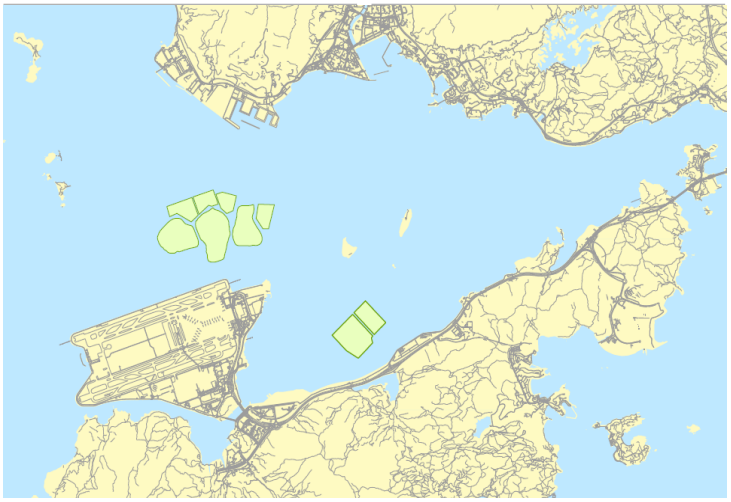

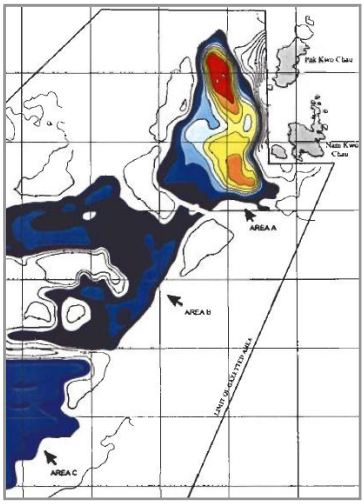

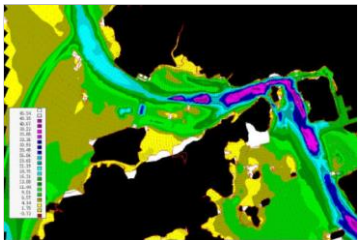

CEDD 土木工程拓展署
Civil Engineering and Development Department

Environmental Monitoring and Audit for Contaminated Mud Pits to the South of The Brothers and at East Sha Chau (2012-2017) – Investigation

Agreement No. CE 23/2012(EP)

38th Monthly Progress Report for Contaminated Mud Pits to the South of The Brothers and at East Sha Chau – October 2015

Draft (Revision 0)

16 November 2015

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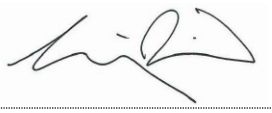
Client:	Project No:
Civil Engineering and Development Department (CEDD)	0175086
Summary: This document presents the 38th monthly progress report for Contaminated Mud Pits at the South of The Brothers and at East Sha Chau.	Date: 16 November 2015 Approved by:  Craig A. Reid *Partner*

Revision	Description	By	Checked	Approved	Date
v0	38th Monthly Progress Report for ESC CMPs and SB CMPs	EL	JT	CAR	16/11/15

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CONTENTS

ANNEXES

Agreement No. CE 23/2012 (EP)
Environmental Monitoring and Audit
for Contaminated Mud Pits to the South of The Brothers and at East Sha Chau (2012-2017) - Investigation

38TH MONTHLY PROGRESS REPORT FOR OCTOBER 2015

1.1 BACKGROUND

1.1.1 Since early 1990s, contaminated sediment (1) arising from various construction works (e.g. dredging and reclamation projects) in Hong Kong has been disposed of at a series of seabed pits at East of Sha Chau (ESC). In late 2008, a review indicated that the existing and planned facilities at ESC would not be able to meet the disposal demand after 2012. In order to meet this demand, the Hong Kong Special Administrative Region Government (HKSARG) decided to implement a new contained aquatic disposal (CAD) (2) facility at the South of The Brothers (SB CMPs) which had been under consideration for a number of years.

1.1.2 The environmental acceptability of the construction and operation of the Project had been confirmed by findings of the associated Environmental Impact Assessment (EIA) study completed in 2005 under *Agreement No. CE 12/2002(EP)* (3). The Director of Environmental Protection (DEP) approved this EIA report under the *Environmental Impact Assessment Ordinance* (*Cap. 499*) (*EIAO*) in September 2005 (*EIA Register No.: AEIAR-089/2005*).

1.1.3 In accordance with the EIA recommendation, prior to commencement of construction works for the SB CMPs, the Civil Engineering and Development Department (CEDD) undertook a detailed review and update of the EIA findings for the SB site (4). Findings of the EIA review undertaken in 2009/ 2010 confirmed that the construction and operation of the SB site had been predicted to be environmentally acceptable.

(1) According to the Management Framework of Dredged/ Excavated Sediment of ETWB TC(W) No. 34/2002, contaminated sediment in general shall mean those sediment requiring Type 2 – Confined Marine Disposal as determined according to this TC(W).

(2) CAD options may involve use of excavated borrow pits, or may involve purpose-built excavated pits. CAD sites are those which involve filling a seabed pit with contaminated mud and capping it with uncontaminated material such that the original seabed level is restored and the contaminated material is isolated from the surrounding marine environment.7

(3) Detailed Site Selection Study for a Proposed Contaminated Mud Disposal Facility within the Airport East/ East of Sha Chau Area (Agreement No. CE 12/2002(EP))

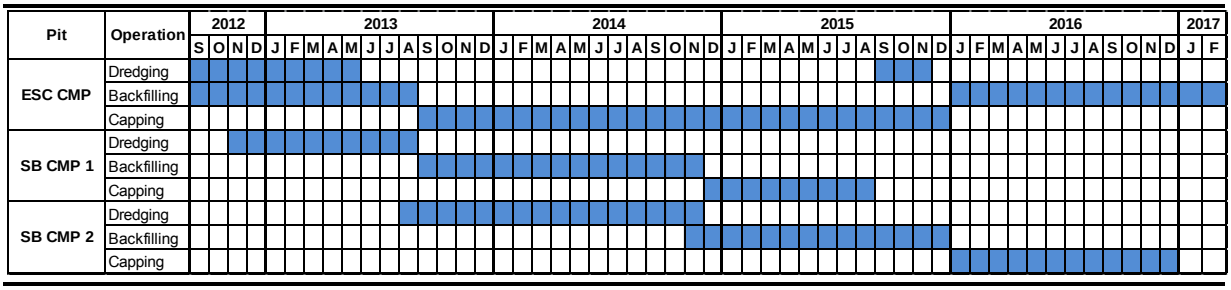
(4) Under the CEDD study *Contaminated Sediment Disposal Facility to the South of The Brothers (Agreement No. FM 2/2009)*

1.1.4 *Environmental Permits (EPs)* (*EP-312/2008/A* and *EP-427/2011A*) were issued by the Environmental Protection Department (EPD) to the CEDD, the Permit Holder, on 28 November 2008 for ESC CMP V and on 23 December 2011 for SB CMPs, respectively. Under the requirements of the *EPs*, an Environmental Monitoring and Audit (EM&A) programme as set out in the EM&A Manuals (1) (2) is required to be implemented for the CMPs.

1.1.5 The present EM&A programme under *Agreement No. CE 23/2012 (EP)* covers the dredging, disposal and capping operations of the SB CMPs as well as ESC CMPs. Detailed works schedule for both CMPs is shown in *Figure 1.1*. In October 2015, the following works were being undertaken at the CMPs:

- Dredging operation at ESC CMP Vd;
- Capping operations at ESC CMP Va; and
- Disposal of contaminated mud at SB CMP 2.

Figure 1.1 Works Schedule for ESC CMPs and SB CMPs



1.2 REPORTING PERIOD

1.2.1 This *38th Monthly Progress Report* covers the EM&A activities for the reporting month of October 2015.

1.3 DETAILS OF SAMPLING AND LABORATORY TESTING ACTIVITIES

1.3.1 The following monitoring activities have been undertaken for ESC CMPs in October 2015:

- *Impact Water Quality Monitoring during Dredging Operations of ESC CMPs* was undertaken on 2, 5, 7, 9, 12, 14, 16, 19, 21, 23, 26, 28 and 30 October 2015.

(1) ERM (2012) Environmental Monitoring and Audit (EM&A) Manual. Final First Review. Environmental Monitoring and Audit for Contaminated Mud Pits to the South of the Brothers and at East Sha Chau (2012-2017) – Investigation. Agreement No. CE 23/2012(EP). Submitted to EPD in November 2012.

(2) ERM (2010) Environmental Monitoring and Audit (EM&A) Manual. Final Second Review. Environmental Monitoring and Audit for Contaminated Mud Pit at Sha Chau (2009-2013) – Investigation. Agreement No. CE 4/2009(EP). Submitted to EPD in November 2010.

1.3.2 The following monitoring activities have been undertaken for SB CMPs in October 2015:

- *Water Column Profiling of CMP 2* was undertaken on 13 October 2015;
- *Pit Specific Sediment Chemistry of CMP 2* was undertaken on 15 October 2015; and
- *Routine Water Quality Monitoring of CMP 2* was undertaken on 16 October 2015.

1.4 DETAILS OF OUTSTANDING SAMPLING AND/OR ANALYSIS

1.4.1 No outstanding sampling remained for October 2015.

1.4.2 A summary of field activities conducted are presented in *Annex A*. The following laboratory analyses were still in progress during the preparation of this monthly report and hence are not presented in this monthly report:

- Laboratory analyses of sediment samples collected for *Pit Specific Sediment Chemistry of SB CMP 2* in October 2015.

1.5 BRIEF DISCUSSION OF THE MONITORING RESULTS FOR ESC CMPS

1.5.1 Brief discussion of the monitoring results of the *Impact Water Quality Monitoring during Dredging Operations of ESC CMP Vd* conducted in October 2015 is presented below.

1.5.2 ***Impact Water Quality Monitoring during Dredging Operations of ESC CMP Vd – 2 to 31 October 2015***

1.5.3 *Impact Water Quality Monitoring during Dredging Operations of ESC CMP Vd* was conducted three times per week in October 2015. On each survey day, monitoring was conducted during both mid-ebb and mid-flood tides at two Reference (Upstream) stations and five Impact (Downstream) stations of the dredging operations at ESC CMP Vd. Monitoring was also conducted at one Sensitive Receiver Station situated in Ma Wan. A total of eight (8) stations were monitored and locations of the sampling stations are shown in *Figure 1.2*.

1.5.4 Monitoring results are presented in *Table B1* of *Annex B*. Daily dredging volume in October 2015 is reported in *Annex C*. It should be noted that dredging activities were not carried out on 3, 4, 16 – 20 and 23 – 31 October 2015 during the reporting period. Levels of Dissolved Oxygen (DO), Turbidity and Suspended Solid (SS) generally complied with the Action and Limit Levels (see *Table B2* of *Annex B* for details) set in the *Baseline Monitoring Report* (1), except for the following occasion of exceedances discussed in *Table 1.1* below.

1.5.5 As presented in *Table 1.1*, the results indicated that the dredging operations at ESC CMP Vd did not appear to cause any unacceptable deterioration in water quality during this reporting period. Therefore, no further action, except for those recommended in the Environmental Permit (*EP-312/2008/A*), are considered necessary for the dredging operations.

(1) ERM (2009). Draft Second Review of the EM&A Manual. Under Agreement No. CE 4/2009 (EP) EM&A for Contaminated Mud Pit at Sha Chau (2009-2013) – Investigation

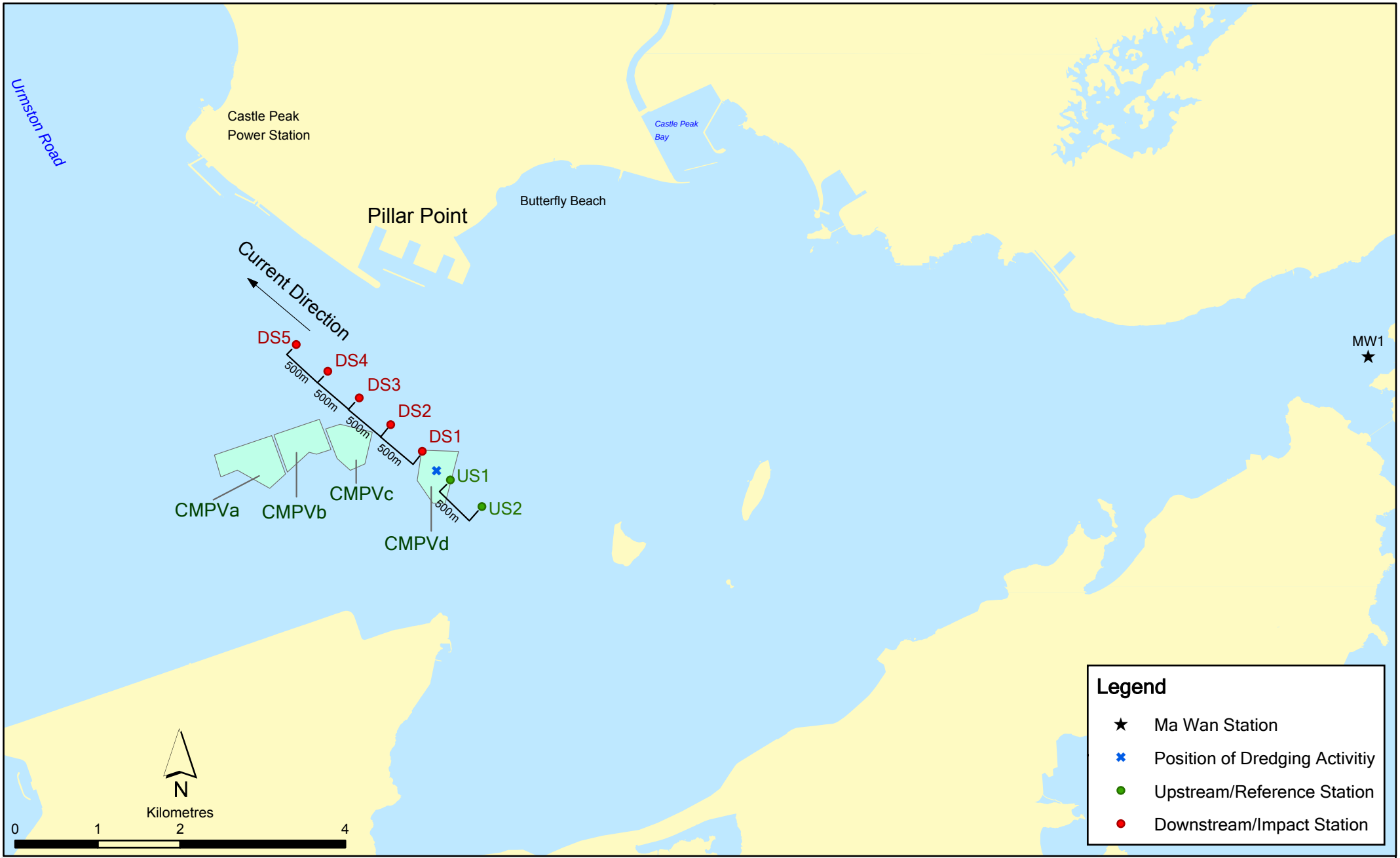


Figure 1.2

Indicative Dredging Impact Sampling Stations for CMPVd

Note: The locations of sampling stations will be determined on site based on current direction and position of dredging activities.

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Date: 28/11/2012

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Table 1.1 Details of Exceedances Recorded for Impact Water Quality Monitoring during Dredging Operations of ESC CMP Vd between 2 and 30 October 2015

Date	Tide	Parameter	Station	Type	Remarks
2 October 2015	Mid-Flood	Turbidity	DS2	Limit	The exceedance was not considered as indicating any unacceptable impacts from the dredging operations to Water Sensitive Receivers (WSRs) outside the works area because Stations DS2 are located further away from the works area of CMP Vd when compared to station DS1 at which the levels of Turbidity did not exceed the Action and Limit Levels during the same tidal period.
26 October 2015	Mid-Flood	Turbidity	DS2	Limit	These exceedances were not considered as indicating any unacceptable impacts from the dredging operations to WSRs outside the works area because dredging activities were not carried out during the period of 3, 4, 16 – 20 and 23 – 31 October 2015.
28 October 2015	Mid-Ebb	Turbidity	DS3	Limit	
28 October 2015	Mid-Ebb	Turbidity	DS5	Limit	
30 October 2015	Mid-Flood	Turbidity	DS2	Action	
30 October 2015	Mid-Flood	SS	DS1	Action	

1.6 BRIEF DISCUSSION OF THE MONITORING RESULTS FOR SB CMPS

1.6.1 Brief discussion of the monitoring results of the following activities for SB CMPs is presented in this *38th Monthly Progress Report*:

- *Pit Specific Sediment Chemistry* of CMP 2 in September 2015;
- *Cumulative Impact Sediment Chemistry* of CMP 2 in August 2015;
- *Routine Water Quality Monitoring* of CMP 2 in October 2015; and
- *Water Column Profiling* of CMP 2 in October 2015.

1.6.2 ***Pit Specific Sediment Chemistry of CMP 2 – September 2015***

1.6.3 Monitoring locations for *Pit Specific Sediment Chemistry for CMP 2* are shown in *Figure 1.3*. A total of six (6) monitoring stations were sampled in September 2015.

1.6.4 The concentrations of most inorganic contaminants (Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel and Zinc) were lower than the Lower Chemical Exceedance Level (LCEL) at all stations, except Copper and Silver (*Figures 1* and *2* of *Annex D*). Copper exceeded the LCEL at Active Pit stations SB-NPBA and SB-NPBB (*Figure 1* of *Annex D*) while Silver exceeded the Upper Chemical Exceedance Level (UCEL) and LCEL and at Active Pit station SB-NPBA and SB-NPBB, respectively (*Figure 2* of *Annex D*).

1.6.5 Higher Copper and Silver concentrations were recorded within the Active Pit stations only which were receiving contaminated mud during the reporting month. Therefore, there is no evidence indicating any dispersal of contaminants from the active pit due to the disposal activities.

1.6.6 For organic contaminants, the concentrations of Total Organic Carbon (TOC) were similar at all stations, except lower concentrations were recorded in Pit Edge station SB-NEBB and Active Pit station SB-NPBB (*Figure 3* of *Annex D*). Tributyltin (TBT) concentrations were observed to be higher at Active Pit stations SB-NPBA and SB-NPBB (*Figure 4* of *Annex D*). Low and High Molecular Weight Polycyclic Aromatic Hydrocarbons (PAHs), Total Polychlorinated Biphenyls (PCBs), 4,4'-dichlorodiphenyldichloroethylene (DDE) and Total dichlorodiphenyltrichloroethane (DDT) concentrations were below the limit of reporting at most stations, except High MW PAHs at Active Pit stations SB-NPBB (*Figure 5* of *Annex D*).

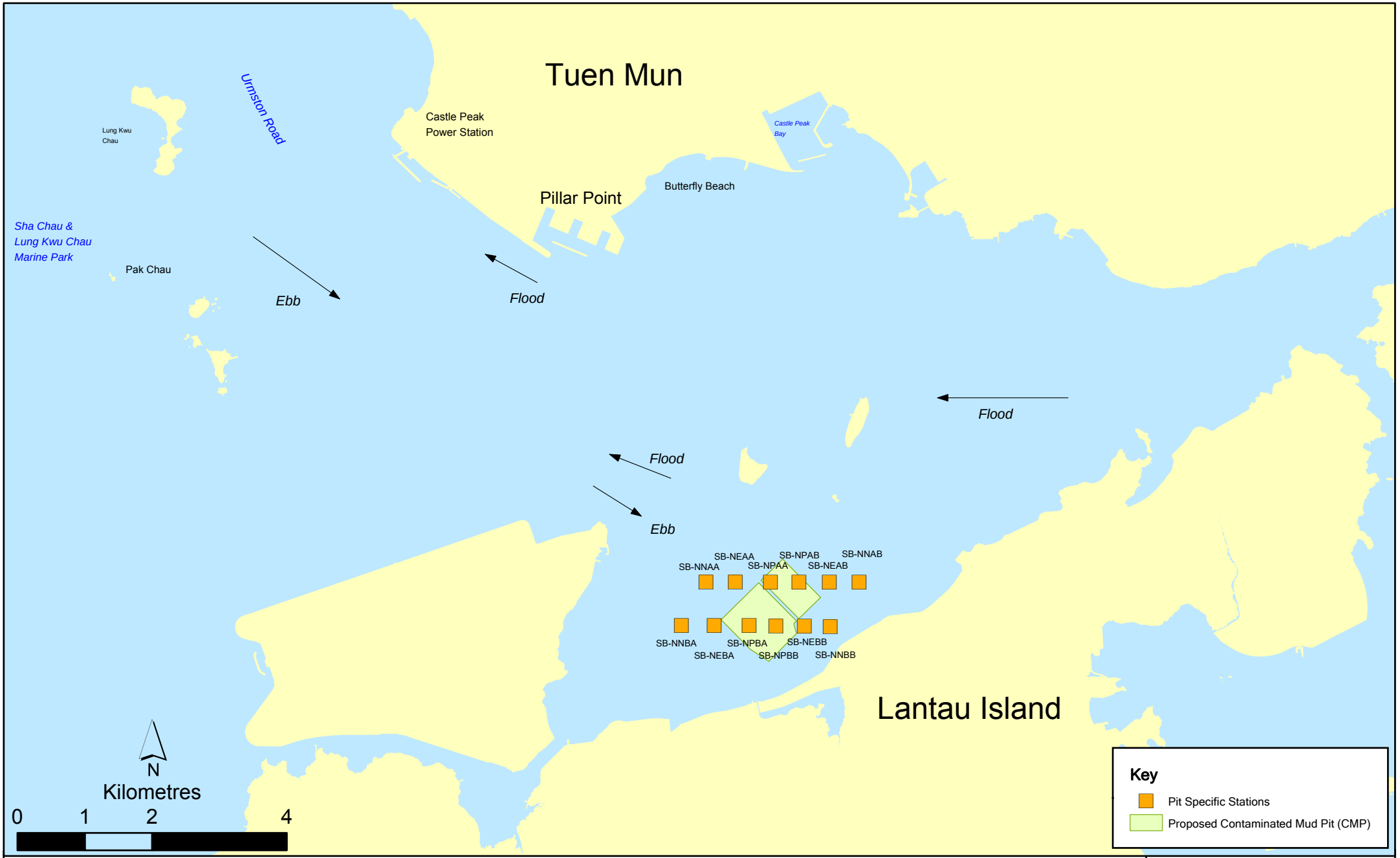

Figure 1.3

Pit Specific Sediment Quality Monitoring Stations for South Brothers Facility

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1.6.7 Overall, there is no evidence indicating any unacceptable environmental impacts to sediment quality as a result of the contaminated mud disposal operations at CMP 2 in September 2015. Statistical analysis will be undertaken and presented in the quarterly report to investigate whether there are any unacceptable impacts in the area caused by the contaminated mud disposal.

1.6.8 ***Cumulative Impact Sediment Chemistry of SB CMPs – August 2015***

1.6.9 Monitoring locations for *Cumulative Impact Sediment Chemistry for SB CMPs* are shown in *Figure 1.4*. A total of eleven (11) monitoring stations were sampled in August 2015.

1.6.10 Analyses of results for the *Cumulative Impact Sediment Chemistry Monitoring* indicated that the concentrations of all inorganic contaminants were generally below the LCEL in August 2015, except Arsenic at Tai Ho Bay Station 2 (THB2) (*Figures 6* and *7* of *Annex D*). It should be noted that the average concentration of Arsenic in the Earth's crust is generally ~2mg/kg, significantly higher Arsenic concentrations (median = 14 mg/kg) have been recorded in Hong Kong's onshore sediments (1). It is presumed that the natural concentrations of Arsenic are similar in onshore and offshore sediments (2), and relatively high Arsenic levels may thus occur throughout Hong Kong. Therefore, the LCEL exceedances of Arsenic are unlikely to be caused by the disposal operations at CMP 2 but rather as a result of naturally occurring deposits.

1.6.11 For organic contaminants, concentrations of TOC at Near-field stations SB-RNA and SB-RNB and Mid-field stations SB-RMA and SB-RMB were recorded to be lower than other stations (*Figure 8* of *Annex D*). Concentrations of TBTs were recorded to be higher at Ma Wan station (*Figure 9* of *Annex D*). Total DDT, 4,4'-DDE, Total PCBs as well as Low and High Molecular Weight PAHs were recorded below the limit of reporting at all stations.

1.6.12 Overall, there is no evidence indicating any unacceptable environmental impacts to sediment quality as a result of the contaminated mud disposal operations at CMP 2 in August 2015. Statistical analysis will be undertaken and presented in the quarterly report to investigate whether there are any unacceptable impacts in the area caused by the contaminated mud disposal.

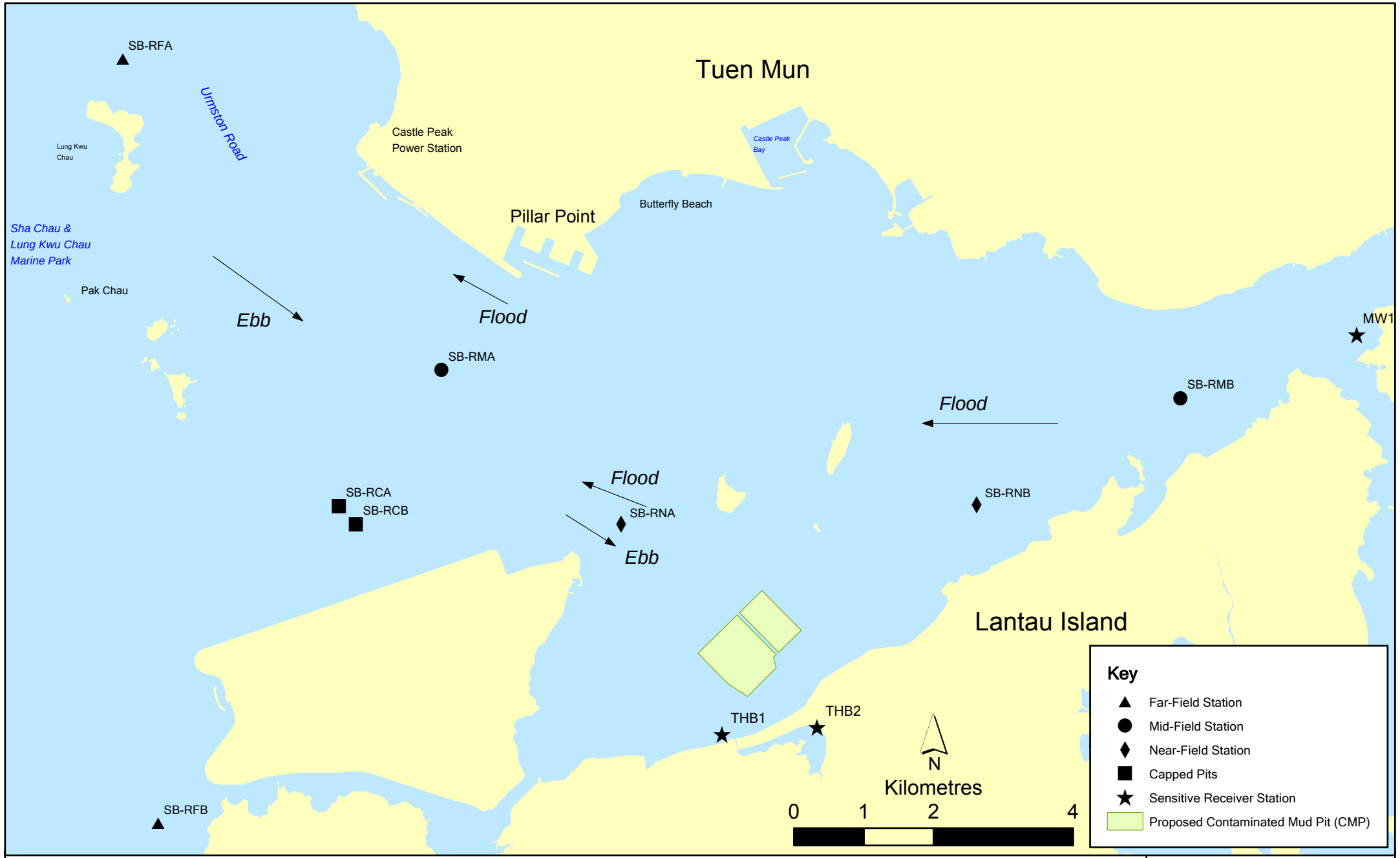

Figure 1.4

Cumulative Impacts Sediment Quality Monitoring Stations for South Brothers Facility

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1.6.13 ***Routine Water Quality Monitoring of SB CMP 2 – October 2015***

1.6.14 The monitoring results for the Routine Water Quality Monitoring conducted in October 2015 in the wet season have been assessed for compliance with the Water Quality Objectives (WQOs) set by Environmental Protection Department (EPD). This consists of a review of the EPD routine water quality monitoring data for the wet season period (April to October) of 2004 - 2013 from stations in the Northwestern Water Control Zone (WCZ), where the CMPs are located (1). For Salinity, the averaged value obtained from the Reference stations was used for the basis as the WQO. Levels of DO and Turbidity were also assessed for compliance with the Action and Limit Levels (see *Table B3* of *Annex B* for details). The monitoring results are shown in *Figures 10-19* of *Annex D* and *Tables B4 and B5* of *Annex B*. A total of fourteen (14) monitoring stations were sampled in October 2015 as shown in *Figure 1.5*.

In-situ Measurements

1.6.15 Graphical presentation of the monitoring results (Temperature, DO, pH, Salinity and Turbidity) is shown in *Figures 10-15* of *Annex D*. Analyses of results for October 2015 indicated that the levels of pH, DO and Salinity complied with the WQOs at all stations (Impact, Intermediate, Reference and Water Sensitive Receiver stations) in October 2015 (*Figures 10 – 12, 14 of Annex D*).

1.6.16 The levels of DO and Turbidity complied with the Action and Limit Levels at all stations (*Table B4* of *Annex B; Figures 12* and 15 of *Annex D*).

1.6.17 Overall, *in-situ* measurement results of the *Routine Water Quality Monitoring* indicated that the disposal operation at CMP 2 did not appear to cause any unacceptable impacts in water quality in October 2015.

Laboratory Measurements

1.6.18 Laboratory analysis of October 2015 results indicated that concentrations of Arsenic, Cadmium, Chromium, Lead, Silver and Mercury were below their limit of reporting at all stations. Copper, Nickel and Zinc were detected in October 2015 samples and the concentrations were similar amongst stations (*Figure 16* of *Annex D*). Results of laboratory analysis were shown in *Table B5* of *Annex B.*

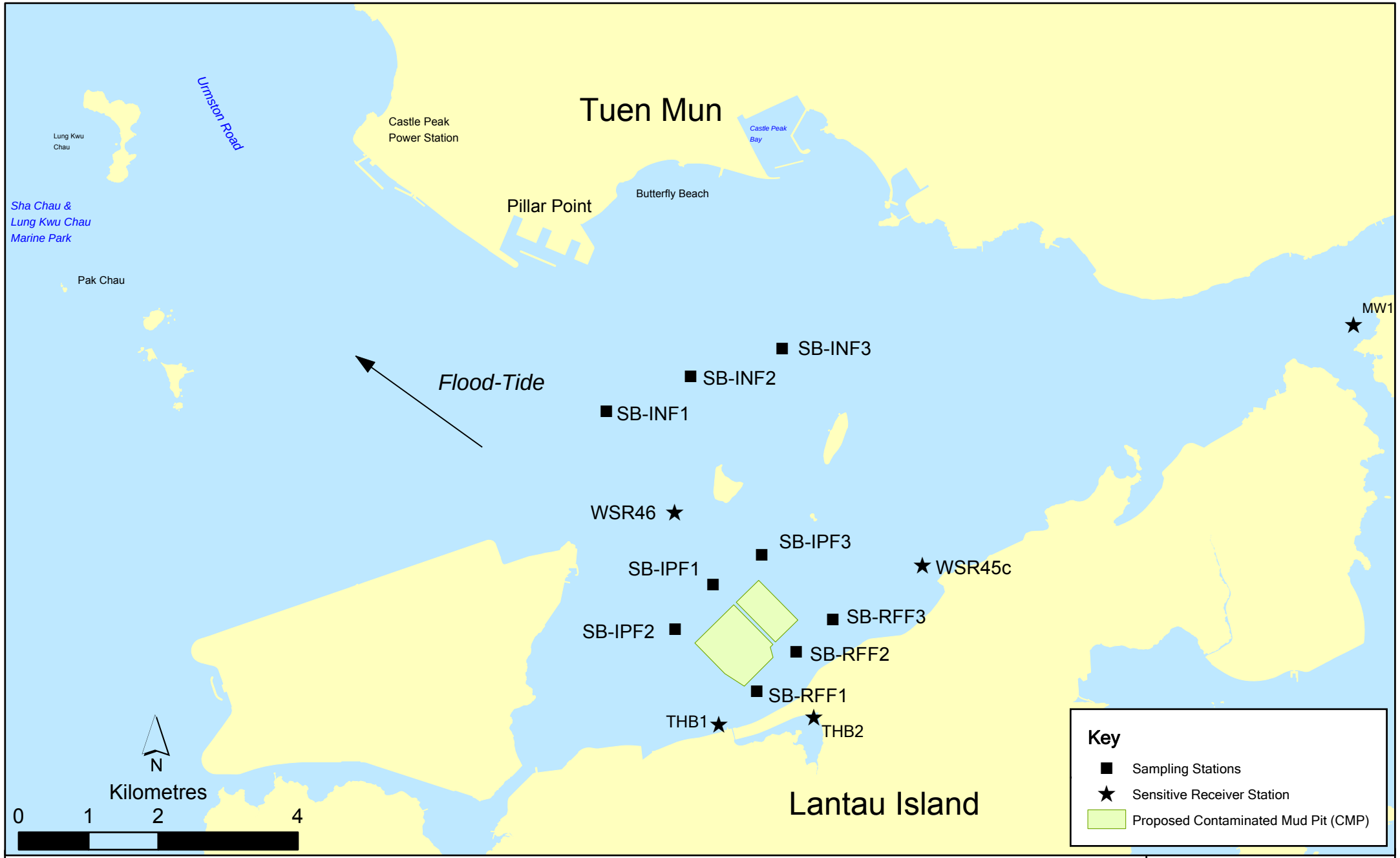

Figure 1.5

Routine & Capping Water Quality Sampling Stations (Flood-Tide) for South Brothers Facility

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1.6.19 For nutrients, concentrations of Total Inorganic Nitrogen (TIN) at all stations in October 2015 exceeded the WQO (0.5 mg/L) (*Figure 17 of Annex D*). It should be noted that the North Western WCZ has historically experienced higher levels of TIN and the exceedances of TIN WQO at these stations are unlikely to be caused by the disposal operation at CMP 2. Ammonia Nitrogen (NH3-N) concentration was relatively similar amongst all stations (*Figure 17 of Annex D*). Levels of 5-day Biochemical Oxygen Demand (BOD_5) appear to be higher at Shum Shui Kok and Tai Mo To stations in October 2015 (*Figure 18 of Annex D*).

1.6.20 Concentrations of SS exceeded the WQO (11.6 mg/L for wet season) at most stations, except Impact, Tai Mo to and Tai Ho Bay 2 stations in October 2015. However, concentrations of SS complied with the Action and Limit Levels at all stations in October 2015 (*Figure 19* of *Annex D*; *Table B5* of *Annex B*).

1.6.21 Overall, results of the *Routine Water Quality Monitoring* indicated that the disposal operation at CMP 2 did not appear to cause any unacceptable deterioration in water quality in October 2015. Detailed statistical analysis will be presented in the Quarterly Report to investigate any spatial and temporal trends of potential concern.

1.6.22 ***Water Column Profiling of CMP 2 – October 2015***

1.6.23 *Water Column Profiling* was undertaken at a total of two sampling stations (Upstream and Downstream stations) on 13 October 2015. The monitoring results have been assessed for compliance with the WQOs (see *Section 1.6.14* for details).

In-situ Measurements

1.6.24 Analyses of results for October 2015 indicated that levels of Salinity, DO and pH complied with the WQOs at both Downstream and Upstream stations (*Table B6* of *Annex B*). In addition, DO and Turbidity at all stations complied with the Action and Limit Levels (*Tables B3* and *B6* of *Annex B*).

Laboratory Measurements for SS

1.6.25 Analyses of results for October 2015 indicated that the SS levels only complied with the WQO at Downstream stations. However, both Upstream and Downstream stations complied with the Action and Limit Levels (*Tables B3 and B6* of *Annex B*).

Overall, the monitoring results indicated that the mud disposal operation at CMP 2 did not appear to cause any deterioration in water quality during this reporting period.

1.7 ACTIVITIES SCHEDULED FOR THE NEXT MONTH

1.7.1 The following monitoring activities will be conducted in the next monthly period of November 2015 for SB CMPs:

- *Pit Specific Sediment Chemistry of CMP 2;*
- *Routine Water Quality Monitoring of CMP 2;* and
- *Water Column Profiling of CMP 2.*

1.7.2 The following monitoring activities will be conducted in the next monthly period of November 2015 for ESC CMPs:

- *Impact Monitoring during Dredging Operations of ESC CMP Vd.*

1.7.3 The sampling schedule is presented in *Annex A*.

1.8 STUDY PROGRAMME

1.8.1 A summary of the Study programme is presented in *Annex E.*

Annex A

Sampling Schedule

Annex A1 - Environmental Monitoring and Audit Sampling Schedule for East of Sha Chau (September 2012 - February 2017)

		2012				2013												2014												2015												2016												2017	
Pit Specific Sediment Chemistry	**Code**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**
Active-Pit																																																					
	ESC-NPDA	*	*	*	*	*	*	*	*	*	*	*	*																													*	*	*	*	*	*	*	*	*	*	*	*	*	*
	ESC-NPDB	*	*	*	*	*	*	*	*	*	*	*	*																													*	*	*	*	*	*	*	*	*	*	*	*	*	*
Pit-Edge																																																					
	ESC-NEDA	*	*	*	*	*	*	*	*	*	*	*	*																													*	*	*	*	*	*	*	*	*	*	*	*	*	*
	ESC-NEDB	*	*	*	*	*	*	*	*	*	*	*	*																													*	*	*	*	*	*	*	*	*	*	*	*	*	*
Near-Pit																																																					
	ESC-NNDA	*	*	*	*	*	*	*	*	*	*	*	*																													*	*	*	*	*	*	*	*	*	*	*	*	*	*
	ESC-NNDB	*	*	*	*	*	*	*	*	*	*	*	*																													*	*	*	*	*	*	*	*	*	*	*	*	*	*

Cumulative Impact Sediment Chemistry	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**
Near-field Stations																																																					
ESC-RNA				*		*				*		*																														*					*					*		*
ESC-RNB				*		*				*		*																														*					*					*		*
Mid-field Stations																																																					
ESC-RMA				*		*				*		*																														*					*					*		*
ESC-RMB				*		*				*		*																														*					*					*		*
Capped Pit Stations																																																					
ESC-RCA				*		*				*		*																														*					*					*		*
ESC-RCB				*		*				*		*																														*					*					*		*
Far-Field Stations																																																					
ESC-RFA				*		*				*		*																														*					*					*		*
ESC-RFB				*		*				*		*																														*					*					*		*
Ma Wan Station																																																					
MW1				*		*				*		*																														*					*					*		*

Sediment Toxicity Tests	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**
Near-Field Stations																																																				
ESC-TDA						*						*																														*					*					*		*
ESC-TDB						*						*																														*					*					*		*
Reference Stations																																																					
ESC-TRA						*						*																														*					*					*		*
ESC-TRB						*						*																														*					*					*		*
Ma Wan Station																																																					
MW1						*						*																														*					*					*		*

Tissue/ Whole Body Sampling	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**
Impact Stations																																																					
ESC-INA						*						*																														*					*					*		*
ESC-INB						*						*																														*					*					*		*
Reference																																																					
ESC-TNA						*						*																														*					*					*		*
ESC-TNB						*						*																														*					*					*		*
ESC-TSA						*						*																														*					*					*		*
ESC-TSB						*						*																														*					*					*		*

Demersal Trawling	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**
Impact Stations																																																					
ESC-INA					*	*					*	*																													*	*					*	*					*	*
ESC-INB					*	*					*	*																													*	*					*	*					*	*
Reference Stations																																																						
ESC-TNA					*	*					*	*																													*	*					*	*					*	*
ESC-TNB					*	*					*	*																													*	*					*	*					*	*
ESC-TSA					*	*					*	*																													*	*					*	*					*	*
ESC-TSB					*	*					*	*																													*	*					*	*					*	*

Water Column Profiling		**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**J**	**F**
Plume Stations	WCP1	*	*	*	*	*	*	*	*	*	*	*	*																													*	*	*	*	*	*	*	*	*	*	*	*	*	*
	WCP2	*	*	*	*	*	*	*	*	*	*	*	*																													*	*	*	*	*	*	*	*	*	*	*	*	*	*

Annex A1 - Environmental Monitoring and Audit Sampling Schedule for East of Sha Chau (September 2012 - February 2017)

	2012				2013												2014												2015												2016												2017	
Benthic Recolonisation Studies	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Capped Contaminated Mud Pits IVa-c																																																			
ESC-CPA				*								*				*								*				*								*				*								*				*		
ESC-CPB				*								*				*								*				*								*				*								*				*		
ESC-CPC				*								*				*								*				*								*				*								*				*		
Reference Stations																																																							
ESC-RBA				*								*				*								*				*								*				*								*				*		
ESC-RBB				*								*				*								*				*								*				*								*				*		
ESC-RBC				*								*				*								*				*								*				*								*				*		

Impact Monitoring for Dredging	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Upstream/Reference Stations																																																						
US1	*	*	*	*	*	*	*	*	*																												*	*	*															
US2	*	*	*	*	*	*	*	*	*																												*	*	*															
Downstream/Impact Stations																																																						
DS1	*	*	*	*	*	*	*	*	*																												*	*	*															
DS2	*	*	*	*	*	*	*	*	*																												*	*	*															
DS3	*	*	*	*	*	*	*	*	*																												*	*	*															
DS4	*	*	*	*	*	*	*	*	*																												*	*	*															
DS5	*	*	*	*	*	*	*	*	*																												*	*	*															
Ma Wan Station																																																						
MW1	*	*	*	*	*	*	*	*	*																												*	*	*															

Capping	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Ebb Tide																																																					
Impact Station																																																						
ESC-IPE1																*		*				*		*				*					*		*				*															
ESC-IPE2																*		*				*		*				*					*		*				*															
ESC-IPE3																*		*				*		*				*					*		*				*															
ESC-IPE4																*		*				*		*				*					*		*				*															
ESC-IPE5																*		*				*		*				*					*		*				*															
Intermediate Station																																																						
ESC-INE1																*		*				*		*				*					*		*				*															
ESC-INE2																*		*				*		*				*					*		*				*															
ESC-INE3																*		*				*		*				*					*		*				*															
ESC-INE4																*		*				*		*				*					*		*				*															
ESC-INE5																*		*				*		*				*					*		*				*															
Reference Station																																																						
ESC-RFE1																*		*				*		*				*					*		*				*															
ESC-RFE2																*		*				*		*				*					*		*				*															
ESC-RFE3																*		*				*		*				*					*		*				*															
ESC-RFE4																*		*				*		*				*					*		*				*															
ESC-RFE5																*		*				*		*				*					*		*				*															
Ma Wan Station																																																						
MW1																*		*				*		*				*					*		*				*															
Flood Tide																																																						
Impact Station																																																						
ESC-IPF1																*		*				*		*				*					*		*				*															
ESC-IPF2																*		*				*		*				*					*		*				*															
ESC-IPF3																*		*				*		*				*					*		*				*															
Intermediate Station																																																						
ESC-INF1																*		*				*		*				*					*		*				*															
ESC-INF2																*		*				*		*				*					*		*				*															
ESC-INF3																*		*				*		*				*					*		*				*															
Reference Station																																																						
ESC-RFF1																*		*				*		*				*					*		*				*															
ESC-RFF2																*		*				*		*				*					*		*				*															
ESC-RFF3																*		*				*		*				*					*		*				*															
Ma Wan Station																																																						
MW1																*		*				*		*				*					*		*				*															

Annex A1 - Environmental Monitoring and Audit Sampling Schedule for East of Sha Chau (September 2012 - February 2017)

Routine Water Quality Monitoring		2012				2013												2014												2015												2016												2017	
		S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Ebb Tide																																																					
Impact Station																																																						
	ESC-IPE1		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-IPE2		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-IPE3		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-IPE4		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-IPE5		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
Intermediate Station																																																						
	ESC-INE1		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-INE2		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-INE3		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-INE4		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-INE5		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
Reference Station																																																						
	ESC-RFE1		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-RFE2		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-RFE3		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-RFE4		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-RFE5		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
Ma Wan Station																																																						
	MW1		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
Flood Tide																																																					
Impact Station																																																					
	ESC-IPF1		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-IPF2		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-IPF3		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
Intermediate Station																																																						
	ESC-INF1		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-INF2		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-INF3		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
Reference Station																																																						
	ESC-RFF1		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-RFF2		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
	ESC-RFF3		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*
Ma Wan Station																																																						
	MW1		*	*		*	*		*	*		*	*																														*	*		*	*		*	*		*	*		*	*

Annex A2 - Environmental Monitoring and Audit Sampling Schedule for South of The Brothers (July 2012 - February 2017)

			2012						2013												2014												2015												2016												2017	
Baseline Monitoring Prior to Dredging	**Code**	**Frequency**	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Far Field Stations																																																										
	SB-WFA	3 days per week for 4 weeks	*	*																																																						
	SB-WFB	3 days per week for 4 weeks	*	*																																																					
Mid Field Stations																																																										
	SB-WMA	3 days per week for 4 weeks	*	*																																																						
	SB-WMB	3 days per week for 4 weeks	*	*																																																						
Near Field Stations																																																										
	SB-WNAA	3 days per week for 4 weeks	*	*																																																						
	SB-WNAB	3 days per week for 4 weeks	*	*																																																						
	SB-WNBA	3 days per week for 4 weeks	*	*																																																						
	SB-WNBB	3 days per week for 4 weeks	*	*																																																						
Reference Stations																																																										
	NM1	3 days per week for 4 weeks	*	*																																																						
	NM2	3 days per week for 4 weeks	*	*																																																						
	NM3	3 days per week for 4 weeks	*	*																																																						
	NM5	3 days per week for 4 weeks	*	*																																																						
	NM6	3 days per week for 4 weeks	*	*																																																						
Sensitive Receiver Stations																																																										
	MW1	3 days per week for 4 weeks	*	*																																																						
	THB1	3 days per week for 4 weeks	*	*																																																						
	THB2	3 days per week for 4 weeks	*	*																																																						
	WSR45C	3 days per week for 4 weeks	*	*																																																						
	WSR46	3 days per week for 4 weeks	*	*																																																						

Impact Monitoring for Dredging			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Upstream Stations																																																										
	US1	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
	US2	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
Downstream Stations																																																										
	DS1	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
	DS2	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
	DS3	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
	DS4	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
	DS5	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
Sensitive Receiver Stations																																																										
	MW1	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
	THB1	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
	THB2	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
	WSR45C	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											
	WSR46	3 days per week					*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*																											

Pit Specific Sediment Chemistry			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
SB CMP 1 Active																																																										
Near-Pit																																																											
	SB-NNAA	Monthly														12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12																											
	SB-NNAB	Monthly														12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12																											
Pit-Edge																																																											
	SB-NEAA	Monthly														12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12																											
	SB-NEAB	Monthly														12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12																											
Active-Pit																																																											
	SB-NPAA	Monthly														12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12																											
	SB-NPAB	Monthly														12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12																											
SB CMP 2 Active																																																										
Near-Pit																																																											
	SB-NNBA	Monthly																														12	12	12	12	12	12	12	12	12	12	12	12	12														
	SB-NNBB	Monthly																														12	12	12	12	12	12	12	12	12	12	12	12	12														
Pit-Edge																																																											
	SB-NEBA	Monthly																														12	12	12	12	12	12	12	12	12	12	12	12	12														
	SB-NEBB	Monthly																														12	12	12	12	12	12	12	12	12	12	12	12	12														
Active-Pit																																																											
	SB-NPBA	Monthly																														12	12	12	12	12	12	12	12	12	12	12	12	12														
	SB-NPBB	Monthly																														12	12	12	12	12	12	12	12	12	12	12	12	12														

Annex A2 - Environmental Monitoring and Audit Sampling Schedule for South of The Brothers (July 2012 - February 2017)

			2012						2013												2014												2015												2016												2017	
Cumulative Impact Sediment Chemistry			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Near-field Stations																																																								
	SB-RNA	4 times per year														12				12		12				12		12				12		12				12		12				12														
	SB-RNB	4 times per year														12				12		12				12		12				12		12				12		12				12														
Mid-field Stations																																																								
	SB-RMA	4 times per year														12				12		12				12		12				12		12				12		12				12														
	SB-RMB	4 times per year														12				12		12				12		12				12		12				12		12				12														
Far-Field Stations																																																								
	SB-RFA	4 times per year														12				12		12				12		12				12		12				12		12				12														
	SB-RFB	4 times per year														12				12		12				12		12				12		12				12		12				12														
Capped Pit Stations																																																							
	SB-RCA	4 times per year														12				12		12				12		12				12		12				12		12				12														
	SB-RCB	4 times per year														12				12		12				12		12				12		12				12		12				12														
Sensitive Receiver Stations																																																							
	MW1	4 times per year														12				12		12				12		12				12		12				12		12				12														
	THB1	4 times per year														12				12		12				12		12				12		12				12		12				12														
	THB2	4 times per year														12				12		12				12		12				12		12				12		12				12														

			2012						2013												2014												2015												2016												2017	
Sediment Toxicity Tests			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
SB CMP 1 Active																																																						
Reference																																																							
	SB-TRA	2 times per year														5							5					5																													
	SB-TRB	2 times per year														5							5					5																													
Near-Field																																																						
	SB-TAA	2 times per year														5							5					5																													
	SB-TAB	2 times per year														5							5					5																													
Sensitive Receiver Stations																																																							
	MW1	2 times per year														5							5					5																													
	THB1	2 times per year														5							5					5																													
	THB2	2 times per year														5							5					5																													
SB CMP 2 Active																																																							
Reference																																																							
	SB-TRA	2 times per year																																5					5																	
	SB-TRB	2 times per year																																5					5																	
Near-Field																																																						
	SB-TBA	2 times per year																																5					5																	
	SB-TBB	2 times per year																																5					5																	
Sensitive Receiver Stations																																																						
	MW1	2 times per year																																5					5																	
	THB1	2 times per year																																5					5																	
	THB2	2 times per year																																5					5																	

			2012						2013												2014												2015												2016												2017	
Tissue/ Whole Body Sampling			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Near-Pit Stations																																																							
	SB-INA	2 times per year																				*					*							*					*																	
	SB-INB	2 times per year																				*					*							*					*																	
Reference North																																																							
	TNA	2 times per year																				*					*							*					*																	
	TNB	2 times per year																				*					*							*					*																	
Reference South																																																						
	TSA	2 times per year																				*					*							*					*																	
	TSB	2 times per year																				*					*							*					*																	

			2012						2013												2014												2015												2016												2017	
Demersal Trawling			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Impact																																																							
	SB-INA 1-5	4 times per year														5					5	5					5	5					5	5					5	5																
	SB-INB 1-5	4 times per year														5					5	5					5	5					5	5					5	5																
Reference North																																																						
	TNA 1-5	4 times per year														5					5	5					5	5					5	5					5	5																
	TNB 1-5	4 times per year														5					5	5					5	5					5	5					5	5																
Reference South																																																					
	TSA 1-5	4 times per year														5					5	5					5	5					5	5					5	5																
	TSB 1-5	4 times per year														5					5	5					5	5					5	5					5	5																

Annex A2 - Environmental Monitoring and Audit Sampling Schedule for South of The Brothers (July 2012 - February 2017)

			2012						2013												2014												2015												2016												2017	
Routine Water Quality Monitoring			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Ebb Tide																																																										
Impact Stations Downcurrent																																																										
	SB-IPE1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-IPE2	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-IPE3	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-IPE4	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-IPE5	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
Intermediate Stations Downcurrent																																																										
	SB-INE1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-INE2	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-INE3	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-INE4	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-INE5	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
Reference Stations Upcurrent																																																										
	SB-RFE1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-RFE2	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-RFE3	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-RFE4	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-RFE5	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
Sensitive Receiver Stations																																																										
	MW1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	THB1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	THB2	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	WSR45C	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	WSR46	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
Flood Tide																																																										
Impact Stations Downcurrent																																																										
	SB-IPF1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-IPF2	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-IPF3	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
Intermediate Stations Downcurrent																																																										
	SB-INF1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-INF2	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-INF3	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
Reference Stations Upcurrent																																																										
	SB-RFF1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-RFF2	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	SB-RFF3	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
Sensitive Receiver Stations																																																										
	MW1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	THB1	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	THB2	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	WSR45C	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															
	WSR46	8 times per year														8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8		8	8															

Water Column Profiling			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Plume Stations	WCP1	Monthly														4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4														
	WCP2	Monthly														4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4														

Annex A2 - Environmental Monitoring and Audit Sampling Schedule for South of The Brothers (July 2012 - February 2017)

			2012						2013												2014												2015												2016												2017	
Capping Water Quality Monitoring			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Ebb Tide																																																				
Impact Stations Downcurrent																																																				
	SB-IPE1	4 times per year																													3		3				3		3				3		3				3					
	SB-IPE2	4 times per year																													3		3				3		3				3		3				3					
	SB-IPE3	4 times per year																													3		3				3		3				3		3				3					
	SB-IPE4	4 times per year																													3		3				3		3				3		3				3					
	SB-IPE5	4 times per year																													3		3				3		3				3		3				3					
Intermediate Stations Downcurrent																																																				
	SB-INE1	4 times per year																													3		3				3		3				3		3				3					
	SB-INE2	4 times per year																													3		3				3		3				3		3				3					
	SB-INE3	4 times per year																													3		3				3		3				3		3				3					
	SB-INE4	4 times per year																													3		3				3		3				3		3				3					
	SB-INE5	4 times per year																													3		3				3		3				3		3				3					
Reference Stations Upcurrent																																																				
	SB-RFE1	4 times per year																													3		3				3		3				3		3				3					
	SB-RFE2	4 times per year																													3		3				3		3				3		3				3					
	SB-RFE3	4 times per year																													3		3				3		3				3		3				3					
	SB-RFE4	4 times per year																													3		3				3		3				3		3				3					
	SB-RFE5	4 times per year																													3		3				3		3				3		3				3					
Sensitive Receiver Stations																																																				
	MW1	4 times per year																													3		3				3		3				3		3				3					
	THB1	4 times per year																													3		3				3		3				3		3				3					
	THB2	4 times per year																													3		3				3		3				3		3				3					
	WSR45C	4 times per year																													3		3				3		3				3		3				3					
	WSR46	4 times per year																													3		3				3		3				3		3				3					
Flood Tide																																																				
Impact Stations Downcurrent																																																				
	SB-IPF1	4 times per year																													3		3				3		3				3		3				3					
	SB-IPF2	4 times per year																													3		3				3		3				3		3				3					
	SB-IPF3	4 times per year																													3		3				3		3				3		3				3					
Intermediate Stations Downcurrent																																																				
	SB-INF1	4 times per year																													3		3				3		3				3		3				3					
	SB-INF2	4 times per year																													3		3				3		3				3		3				3					
	SB-INF3	4 times per year																													3		3				3		3				3		3				3					
Reference Stations Upcurrent																																																				
	SB-RFF1	4 times per year																													3		3				3		3				3		3				3					
	SB-RFF2	4 times per year																													3		3				3		3				3		3				3					
	SB-RFF3	4 times per year																													3		3				3		3				3		3				3					
Sensitive Receiver Stations																																																				
	MW1	4 times per year																													3		3				3		3				3		3				3					
	THB1	4 times per year																													3		3				3		3				3		3				3					
	THB2	4 times per year																													3		3				3		3				3		3				3					
	WSR45C	4 times per year																													3		3				3		3				3		3				3					
	WSR46	4 times per year																													3		3				3		3				3		3				3					

			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Benthic Recolonisation Studies																																																							
Capped Contaminated Mud Pits																																																											
	SB-CPA	2 times per year																																																								
	SB-CPB	2 times per year																																																							
Reference Stations																																																								
	RBA	2 times per year																																																								
	RBB	2 times per year																																																							
	RBC	2 times per year																																																							

Notes:
"*" = Number of replicates depends on parameters
Naming of stations are tentative only and will be subjected to changes

Annex B

Water Quality Monitoring Results

Table B1 *Summary Table of DO, Turbidity and SS Levels Recorded between 2 and 30 October 2015*

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
2015/10/2	Mid-Ebb	DS1	4.61	5.09	7.33	8.83
		DS2	4.60	5.23	7.50	9.53
		DS3	4.59	5.07	8.36	10.98
		DS4	4.61	5.13	8.67	10.22
		DS5	4.59	5.10	10.07	11.78
		US1	4.86	5.32	10.66	15.63
		US2	4.89	5.17	13.38	15.23
		MW1	4.51	4.97	5.12	6.63
	Mid-Flood	DS1	4.51	4.78	34.17	32.10
		DS2	4.61	4.82	50.91	26.33
		DS3	4.60	4.63	26.66	28.63
		DS4	4.59	4.66	28.43	31.43
		DS5	4.61	4.71	28.08	23.57
		US1	4.59	5.07	31.12	30.55
		US2	4.86	5.09	28.12	31.03
		MW1	4.89	4.75	10.51	13.50
2015/10/5	Mid-Ebb	DS1	5.84	6.08	5.44	6.77
		DS2	5.95	6.10	6.55	14.25
		DS3	5.67	6.09	7.32	9.47
		DS4	5.77	5.98	6.00	7.92
		DS5	6.19	6.18	5.45	5.47
		US1	5.58	5.66	8.15	9.78
		US2	5.61	5.66	8.28	9.42
		MW1	5.27	5.32	5.29	7.43
	Mid-Flood	DS1	5.39	5.71	7.43	7.27
		DS2	5.55	5.79	5.92	11.07
		DS3	5.61	5.70	5.94	7.45
		DS4	5.56	5.78	5.95	7.62
		DS5	5.52	5.85	6.32	8.55
		US1	5.62	5.90	11.03	12.97
		US2	5.82	5.97	7.14	9.22
		MW1	5.17	5.44	5.89	8.27
2015/10/7	Mid-Ebb	DS1	5.30	5.76	8.35	16.95
		DS2	5.52	5.79	6.67	6.98
		DS3	5.52	5.87	5.54	6.53
		DS4	5.54	5.83	5.05	5.73
		DS5	5.52	5.96	4.69	5.27
		US1	5.45	5.75	11.39	16.38
		US2	5.35	5.64	8.03	11.20
		MW1	5.06	5.73	3.79	4.58
	Mid-Flood	DS1	5.41	5.54	7.75	12.38
		DS2	5.50	5.98	5.99	5.93
		DS3	4.69	5.35	11.86	17.95
		DS4	4.80	5.32	8.76	8.47
		DS5	5.38	5.72	8.32	9.47
		US1	5.55	5.72	7.45	10.47
		US2	5.64	5.95	7.15	8.27
		MW1	5.13	5.25	8.45	8.18

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
2015/10/9	Mid-Ebb	DS1	4.93	5.34	9.99	13.78
		DS2	5.01	5.48	7.48	9.13
		DS3	5.06	5.82	5.58	9.67
		DS4	5.15	5.99	4.52	5.80
		DS5	5.10	6.07	4.54	8.98
		US1	5.12	5.32	17.56	6.15
		US2	4.96	5.29	10.14	6.68
		MW1	5.13	5.50	5.32	11.35
	Mid-Flood	DS1	5.10	5.49	16.38	11.68
		DS2	5.16	5.88	11.44	27.45
		DS3	4.76	5.41	14.19	12.82
		DS4	5.13	5.56	15.04	20.43
		DS5	5.41	5.95	10.08	23.80
		US1	5.98	6.36	5.07	9.25
		US2	5.23	6.18	10.94	11.33
		MW1	5.13	5.23	8.68	5.02
2015/10/12	Mid-Ebb	DS1	5.45	5.64	16.53	28.03
		DS2	5.54	5.43	13.49	23.43
		DS3	5.66	5.51	7.98	11.42
		DS4	5.76	5.69	7.35	8.62
		DS5	5.49	5.54	8.02	13.52
		US1	5.79	5.77	48.91	22.60
		US2	5.87	5.79	17.50	20.33
		MW1	5.28	5.31	7.04	10.23
	Mid-Flood	DS1	5.80	5.73	7.28	9.43
		DS2	5.75	5.73	17.32	17.73
		DS3	5.68	5.72	16.42	24.80
		DS4	5.62	5.69	16.22	20.63
		DS5	5.68	5.66	17.63	22.73
		US1	5.61	5.69	37.88	20.25
		US2	5.64	5.66	25.77	35.53
		MW1	5.33	5.35	15.45	21.28
2015/10/14	Mid-Ebb	DS1	5.69	5.71	9.94	15.82
		DS2	5.96	5.84	6.05	10.47
		DS3	5.75	5.85	5.79	8.00
		DS4	5.48	5.68	7.37	13.32
		DS5	5.54	5.71	7.83	9.57
		US1	5.72	5.78	16.02	28.58
		US2	5.58	5.70	10.99	10.90
		MW1	5.41	5.51	6.65	8.52
	Mid-Flood	DS1	5.66	5.64	15.79	25.92
		DS2	5.55	5.60	15.92	26.22
		DS3	5.41	5.52	18.18	25.40
		DS4	5.52	5.58	18.28	25.73
		DS5	5.43	5.53	29.62	31.77
		US1	5.70	5.65	20.89	26.47
		US2	5.74	5.61	20.01	24.80
		MW1	5.37	5.45	8.75	11.55

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
2015/10/16	Mid-Ebb	DS1	5.45	5.72	4.88	28.40
		DS2	5.49	5.79	4.59	28.13
		DS3	5.41	5.85	4.23	22.87
		DS4	5.72	5.87	4.20	12.63
		DS5	5.96	5.94	3.79	18.45
		US1	5.53	5.75	4.58	22.75
		US2	5.38	5.66	6.34	22.32
		MW1	5.45	5.66	3.97	20.53
	Mid-Flood	DS1	5.33	5.46	14.43	8.55
		DS2	5.32	5.42	12.42	7.87
		DS3	5.27	5.42	11.98	6.83
		DS4	5.30	5.43	12.38	7.32
		DS5	5.32	5.48	11.37	6.42
		US1	5.29	5.49	15.38	6.27
		US2	5.34	5.54	16.24	16.80
		MW1	5.28	5.35	9.90	6.75
2015/10/19	Mid-Ebb	DS1	5.45	5.74	4.30	8.58
		DS2	5.49	6.01	4.39	6.33
		DS3	5.41	5.99	4.99	6.15
		DS4	5.72	5.95	4.59	5.83
		DS5	5.96	6.23	3.46	5.53
		US1	5.53	5.83	3.74	9.85
		US2	5.38	5.95	3.59	5.42
		MW1	5.45	5.55	3.95	4.37
	Mid-Flood	DS1	5.33	5.53	9.54	16.63
		DS2	5.32	5.58	7.77	8.42
		DS3	5.27	5.57	6.23	8.22
		DS4	5.30	5.60	5.77	8.10
		DS5	5.32	5.82	4.76	7.30
		US1	5.29	5.81	8.42	10.15
		US2	5.34	5.98	7.60	20.50
		MW1	5.28	5.44	5.80	6.55
2015/10/21	Mid-Ebb	DS1	5.80	6.10	3.19	5.95
		DS2	5.93	5.94	2.99	5.32
		DS3	5.58	5.84	3.08	4.58
		DS4	5.53	5.78	2.66	4.67
		DS5	5.29	5.63	2.96	5.50
		US1	5.88	5.89	11.17	20.72
		US2	5.61	5.77	8.78	16.48
		MW1	5.73	5.91	1.75	10.00
	Mid-Flood	DS1	5.77	5.91	3.90	6.50
		DS2	5.66	5.85	4.64	6.45
		DS3	5.46	5.69	20.18	27.23
		DS4	5.61	5.99	8.51	16.83
		DS5	5.67	6.00	4.67	7.78
		US1	5.71	6.11	6.93	16.72
		US2	5.69	6.13	5.80	7.52
		MW1	5.55	5.76	4.74	6.98

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
2015/10/23	Mid-Ebb	DS1	5.97	6.39	4.79	8.83
		DS2	5.90	6.44	4.20	6.93
		DS3	5.98	6.61	5.02	6.77
		DS4	5.81	6.68	5.23	14.02
		DS5	5.69	6.50	4.73	5.98
		US1	5.82	6.23	9.99	6.07
		US2	5.86	6.30	3.86	6.80
		MW1	5.69	6.29	1.76	4.78
	Mid-Flood	DS1	5.74	6.34	4.20	8.07
		DS2	5.76	6.71	5.12	12.48
		DS3	5.75	6.66	9.11	11.67
		DS4	5.81	6.86	8.71	7.18
		DS5	5.65	6.88	8.85	15.30
		US1	6.32	8.47	3.53	3.00
		US2	6.26	7.62	5.17	10.25
		MW1	5.87	6.25	4.37	6.58
2015/10/26	Mid-Ebb	DS1	6.85	6.89	26.35	30.37
		DS2	6.78	6.94	28.44	28.18
		DS3	6.67	7.01	25.52	18.57
		DS4	6.63	6.96	22.15	25.07
		DS5	6.63	7.04	24.92	22.02
		US1	6.80	7.03	22.44	14.32
		US2	6.77	6.88	31.66	20.73
		MW1	6.55	6.65	5.79	15.30
	Mid-Flood	DS1	6.53	6.71	22.00	17.42
		DS2	6.47	6.59	40.48	33.78
		DS3	6.53	6.67	17.06	31.82
		DS4	6.40	6.63	19.49	31.32
		DS5	6.39	6.68	22.08	25.95
		US1	6.68	6.82	28.96	26.83
		US2	6.79	6.81	21.76	45.17
		MW1	6.38	6.47	12.88	23.88
2015/10/28	Mid-Ebb	DS1	6.38	6.45	24.27	22.30
		DS2	6.37	6.45	34.82	29.33
		DS3	6.32	6.43	40.08	26.90
		DS4	6.30	6.45	32.01	27.38
		DS5	6.18	6.39	38.83	24.42
		US1	6.36	6.42	41.85	32.58
		US2	6.34	6.40	18.81	26.43
		MW1	6.14	6.29	6.23	9.12
	Mid-Flood	DS1	6.33	6.30	14.59	26.30
		DS2	6.29	6.28	14.35	25.62
		DS3	6.21	6.31	7.63	13.17
		DS4	6.10	6.23	20.42	18.48
		DS5	6.09	6.24	24.44	17.75
		US1	6.26	6.43	28.88	25.85
		US2	6.30	6.38	37.43	39.17
		MW1	6.10	6.14	15.72	25.20

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
2015/10/30	Mid-Ebb	DS1	6.07	6.17	8.80	14.52
		DS2	6.11	6.18	7.68	10.35
		DS3	6.20	6.29	5.35	6.83
		DS4	6.14	6.25	5.98	7.52
		DS5	6.18	6.24	6.48	4.30
		US1	6.02	6.10	12.01	17.90
		US2	6.05	6.10	11.33	14.37
		MW1	6.13	6.28	5.16	5.88
	Mid-Flood	DS1	6.03	6.09	27.80	41.50
		DS2	6.06	6.09	35.81	33.33
		DS3	6.04	6.08	26.54	35.87
		DS4	6.09	6.07	22.04	22.25
		DS5	6.07	6.07	23.81	23.14
		US1	6.20	6.18	19.84	21.96
		US2	6.22	6.23	12.64	20.00
		MW1	5.91	5.98	17.51	36.57

Notes:

1. Please refer to Table C2 below for the Action and Limit Levels for dredging activities.
2. Cell shaded yellow indicated value exceeding the Action Level criteria.
3. Cell shaded red indicated value exceeding the Limit Level criteria.

Table B2 Action and Limit Levels of Water Quality for Dredging, Backfilling and Capping Activities at ESC CMPs

Parameter	Action Level	Limit Level
Dissolved Oxygen (DO) (1)	Surface and Mid-depth (2) 5%-ile of baseline data for surface and middle layer = **3.76 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)	Surface and Mid-depth (2) 1%-ile of baseline data for surface and middle layer = **3.11 mg L^{-1}** (3) and Significantly less than the reference stations mean DO (at the same tide of the same day)
	Bottom 5%-ile of baseline data for bottom layers = **2.96 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)	Bottom The average of the impact station readings are **<2 mg/L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)
Depth-averaged Suspended Solids (SS) (4) (5)	95%-ile of baseline data for depth average = **37.88 mg L^{-1}** and 120% of control station's SS at the same tide of the same day	99%-ile of baseline data for depth average = **61.92 mg L^{-1}** and 130% of control station's SS at the same tide of the same day
Depth-averaged Turbidity (Tby) (4) (5)	95%-ile of baseline data = **28.14 NTU** and 120% of control station's Tby at the same tide of the same day	99%-ile of baseline data = **38.32 NTU** and 130% of control station's Tby at the same tide of the same day

Notes:

(1) For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

(2) The Action and Limit Levels for DO for Surface & Middle layers were calculated from the combined pool of baseline surface layer data and baseline middle layer data.

(3) Given the Action Level for DO for Surface & Middle layers has already been lower than 4 mg L^{-1}, it is proposed to set the Limit Level at 3.11 mg L^{-1} which is the first percentile of the baseline data.

(4) "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.

(5) For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Table B3 Action and Limit Levels of Water Quality for Dredging, Backfilling and Capping Activities for SB CMPs

Parameter	Action Level	Limit Level
Dissolved Oxygen (DO) (1)	Surface and Mid-depth (2) The average of the impact, WSR 45C and WSR 46 station readings are < 5%-ile of baseline data for surface and middle layer = **4.32 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)	Surface and Mid-depth (2) The average of the impact, WSR 45C and WSR 46 station readings are **< 4 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)
	Bottom The average of the impact, WSR 45C and WSR 46 station readings are < 5%-ile of baseline data for bottom layers = **3.12 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)	Bottom The average of the impact station, WSR 45C and WSR 46 readings are **< 2 mg L^{-1}** and Significantly less than the reference stations mean DO (at the same tide of the same day)
Depth-averaged Suspended Solids (SS) (3) (4)	The average of the impact, WSR 45C and WSR 46 station readings are > 95%-ile of baseline data for depth average = **21.60 mg L^{-1}** and 120% of control station's SS at the same tide of the same day	The average of the impact, WSR 45C and WSR 46 station readings are > 99%-ile of baseline data for depth average = **40.10 mg L^{-1}** and 130% of control station's SS at the same tide of the same day
Depth-averaged Turbidity (Tby) (3) (4)	The average of the impact, WSR 45C and WSR 46 station readings are > 95%-ile of baseline data = **25.04 NTU** and 120% of control station's Tby at the same tide of the same day	The average of the impact, WSR 45C and WSR 46 station readings are > 99%-ile of baseline data = **32.68 NTU** and 130% of control station's Tby at the same tide of the same day

Notes:

(1) For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

(2) The Action and Limit Levels for DO for Surface & Middle layers were calculated from the combined pool of baseline surface layer data and baseline middle layer data.

(3) "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.

(4) For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Table B4 In-situ Monitoring Results for Routine Water Quality Monitoring of SB CMP in October 2015

Sampling Period	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%)	Dissolved Oxygen (mg L^{-1})	pH (mg L^{-1})
October 2015	RFF (Reference)	26.92	26.50	13.31	81.93	5.64	7.82
	IPF (Impact)	27.01	27.67	9.34	80.68	5.50	7.80
	INF (Intermediate)	27.13	28.94	19.23	78.53	5.31	7.78
	Ma Wan	27.08	28.36	10.74	79.22	5.38	7.82
	Shum Shui Kok	26.93	27.28	14.12	81.40	5.57	7.83
	Tai Mo To	27.07	27.70	10.30	80.50	5.48	7.79
	Tai Ho Bay 1	26.85	26.82	9.82	81.66	5.61	7.80
	Tai Ho Bay 2	26.65	27.90	6.56	80.85	5.54	7.69
	WQO	N/A	23.85 – 29.15#	N/A	N/A	>4	6.5-8.5

Notes:
Not exceeding 2˚C of change of the results from the Reference Station.
#Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.
Cell shaded yellow / red indicate value exceeding the Action/Limit levels.
Cell shaded grey indicate value exceeding the WQO.

Table B5 Laboratory Results for Routine Water Quality Monitoring of SB CMP in October 2015

Sampling Period	Stations	As (µg/L)	Cd (µg/L)	Cr (µg/L)	Cu (µg/L)	Pb (µg/L)	Hg (µg/L)	Ni (µg/L)	Ag (µg/L)	Zn (µg/L)	NH_3 (mg/L)	TIN (mg/L)	BOD_5 (mg/L)	SS (mg/L)
October 2015	RFF	<LOR	<LOR	<LOR	4.22	<LOR	<LOR	7.03	<LOR	20.57	0.04	0.71	0.81	21.73
	IPF	<LOR	<LOR	<LOR	2.75	<LOR	<LOR	7.74	<LOR	16.37	0.06	0.62	1.17	10.87
	INF	<LOR	<LOR	<LOR	3.20	<LOR	<LOR	10.49	<LOR	20.17	0.07	0.56	0.88	16.04
	Ma Wan	<LOR	<LOR	<LOR	2.61	<LOR	<LOR	10.27	<LOR	15.76	0.07	0.58	0.76	22.11
	Shum Shui Kok	<LOR	<LOR	<LOR	22.97	<LOR	<LOR	6.39	<LOR	35.37	0.03	0.67	2.90	21.61
	Tai Mo To	<LOR	<LOR	<LOR	6.89	<LOR	<LOR	11.35	<LOR	40.03	0.04	0.62	3.56	11.49
	Tai Ho Bay 1	<LOR	<LOR	<LOR	15.74	<LOR	<LOR	7.42	<LOR	37.45	0.05	0.71	1.01	22.56
	Tai Ho Bay 2	<LOR	<LOR	<LOR	14.67	<LOR	<LOR	5.96	<LOR	39.54	0.07	0.56	1.04	8.14
												WQO of TIN: 0.5 mg/L		
												Wet Season WQO of SS : 11.6 mg/L		

Note: Cell shaded yellow / red indicate value exceeding the Action/Limit levels.
Cell shaded grey indicate value exceeding the WQO.

Table B6 Water Column Profiling Results for SB CMP 2 in October 2015

Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%)	Dissolved Oxygen (mg L^{-1})	pH (mg L^{-1})	Suspended Solids (mg L^{-1})
WCP 1 (Downstream)	26.72	28.56	5.87	82.36	5.62	7.84	7.25
WCP 2 (Upstream)	26.79	28.43	9.54	82.24	5.61	7.88	12.00
WQO (wet season)	N/A	25.65-31.27#	N/A	N/A	>4	6.5-8.5	11.6

Note:
#Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.
Cell shaded grey indicate value exceeding the WQO.

Annex C

Dredging Record for ESC CMP Vd in October 2015

Table C1 Dredging Record at ESC CMP Vd

Date	Daily Dredging Volume (m^3)	Weekly Dredging Volume (m^3) (From Sunday to Saturday)
27-Sep-2015	2,600	16,250
28-Sep-2015	3,250	
29-Sep-2015	2,600	
30-Sep-2015	2,600	
01-Oct-2015	2,600	
02-Oct-2015	2,600	
03-Oct-2015	0	
04-Oct-2015	0	22,100
05-Oct-2015	1,300	
06-Oct-2015	3,250	
07-Oct-2015	3,250	
08-Oct-2015	5,200	
09-Oct-2015	4,550	
10-Oct-2015	4,550	
11-Oct-2015	1,950	16,250
12-Oct-2015	2,600	
13-Oct-2015	3,900	
14-Oct-2015	5,200	
15-Oct-2015	2,600	
16-Oct-2015	0	
17-Oct-2015	0	
18-Oct-2015	0	5,200
19-Oct-2015	0	
20-Oct-2015	0	
21-Oct-2015	3,900	
22-Oct-2015	1,300	
23-Oct-2015	0	
24-Oct-2015	0	
25-Oct-2015	0	0
26-Oct-2015	0	
27-Oct-2015	0	
28-Oct-2015	0	
29-Oct-2015	0	
30-Oct-2015	0	
31-Oct-2015	0	

Annex D

Graphical Presentations

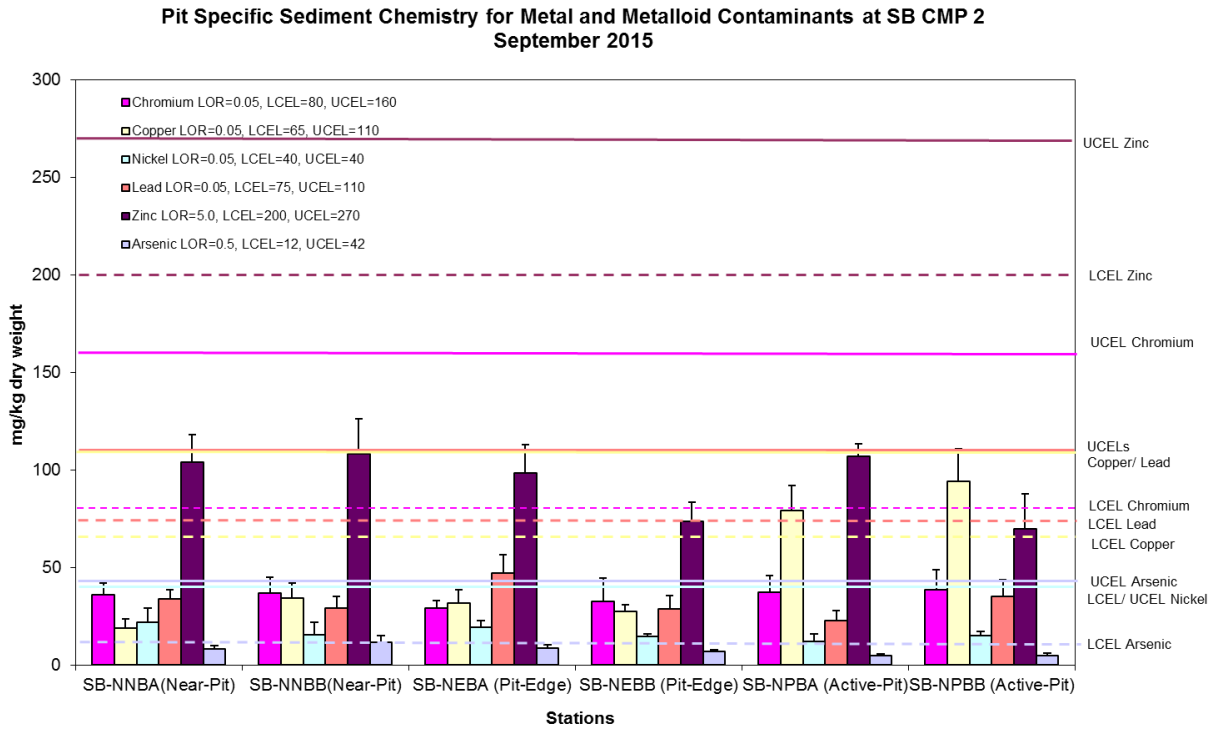


Figure 1: Concentration of Metals (Cr, Cu, Ni, Pb, Zn, As; mg/kg dry weight; mean +SD) in sediment samples collected from Pit Specific Sediment Chemistry Monitoring for CMP 2 in September 2015.

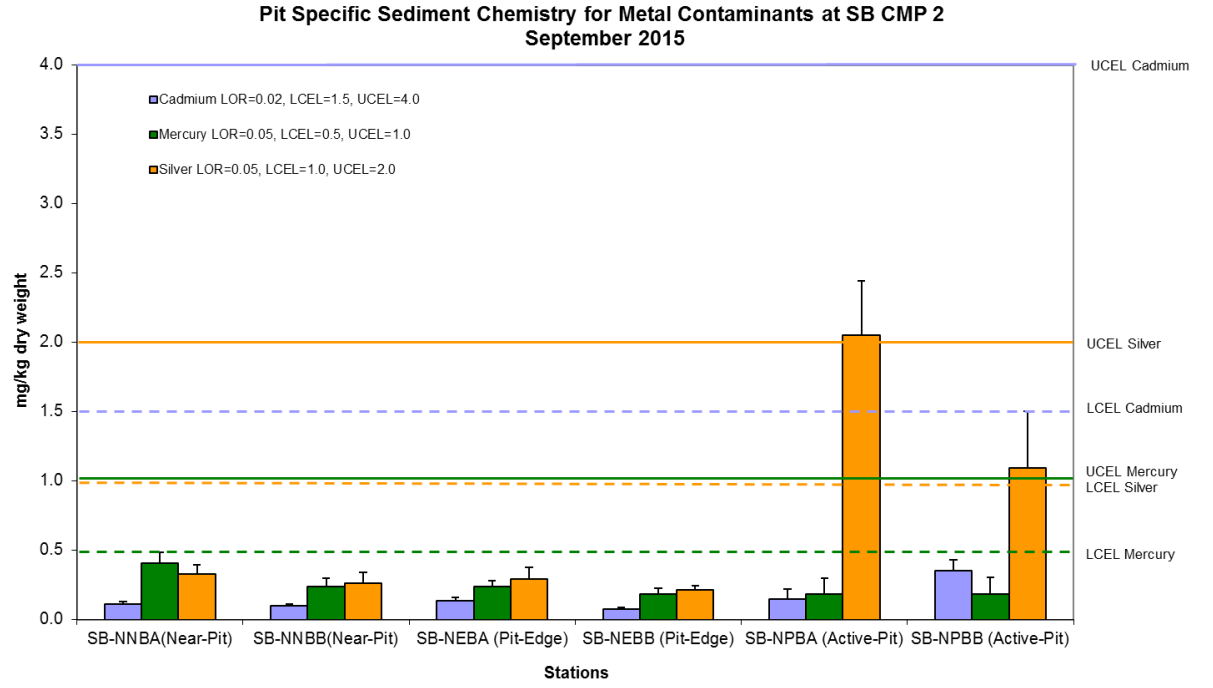


Figure 2: Concentration of Metals (Cd, Hg, Ag; mg/kg dry weight; mean +SD) in sediment samples collected from Pit Specific Sediment Chemistry Monitoring for CMP 2 in September 2015.

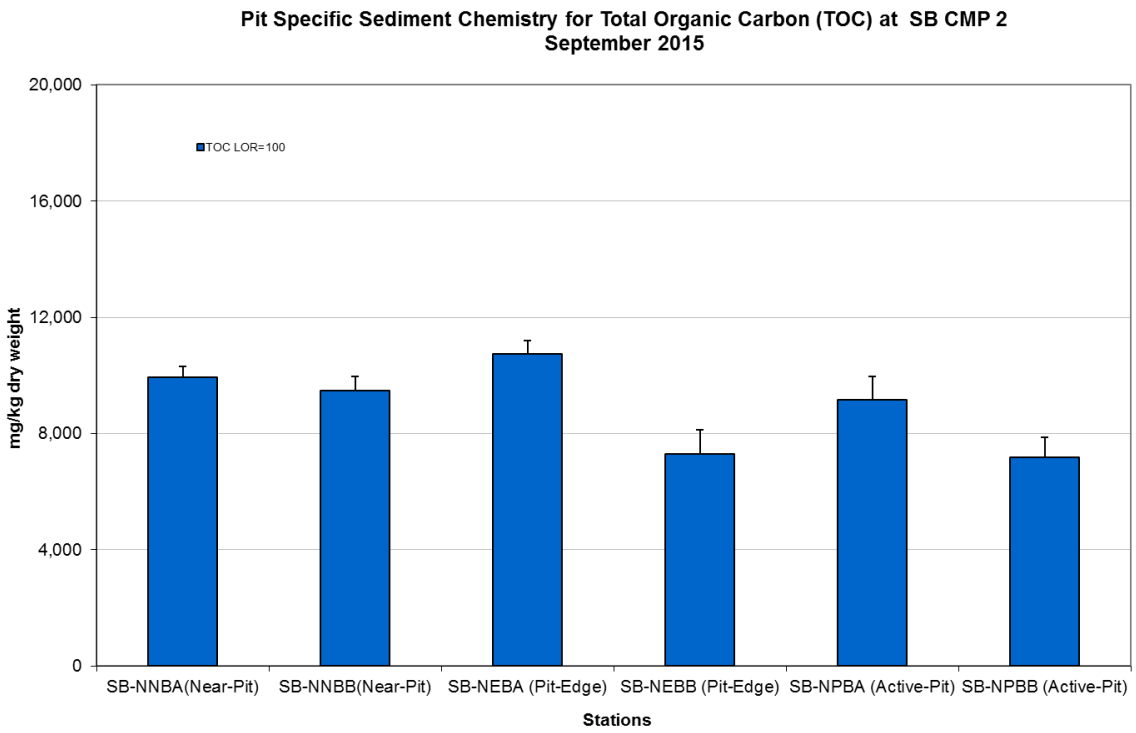


Figure 3: Concentration of Total Organic Carbon (mg/kg dry weight; mean +SD) in sediment samples collected from Pit Specific Sediment Chemistry Monitoring for CMP 2 in September 2015.

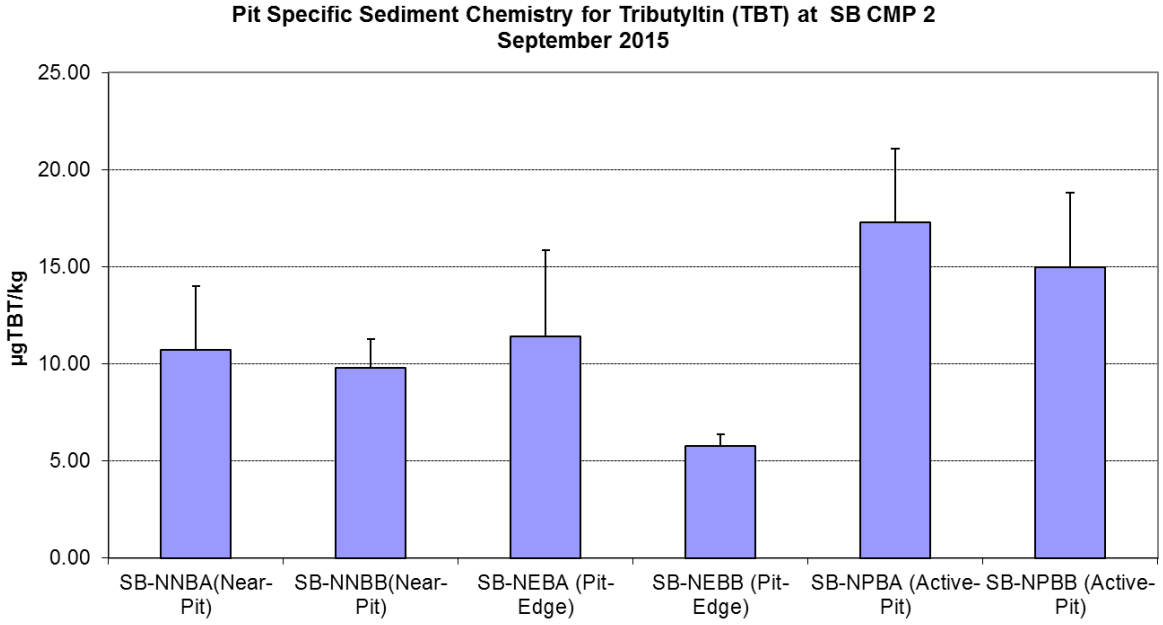


Figure 4: Concentration of Tributyltin (µg TBT/kg; mean +SD) in sediment samples collected from Pit Specific Sediment Chemistry Monitoring for CMP 2 in September 2015.

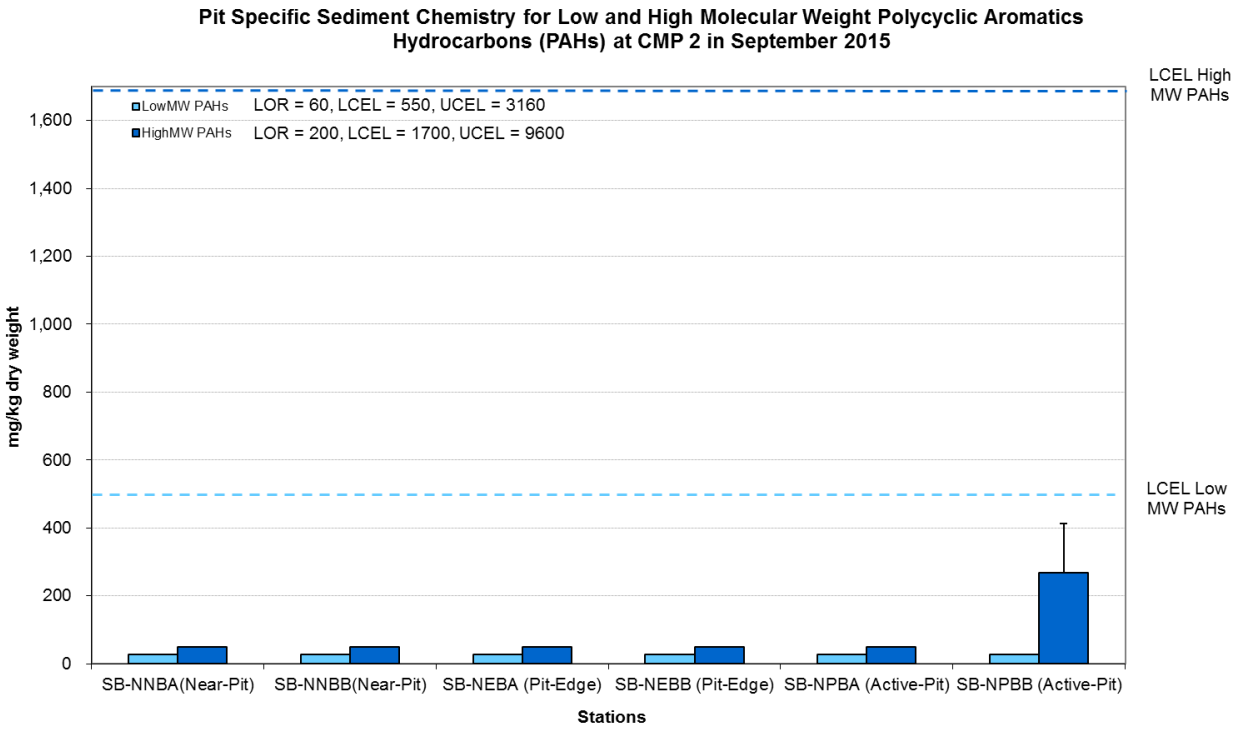


Figure 5: Concentration of Low and High Molecular Weight Polycyclic Aromatics Hydrocarbons (mg/kg dry weight; mean +SD) in sediment samples collected from Pit Specific Sediment Chemistry Monitoring for CMP 2 in September 2015.

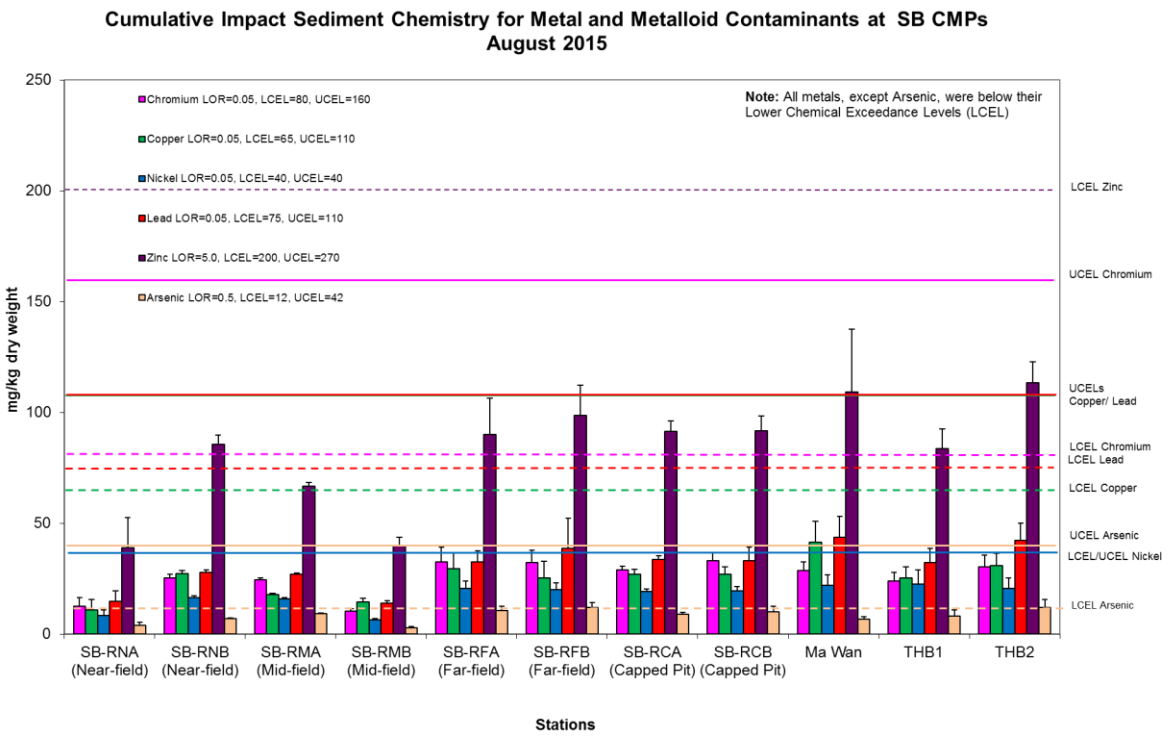


Figure 6: Concentration of Metals and Metalloid (Cr, Cu, Ni, Pb, Zn, As; mean +SD) in sediment samples collected from Cumulative Impact Sediment Chemistry Monitoring for SB CMPs in August 2015.

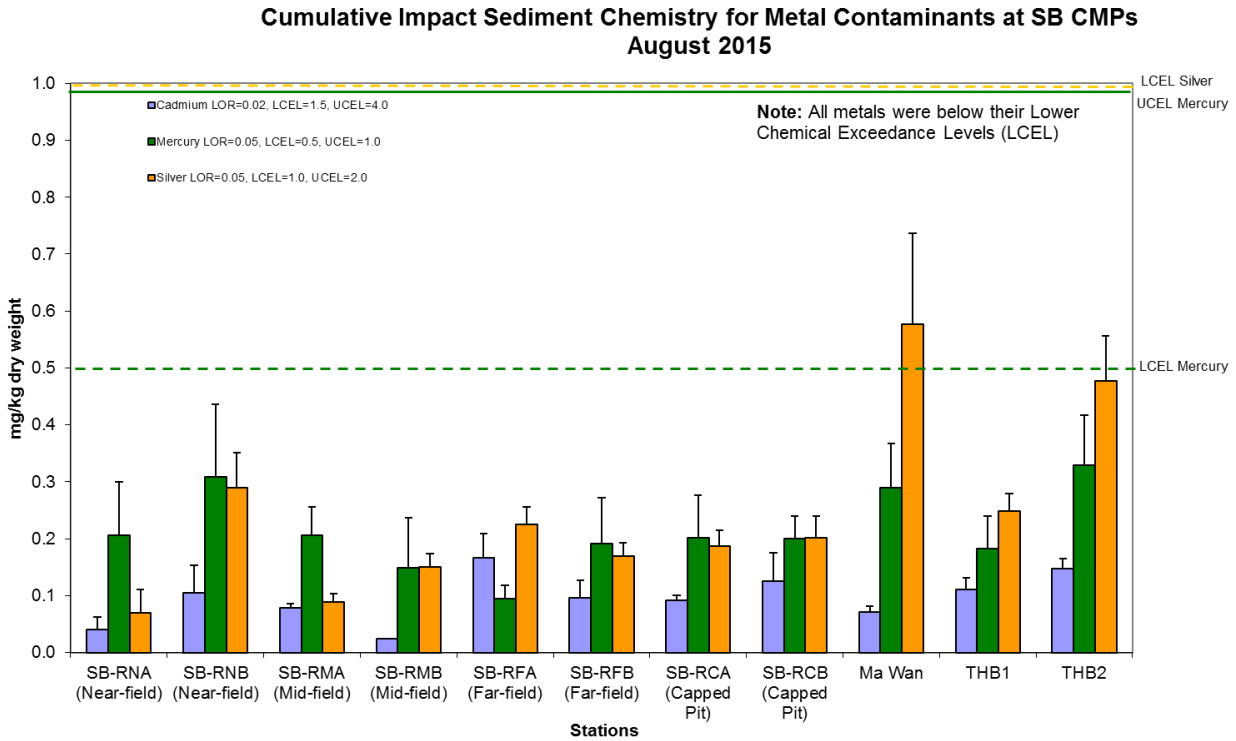


Figure 7: Concentration of Metals (Cd, Hg, Ag; mean +SD) in sediment samples collected from Cumulative Impact Sediment Chemistry Monitoring for SB CMPs in August 2015.

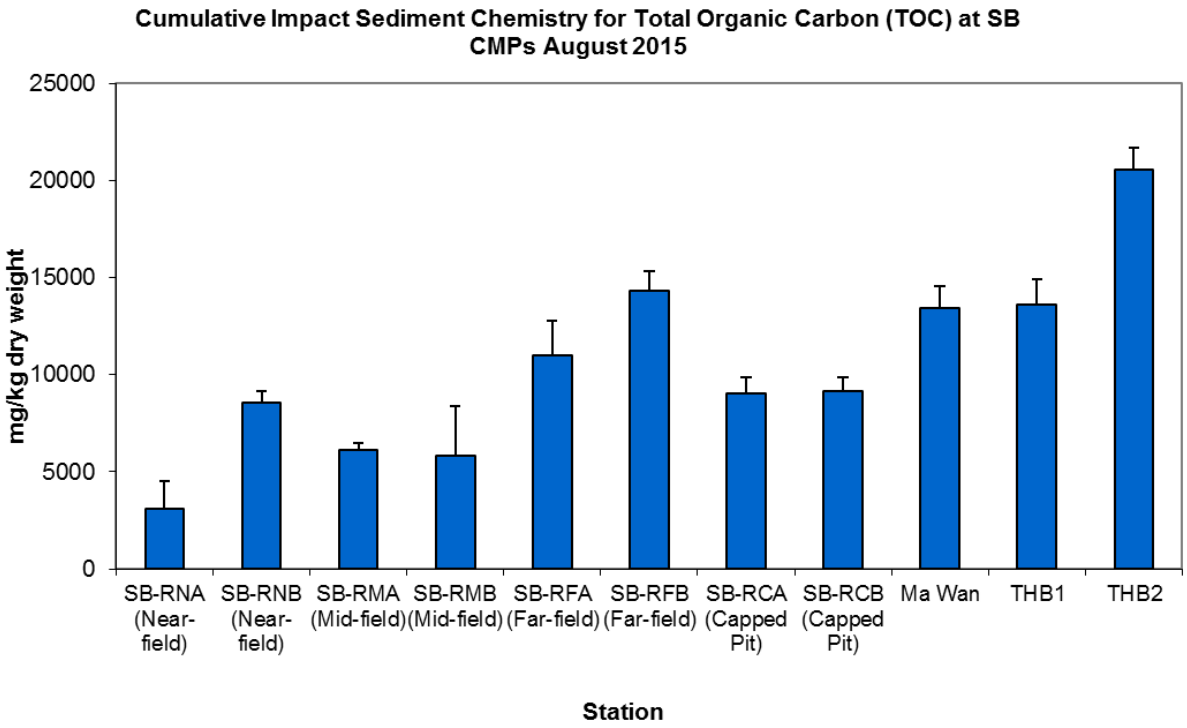


Figure 8: Concentration of Total Organic Carbon (mg/kg dry weight; mean +SD) in sediment samples collected from Cumulative Impact Sediment Chemistry Monitoring for SB CMPs in August 2015.

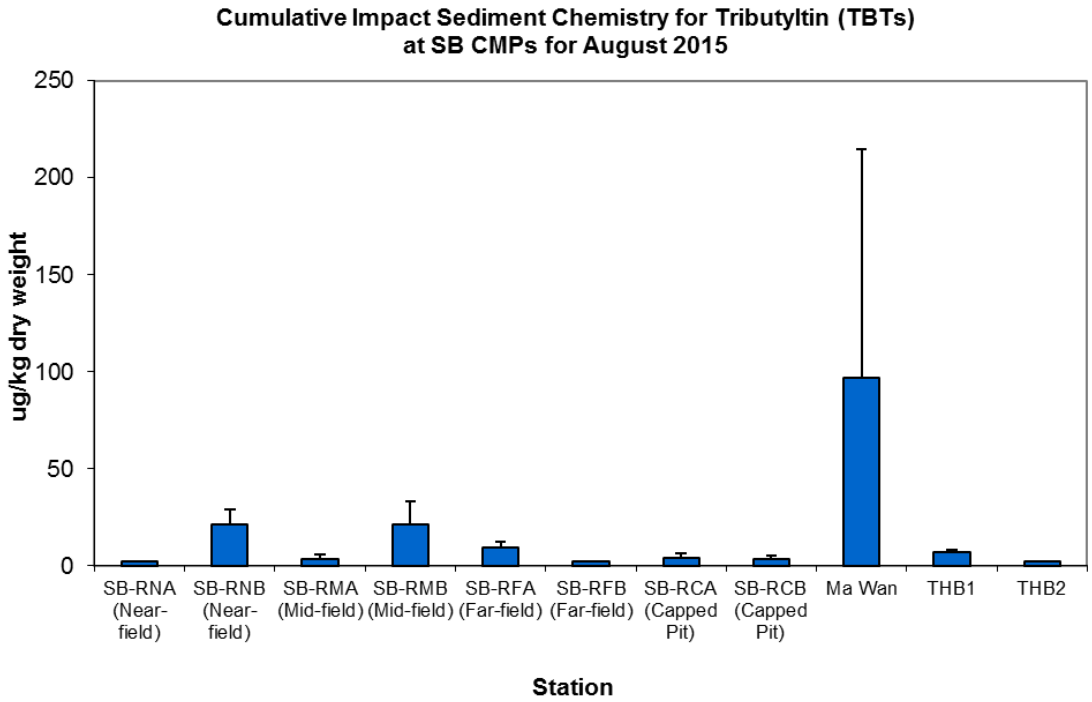


Figure 9: Concentration of Tributyltin (µg TBT/kg; mean +SD) in sediment samples collected from Cumulative Impact Sediment Chemistry Monitoring for SB CMPs in August 2015.

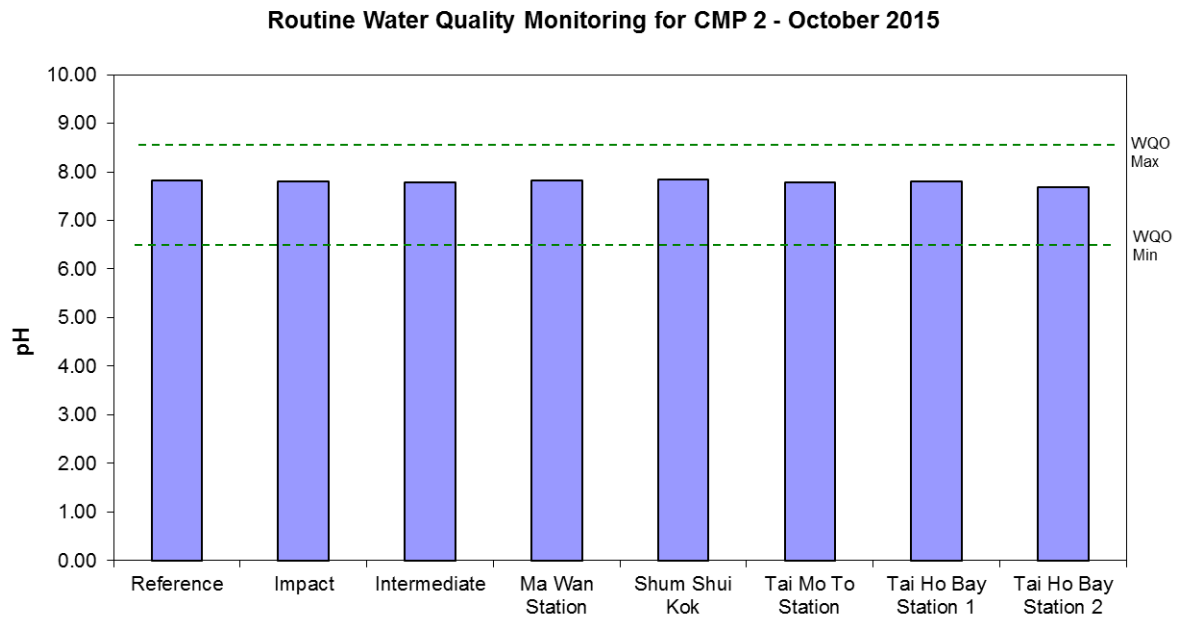


Figure 10: Level of pH recorded during Routine Water Quality Monitoring for disposal operations at CMP 2 in October 2015.

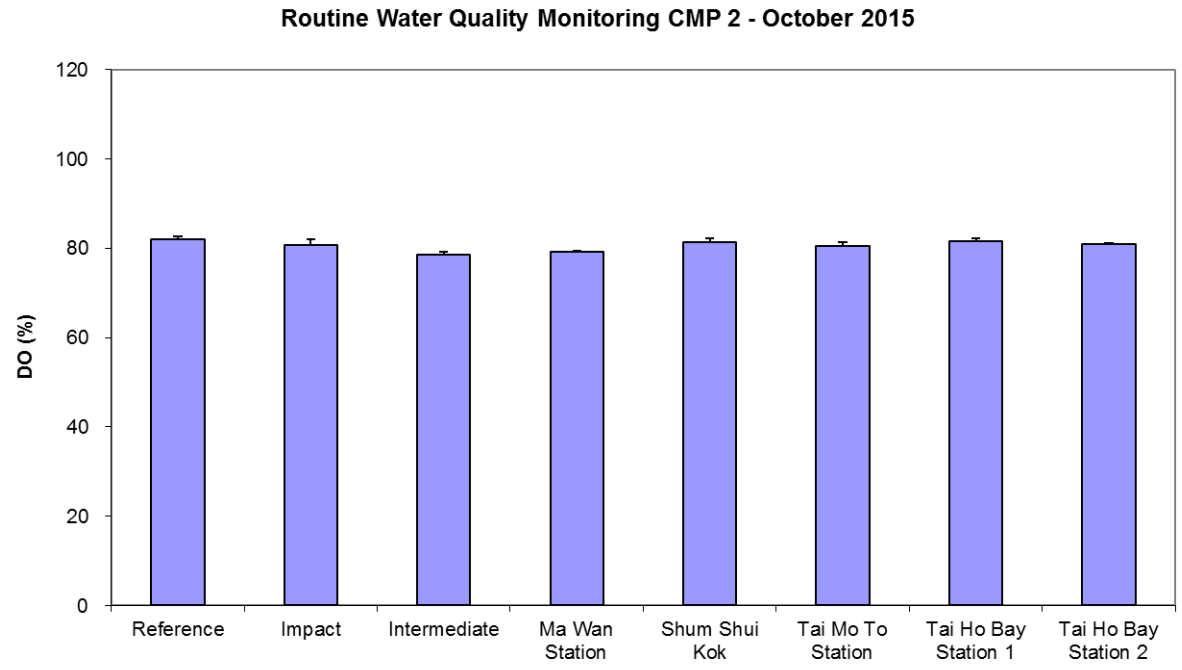


Figure 11: Level of Dissolved Oxygen (% saturation; mean + SD) recorded during Routine Water Quality Monitoring for disposal operations at CMP 2 in October 2015.

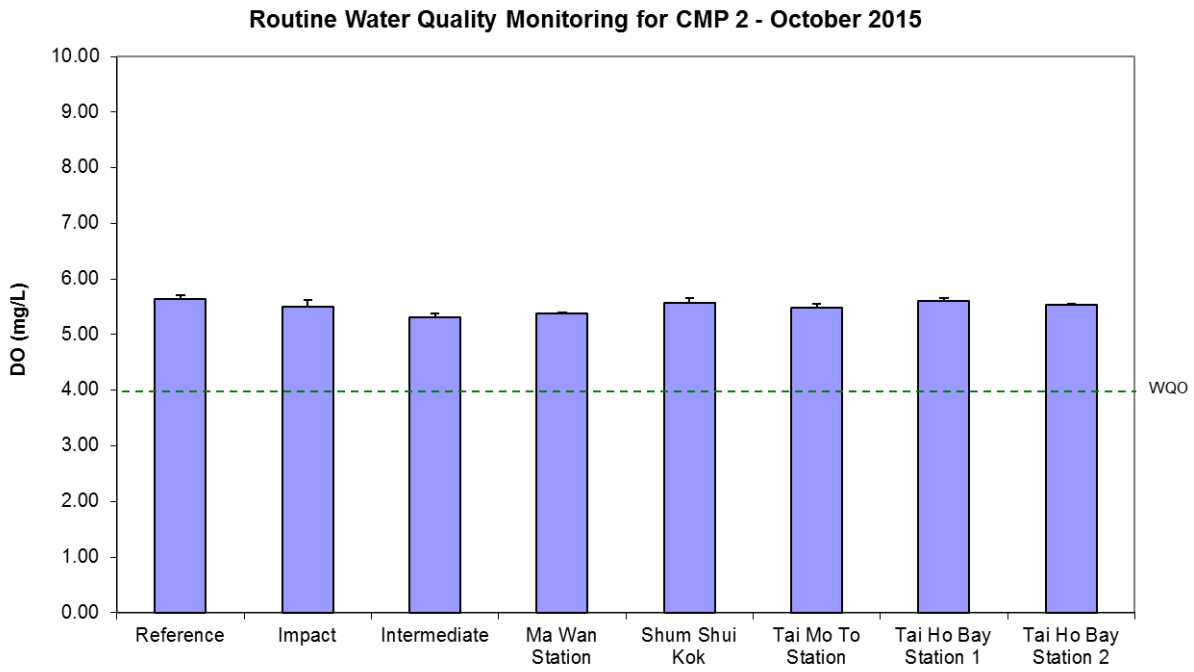


Figure 12: Concentration of Dissolved Oxygen (mg/L; mean + SD) recorded during Routine Water Quality Monitoring for disposal operations at CMP 2 in July 2015.

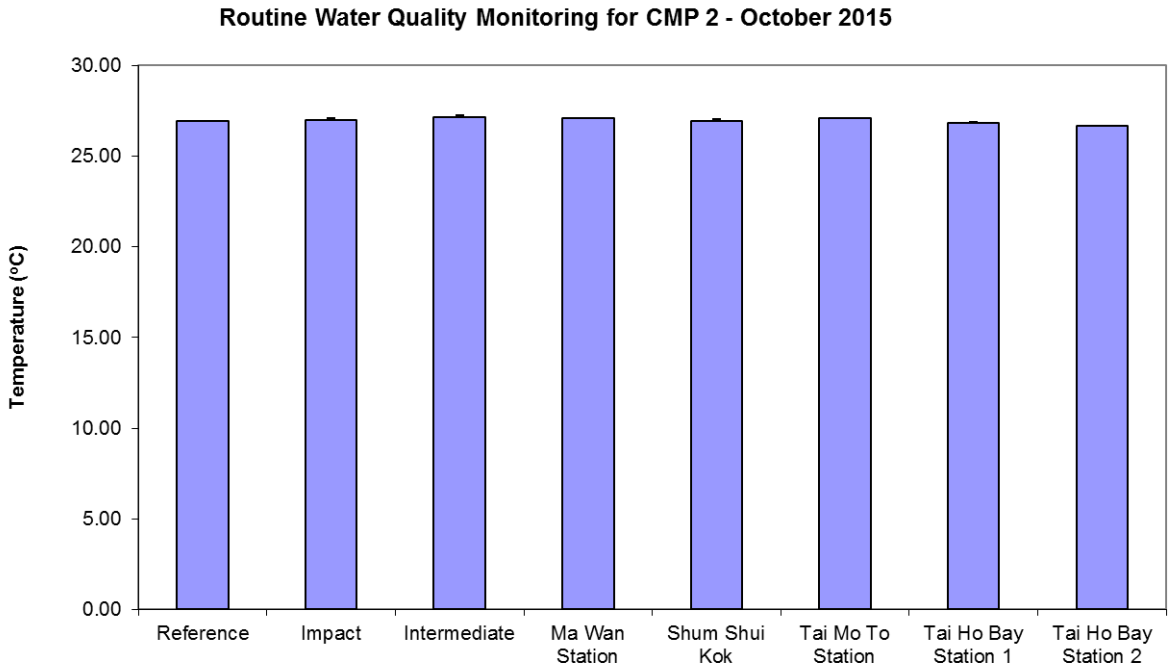


Figure 13: Level of Temperature (˚C; mean + SD) recorded during Routine Water Quality Monitoring for disposal operations at CMP 2 in October 2015.

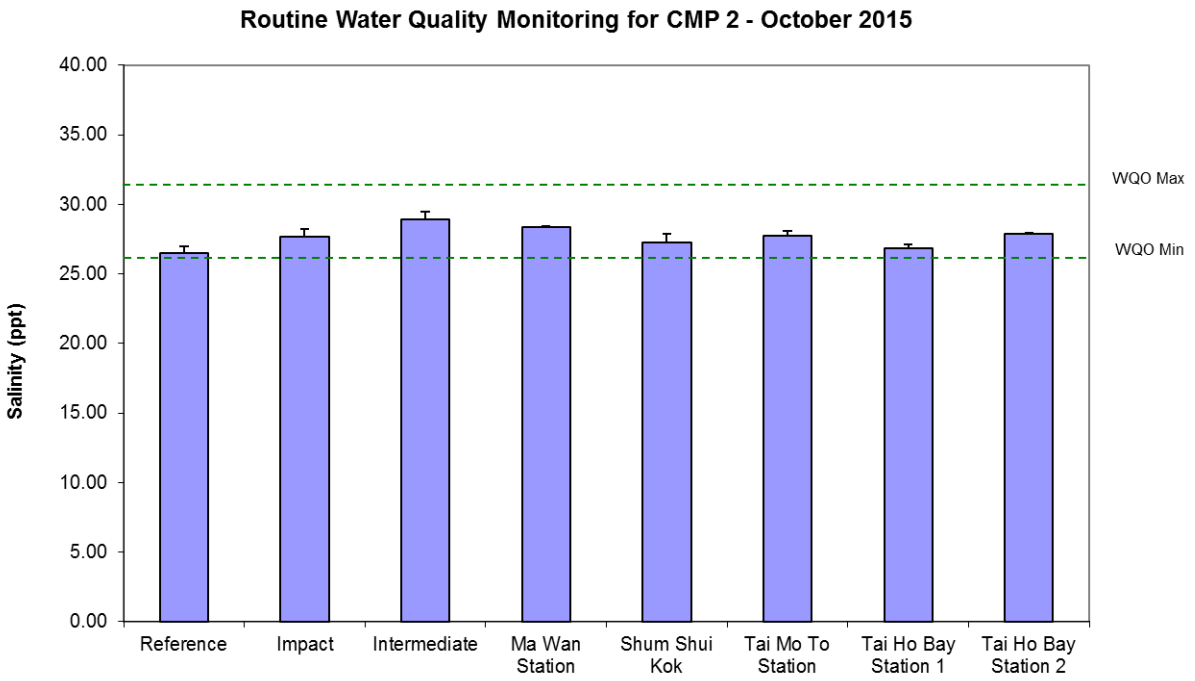


Figure 14: Level of Salinity (ppt; mean + SD) recorded during Routine Water Quality Monitoring for disposal operations at CMP 2 in October 2015.

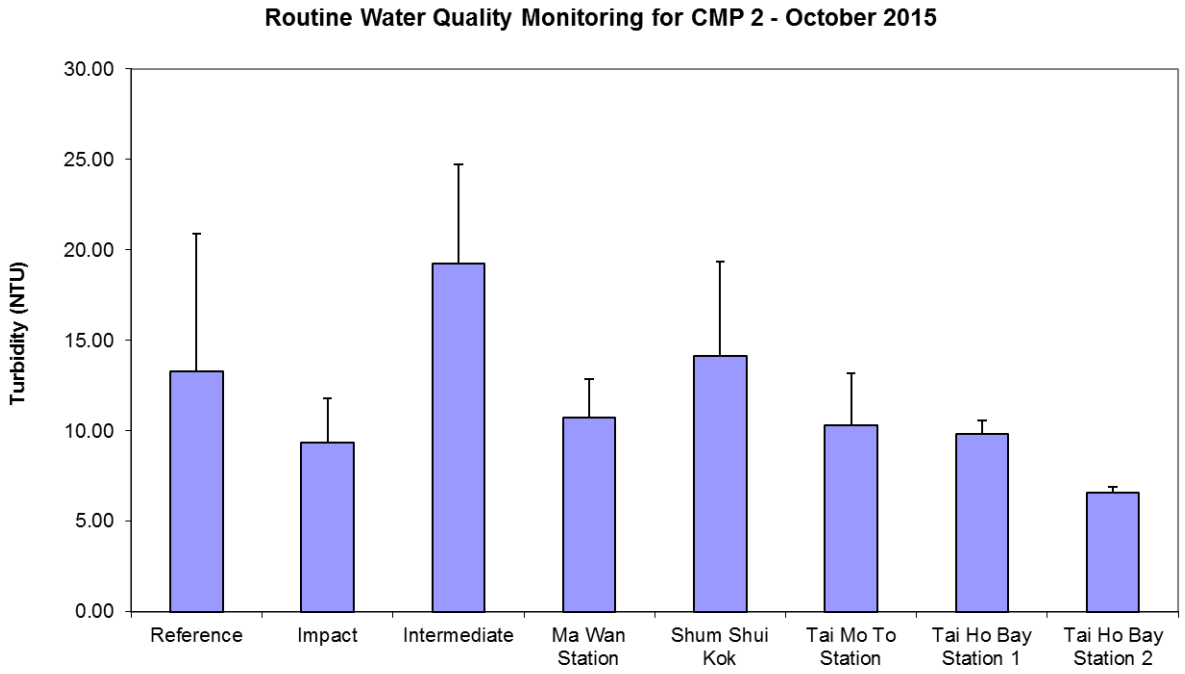


Figure 15: Levels of Turbidity (NTU; ,mean + SD) recorded during Routine Water Quality Monitoring for disposal operations at CMP 2 in October 2015.

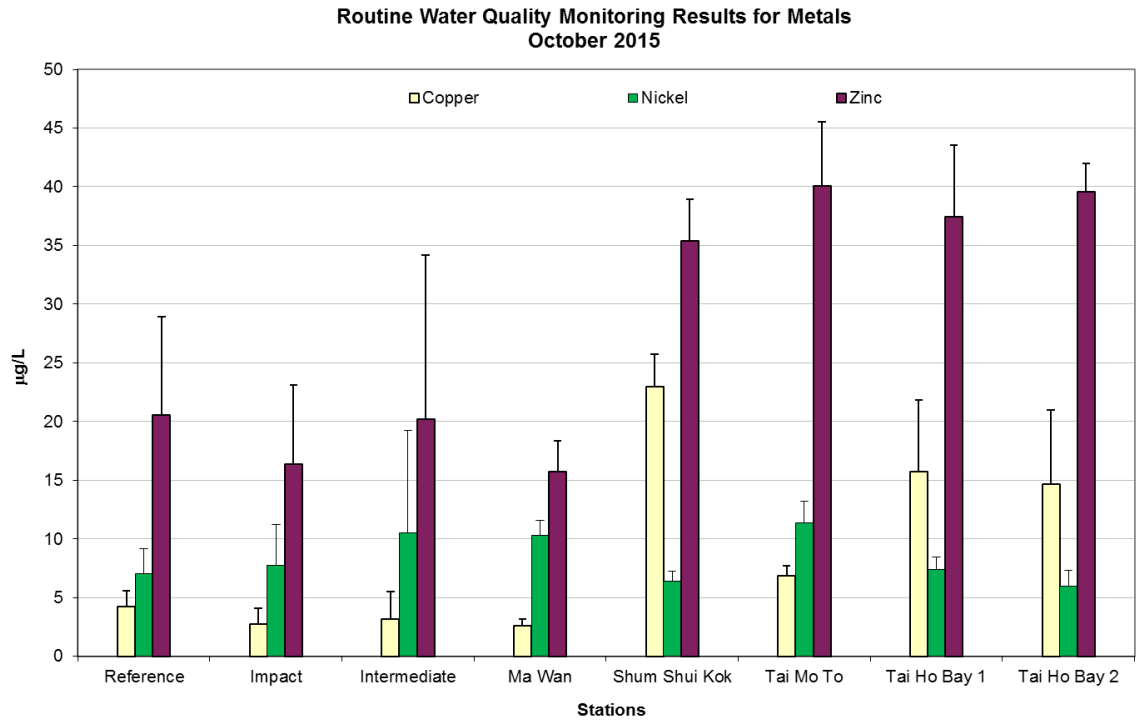


Figure 16: Concentration of Copper, Nickel and Zinc (µg/L; mean + SD) in water samples collected from Routine Water Quality Monitoring for disposal operations at CMP 2 in October 2015.

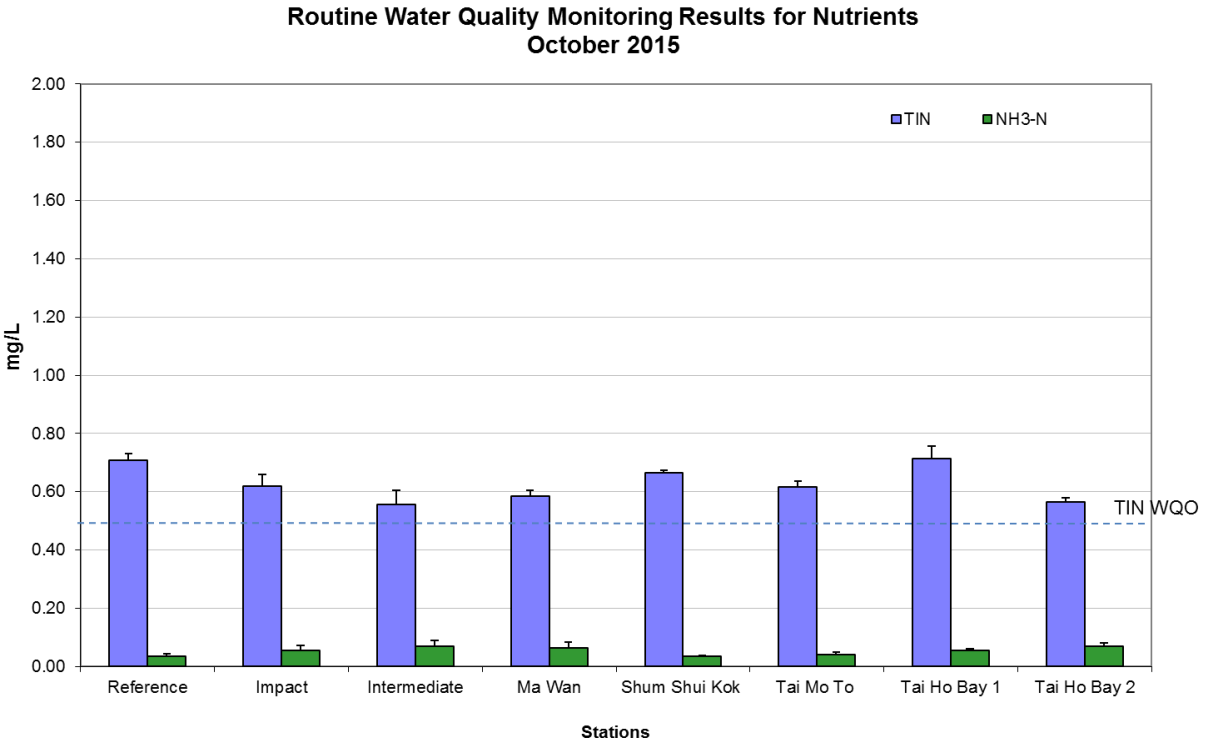


Figure 17: Concentration of Total Inorganic Nitrogen and NH3-N (µg/L; mean + SD) in water samples collected from Routine Water Quality Monitoring for disposal operations at CMP 2 in October 2015.

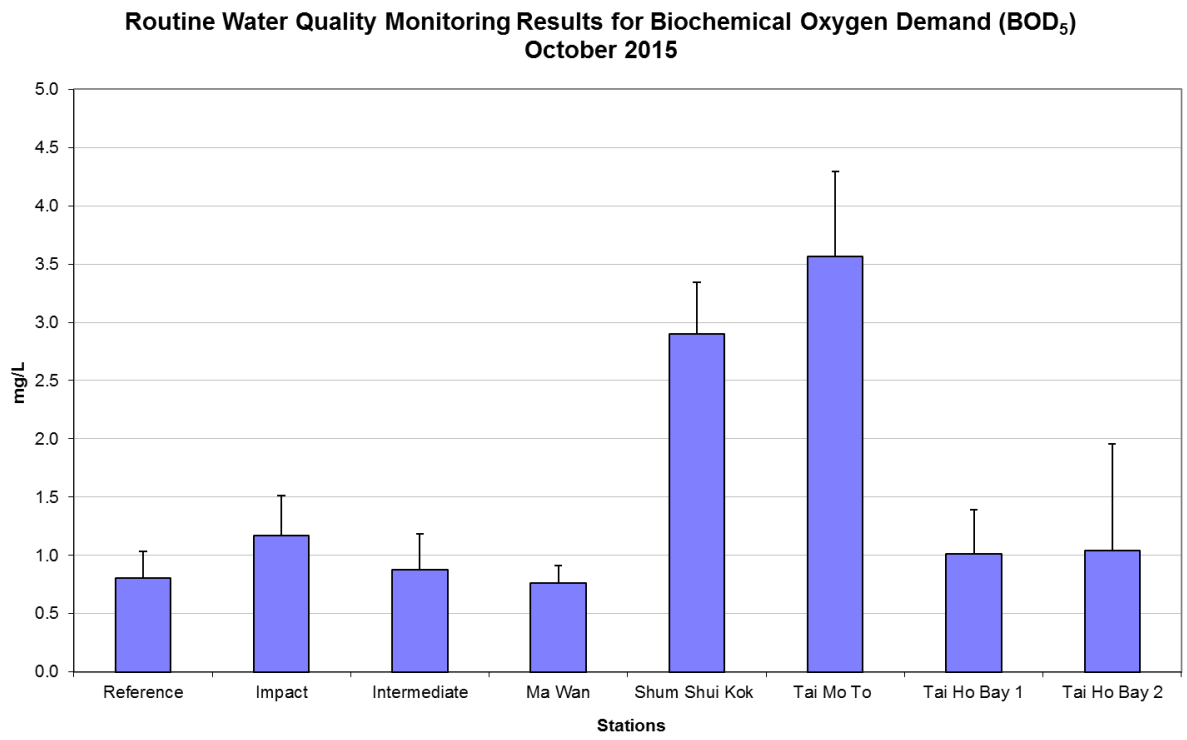


Figure 18: Level of Biochemical Oxygen Demand (BOD5) (mg/L; mean + SD) in water samples collected from Routine Water Quality Monitoring for disposal operations at CMP 2 in October 2015.

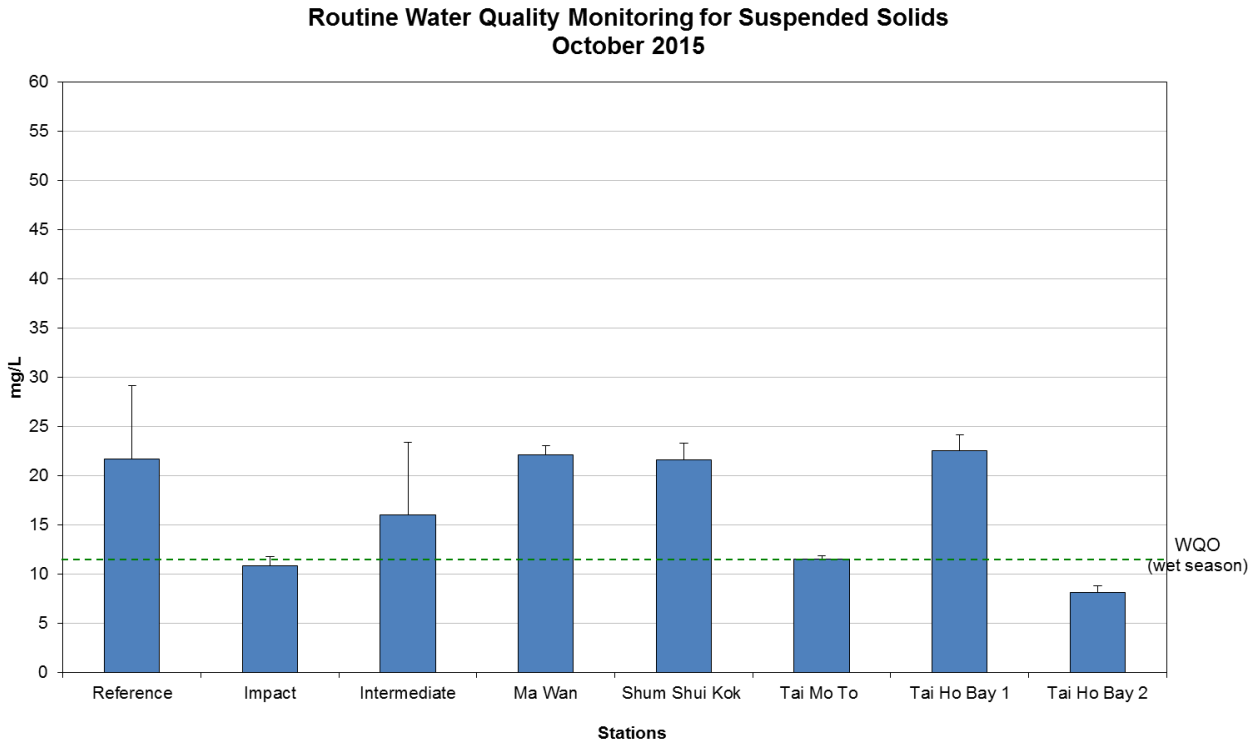
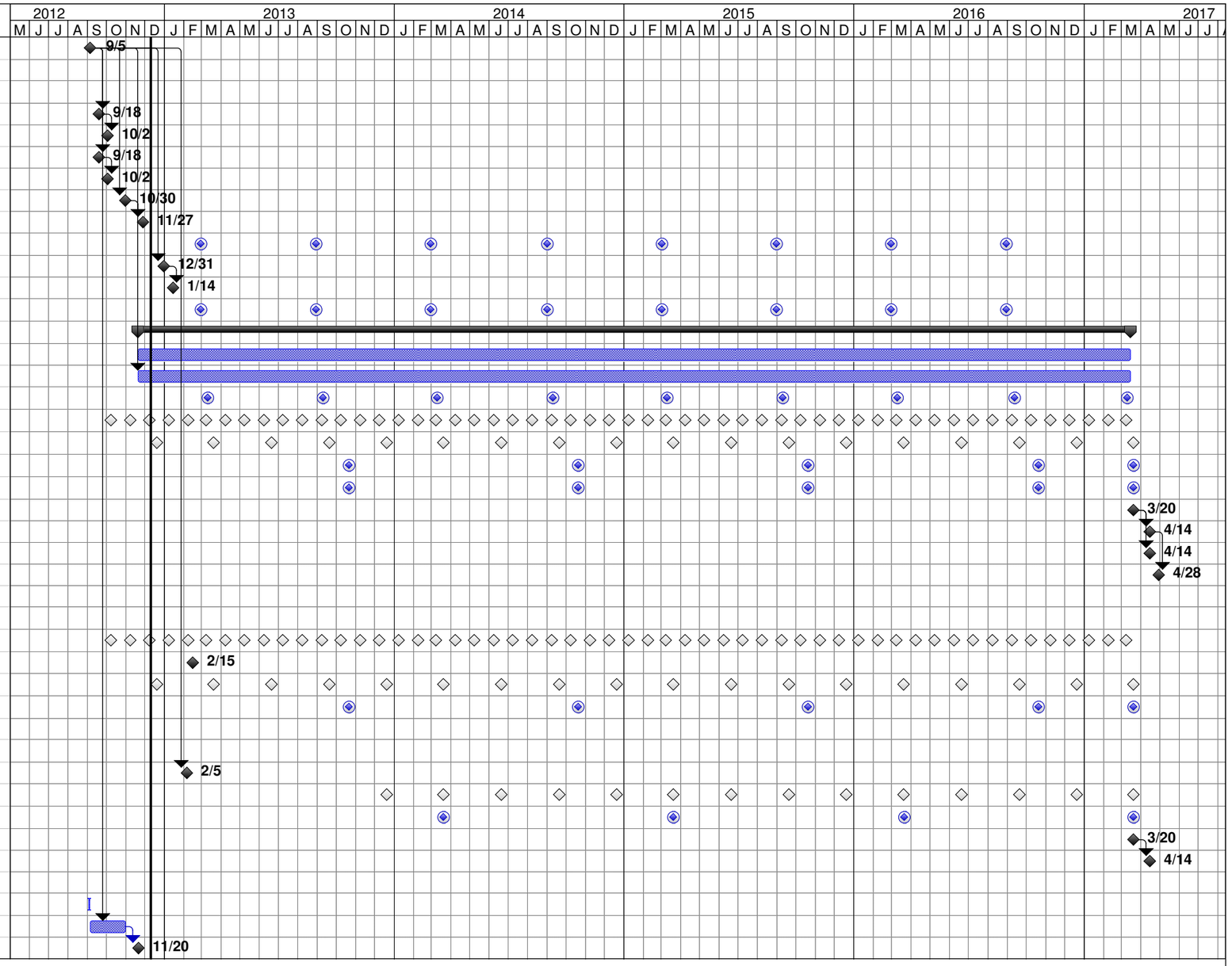


Figure 19: Concentration of Suspended Solids (mg/L; mean + SD) in water samples collected from Routine Water Quality Monitoring for disposal operations at CMP 2 in October 2015.

Annex E

Study Programme

Task Name
Project Commencement
For South Brothers CMPs and East of Sha Chau CMPs
Submission of Draft Inception Report & Draft Programme
Submission of Final Inception Report & Final Programme
Submission of Draft EM&A Manual (First Review)
Submission of Final EM&A Manual (First Review)
Submission of Draft EM&A Manual (Second Review)
Submission of Final EM&A Manual (Second Review)
Submission of Subsequent EM&A Manual Updates
Submission of Draft Operations Manual
Submission of Final Operations Manual
Submission of Operations Manual Updates
Monitoring Contracts
Regular Site Inspections of CMP Contractors
Participate in Liaison Group Meetings/ Consultations as required by CEDD
Submission of Report on Dredging & Capping Operations
Submission of Monthly Progress Report
Submission of Quarterly EM&A Report
Submission of Annual Review Report
Submission of Annual Risk Assessment Report
Submission of Draft Final Report
Submission of the Final Report
Submission of Draft Executive Summary Report
Submission of Final Executive Summary Report
For East Tung Lung Chau Disposal Facility
Submission of Monitoring Results & Monthly EM&A Progress Report
Submission of Initial Review Report (assume disposal commences in November 2012)
Submission of Quarterly EM&A Report
Submission of Annual Report
Alternative / Modified Capping Design
Submission of Investigation Report
Submission of Quarterly Report
Submission of Annual Report
Submission of Draft Final Report
Submission of the Final Report
Baseline Pelagic and Demersal Fisheries Survey
Baseline Shrimp Trawl & Hang Trawl Surveys, twice before SB CMPs dredging
Submission of Baseline Pelagic and Demersal Fisheries Survey Report



Study Programme	Task	Milestone	Summary	Rolled Up Task	Rolled Up Milestone

Agreement No. CE 23/2012 (EP) Environmental Monitoring and Audit for Contaminated Mud Pits to the South of The Brothers and at East Sha Chau (2012-2017) - Investigation