	-

**Table 2a Summary of Monthly STG Encounter Rate for Northeast Lantau (NEL) and Northwest Lantau (NWL)**

Quarterly period^	NEL_1st Survey	NEL_2nd Survey	NEL_3rd Survey	NEL_4th Survey	NEL_5th Survey	NEL_6th Survey	NWL_1st Survey	NWL_2nd Survey	NWL_3rd Survey	NWL_4th Survey	NWL_5th Survey	NWL_6th Survey
Sept 11 - Nov 11	3.30	0.00	6.00	3.00	13.80	9.90	1.40	16.60	5.20	8.40	13.10	14.30
Mar 12 - May 12*	0.00	N.A.*	0.00	N.A.*	0.00	0.00	7.30	N.A.*	2.30	N.A.*	3.58	7.16
Jun 12 - Aug 12	4.25	3.60	0.00	4.26	8.02	0.00	0.00	6.99	3.55	7.70	7.03	0.00
Sept 12 - Nov 12	2.62	2.76	2.74	0.00	7.94	20.11	23.78	6.43	8.51	2.55	6.03	5.38
Dec 12 - Feb 13	2.76	5.52	2.67	0.00	2.64	0.00	1.33	10.61	4.07	10.84	5.43	8.12
Mar 13 - May 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.11	6.71	0.00	4.01	4.09
Jun 13 - Aug 13	0.00	0.00	0.00	8.13	2.70	0.00	2.72	5.52	6.80	8.12	5.41	5.40
Sept 13 - Nov 13	0.00	0.00	0.00	0.00	0.00	0.00	1.35	8.14	8.09	6.78	3.99	9.40
Dec 13 - Feb 14	0.00	0.00	0.00	2.82	0.00	0.00	5.55	7.88	6.70	4.07	0.00	2.75
Mar 14 - May 14	0.00	0.00	0.00	0.00	0.00	0.00	8.14	5.49	0.00	0.00	0.00	1.37
Jun 14 - Aug 14	2.72	0.00	0.00	0.00	0.00	0.00	1.36	2.75	6.81	5.46	2.74	2.74
Sept 14 - Nov 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	2.74	2.75	0.00	2.84
Dec 14 - Feb 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	1.38	2.73	2.73	2.74
Mar 15 - May 15	0.00	0.00	0.00	0.00	0.00	0.00	2.74	1.37	1.36	1.36	1.38	1.37
Jun 15 - Aug 15	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00	1.36	1.37	1.37	2.77
Sept 15 - Nov 15	0.00	0.00	0.00	0.00	0.00	0.00	2.78	0.00	2.95	2.78	0.00	1.39
Dec 15 - Feb 16	0.00	0.00	0.00	0.00	0.00	0.00	2.76	0.00	1.39	0.00	3.07	0.00

Quarterly period^	NEL_1st Survey	NEL_2nd Survey	NEL_3rd Survey	NEL_4th Survey	NEL_5th Survey	NEL_6th Survey	NWL_1st Survey	NWL_2nd Survey	NWL_3rd Survey	NWL_4th Survey	NWL_5th Survey	NWL_6th Survey
Mar 16 - May 16	0.00	0.00	0.00	0.00	0.00	0.00	1.38	0.00	1.39	0.00	1.39	4.13
Jun 16 - Aug 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72	0.00	1.77	5.46	2.75
Sept 16 - Nov 16	0.00	0.00	0.00	0.00	0.00	0.00	5.49	4.14	1.37	0.00	3.23	0.00
Dec 16 - Feb 17	0.00	0.00	0.00	0.00	0.00	0.00	1.39	0.00	5.55	0.00	0.00	3.13
Mar 17 - May 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.00
Jun 17 - Aug 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	3.20	0.00	4.90

\*Insufficient dolphin survey efforts due to inclement weather conditions in March and April 2012. Supplementary dolphin surveys have been conducted during June and July 2012 to ensure that adequate survey efforts will be maintained. (March – May 12). For details, please refer to the corresponding monthly reports. Due to this technical issue, the data of survey conducted between Mar 12 - May 12 and the supplementary survey conducted between June 12 - Aug 12 were not included in the ANOVA.

#NEL = Northeast Lantau, NWL = Northwest Lantau

^ Baseline period = Sept 11 - Nov 11, Impact monitoring during construction phase = Mar 12 – Aug 17.

**Table 2b – Summary of Monthly ANI Encounter Rate for Northeast Lantau (NEL) and Northwest Lantau (NWL)**

Quarterly period^	NEL_1st Survey	NEL_2nd Survey	NEL_3rd Survey	NEL_4th Survey	NEL_5th Survey	NEL_6th Survey	NWL_1st Survey	NWL_2nd Survey	NWL_3rd Survey	NWL_4th Survey	NWL_5th Survey	NWL_6th Survey
Sept 11 - Nov 11	3.30	0.00	24.20	2.90	73.40	26.50	2.80	55.20	24.50	35.50	86.30	63.70
Mar 12 - May 12*	0.00	N.A.*	0.00	N.A.*	0.00	0.00	18.35	N.A.*	9.17	N.A.*	7.16	33.87
Jun 12 - Aug 12	25.50	10.80	4.30	32.10	17.30	73.40	0.00	17.50	29.30	14.10	23.50	26.10
Sept 12 - Nov 12	5.20	2.80	2.70	0.00	26.50	94.80	62.90	9.00	27.00	19.20	21.10	21.50
Dec 12 - Feb 13	11.00	19.30	5.30	0.00	2.60	0.00	1.30	25.80	13.60	13.60	69.20	82.50
Mar 13 - May 13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.40	24.20	0.00	8.00	6.80
Jun 13 - Aug 13	0.00	0.00	0.00	8.10	2.70	0.00	8.20	16.60	36.70	20.30	9.50	8.10



Quarterly period^	NEL_1st Survey	NEL_2nd Survey	NEL_3rd Survey	NEL_4th Survey	NEL_5th Survey	NEL_6th Survey	NWL_1st Survey	NWL_2nd Survey	NWL_3rd Survey	NWL_4th Survey	NWL_5 Survey	NWL_6 Survey
Sept 13 - Nov 13	0.00	0.00	0.00	0.00	0.00	0.00	5.40	20.40	28.30	31.20	21.30	28.20
Dec 13 - Feb 14	0.00	0.00	0.00	2.80	0.00	0.00	29.10	36.80	34.90	9.50	0.00	13.70
Mar 14 - May 14	0.00	0.00	0.00	0.00	0.00	0.00	16.30	13.60	0.00	0.00	0.00	4.10
Jun 14 - Aug 14	16.30	0.00	0.00	0.00	0.00	0.00	1.40	5.50	12.30	19.10	8.20	12.30
Sept 14 - Nov 14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	13.70	5.50	0.00	8.50
Dec 14 - Feb 15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.80	1.40	4.10	2.70	9.60
Mar 15 - May 15	0.00	0.00	0.00	0.00	0.00	0.00	5.50	4.10	6.80	6.80	6.90	1.40
Jun 15 - Aug 15	0.00	0.00	0.00	0.00	0.00	0.00	7.70	0.00	2.70	5.50	4.10	8.30
Sept 15 - Nov 15	0.00	0.00	0.00	0.00	0.00	0.00	6.90	0.00	7.40	5.60	0.00	1.40
Dec 15 - Feb 16	0.00	0.00	0.00	0.00	0.00	0.00	15.20	0.00	2.80	0.00	9.20	0.00
Mar 16 - May 16	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.00	2.80	0.00	2.80	16.50
Jun 16 - Aug 16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.40	0.00	5.30	10.90	16.50
Sept 16 - Nov 16	0.00	0.00	0.00	0.00	0.00	0.00	17.90	15.20	6.90	0.00	8.10	0.00
Dec 16 - Feb 17	0.00	0.00	0.00	0.00	0.00	0.00	2.80	0.00	27.70	0.00	0.00	20.40
Mar 17 - May 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.50	0.00
Jun 17 - Aug 17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	14.50	0.00	13.10

\*Insufficient dolphin survey efforts due to inclement weather conditions in March and April 2012. Supplementary dolphin surveys have been conducted during June and July 2012 to ensure that adequate survey efforts will be maintained. (March – May 12). For details, please refer to the corresponding monthly reports. Due to this technical issue, the data of survey conducted between Mar 12 - May 12 and the supplementary survey conducted between June 12 - Aug 12 were not included in the ANOVA.

#NEL = Northeast Lantau, NWL = Northwest Lantau

^ Baseline period = Sept 11 - Nov 11, Impact monitoring during construction phase = Mar 12 – Aug 17.

**Table 3 Sightings of Individually Identified Chinese White Dolphin (*Sousa chinensis*) between March 2012 – February 2017 and baseline sightings**

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 134		2016/05/23	1251	NWL
HZMB 132		2016/05/23	1244	NWL
HZMB 131		2016/03/22	1215	NWL
HZMB 130		2017/07/25	1413	NWL
		2016/09/05	1301	NWL
		2016/02/04	1199	NWL
HZMB 129		2016/01/07	1189	NWL
		2015/10/22	1156	NWL
		2015/09/07	1143	NWL
		2015/08/25	1138	NWL
HZMB 128		2015/01/03	1056	NWL
HZMB 127		2015/01/03	1056	NWL
HZMB 126		2016/05/23	1244	NWL
		2015/02/23	1068	NWL
		2015/01/03	1054	NWL
HZMB 125		2016/05/23	1249	NWL
		2016/03/07	1208	NWL
		2014/10/13	1019	NWL
HZMB 124		2014/09/22	1005	NWL
HZMB 123		2014/08/25	998	NWL
HZMB 122		2015/10/22	1156	NWL
		2014/08/04	989	NWL
HZMB 121		2016/07/18	1276	NWL
		2014/07/14	968	NWL
HZMB 120		2014/05/31	951	NWL
HZMB 119		2014/04/19	940	NWL
HZMB 118		2014/01/06	890	NWL
HZMB 117		2014/06/17	964	NWL
		2014/01/06	888	NWL
HZMB 116		2014/08/25	999	NWL
		2013/12/13	879	NWL
HZMB 115		2014/07/14	972	NWL
		2014/07/14	971	NWL
		2013/12/26	879	NWL
		2013/12/26	879	NWL
HZMB 114		2017/01/05	1351	NWL
		2016/11/03	1328	NWL
		2016/06/06	1261	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
		2015/11/05	1162	NWL
		2013/10/24	827	NWL
HZMB 113		2013/10/24	827	NWL
HZMB 112		2013/10/15	815	NWL
HZMB 111		2013/10/15	815	NWL
HZMB 110		2016/01/18	1193	NWL
		2013/10/15	812	NWL
HZMB 108		2015/06/11	1118	NWL
		2013/08/30	780	NEL
HZMB 107		2015/07/28	1126	NWL
		2014/10/13	1019	NWL
		2014/05/31	951	NWL
		2013/08/21	770	NWL
HZMB 106		2013/08/21	769	NWL
HZMB 105		2014/05/31	951	NWL
		2013/07/08	711	NWL
HZMB 104		2013/07/08	711	NWL
HZMB 103		2013/07/08	711	NWL
HZMB 102		2013/07/08	706	NWL
HZMB 101		2013/07/08	706	NWL
HZMB 100		2013/07/08	706	NWL
HZMB 099		2013/06/13	681	NWL
		2013/06/13	680	NWL
HZMB 098	NL104	2017/05/11	1393	NWL
		2017/01/05	1352	NWL
		2015/02/23	1077	NWL
		2014/12/18	1044	NWL
		2014/08/04	992	NWL
		2014/01/06	888	NWL
		2013/11/02	849	NWL
		2013/11/02	845	NWL
		2013/10/24	831	NWL
		2013/07/08	711	NWL
		2013/05/24	659	NWL
		2011/11/07	Baseline	NWL
		2011/11/05	Baseline	NWL
		2011/11/05	Baseline	NWL
		2011/11/02	Baseline	NWL
		2011/10/28	Baseline	NWL
		2011/09/23	Baseline	NWL
		2011/09/16	Baseline	NWL

<b>Identification Number</b>	<b>Baseline Identification Number</b>	<b>Date (YYYY-MM-DD)</b>	<b>Sighting Number</b>	<b>Area Sighted</b>
HZMB 097		2013/05/09	647	NWL
HZMB 096		2013/04/01	621	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 095		2013/08/30	780	NEL
		2013/06/25	697	NWL
		2013/06/13	682	NWL
		2013/04/01	621	NWL
HZMB 094		2016/08/30	1299	NWL
		2014/10/13	1019	NWL
		2014/05/31	954	NWL
		2014/02/17	910	NWL
		2013/06/26	703	NWL
		2013/06/25	698	NWL
		2013/03/18	601	NWL
HZMB 093		2013/05/24	657	NWL
		2013/02/21	587	NWL
HZMB 092		2015/04/20	1097	NWL
		2013/02/21	589	NWL
		2013/02/15	581	NWL
HZMB 091		2013/02/15	579	NWL
HZMB 090		2013/06/25	697	NWL
		2013/06/13	682	NWL
		2013/02/15	579	NWL
HZMB 089		2013/02/15	579	NWL
HZMB 088		2013/02/15	579	NWL
HZMB 087		2013/02/15	579	NWL
HZMB 086	NL242	2015/03/19	1086	NWL
		2013/05/09	642	NWL
		2013/02/15	579	NWL
		2011/10/10	Baseline	NWL
HZMB 085		2014/10/13	1019	NWL
		2014/05/31	954	NWL
HZMB 084		2013/06/26	703	NWL
		2013/02/15	579	NWL
		2013/02/14	575	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 083	NL136	2016/11/03	1332	NWL
		2016/08/30	1298	NWL
		2015/12/01	1180	NWL
		2015/05/11	1104	NWL
		2013/12/19	863	NWL
		2013/03/28	607	NWL
		2013/02/15	579	NWL
		2013/01/28	568	NWL
		2013/01/28	564	NWL
		2012/04/19	267	NWL
		2011/10/28	Baseline	NWL
		2011/10/28	Baseline	NWL
		2011/10/10	Baseline	NEL
2011/09/06	Baseline	NWL		
HZMB 082		2014/10/20	1024	NWL
		2013/02/21	587	NWL
		2013/02/15	579	NWL
		2013/01/28	563	NWL
HZMB 081		2013/01/28	559	NWL
		2013/01/28	557	NWL
HZMB 080		2013/01/28	556	NWL
HZMB 079		2013/01/28	556	NWL
HZMB 078		2013/02/15	579	NWL
		2013/01/08	552	NWL
HZMB 077		2013/12/26	878	NWL
		2013/07/08	706	NWL
		2012/12/11	541	NWL
HZMB 076		2013/07/08	706	NWL
		2012/12/11	541	NWL
HZMB 075		2012/12/06	525	NEL
HZMB 074		2013/05/09	647	NWL
		2013/04/01	623	NWL
		2013/04/01	621	NWL
		2013/02/21	594	NEL
		2012/12/10	529	NEL
		2012/12/06	525	NEL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 073		2013/05/09	647	NWL
		2013/04/01	623	NWL
		2013/04/01	621	NWL
		2013/02/21	594	NEL
		2012/12/10	529	NEL
		2012/12/06	525	NEL
HZMB 072		2012/10/24	476	NWL
HZMB 071		2012/10/24	475	NWL
		2012/10/12	466	NWL
HZMB 070		2012/10/24	476	NWL
HZMB 069		2015/06/04	1116	NWL
		2013/08/21	774	NWL
		2013/07/08	711	NWL
		2012/10/24	476	NWL
HZMB 068		2014/10/20	1025	NWL
		2013/11/01	839	NWL
		2012/10/24	476	NWL
HZMB 067		2012/10/24	475	NWL
HZMB 066	NL93	2013/01/28	559	NWL
		2012/12/11	537	NWL
		2012/10/24	475	NWL
		2012/10/12	466	NWL
		2011/11/07	Baseline	NWL
		2011/11/05	Baseline	NWL
HZMB 064		2015/03/19	1086	NWL
		2014/06/17	964	NWL
		2013/05/09	647	NWL
		2013/01/28	561	NWL
		2012/10/24	475	NWL
		2012/10/12	466	NWL
HZMB 063		2013/05/09	647	NWL
		2012/10/12	466	NWL
HZMB 062		2012/12/06	525	NEL
		2012/10/11	457	NWL
HZMB 060		2012/09/18	447	NWL
HZMB 059		2013/02/21	591	NWL
		2012/09/18	445	NWL
HZMB 057		2012/09/18	440	NWL



Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 056		2012/09/18	442	NWL
		2012/09/05	433	NEL
HZMB 055		2012/09/04	425	NWL
HZMB 054	CH34	2017/07/25	1417	NWL
		2017/05/11	1393	NWL
		2016/11/03	1331	NWL
		2016/05/12	1238	NWL
		2015/12/01	1180	NWL
		2015/04/20	1097	NWL
		2015/01/15	1062	NWL
		2014/05/31	953	NWL
		2014/01/06	888	NWL
		2013/11/07	854	NWL
		2013/11/02	845	NWL
		2013/10/24	831	NWL
		2013/08/30	780	NEL
		2013/07/08	711	NWL
		2013/09/18	448	NWL
		2012/09/05	432	NEL
		2011/11/07	Baseline	NWL
		2011/11/05	Baseline	NWL
		2011/11/02	Baseline	NWL
		2011/11/01	Baseline	NEL
2011/11/01	Baseline	NEL		
2011/10/28	Baseline	NWL		
2011/10/06	Baseline	NWL		
HZMB 053		2012/09/04	425	NWL
HZMB 052		2012/09/04	423	NWL
HZMB 051	NL213	2015/05/11	1104	NWL
		2014/08/04	989	NWL
		2013/05/09	644	NWL
		2013/04/01	622	NWL
		2013/02/15	582	NWL
		2013/02/15	581	NWL
		2013/01/28	559	NWL
		2013/01/28	556	NWL
		2012/09/04	422	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 050		2014/07/14	971	NWL
		2014/01/10	900	NWL
		2014/01/06	888	NWL
		2013/02/15	579	NWL
		2012/09/04	421	NWL
HZMB 049		2015/10/09	1151	NWL
		2014/07/29	982	NWL
		2012/09/03	419	NWL
HZMB 048		2012/09/03	419	NWL
HZMB 047		2015/04/28	1100	NWL
		2012/09/03	412	NWL
HZMB 046		2012/09/03	412	NWL
HZMB 045		2016/05/23	1249	NWL
		2014/02/17	910	NWL
		2013/06/13	682	NWL
		2013/02/15	579	NWL
		2012/11/01	495	NWL
HZMB 044	NL98	2017/01/05	1350	NWL
		2016/05/23	1247	NWL
		2016/01/18	1194	NWL
		2014/10/13	1019	NWL
		2014/02/17	910	NWL
		2013/12/19	864	NWL
		2013/11/02	845	NWL
		2013/11/01	842	NWL
		2013/10/15	819	NWL
		2013/05/09	648	NWL
		2013/05/09	647	NWL
		2013/04/01	623	NWL
		2013/04/01	621	NWL
		2013/02/15	579	NWL
		2012/11/01	495	NWL
		2011/11/07	Baseline	NWL
		2011/11/06	Baseline	NEL
2011/11/01	Baseline	NEL		
2011/10/06	Baseline	NEL		
HZMB 043		2012/09/03	407	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 042	NL260	2015/10/22	1156	NWL
		2013/12/19	863	NWL
		2012/11/01	495	NWL
		2011/11/07	Baseline	NWL
HZMB 041	NL24	2014/06/05	960	NEL
		2014/02/17	910	NWL
		2013/11/02	845	NWL
		2013/05/09	648	NWL
		2013/05/09	647	NWL
		2013/04/01	623	NWL
		2013/04/01	621	NWL
		2013/02/15	579	NWL
		2012/11/01	495	NWL
		2011/11/06	Baseline	NEL
		2011/11/05	Baseline	NWL
		2011/11/05	Baseline	NWL
		2011/10/10	Baseline	NWL
HZMB 040		2014/02/17	910	NWL
		2014/01/06	893	NWL
		2013/10/15	821	NWL
		2013/07/08	714	NWL
		2013/07/08	711	NWL
		2013/02/21	589	NWL
		2012/11/01	493	NWL
HZMB 038		2016/05/23	1246	NWL
		2012/11/01	490	NWL
HZMB 037		2012/11/01	490	NWL
HZMB 036		2012/09/03	407	NWL
		2012/11/01	490	NWL
HZMB 035		2013/02/15	579	NWL
		2012/11/01	490	NWL
HZMB 034		2012/11/01	493	NWL
HZMB 028		2014/11/17	1035	NWL
		2013/04/01	625	NWL
		2012/08/06	373	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 027		2013/12/19	863	NWL
		2013/02/15	579	NWL
		2013/01/28	568	NWL
		2013/01/28	564	NWL
		2012/06/14	299	NWL
HZMB 026		2014/10/13	1018	NWL
		2013/06/25	697	NWL
		2013/05/09	642	NWL
		2013/01/28	561	NWL
HZMB 025		2012/06/13	295	NEL
		2013/02/22	596	NEL
		2013/02/21	591	NWL
		2012/12/06	525	NEL
		2012/10/11	457	NWL
HZMB 024		2012/06/13	295	NEL
		2013/03/18	601	NWL
		2012/06/13	295	NEL
HZMB 023		2016/11/03	1330	NWL
		2015/10/09	1153	NWL
		2015/10/09	1152	NWL
		2015/04/20	1097	NWL
		2014/12/18	1044	NWL
		2014/11/17	1035	NWL
		2014/01/06	888	NWL
		2013/07/08	715	NWL
		2013/07/08	711	NWL
		2013/04/01	619	NWL
		2013/02/21	589	NWL
		2013/02/15	579	NWL
		2012/07/10	330	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 022		2016/11/03	1330	NWL
		2016/04/21	1219	NWL
		2015/09/07	1143	NWL
		2015/04/20	1097	NWL
		2014/12/18	1044	NWL
		2014/11/17	1035	NWL
		2014/08/04	991	NWL
		2014/01/06	888	NWL
		2013/10/24	827	NWL
		2013/07/08	715	NWL
		2013/07/08	711	NWL
		2013/04/01	619	NWL
		2013/02/21	589	NWL
		2013/02/15	579	NWL
		2012/07/10	330	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 021	NL37	2016/03/22	1215	NWL
		2012/07/10	330	NWL
		2011/09/16	Baseline	NWL
HZMB 020		2012/07/10	330	NWL
HZMB 019		2012/07/10	330	NWL
HZMB 018		2014/02/17	910	NWL
		2013/05/09	647	NWL
		2013/02/21	594	NEL
		2012/12/10	529	NEL
		2012/07/10	330	NWL
HZMB 017		2012/07/10	330	NWL
HZMB 016		2013/07/08	706	NWL
		2012/12/11	539	NWL
		2012/09/18	446	NWL
		2012/09/04	421	NWL
		2012/07/10	330	NWL
HZMB 015		2012/07/10	330	NEL
HZMB 014	NL176	2015/08/25	1139	NWL
		2013/12/26	880	NWL
		2012/08/06	373	NWL
		2012/06/13	295	NEL
		2011/11/06	Baseline	NEL
		2011/11/01	Baseline	NEL
		2011/11/01	Baseline	NEL
HZMB 013		2012/05/28	281	NWL
HZMB 012		2012/05/28	281	NWL
HZMB 011	EL01	2013/02/22	597	NEL
		2013/02/21	592	NEL
		2013/02/14	572	NEL
		2012/11/06	517	NEL
		2012/09/19	452	NWL
		2012/03/31	261	NEL
		2011/11/02	Baseline	NWL
		2011/11/01	Baseline	NEL
HZMB 009		2015/03/19	1084	NWL
		2012/05/28	281	NWL
HZMB 008		2015/07/06	1122	NWL
		2012/05/28	281	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted		
HZMB 007	NL246	2012/12/10	529	NEL		
		2011/11/06	Baseline	NEL		
		2011/09/16	Baseline	NWL		
HZMB 006		2015/10/22	1158	NWL		
		2013/02/21	594	NEL		
		2012/12/11	539	NWL		
		2012/11/01	495	NWL		
		2012/03/29	250	NWL		
HZMB 005		2015/02/09	1070	NWL		
		2015/02/09	1069	NWL		
		2013/11/09	860	NWL		
		2013/11/07	858	NWL		
		2013/10/15	813	NWL		
		2012/12/10	532	NWL		
		2012/08/06	374	NWL		
		2012/05/28	287	NWL		
HZMB 004		2015/07/28	1126	NWL		
		2012/09/04	421	NWL		
		2012/03/31	262	NWL		
HZMB 003	NL179	2013/10/15	812	NWL		
		2013/06/25	697	NWL		
		2012/12/10	529	NEL		
		2012/03/31	261	NWL		
		2011/11/06	Baseline	NEL		
		2011/09/16	Baseline	NWL		
HZMB 002	WL111	2014/05/31	951	NWL		
		2013/12/26	878	NWL		
		2013/12/19	863	NWL		
		2013/11/01	839	NWL		
		2013/10/15	819	NWL		
		2013/09/24	798	NWL		
		2013/02/14	573	NWL		
		2012/12/11	536	NWL		
		2012/12/11	535	NWL		
		2012/10/12	466	NWL		
		2012/10/24	475	NWL		
		2012/05/28	281	NWL		
		2012/03/29	250	NWL		
				2011/11/02	Baseline	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
HZMB 001	WL46	2016/07/18	1276	NWL
		2016/05/23	1251	NWL
		2014/08/25	997	NWL
		2013/08/21	771	NWL
		2013/06/13	681	NWL
		2013/04/01	617	NWL
		2013/02/14	573	NWL
		2012/03/29	250	NWL
	CH98	2011/11/02	Baseline	NWL
	NL11	2011/11/02	Baseline	NWL
		2011/11/07	Baseline	NWL
	NL12	2011/11/02	Baseline	NWL
	NL33	2011/09/23	Baseline	NWL
		2011/11/01	Baseline	NEL
		2011/11/05	Baseline	NWL
		2011/11/07	Baseline	NWL
	NL46	2011/10/28	Baseline	NWL
	CH153	2011/10/11	Baseline	NWL
	NL48	2001/11/07	Baseline	NWL
		2011/11/02	Baseline	NWL
		2011/09/16	Baseline	NWL
	NL75	2011/09/16	Baseline	NWL
		2011/09/16	Baseline	NWL
		2011/11/01	Baseline	NEL
	NL80	2011/11/02	Baseline	NWL
	NL118	2011/09/06	Baseline	NWL
	NL120	2011/11/06	Baseline	NEL
		2011/10/10	Baseline	NWL
	NL123	2011/11/06	Baseline	NEL
		2011/10/10	Baseline	NWL
		2011/10/06	Baseline	NWL
	NL139	2011/11/01	Baseline	NEL
		2011/10/10	Baseline	NEL
		2011/09/16	Baseline	NWL
	NL165	2011/11/05	Baseline	NWL
		2011/11/02	Baseline	NWL
	NL170	2011/10/06	Baseline	NEL



Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
	NL188	2011/11/07	Baseline	NWL
		2011/11/01	Baseline	NWL
		2011/10/28	Baseline	NWL
	NL191	2011/09/07	Baseline	NWL
	NL202	2011/11/07	Baseline	NWL
		2011/10/28	Baseline	NWL
	NL210	2011/11/07	Baseline	NWL
		2011/11/05	Baseline	NWL
		2011/11/02	Baseline	NWL
		2011/09/07	Baseline	NWL
	NL214	2011/11/05	Baseline	NWL
		2011/11/02	Baseline	NWL
		2011/10/28	Baseline	NWL
	NL220	2011/10/10	Baseline	NEL
	NL224	2011/10/28	Baseline	NWL
	NL226	2011/11/05	Baseline	NWL
		2011/10/17	Baseline	WL
	NL230	2011/11/02	Baseline	NWL
		2011/10/17	Baseline	WL
	NL233	2011/10/28	Baseline	NWL
		2011/10/06	Baseline	NWL
		2011/09/16	Baseline	NWL
	NL241	2011/11/07	Baseline	NWL
		2011/11/02	Baseline	NWL
		2011/09/16	Baseline	NWL
	NL244	2011/11/01	Baseline	NEL
		2011/11/01	Baseline	NWL
		2011/09/05	Baseline	WL
	NL256	2011/11/02	Baseline	NWL
	NL258	2011/09/16	Baseline	NWL
		2011/09/05	Baseline	WL
	NL259	2011/11/07	Baseline	NWL
	NL261	2011/11/01	Baseline	NEL
	NL264	2011/11/06	Baseline	NEL
		2011/10/06	Baseline	NEL
		2011/09/23	Baseline	NWL
	NL269	2011/11/02	Baseline	NWL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
	NL272	2011/11/05	Baseline	NWL
		2011/11/02	Baseline	NWL
		2011/10/28	Baseline	NWL
		2011/09/16	Baseline	NWL
	NL278	2011/11/02	Baseline	NWL
	NL279	2011/11/02	Baseline	NWL
	SL42	2011/11/02	Baseline	NWL
	SL43	2011/10/28	Baseline	NWL
	WL04	2011/11/05	Baseline	NWL
		2011/11/02	Baseline	NWL
		2011/10/17	Baseline	WL
		2011/10/10	Baseline	NWL
		2011/09/16	Baseline	NWL
	WL05	2011/11/01	Baseline	NEL
		2011/11/01	Baseline	NEL
	WL11	2011/11/07	Baseline	NWL
	WL25	2011/10/17	Baseline	WL
		2011/09/23	Baseline	WL
		2011/09/16	Baseline	NWL
	WL88	2011/11/02	Baseline	WL
		2011/09/16	Baseline	NWL
	WL116	2011/09/16	Baseline	NWL
	WL124	2011/11/02	Baseline	NWL
	WL156	2011/10/28	Baseline	NWL
		2011/09/23	Baseline	WL
	WL162	2011/09/16	Baseline	NWL
	NL275	2011/09/23	Baseline	WL
	SL48	2011/11/02	Baseline	WL
		2011/10/17	Baseline	WL
		2011/09/23	Baseline	WL
	CH108	2011/11/02	Baseline	WL
		2011/11/02	Baseline	WL
	CH157	2011/11/02	Baseline	WL
	NL206	2011/10/07	Baseline	WL
	WL28	2011/09/23	Baseline	WL
	WL42	2011/11/02	Baseline	WL
		2011/09/05	Baseline	WL
	WL47	2011/10/17	Baseline	WL

Identification Number	Baseline Identification Number	Date (YYYY-MM-DD)	Sighting Number	Area Sighted
	WL61	2011/10/17	Baseline	WL
		2011/09/23	Baseline	WL
	WL66	2011/11/07	Baseline	WL
	WL68	2011/09/05	Baseline	WL
		2011/09/05	Baseline	WL
	WL72	2011/11/02	Baseline	WL
		2011/11/02	Baseline	WL
		2011/09/23	Baseline	WL
	WL87	2011/09/23	Baseline	WL
	WL88	2011/11/02	Baseline	WL
		2011/09/16	Baseline	WL
	WL116	2011/09/16	Baseline	WL
	WL118	2011/11/02	Baseline	WL
		2011/11/02	Baseline	WL
	WL123	2011/11/02	Baseline	WL
	WL124	2011/11/02	Baseline	WL
	WL128	2011/11/07	Baseline	WL
		2011/11/02	Baseline	WL
	WL131	2011/11/02	Baseline	WL
		2011/11/02	Baseline	WL
		2011/09/23	Baseline	WL
	WL132	2011/09/23	Baseline	WL
	WL137	2011/11/02	Baseline	WL
	WL138	2011/11/02	Baseline	WL
	WL144	2011/11/02	Baseline	WL
	WL145	2011/09/05	Baseline	WL
	WL146	2011/10/17	Baseline	WL
	WL153	2011/11/07	Baseline	WL
	WL157	2011/09/23	Baseline	WL
	WL158	2011/09/23	Baseline	WL
	WL163	2011/11/07	Baseline	WL
		2011/11/02	Baseline	WL
	WL165	2011/10/17	Baseline	WL
	WL167	2011/10/17	Baseline	WL
	WL170	2011/11/07	Baseline	WL
	WL171	2011/10/28	Baseline	WL



HZMB 001 2012-03-18\_10-52-16



HZMB 001 2012-03-18\_11-07-00



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**HZMB 023 2013-04-01\_10-43-27**



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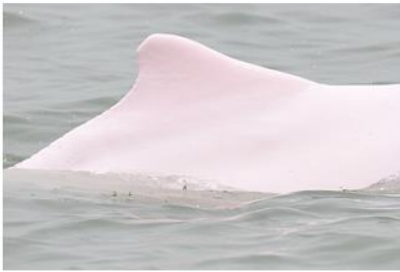
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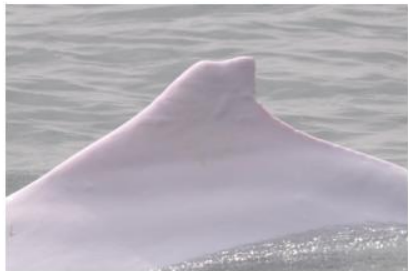
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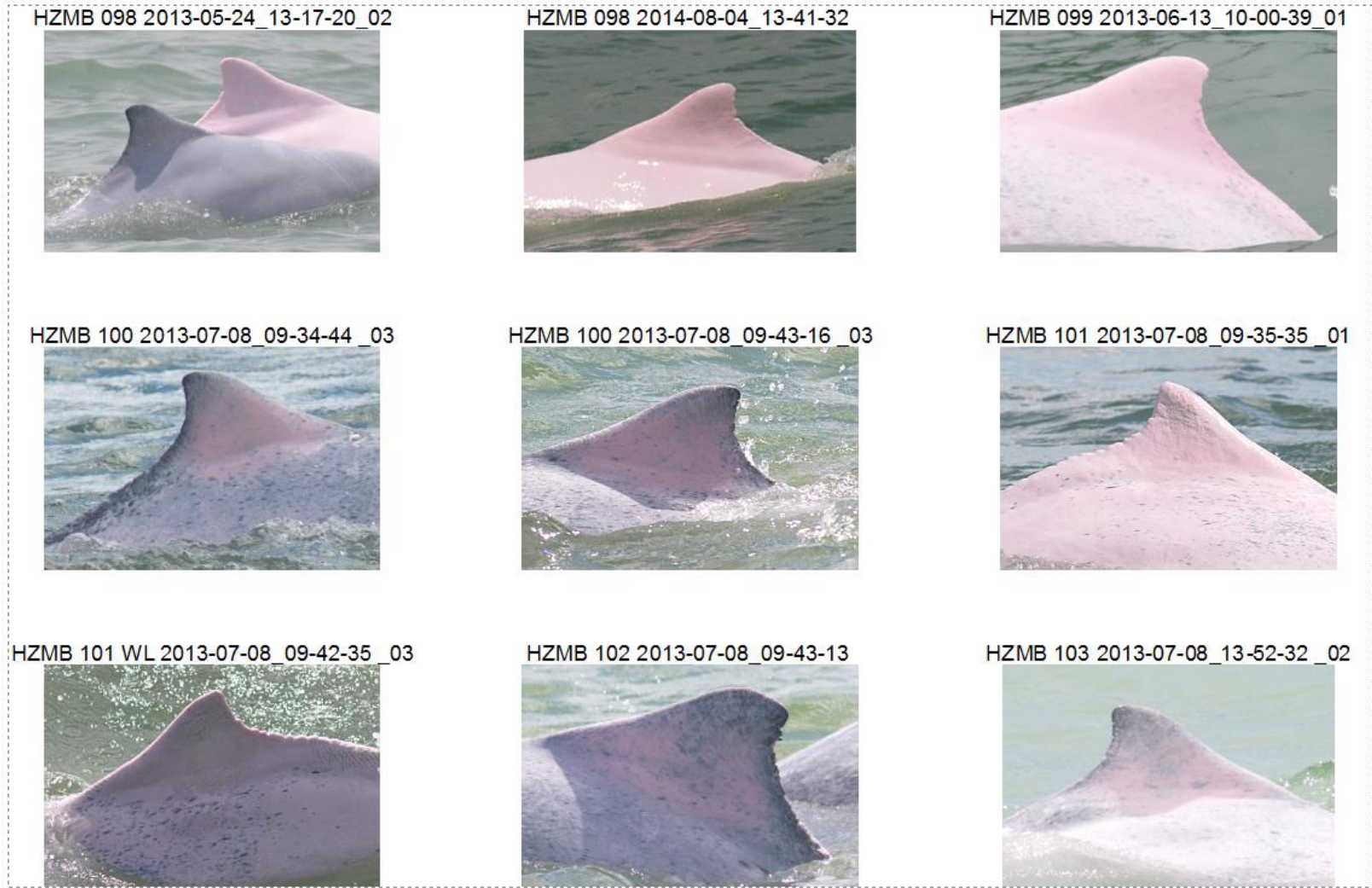


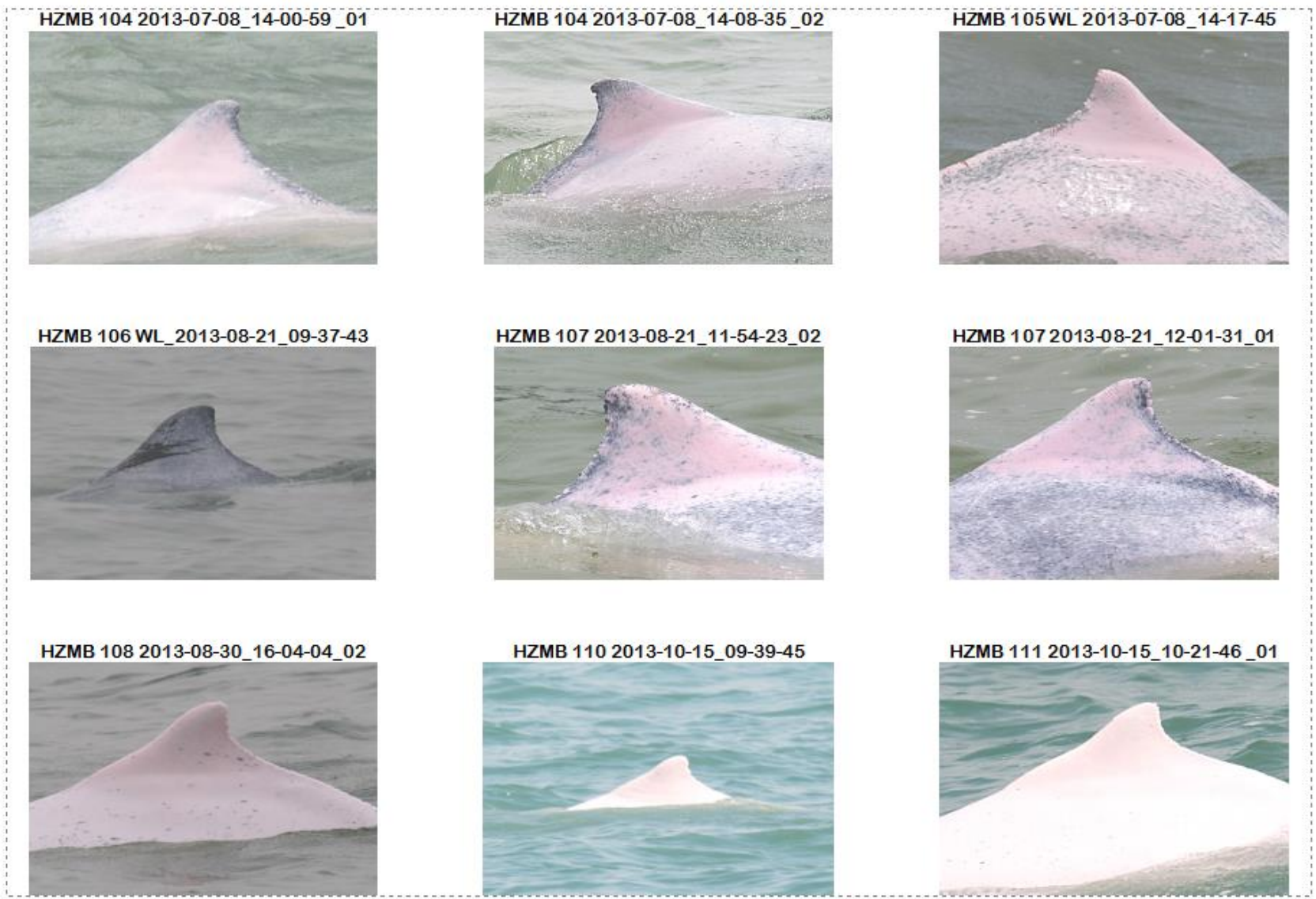
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# China Harbour Engineering Company Limited

## Monthly Summary Waste Flow Table for December / 2012 (year)

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Boundary Crossing Facilities – Reclamation Works

Contract No.: HY/2010/02

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Mar	0	0	0	0	0	16.9360	0	0	0	0	0.58500
Apr	0	0	0	0	0	68.0870	0	0	0	0	0.00650
May	0	0	0	0	0	87.8779	0	0	0	0	0.01300
Jun	0	0	0	0	0	96.4000	0	0	0	0	0.01300
Sub-total	0	0	0	0	0	273.776	0	0	0	0	0.61750
Jul	0	0	0	0	0	97.1469	0	0	0	0	0.01300
Aug	0	0	0	0	0	79.6923	0	0	0	0	0.02600
Sep	0	0	0	0	0	31.5754	0	0	0	1.81800	0.02600
Oct	0	0	0	0	0	66.0257	0	0	0	1.00000	0.03250
Nov	0	0	0	0	0	44.9416	0	0	0	0.80000	0.03900
Dec	0	0	0	0	0	40.8694	0	0	0	2.40000	0.01950
Total	0	0	0	0	0	629.552	0	0	0	6.01800	0.77350

- Notes:
- (1) Broken concrete for recycling into aggregates.
  - (2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.
  - (3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m<sup>3</sup> by volume.
  - (4) Chemical waste refer to spent “battery” and “oil with water”.



# China Harbour Engineering Company Limited

## Monthly Summary Waste Flow Table for February / 2013 (year)

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Boundary Crossing Facilities – Reclamation Works

Contract No.: HY/2010/02

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Jan-13	0.0000	0.0000	0.0000	0.0000	0.0000	100.2272	0.0000	0.0000	0.0000	1.4000	0.0325
Feb-13	0.0000	0.0000	0.0000	0.0000	0.0000	49.3183	0.0000	0.0000	0.0000	0.2000	0.0195
Mar-13											
Apr-13											
May-13											
Jun-13											
Sub-total	0.0000	0.0000	0.0000	0.0000	0.0000	149.5455	0.0000	0.0000	0.0000	1.6000	0.0520
Jul-13											
Aug-13											
Sep-13											
Oct-13											
Nov-13											
Dec-13											
Total	0.0000	0.0000	0.0000	0.0000	0.0000	149.5455	0.0000	0.0000	0.0000	1.6000	0.0520

- Notes:
- (1) Broken concrete for recycling into aggregates.
  - (2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.
  - (3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m<sup>3</sup> by volume.
  - (4) Chemical waste refer to spent “battery” and “oil with water”.



# China Harbour Engineering Company Limited

## Summary of Waste Flow Table (Mar 2013 - Feb 2014)

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Boundary Crossing Facilities – Reclamation Works

Contract No.: HY/2010/02

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Mar-13	0.0000	0.0000	0.0000	0.0000	0.0000	121.1545	0.0000	0.0000	0.0000	2.0000	0.0130
Apr-13	0.0000	0.0000	0.0000	0.0000	0.0000	197.7428	0.0000	0.0000	0.0000	0.0000	0.0260
May-13	0.0000	0.0000	0.0000	0.0000	0.0000	360.3733	0.0000	0.0000	0.0000	1.2000	0.0130
Jun-13	0.0000	0.0000	0.0000	0.0000	0.0000	415.9366	0.0000	0.0000	0.0000	0.0000	0.0130
Jul-13	0.0000	0.0000	0.0000	0.0000	0.0000	397.7040	0.0000	0.0000	0.5501	4.0000	0.0260
Aug-13	0.0000	0.0000	0.0000	0.0000	0.0000	447.7517	0.0000	0.0040	0.0000	1.6000	0.0325
Sep-13	0.0000	0.0000	0.0000	0.0000	0.0000	565.0243	0.0140	0.1400	0.0000	1.2000	0.0260
Oct-13	0.0000	0.0000	0.0000	0.0000	0.0000	800.3190	0.0000	0.1960	0.0000	0.0000	0.0325
Nov-13	0.0000	0.0000	0.0000	0.0000	0.0000	797.2930	0.0000	0.1960	0.0000	0.0000	0.0195
Dec-13	0.0000	0.0000	0.0000	0.0000	0.0000	1213.8441	0.0103	0.0000	0.0000	2.0000	0.0260
Jan-14	0.0000	0.0000	0.0000	0.0000	0.0000	1158.9828	0.0000	0.1680	0.0000	2.0000	0.0325
Feb-14	0.0000	0.0000	0.0000	0.0000	0.0000	1064.5957	0.0000	0.2520	0.0000	0.0000	0.0520
<b>Total</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>7540.7219</b>	<b>0.0243</b>	<b>0.9560</b>	<b>0.5501</b>	<b>14.0000</b>	<b>0.3120</b>

- Notes:
- (1) Broken concrete for recycling into aggregates.
  - (2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.
  - (3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m<sup>3</sup> by volume.
  - (4) Chemical waste refer to spent “battery” and “oil with water”.



# China Harbour Engineering Company Limited

## Monthly Summary Waste Flow Table for March / 2014 to February / 2015 (year)

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Boundary Crossing Facilities – Reclamation Works

Contract No.: HY/2010/02

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Mar-14	0.0000	0.0000	0.0000	0.0000	0.0000	1111.9982	0.0000	0.0000	0.0000	1.4000	0.1690
Apr-14	0.0000	0.0000	0.0000	0.0000	0.0000	1294.8080	0.0000	0.0000	0.0000	0.0000	0.0845
May-14	0.0000	0.0000	0.0000	0.0000	0.0000	1181.4168	0.0400	0.0240	0.0000	1.0000	0.2250
Jun-14	0.0000	0.0000	0.0000	0.0000	0.0000	752.7711	0.0000	0.1400	0.0000	8.8000	0.1690
Jul-14	0.0000	0.0000	0.0000	0.0000	0.0000	1252.4373	0.0030	0.0340	0.0010	0.2000	0.2145
Aug-14	0.0000	0.0000	0.0000	0.0000	0.0000	1427.9730	0.0000	0.1960	0.0000	0.0000	0.0650
Sep-14	0.0000	0.0000	0.0000	0.0000	0.0000	1370.5108	0.0000	0.2240	0.0000	0.0000	0.1365
Oct-14	0.0000	0.0000	0.0000	0.0000	0.0000	1750.7552	0.0030	0.0410	0.0000	1.2000	0.0650
Nov-14	0.0000	0.0000	0.0000	0.0000	0.0000	1788.6110	342.6220	0.1790	0.0010	0.0000	0.0585
Dec-14	0.0000	0.0000	0.0000	0.0000	0.0000	1608.6650	0.0015	0.2510	2.4010	0.0000	0.0650
Jan-15	0.0000	0.0000	0.0000	0.0000	0.0000	1774.7845	0.0000	0.4200	4.0000	2.4000	0.0455
Feb-15	0.0000	0.0000	0.0000	0.0000	0.0000	1120.6675	0.0000	0.1400	0.0000	0.0000	0.0390
<b>Total</b>	0.0000	0.0000	0.0000	0.0000	0.0000	16435.3984	342.6695	1.6490	6.4030	15.0000	1.3365

- Notes:
- (1) Broken concrete for recycling into aggregates.
  - (2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.
  - (3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m<sup>3</sup> by volume.
  - (4) Chemical waste refer to spent “battery” and “oil with water”.



# China Harbour Engineering Company Limited

## Monthly Summary Waste Flow Table for December / 2015 (year)

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Boundary Crossing Facilities – Reclamation Works

Contract No.: HY/2010/02

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Jan-15	0.0000	0.0000	0.0000	0.0000	0.0000	1774.7845	0.0000	0.4200	4.0000	2.4000	0.0455
Feb-15	0.0000	0.0000	0.0000	0.0000	0.0000	1120.6675	0.0000	0.1400	0.0000	0.0000	0.0390
Mar-15	0.0000	0.0000	0.0000	0.0000	0.0000	390.8735	0.0040	0.3340	0.0020	0.0000	0.0390
Apr-15	0.0000	0.0000	0.0000	0.0000	0.0000	251.3183	0.0000	0.1400	0.0000	0.0000	0.0390
May-15	0.0000	0.0000	0.0000	0.0000	0.0000	778.9842	0.0000	0.1960	0.0000	0.0000	0.0260
Jun-15	0.0000	0.0000	0.0000	0.0000	0.0000	400.6428	0.0000	0.1680	0.0000	0.0000	0.0520
Sub-total	0.0000	0.0000	0.0000	0.0000	0.0000	4717.2709	0.0040	1.3980	4.0020	2.4000	0.2405
Jul-15	0.0000	0.0000	0.0000	0.0000	0.0000	60.7108	0.0150	0.4750	0.0020	0.0000	0.0585
Aug-15	0.0000	0.0000	0.0000	0.0000	0.0000	60.6718	0.0000	0.3360	5.1200	0.0000	0.0585
Sep-15	0.0000	0.0000	0.0000	0.0000	0.0000	69.8487	0.0000	0.0000	0.0000	0.0000	0.0780
Oct-15	0.0000	0.0000	0.0000	0.0000	0.0000	32.4733	0.0000	0.2800	0.0000	0.0000	0.0715
Nov-15	0.0000	0.0000	0.0000	0.0000	0.0000	40.5700	0.0000	0.3920	0.0000	0.0000	0.0715
Dec-15	0.0000	0.0000	0.0000	0.0000	0.0000	23.0400	0.0000	0.0000	0.0000	0.0000	0.0845
Total	0.0000	0.0000	0.0000	0.0000	0.0000	5004.5856	0.0190	2.8810	9.1240	2.4000	0.6630

Notes: (1) Broken concrete for recycling into aggregates.

(2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.

(3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m<sup>3</sup> by volume.

(4) Chemical waste refer to spent “battery” and “oil with water”.



# China Harbour Engineering Company Limited

## Monthly Summary Waste Flow Table for February / 2016 (year)

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Boundary Crossing Facilities – Reclamation Works

Contract No.: HY/2010/02

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2,5)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Jan-15	0.0000	0.0000	0.0000	0.0000	0.0000	52.4729	0.0000	0.2520	0.0000	0.8000	0.0520
Feb-15	0.0000	0.0000	0.0000	0.0000	0.0000	6.1333	0.0000	0.0000	6.0800	0.0000	0.0520
Mar-15											
Apr-15											
May-15											
Jun-15											
Sub-total	0.0000	0.0000	0.0000	0.0000	0.0000	58.6062	0.0000	0.2520	6.0800	0.8000	0.1040
Jul-15											
Aug-15											
Sep-15											
Oct-15											
Nov-15											
Dec-15											
Total	0.0000	0.0000	0.0000	0.0000	0.0000	58.6062	0.0000	0.2520	6.0800	0.8000	0.1040

- Notes:
- (1) Broken concrete for recycling into aggregates.
  - (2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.
  - (3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m<sup>3</sup> by volume.
  - (4) Chemical waste refer to spent “battery” and “oil with water”.
  - (5) About 152 Water-barriers were recycled (~40kg each, Total: ~4000kg or ~4.0 '000kg).



# China Harbour Engineering Company Limited

## Monthly Summary Waste Flow Table for March / 2016 to February / 2017 (year)

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Boundary Crossing Facilities – Reclamation Works

Contract No.: HY/2010/02

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Surplus Surcharge exported to Macau	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Mar-16	0.0000	0.0000	0.0000	56.1071	0.0000	0.0000	38.3187	0.0000	0.3080	0.0000	0.0000	0.0520
Apr-16	0.0000	0.0000	0.0000	47.2724	3.5710	0.0000	18.7380	0.0000	0.2240	0.0000	0.0000	0.3662
May-16	0.0000	0.0000	0.0000	24.8600	93.8100	0.0000	45.2723	0.0000	0.0000	0.0000	0.0000	0.0715
Jun-16	0.0000	0.1560	0.0000	29.1938	96.1830	0.0000	27.8820	0.0000	0.0000	0.0000	0.0000	0.0650
Jul-16	0.0000	0.0000	0.0000	35.1267	137.7494	0.0000	54.3087	0.0000	0.4200	0.0000	0.0000	0.0715
Aug-16	0.0000	0.0000	0.0000	32.4387	305.9248	0.0000	18.9587	0.0000	0.0000	0.0000	0.0000	0.0455
Sep-16	0.0000	3.5295	0.0000	41.5765	162.0502	0.0000	30.2987	0.0000	0.3640	0.0000	0.0000	0.0445
Oct-16	0.0000	0.5720	0.0000	20.0836	195.5559	0.0000	24.4993	0.0000	0.2800	0.0000	0.0000	0.0650
Nov-16	0.0000	0.0000	0.0000	20.3698	129.6019	0.0000	28.0380	0.0000	0.0000	0.0000	0.0000	0.1365
Dec-16	0.0000	0.0000	0.0000	14.8949	116.9070	0.0000	11.7040	0.0000	0.5040	0.0000	0.0000	0.0845
Jan-17	0.0000	0.0000	0.0000	15.6100	73.2375	0.0000	18.8927	0.0000	0.3640	0.0000	0.0000	0.0455
Feb-17	0.0000	0.0000	0.0000	39.0950	182.3675	0.0000	17.5747	0.0000	0.3920	0.0000	0.0000	0.0260
<b>Total</b>	<b>0.0000</b>	<b>4.2575</b>	<b>0.0000</b>	<b>376.6285</b>	<b>1496.9582</b>	<b>0.0000</b>	<b>334.4858</b>	<b>0.0000</b>	<b>2.8560</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.0737</b>

Notes: (1) Broken concrete for recycling into aggregates.

(2) Plastics refer to plastic bottles / containers / sheets / foam / barrier from packaging materials.

(3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m<sup>3</sup> by volume.

(4) Chemical waste refer to spent “battery” and “oil with water”.

(5) As stated in the corresponding monthly reports, the figure of surplus is subject to revision. Based on the latest information provided by the Contractor, the reported amount of surplus surcharge exported to Macau in Nov 16 and Dec 16 were updated.





# China Harbour Engineering Company Limited

## Monthly Summary Waste Flow Table for December / 2017 (year)

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Boundary Crossing Facilities – Reclamation Works

Contract No.: HY/2010/02

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Surplus Surcharge exported to Macau	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Jan-17	0.0000	0.0000	0.0000	15.6100	73.2375	0.0000	18.8927	0.0000	0.3640	0.0000	0.0000	0.0455
Feb-17	0.0000	0.0000	0.0000	39.0950	182.3675	0.0000	17.5747	0.0000	0.3920	0.0000	0.0000	0.0260
Mar-17	0.0000	0.0000	0.0000	60.6496	171.6925	0.0000	20.6013	0.0000	0.0000	0.0000	0.0000	0.0585
Apr-17	0.0000	0.0000	0.0000	2.4750	55.3140	0.0000	39.9607	0.0000	0.4480	0.0000	0.0000	0.0325
May-17	0.0000	0.0000	0.0000	0.0000	4.5540	0.0000	22.4307	0.0000	0.0000	0.0000	0.0000	0.0455
Jun-17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3920	0.0000	0.0000	0.0390
Sub-total	0.0000	0.0000	0.0000	117.8296	487.1655	0.0000	119.4601	0.0000	1.5960	0.0000	0.0000	0.2470
Jul-17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3360	0.0000	0.0000	0.0195
Aug-17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3360	0.0000	0.0000	0.0130
Sep-17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0130
Oct-17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0130
Nov-17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2520	0.0000	0.0000	0.0065
Dec-17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0065
Total	0.0000	0.0000	0.0000	117.8296	487.1655	0.0000	119.4601	0.0000	2.5200	0.0000	0.0000	0.3185

- Notes:
- (1) Broken concrete for recycling into aggregates.
  - (2) Plastics refer to plastic bottles / containers / sheets / foam / barrier from packaging materials.
  - (3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m<sup>3</sup> by volume.
  - (4) Chemical waste refer to spent “battery” and “oil with water”.



# China Harbour Engineering Company Limited

## Monthly Summary Waste Flow Table for April / 2018 (year)

Project : Hong Kong – Zhuhai – Macao Bridge, Hong Kong Boundary Crossing Facilities – Reclamation Works

Contract No.: HY/2010/02

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 (see Note 1)	Reused in the Contract	Reused in other Projects	Surplus Surcharge exported to Macau	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste (see Note 4)	Others, e.g. general refuse (see Note 3)
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Jan-18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0065
Feb-18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1680	0.0000	0.0000	0.0000
Mar-18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0065
Apr-18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.9200	0.0000	0.0000	0.0325
May-18												
Jun-18												
Sub-total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0880	0.0000	0.0000	0.0455
Jul-18												
Aug-18												
Sep-18												
Oct-18												
Nov-18												
Dec-18												
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0880	0.0000	0.0000	0.0455

- Notes:
- (1) Broken concrete for recycling into aggregates.
  - (2) Plastics refer to plastic bottles / containers / sheets / foam / barrier from packaging materials.
  - (3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m<sup>3</sup> by volume.
  - (4) Chemical waste refer to spent “battery” and “oil with water”.

## Appendix J

### Cumulative Statistics on Exceedances, Complaints, Notifications of Summons and Successful Prosecutions

#### Cumulative statistics on Exceedances

		Total no. recorded since project commencement
<b>1-Hour TSP</b>	Action	-
	Limit	-
<b>24-Hour TSP</b>	Action	-
	Limit	-
<b>Noise</b>	Action	-
	Limit	-
<b>Water Quality</b>	Action	2
	Limit	3
<b>Dolphin Monitoring</b>	Action	-
	Limit	-

Remarks: Exceedances which are not project-related are not presented in this table.

#### Cumulative statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received since project commencement
<b>Environmental complaints</b>	24 Oct 12 – 30 Oct 12	A complaint was referred by EPD on 24 Oct 12 regarding the blackish water (suspected oil spillage) observed outside the construction site near the Hong Kong International Airport and the new development pier in Tung Chung. Photos were taken by the complainant on 19, 22 and 24 October 2012. The investigation results show that the	Closed	1

		complaint was non-project related.		
	19 Oct 12 – 21 Jan 13	As informed by the Contractor on the 28 Dec 2012, a night time noise at Works Area WA4 related complain (after 7 pm) was received by EPD on 18 Oct 2012. After investigation, the Contractor was reminded to implement necessary mitigation measures.	Closed	2
	18 Jan 13 – 1 Feb 13	EPD referred a complaint from a complainant on 18 Jan 2013 who advised that turbid water and concrete/cement was arising from the Hong Kong-Zhuhai-Macao Bridge Hong Kong Projects to marine water. The source of turbid water and concrete/cement was not specified by the complainant. After investigation, it could not be concluded whether the complaint was considered as project related or not. However the Contractor was reminded to implement necessary mitigation measures.	Closed	3
	6 Feb 13 – 4 Mar 13	One (1) complaint was referred to the HyD by the Islands District Council (IDC) on the 6 February 2013 regarding a resident from Phase 1 Caribbean Coast who complained the nuisance brought by construction along Ying Hei Road, Tung Chung. Complaint investigation was conducted by the HyD and written reply were subsequently given to IDC by HyD on 4 March 13. The investigation results show that the		4

		complaint was non-project related.		
	4 March13	One (1) complaint was referred by EPD to ET regarding the construction noise impact from cranes operating from the barges for the Hong Kong –Zhuhai-Macao Bridge Hong Kong Project generating squeak noise in the evening of 1 Mar 2013 causing annoyance to him/her. The investigation results show that the complaint was non-project related.	Closed	5
	8 April 13	One (1) complaint was referred by EPD regarding oil dumping observed from various vessels operating for HZMB HK projects near Tung Chung Development Pier over the past few months. The investigation results showed that the complaint was non-project related.	Closed	6
	10 May 2013	A complaint referred to the Contractor by EPD on 10 May 2013 regarding the scattered debris of silt curtain noted at Sha Lou Wan and Tung Chung Bay. Immediate inspection and clean up action was taken by the Contractor.	Closed	7
	23 May 2013	A follow-up complaint referred by EPD was received on 23 May 2013 regarding the oil stain noted near Tung Chung Development Pier for past few months.	Closed	8
	26 Sept 13	One (1) complaint was logged by the Contractor regarding the leakage from work barges causing water pollution near Tuen Mun Richland Garden received on 26 Sept 13. With refer to the available information	Closed	9

		such as photo record of the incident cannot indicate that the leakage from work barges was caused by the vessel of this Contract and the complaint could not be concluded as project related.		
	1 Nov 13	As informed by the Contractor on 5 Nov 13, a noise complaint received on 14 Sept 13 was referred to the Contractor of HKBCF on 1 Nov 13. The captioned complaint involves noise generated by a tug boat operating near a pier at Tung Chung around 05:55am-06:45am on 14 Sept 13. After investigation, the complaint is considered not likely to be related to the construction works.	Closed	10
	11 Nov 13	As informed by the Contractor, complaint received from Penta-Ocean – Gitanes Joint Venture (CV/2012/03) mentioned that the formation works of the Contaminated Mud Pit CMP1 to the South of the Brothers (CMP1 of SB) which has been completed in mid-August 2013 and the pit has been commissioned for receiving contaminated marine mud from other projects starting from 16 August 2013. However, it was recently observed that some of the project vessels of HY/2010/02 had berthed within the said pit and those anchorages would likely cause disruption to the underlying contaminated mud and thus induce unfavourable contamination impact to the surrounding marine environment. In this regard, they	Closed	11

		reminded the contractor to avoid berthing of their vessels within the boundary of CMP1 of SB thereafter for the sake of environmental concern. After investigation, the complaint is considered not likely to be related to the construction works.		
	5 Dec13	As informed by the Contractor on 5 Dec 13, one complaint was noted on 12 Nov regarding a barge moving through the southern channel. After investigation, the noise complaint was considered as non-project related.	Closed	12
	12 Dec13	As informed by the Contractor on 12 Dec 13. A complaint involves the leakage of sand from barges causing water discoloration at sea near Tuen Mun Pierhead Garden and sand material without properly covered was blown to the inside of the residential area which caused disturbance to residence. With refer to available information provided and monitoring data recorded on 09 Dec 13, it cannot indicate that the water quality impact and air quality impact were caused by the vessel of this Contract and therefore the complaint could not be concluded as related to this Contract.	Closed	13
	6 Jan 14	As informed by the Contractor on 6 Jan, A complaint involves barges loaded with sand material without properly covered was blown to the inside of the residential area of Tuen Mun Pierhead Garden which caused disturbance to residence was	Closed	14

		received on 27 Dec 13. With refer to available information provided, it cannot indicate that the water quality impact and air quality impact were caused by the vessel of this Contract and therefore the complaint could not be concluded as related to this Contract.		
	21 Jan 14	EPD referred a complaint from complainant who advised that blackish mud was found along the edge of the construction site of Hong Kong-Zhuhai-Macao Bridge Hong Kong Project near the airport in the morning of 18 January 2014. After receipt of the complaint, site daily was reviewed and follow-up investigation has been conducted and excavation and dredging activities were not observed within the site boundary of HKBCF during the joint site inspection audit. Therefore in accordance with the investigation results, the complaint is considered as not related to contract HY/2010/02	Closed	15
	17 March 2014	EPD referred a complaint on 17 March 2014 from complainant who advised that there was sea water coloured in blue observed in vicinity of Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Facilities (HKBCF) where stone column installation was taking place. The complainant suspected that the filling material was stained and contaminated the sea water after being filled into the sea. With	Closed	16



		reference to the available information, it is indicated that the abovementioned sea water colored in blue observed in vicinity of HKBCF is unlikely to be project related.		
	22 March 2014	EPD referred a complaint from a complainant who advised that muddy water was found being discharged from the construction site of Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) – Reclamation Works on 22 March 2014. After investigation, it is considered that the complaint is unlikely to be project related.	Closed	17
	25 March 2014	As informed by the Contractor, a complaint was received by the Contractor on 25 March 14 concerning sand and dust emission from uncovered barges parking at the sea area off the Tuen Mun Ferry Pier. With refer to the available information; it is unable to conclude whether the complaint is project related.	Closed	18
	7 May 14	As informed by the Contractor on 7 May 14, a complaint was received by the Contractor on 17 April 14 concerning sand and dust emission from uncovered barges parking at the sea area off the Tuen Mun Ferry Pier. Investigation result shows that the complaint is unlikely to be related to this Contract.	Closed	19
	30 May 14	As informed by the Contractor on 30 May 14, an environmental complaint had been received on 28 May 2014. The complainant mentioned that	Closed	20

		waste such as earth and concrete were being felled into the sea everyday at the Hong Kong-Zhuhai-Macao Bridge at location where construction works are being conducted, causing pollution to the marine environment. After investigation, it is concluded that the complaint is unlikely to be related to this Contract.		
	3 July 2014	As informed by the Contractor on 3 July 2014, there was an environmental complaint received on 13 June 14. The complainant who lived at Caribbean Coast complained that there were night time noise and visual impact (strong lighting) from the overnight construction works/plants of HKBCF Island. After investigation, this visual impact complaint is likely to be related to the construction works of this contract. However, with referred to the available information, it is concluded that the night time noise complaint is unlikely to be related to this Contract.	Closed	21
	23 July 14	As informed by the Contractor on 23 July 14, a complaint has been received from Oriental Daily Newspaper on 22 July 14. In the complaint, Oriental Daily Newspaper stated that Miss Cheung, who is a resident of Miami Beach Towers (Tuen Mun), pointed out that construction of the airport artificial island engineering works was being conducted at the sea area in front of the estate, a lot of sand delivery	Closed	22

		<p>barges were moored at sea area between Castle Peak Beach (Tuen Mun Typhoon Shelter) and Tuen Mun Ferry Pier. She discovered on several occasions that there were leakage of soil from sand delivery barges causing discoloration of sea water and sometimes, leaking of sand from more than two sand delivery barges at a time was observed. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.</p>		
	<p>22 August 2014</p>	<p>As informed by the Contractor on 22 Aug 2014, EPD referred a complainant to this Contract on 21 August 2014, the complainant raised concern about uncovered sand barges at the sea area outside Melody Garden, Tuen Mun, sand were brought to inside of houses by wind and also causing the vicinity to be covered with sand and dust. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.</p>	<p>Closed</p>	<p>23</p>
	<p>15 September 2014</p>	<p>As informed by the Contractor on 15 Sept 14, there is an environmental complaint received on 29 August 14 by HyD. The complainant who lives at Tower 4, Melody Garden, Tuen Mun called reflecting environmental issues arisen from many sand barges in the waters facing her apartment. According to the complainant, sand was blown into</p>	<p>Closed</p>	<p>24</p>

		<p>her apartment because the barges were not covered and it was worse when sand was transferred from one vessel to another on conveyor belts. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.</p>		
	<p>22 September 2014</p>	<p>As informed by the Contractor on 22 September, a public complaint has been received by ICC on 9 September 2014 and it was referred to this Contract, the complainant raised concern about a large amount of general refuse such as food container and plastic bottles were observed on sea area off the Gold Coast, Tuen Mun. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.</p>	<p>Closed</p>	<p>25</p>
	<p>29 September 2014</p>	<p>An air quality complaint has been received by the Contractor on 29 September 2014 via email. The complaint was first received by EPD via email on 5 September 2014 and it was referred by EPD to the HZMB HK Project Management Office (Management Office) to handle the complaint directly on 10 September 2014 following the request of the complainant. The Management Office responded to the complainant directly on 17 September 2014.</p> <p>Subsequently, the complainant followed up with the response given by the Management Office and</p>	<p>Closed</p>	<p>26</p>

		<p>complained again on 26 September 2014. This follow up complaint was referred to the project team to investigate. The complainant complained that many of the sand barges did not stay at area of reclamation works near Chek Lap Kok or at the sea area near Tuen Mun River Trade Terminal but moored in the sea area close to Melody Garden. Sand were easily blown to the inside house during days with moderate wind.</p> <p>The complainant suggested that, sand barges should be requested to move away from residential areas and sand barges should be provided with cover fabric and sprinkling to minimise environmental pollution caused by sand. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.</p>		
	<p>14 October 2014</p>	<p>As informed by the Contractor yesterday, 14 October 2014, a follow up air quality complaint has been received by this Contract (same case to environmental complaint reported in the last reporting month). The complainant complained that about 20-30 sand barges always moor at the sea area opposite to tower 4 of Melody Garden and Richland Garden. This problem has affected the air quality. After investigation, there is no adequate information to conclude the observed impact is</p>	<p>Closed</p>	<p>26A</p>

		related to this Contract.		
	30 September 2014	<p>With reference to RSS's letter ref.: 211036/(HY2010/02)/M05/432/B076 05 dated on 30 September 2014 pertaining the performance on barges operations at the sea area off the Tuen Mun Ferry Pier. A complaint concerning leakage of sand filling material from vessels at sea area off Tuen Mun Ferry Pier was first received by EPD from Tuen Mun District Council (TM DC) on 19 September 2014 and it was subsequently referred by EPD to the Highways Department to handle on 23 September 2014 through EPD's memo ref.: EP/RW/0000362128. Referring to EPD's Memo, it is also noted that some local residents at Tuen Mun expressed their concern that the stockpile of dusty sand material on the barges should be covered with impervious sheeting to avoid causing fugitive dust emissions of sand and dust. Subsequently, TM DC followed up their complaint with Highways Department on 17 October 2014. The follow up complaint concerning water quality impact at sea area off Tuen Mun area was referred to the project team to response on 17 October 2014. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.</p>	Closed	27
	9 March 2015	As informed by the Contractor on 09 March 2015, there is an air quality	Closed	28

		complaint received on 06 March 2015. The complainant Mr. Fung requested for follow-up actions to be taken by relevant departments in response to his Complaint about sand and dust emission from 4-5 uncovered sand barges parking near the coastline of Tuen Mun, the complainant concerns about the health problems to residents as the sand is blown to their apartments. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.		
	15 April 2015	Environmental Protection Department (EPD) referred a noise complaint to this project on 10 April 2015 and ENPO forwarded the noise complaint to Environmental Team on 15 April 2015. The complaint involves a complainant, who is resident of Caribbean Coast, Tung Chung and he was disturbed by noise from construction activities of the HZMB Project during weekends and holidays. After investigation, there is no adequate information to conclude the observed noise nuisance is related to this Contract.	Closed	29
	22 May 2015	A complainant contacted EPD through EPD's hotline on 21 May 2015 and complained that noise was generated from construction works when construction of artificial island at Lantau Island area was carried out overnight and dark smoke was emitted by construction plant. EPD's	Closed	30

		<p>staff has contacted complainant and came to know that the dark smoke referring to could also be construction dust emitting from the filling work at the HKBCF. This complaint was subsequently referred by EPD to HZMB project team on 22 May 2015 to follow-up. Investigation was conducted and with referred to the available information; it is unable to determine whether the night time noise and dark smoke complaint is related to this Contract.</p>		
	3 July 2015	<p>As informed by the Contractor, 3 July 2015, an air quality complaint has been received on 11 June 2015 by HyD via complaint hotline 1823. The complainant complained that sand and dust pollution near Richland Garden, 138 Wu Chui Road, Tuen Mun, caused by sand delivery barges. After investigation, there is no adequate information to conclude the observed impact is related to this Contract.</p>	Closed	31
	13 July 2015	<p>As informed by Engineer Representative of this Contract on 13 July 2015, EPD referred a noise related complaint to this Contract on 13 July 2015. The complainant complained noise came from BCF site near HK Skycity Marriott Hotel during nighttime period of the past 10 days which involves excavation with a grab dredger, transfer of excavated material using a derrick barge and a tug boat, and backfilling with a pelican barge. Based on EPD's</p>	Closed	32



		record, the above activities are covered by CNP no. GW-RS0503-15. After investigation, the construction activities carried out during restricted hour between 1- 13 July 2015 were considered complied with CNP conditions (no. GW-RS0503-15).		
	30 July 2015	As informed by the Contractor on 30 July 2015, Home Affairs Department referred a complaint to project team of this Contract on 29 July 2015. The complaint involved Mr. Chan and Mr. Tang, Resident Representatives of Tong Fuk Village who complained significant sand loss of Tong Fuk Beach, particularly after typhoon when the beach was hit by strong waves; this exposed the rocks at the beach. The complainant enquired whether the sand loss is related to sand extraction for construction of airport and reclamation works of HZMB artificial island. After investigation, the complaint is considered as non-project related.	Closed	33
	23 October 2015	A complainant who lives at 1 Sky City Road East, Hong Kong SkyCity Marriott Hotel, Hong Kong International Airport, Lantau, Hong Kong complained to EPD's hotline on 23 October 2015 that loud noise were generated by HZMB artificial island construction site of China Harbour Engineering Company Ltd adjacent to the premises approximately between 10pm to 12am, during recent weekdays and	Closed	34

		<p>Saturday. In addition, loud noise and dark smoke were noted on the construction site of HZMB artificial island during Sunday and public holiday. The complainant questioned whether the Contractor was allowed to conduct construction work during Sunday and public holiday.</p> <p>The complaint was referred by EPD to the project team of Contract No. HY/2010/02 to follow up on 23 October 2015.</p> <p>After investigation, with referred to the available information, it is unable to determine whether the night time noise complaint and the concerned dark smoke are related to this Contract.</p>		
	<p>4 December 2015</p>	<p>A water quality complaint was referred to the ENPO at 10:22 am on the 4 December 2015 by EPD; ENPO referred this complaint to this Contract on the same day. With referred to the information provided by ENPO, EPD has contacted the complainant, and obtained the additional information from the complainant and it is suspected that the incident happened in the afternoon on 28 November 2015. A video was provided by the complainant who shows that turbid water behind a barge, the incident is suspected to be happened in the afternoon on 28 November 2015. After investigation, it is considered</p>	<p>Closed</p>	<p>35</p>

		not related to this Contract.		
	16 July 2016	A complaint about marine litter near Tuen Mun Ferry Pier was received on 16 Jul 2016, 9:19am. The complainant complained that pollution was observed at Tuen Mun Ferry Pier and queried whether the pollutant came from the construction sites of the Lantau area or bridge construction. After investigation, it is considered the marine litter floating near the Tuen Mun Ferry Pier is unlikely to be related to this Contract.	Closed	36
	22 September 2016	A water quality complaint was referred to the ENPO at 10:50 am on the 22 September 2016 by EPD; ENPO referred this complaint to this Contract on the same day. With referred to a complaint lodged by a member of the public about whitish effluent discharged from two flattop barges which departs from Tuen Mun on a daily basis. The complainant stated that the whitish effluent was discharged from these barges at sea area outside cellular structure cell no. C054 – C055 between 18:00 to 04:00, causing pollution, after investigation, there is no adequate information to conclude the complaint is related to this Contract.	Closed	37
	10 November 2016	An environmental complaint was referred to the ENPO at 14:49 on the 9 November 2016 by EPD; ENPO referred this complaint to this Contract on 10 November 2016. With referred to the information provided. With referred to description provided	Closed	38

		by the complainant, with reference to a photo taken at 09:26 am on 7 November 2016 on a footbridge near Tung Chung Pier, muddy water was observed when a construction vessel 『長盛 308』 travelled from inside the works area of HZMB project - Scenic Hill section to Tung Chung Pier. After investigation, there is no adequate information to conclude the complaint is related to this Contract.		
	1 December 2016	IEC/ENPO received an environmental complaint referred by EPD on 1 December 2016. The complaint content provided by EPD is extracted as follows. The Complainant complained that there is a large quantity of slurry at East Coast Road, and suspected that the source of the slurry is a construction site of CHEC next to a hotel. After investigation, there is no adequate information to conclude the complaint is related to this Contract.	Closed	39
	2 December 2016	RSS received a complaint received an environmental complaint referred Government's hotline (1823) on 2 December 2016. The Complainant complained that, "the whole stretch of East Coast Road & Tung Fai Road is truly disgusting. The stone debris big and small and the mud is a nuisance to those who use the road every day. When dry there is a lot of dust and when it rains or when the road washing trucks are out it becomes a muddy mess. Cars and pedestrians are covered in dust or	Closed	40

		<p>mud, cars are hit by stones is a daily hazard. Washing of construction vehicles is inadequate as the sand and soil is carried out onto the roads. Oversight of road conditions is not carried out by the Airport Authority. An alternative route should be created for the large number of construction vehicles as they drive fast.” After investigation, there is no adequate information to conclude the complaint is related to this Contract.</p>		
	<p>14 December 2016</p>	<p>A noise complaint was referred to the ENPO at 8:56 am on the 14 December 2016 by EPD; ENPO referred this complaint to this Contract on the same day. With referred to a complaint lodged by a member of the public about hammering noise was generated from manual construction activities at unidentified source near the HZMB construction sites at night time. The complainant stated that the noise nuisance lasted for a month. After reviewing the information provided by the complainant and checking with the Contractor, the only construction activity conducted at night time in the past month was transportation of filling material for this Contact HY/2010/02, neither hammering activities nor manual construction activities which might cause noise nuisance were conducted in the past month, as such, it is considered that the complaint is not related to this Contract.</p>	<p>Closed</p>	<p>41</p>

	28 December 2016	<p>A complaint was received on 28 December 2016, and the complainant complained that construction site of artificial island of Hong Kong- Zhuhai-Macao Bridge has severer mosquito infestation and furthermore, the complainant complained the poor hygiene and insufficient washing facility on works are of CHEC, and requested follow-up actions. After investigation, there is no adequate information to conclude the complaint is related to this Contract.</p>	Closed	42
	9 January 2017	<p>With referred to the information provided by IEC/ENPO on 9 January 2017, EPD has received and referred a complaint received from a bus operator at the Hong Kong International Airport to the Project team. The complainant expressed their concerns on the public health and road cleanliness within Chek Lap Kok area resulting from the muds, dusts and slurry spills which is brought away from the construction sites of HK-Zhuhai-Macao Bridge (HZMB) Project by tippers and lorries. The complainant complained that the road cleanliness of East Coast Road &amp; Tung Fai Road, Airport Road Interchange and Sky City Interchange becomes extreme worse since the beginning of this year. The external bodies of their buses &amp; vehicles are seriously stained by the heavy dusts and muds produced from the construction sites onto the</p>	Closed	43

		<p>public road. Strong complaints from passengers and management have been increased rapidly as it is affecting the health of passengers and their company image every day. The complainant said that that had raised complaints to the Airport Authority Hong Kong (AAHK) since March 2016. Although the construction contractors had used water trucks to flush washing the road surface after pushing by AAHK, the improvement is minimal and the muddy water is splashed onto the body of each across vehicle making the situation much worst. The Complainant would like to request for assistance from the Authority on this matter to liaise with the China State Construction Ltd. and China Harbour Engineering Company Ltd. not to affect the pedestrians and road users as soon as possible. After investigation, there is no adequate information to conclude the complaint is related to this Contract.</p>		
	17 January 2017	<p>A complaint forwarded to us by RSS on 17 January 2017; the complainant complained that sewage was pumped to the sea causing pollution at dusk (approximately 5pm to 8pm) at east side of Tung Chung Artificial Island at Dragages's construction site. After investigation, there is no adequate information to conclude the complaint is related to this Contract.</p>	Closed	44
	27 March 2017	<p>An environmental complaint was received by EPD on 27 March 2017,</p>	Closed	45

		<p>and the complainant complained that a very loud sound was intermittently heard by the Complainant since 10pm on 26 March and such loud sound was heard by the complainant until midnight. It was suspected that the sound came from the Hong Kong-Zhuhai-Macao Bridge (HZMB) construction works near the artificial island. In addition, a large area of pollution was observed on sea in the morning of the day the complainant made the complaint. It was suspected that was caused by the HZMB construction works. After investigation, there is no adequate information to conclude the complaint is related to this Contract.</p>		
	17 April 2017	<p>One environmental complaint was received on 17 April 2017, the organization which made the complaint, Green Sense, complained that “muddy water was observed at area surrounding the Hong Kong-Zhuhai-Macao Bridge (HZMB) artificial island, it is suspected that there were overflow muddy water from the artificial island. Tam Hoi-pong of Green Sense stated that there should not be too much muddy water if reclamation was conducted according to the EIA report. He suspected that there are problems of reclamation works, silt curtain have not effectively screen out the mud and sand, the construction works is not ideal and unable to ensure water quality. After investigation, there is no</p>	Closed	46



		adequate information to conclude the complaint is related to this Contract.		
	27 October 2017	A complaint forwarded to us by ENPO on 27 October 2017; the complainant complained that yellowish muddy water was discharged into the sea from construction site location C3 of the artificial island of the Hong Kong-Zhuhai-Macao Bridge and this has been persist for one week. After investigation, there is no adequate information to conclude the complaint is related to this Contract.	Closed	47
	23 November 2017	IEC/ENPO received a complaint on 23 November 2017 which was referred by EPD, and subsequently referred to ET for investigation. The complainant complained that, on Hong Kong- Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Artificial Island, due to watering was not provided to all areas, large amount of fugitive dust was generated, especially at the toll kiosks. After investigation, there is no adequate information to conclude the complaint is related to this Contract.	Closed	48
<b>Notification of summons</b>	29 April 2013	As informed by the Contractor on 9 May 13, one summons was received on 29 April 13 regarding the suspected violation case of Noise Control Ordinance (Cap.400) at Works Area WA4 on 31 Oct 2012.	-	1
	March 2014	In relation to the notification of summons received March 2014 due to works carried out on 6 October 13 contrary to conditions of NCO,	-	2

		Cap.400.		
<b>Successful Prosecutions</b>	21 May 2013	As informed by the Contractor in August 13, the Contractor was subsequently prosecuted on 21 May 2013 for breaching Cap.400 Noise Control Ordinance.	-	1
	28 April 2014	In relation to the notification of summons received March 2014 due to works carried out on 6 October 13 contrary to conditions of NCO, Cap.400. The Contractor pledged guilty to the charge during the court appearance on 28 April 2014.	-	2

## Appendix K – Event Action Plan

### Event / Action Plan for Air Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
<b>Action Level</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings;</li> <li>5. Increase monitoring frequency to daily;</li> <li>6. Discuss with IEC and Contractor on remedial actions required;</li> <li>7. If exceedance continues, arrange meeting with IEC and ER;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial to ER within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>

Event	Action			
	ET Leader	IEC	ER	Contractor
<b>Limit Level</b>				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform ER, Contractor and EPD;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal if appropriate.</li> </ol>

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

Event / Action Plan for Construction Noise

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

Event / Action Plan for Water Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Repeat <i>in situ</i> measurement to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, contractor and ER;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER and Contractor;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Repeat measurement on next day of exceedance to confirm findings.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working methods;</li> <li>2. Discuss with ET and Contractor on possible remedial actions;</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>4. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-compliance in writing;</li> <li>2. Discuss with IEC on the proposed mitigation measures;</li> <li>3. Make agreement on mitigation measures to be implemented;</li> <li>4. Ensure mitigation measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment and consider changes of working methods;</li> <li>4. Discuss with ET and IEC on possible remedial actions and propose mitigation measures to IEC and ER;</li> <li>5. Implement the agreed mitigation measures.</li> <li>6. Amend working methods if appropriate.</li> </ol>

Event	Action			
	ET Leader	IEC	ER	Contractor
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat <i>in situ</i> measurement to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, Contractor and ER;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER and Contractor;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Action level;</li> <li>8. Repeat measurement on next day of exceedance to confirm findings.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working method;</li> <li>2. Discuss with ET and Contractor on possible remedial actions;</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly;</li> <li>4. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-compliance in writing;</li> <li>2. Discuss with IEC on the proposed mitigation measures;</li> <li>3. Make agreement on mitigation measures to be implemented;</li> <li>4. Ensure mitigation measures are properly implemented;</li> <li>5. Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the Engineer and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment and consider changes of working methods;</li> <li>4. Discuss with ET and IEC on possible remedial actions and propose mitigation measures to IEC and ER within 3 working days of notification;</li> <li>5. Implement the agreed mitigation measures;</li> <li>6. Amend working methods if appropriate.</li> </ol>



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

Event	Action			
	ET Leader	IEC	ER	Contractor
Limit level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat <i>in-situ</i> measurement to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform IEC, contractor, ER and EPD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>5. Discuss mitigation measures with IEC, ER and Contractor;</li> <li>6. Ensure mitigation measures are implemented;</li> <li>7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working method;</li> <li>2. Discuss with ET and Contractor on possible remedial actions;</li> <li>3. Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the ER accordingly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Discuss with IEC, ET and Contractor on the proposed mitigation measures;</li> <li>3. Request Contractor to critically review the working methods;</li> <li>4. Make agreement on the mitigation measures to be implemented;</li> <li>5. Ensure mitigation measures are properly implemented;</li> <li>6. Assess the effectiveness of the implemented mitigation measures;</li> <li>7. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Rectify unacceptable practice;</li> <li>4. Check all plant and equipment and consider changes of working methods;</li> <li>5. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER;</li> <li>6. Implement the agreed mitigation measures;</li> <li>7. Resubmit proposals of mitigation measures if problem still not under control;</li> <li>8. As directed by the Engineer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.</li> </ol>

Event / Action Plan for Dolphin Monitoring

Event	ET Leader	IEC	ER / SOR	Contractor
Action Level	<ol style="list-style-type: none"> <li>1. Repeat statistical data analysis to confirm findings;</li> <li>2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&amp;A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences;</li> <li>3. Identify source(s) of impact;</li> <li>4. Inform the IEC, ER/SOR and Contractor;</li> <li>5. Check monitoring data.</li> <li>6. Review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor;</li> <li>2. Discuss monitoring results and finding with the ET and the Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss monitoring with the IEC and any other measures proposed by the ET;</li> <li>2. If ER/SOR is satisfied with the proposal of any other measures, ER/SOR to signify the agreement in writing on the measures to be implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER/SOR and confirm notification of the non-compliance in writing;</li> <li>2. Discuss with the ET and the IEC and propose measures to the IEC and the ER/SOR;</li> <li>3. Implement the agreed measures.</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Repeat statistical data analysis to confirm findings;</li> <li>2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&amp;A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences;</li> <li>3. Identify source(s) of impact;</li> <li>4. Inform the IEC, ER/SOR and Contractor of findings;</li> <li>5. Check monitoring data;</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor;</li> <li>2. Discuss monitoring results and findings with the ET and the Contractor;</li> <li>3. Attend the meeting to discuss with ET, ER/SOR and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures.</li> <li>4. Review proposals for additional monitoring and any other mitigation measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures.</li> <li>2. If ER/SOR is satisfied with the proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, ER/SOR to signify the agreement in writing on such</li> </ol>	<ol style="list-style-type: none"> <li>1. Inform the ER/SOR and confirm notification of the non-compliance in writing;</li> <li>2. Attend the meeting to discuss with ET, IEC and ER/SOR the necessity of additional dolphin monitoring and any other potential mitigation measures.</li> <li>3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary.</li> <li>4. Implement the agreed additional dolphin monitoring</li> </ol>

	<p>6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary.</p> <p>7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with IEC, ER/SOR and Contractor the necessity of additional dolphin monitoring and/or any other potential mitigation measures (e.g., consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activity etc.) and submit to IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary.</p>	<p>submitted by ET and Contractor and advise ER/SOR of the results and findings accordingly.</p> <p>5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise ER/SOR the results and findings accordingly.</p>	<p>proposals and any other mitigation measures.</p> <p>3. Supervise the implementation of additional monitoring and/or any other mitigation measures.</p>	<p>and/or any other mitigation measures.</p>
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