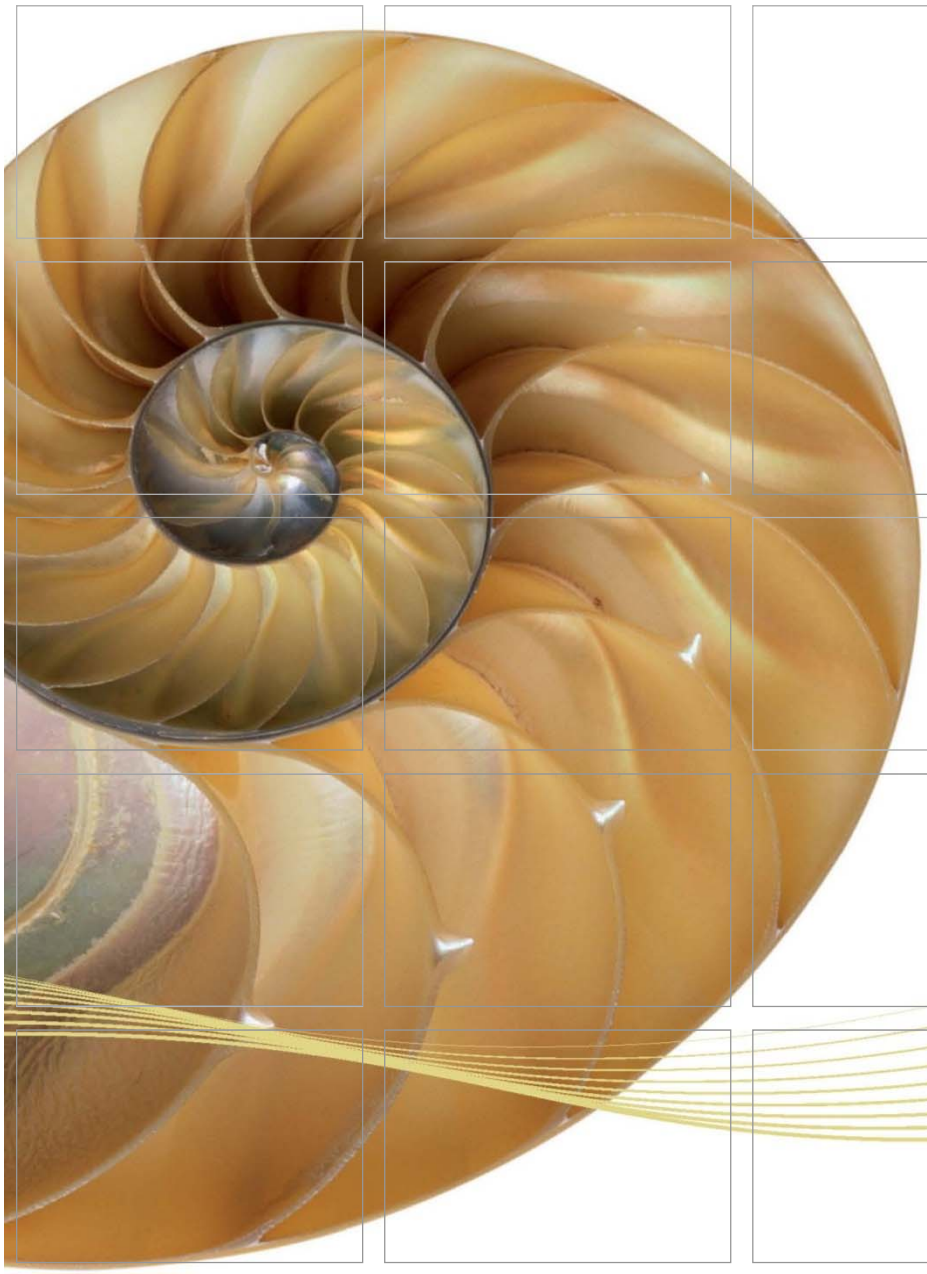
REPORT



Asia Submarine-cable Express (ASE) – Tseung Kwan O

Baseline Water Quality Monitoring Report (Zone A)

19 September 2012

Environmental Resources Management
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Client:	GMS No:
NTT Com Asia Ltd	0171870
Summary: This report presents the monitoring requirements, methodologies and results of the baseline ambient marine water quality measurements at the monitoring locations near Tseung Kwan O in accordance with the EM&A Manual.	Date: 19 September 2012 Approved by:  *Terence Fong* *Project Director*

Revision	Description	By	Checked	Approved	Date
0	Baseline Water Quality Monitoring Report	YL	GYANG	TFONG	19 Sep 12

Distribution

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Asia Submarine-cable Express (ASE) – Tseung Kwan O
Environmental Certification Sheet
EP-433/2011

Reference Document/Plan

Document/~~Plan~~ to be ~~Certified~~/ Verified:	Baseline Water Quality Monitoring Report (Zone A)
Date of Report:	19 September 2012
Date prepared by ET:	ERM-Hong Kong Ltd
Date received by IEC:	Ecosystem Ltd

Reference EM&A Manual/ EP Requirement

EM&A Manual Requirement: Section 2

Content: *Water Quality Monitoring*

2.5 "The Baseline Monitoring Report shall be provided no later than two weeks before the cable laying work and report should be submitted to EPD for agreement on the Action/Limit Levels….."

2.6 "The Baseline Monitoring Report shall include the following details: brief project background information; drawings showing locations of the baseline monitoring station; an updated construction programme with milestones of environmental protection/ mitigation activities annotated… "

EP Condition: Condition No. 2.4

Content: *Baseline Monitoring Report on Water Quality*

(ii)(a) To monitor the environmental impacts and timely implementation of the recommended mitigation measures, the Permit Holder shall submit to the Director four hard copies and one electronic copy of the baseline monitoring report on water quality no later than two weeks before the commencement of construction works, as defined in the approved EM&A Manual.

ET Certification

I hereby certify that the above referenced document/~~plan~~ complies with the above referenced condition of EP-433/2011.

Terence Fong, Environmental Team Leader: Date: 19 September 2012

IEC Verification

I hereby verify that the above referenced document/~~plan~~ complies with the above referenced condition of EP-433/2011.

Vincent Lai, Independent Environmental Checker: Date: 19 September 2012

CONTENTS

ANNEXES

EXECUTIVE SUMMARY

Baseline Water Quality Monitoring

Baseline water quality monitoring has been conducted between 29 August and 3 September 2012 at 11 designated monitoring stations (7 Sensitive Receiver Stations, 3 Gradient Stations and 1 Control Station) established for the Project. *In situ* water quality measurements and water samples were taken at the monitoring stations on three occasions (days), at three depths (surface, middle and bottom) where practical. The intervals between two sets of monitoring were not less than 36 hours. The water quality sampling was undertaken within a 3 hour window of 1.5 hour before and 1.5 hour after mid flood and mid-ebb tides. The tidal range selected for the baseline monitoring was at least 0.5 m for both flood and ebb tides as far as practicable.

No major activities influencing water quality were observed in the vicinity of the Project's marine works area during the baseline monitoring. Water quality monitoring results are, therefore, considered to be representative for the baseline conditions of the areas where marine works will be undertaken for the Project.

In accordance with the *EM&A Manual*, the baseline monitoring results were used to determine the Action and Limit Levels for Dissolved Oxygen (DO), Suspended Solids (SS) and Turbidity for the impact water quality monitoring which will be conducted during marine works of the Project. The Action and Limit Levels are summarized in *Table 1* below.

Table 1 Action and Limit Levels for Water Quality

Parameter	Action Level	Limit Level
SS in mgL^{-1} (Depth-averaged) (a) (c)	95%-ile of baseline data ($6.27\ mg\ L^{-1}$), or	99%-ile of baseline data ($6.40\ mg\ L^{-1}$) , and
	20% exceedance of value at any impact station compared with corresponding data from control station	30% exceedance of value at any impact station compared with corresponding data from control station
DO in mgL^{-1} (b)	Surface and Middle(d) 5%-ile of baseline data for surface and middle layer (4.36 mg L-1)	Surface and Middle(d) 5mg/L or 1%-ile of baseline for surface and middle layer (4.25 mg L-1)
	Bottom 5%-ile of baseline data for bottom layers ($4.39\ mg\ L^{-1}$)	Bottom 2mg/L or 1%-ile of baseline data for bottom layer ($4.33\ mg\ L^{-1}$)
Turbidity in NTU (Depth-averaged) (a) (c)	95%-ile of baseline data (4.38 NTU), or	99%-ile of baseline data (4.43 NTU), and
	20% exceedance of value at any impact station compared with corresponding data from control station	30% exceedance of value at any impact station compared with corresponding data from control station

Notes:

e. "Depth-averaged" is calculated by taking the arithmetic means of reading of all sampled depths.

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

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

h. The Action and Limit Level for DO for surface and middle layer were calculated from the combined pool of baseline surface layer data and baseline middle layer data.

1 INTRODUCTION

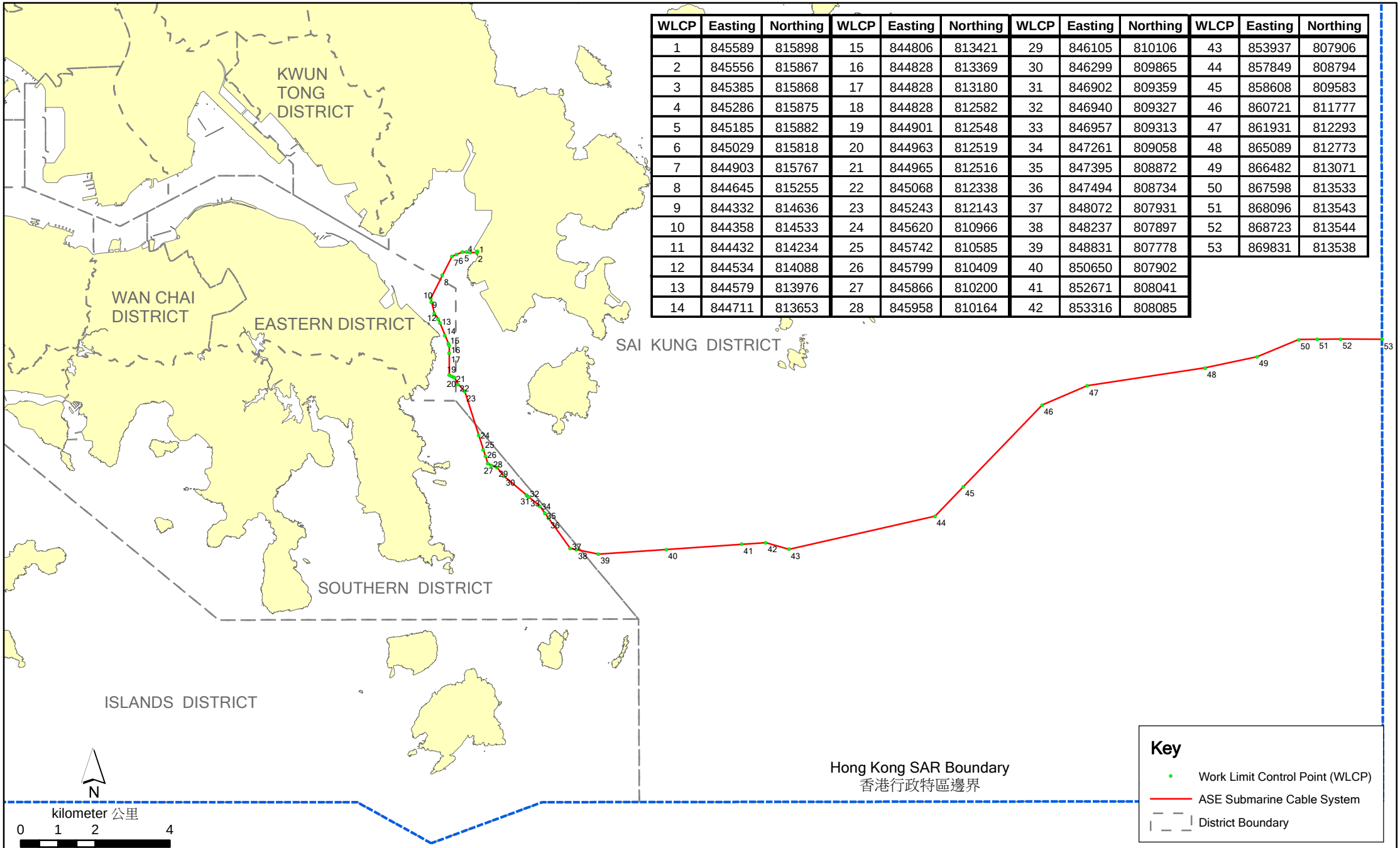
1.1 BACKGROUND

NTT Com Asia (NTTCA) proposes to install a telecommunication cable (Asia Submarine-cable Express (ASE) cable) of approximately 7,200 km in length, connecting Japan and Singapore with branches to the Philippines, Hong Kong SAR (HKSAR) and Malaysia. NTTCA is responsible for securing the approval to land the ASE cable in Tseung Kwan O, Hong Kong SAR (HKSAR). The proposed landing site will be at a new Beach Manhole (BMH) and ultimately connect with a Data Centre in Tseung Kwan O (TKO) Industrial Estate which is scheduled for completion in 2012. It should be noted that Tseung Kwan O is currently the landing site for a number of submarine cables. From Tseung Kwan O, the cable will extend eastward approaching the Tathong Channel. Near to Cape Collinson, the cable is approximately parallel to the Tathong Channel until north of Waglan Island where the cable travels eastward to the boundary of HKSAR waters where it enters the South China Sea. The total length of cable in Hong Kong SAR waters is approximately 33.5 km. A map of the proposed cable route is presented in *Figure 1.1*.

A Project Profile (PP-452/2011) which includes an assessment of the potential environmental impacts associated with the installation of the submarine telecommunications cable system was prepared and submitted to the Environmental Protection Department (EPD) under section 5.(1)(b) and 5.(11) of the *Environmental Impact Assessment Ordinance (EIAO)* for the application for Permission to apply directly for Environmental Permit (EP). The Environmental Protection Department, subsequently issued an Environmental Permit (EP- 433/2011).

Pursuant to *Condition 2.4* of the *EP*, an environmental monitoring and audit (EM&A) programme as set out in the *Environmental Monitoring and Audit Manual (M&A Manual)* is required to be implemented. In accordance with the *EM&A Manual*, baseline monitoring of marine water quality should be undertaken for the Project. This *Water Quality Baseline Monitoring Report* ("the Report") is prepared by ERM-Hong Kong, Limited (ERM) on behalf of NTT Com Asia (NTTCA) to present the methodology and findings of the baseline marine water quality monitoring for the Project.

Given that the water sampling stations in Zone A are situated quite far away from those in Zones B and C, and the commencement dates of construction in each zone are also different, it is recommended to present the baseline data in separate reports (i.e. Part A for Zone A, Part B for Zone B and Part C for Zone C) and the corresponding Action and Limit Levels will be derived from the baseline data for each zone.



WLCP	Easting	Northing	WLCP	Easting	Northing	WLCP	Easting	Northing	WLCP	Easting	Northing
1	845589	815898	15	844806	813421	29	846105	810106	43	853937	807906
2	845556	815867	16	844828	813369	30	846299	809865	44	857849	808794
3	845385	815868	17	844828	813180	31	846902	809359	45	858608	809583
4	845286	815875	18	844828	812582	32	846940	809327	46	860721	811777
5	845185	815882	19	844901	812548	33	846957	809313	47	861931	812293
6	845029	815818	20	844963	812519	34	847261	809058	48	865089	812773
7	844903	815767	21	844965	812516	35	847395	808872	49	866482	813071
8	844645	815255	22	845068	812338	36	847494	808734	50	867598	813533
9	844332	814636	23	845243	812143	37	848072	807931	51	868096	813543
10	844358	814533	24	845620	810966	38	848237	807897	52	868723	813544
11	844432	814234	25	845742	810585	39	848831	807778	53	869831	813538
12	844534	814088	26	845799	810409	40	850650	807902			
13	844579	813976	27	845866	810200	41	852671	808041			
14	844711	813653	28	845958	810164	42	853316	808085			

Figure 1.1

Proposed ASE Submarine Cable System (Layout Plan)

File: 0171870_Landing_Overview_20110815.mxd
Date: 17/09/2012

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1.2 PURPOSE OF THIS REPORT

The purpose of this *Baseline Water Quality Monitoring Report (Part A)* is to determine the baseline marine water quality at the designated monitoring locations around the Project works area in Zone A prior to the commencement of the cable laying works of the Project. Such baseline conditions will be used as the basis for assessing water quality impacts, if any, and for compliance monitoring during the construction of the Project.

Under the requirement of *Condition 2.4* of the *EP*, the baseline monitoring report on water quality shall be prepared and submitted to the DEP no later than two weeks before the commencement of construction works of the Project.

1.3 STRUCTURE OF THE REPORT

The remainder of the report is structured as follows:

Section 1: Introduction

Provide details of the background, purpose and structure of the report.

Section 2: Water Quality Monitoring

Summarize the water quality monitoring locations and frequency, monitoring methodology and baseline monitoring results, and establishes the Action and Limit Levels in accordance with the *EM&A Manual*.

Section 3: Conclusion

Conclude the representativeness of the baseline monitoring results and observations for the Project.

2.1 MONITORING LOCATION

Baseline water quality monitoring in Zone A was conducted prior to the commencement of cable laying works at the monitoring stations listed in *Table 2.1* and shown in *Figure 2.1.*

- E7 is the Impact Station located at Fat Tong Chau to monitor the impacts of cable installation works on the coral communities in the proximity;
- E8 is an Impact Station to monitor the impacts of cable installation works on the coral communities along Junk Bay – South West;
- E9 is an Impact Station to monitor the impacts of cable installation works on the coral communities at Cape Collison (the Gradient Station is not set due to the short distance of this Impact Station to near by proposed cable works which may affect the cable laying works);
- F1 is an Impact Station to monitor the impacts of cable installation works on the Tung Lung Chau Fish Culture Zone;
- S1 is an Impact Station situated at the WSD Seawater Intake Point in Junk Bay. It is located within 500 m north of the cable alignment at Junk Bay and set up to monitor the effect of cable laying works in the area;
- S2 is an Impact Station to monitor the impacts of cable installation works on the WSD Seawater Intake at Siu Sai Wan;
- S3 is an Impact Station to monitor the impacts of cable installation works on the Pamela Youde Nethersole Eastern Hospital Cooling Water Intake at Heng Fa Chuen;
- G1 is a Gradient Station between S1 and the cable alignment;
- G2 is a Gradient Station between S2 and the cable alignment;
- G3 is a Gradient Station between F1 and the cable alignment; and
- C1 is a Control Station (approximately 3 km from the proposed cable alignment) for Zone A. It is not supposed to be influenced by the cable laying works due to its remoteness to the construction works.

Table 2.1 Water Quality Monitoring Stations

Monitoring Station	Nature	Easting	Northing
E7	Impact Station (Coral Community)	843779	814520
E8	Impact Station (Coral Community)	843111	815126
E9	Impact Station (Coral Community)	843557	811853
F1	Impact Station (Fish Culture Zone)	847196	811056

Monitoring Station	Nature	Easting	Northing
S1	Impact Station (Seawater Intakes)	847639	805900
S2	Impact Station (Seawater Intakes)	849587	805696
S3	Impact Station (Seawater Intakes)	845474	810605
G1	Gradient Station	845297	816282
G2	Gradient Station	844071	814784
G3	Gradient Station	846099	812826
C1	Control Station	842022	816547

2.2 SAMPLING AND TESTING METHODOLOGY

2.2.1 Monitoring Parameters

The parameters measured *in situ* were:

- Dissolved Oxygen (DO) (% saturation and mg L^{-1})
- Salinity (ppt)
- Temperature (^{o}C)
- Turbidity (NTU)

The only parameter to be measured in the laboratory was:

- Suspended solids (SS) (mg L^{-1})

In addition to the water quality parameters, other relevant data were also measured and recorded in field logs, including the location of the sampling stations, water depth, time, weather conditions, sea conditions, tidal state, current direction and speed, special phenomena and work activities undertaken around the monitoring and works area that may influence the monitoring results.

2.2.2 Monitoring Equipment

Table 2.2 summaries the equipment used for the baseline water quality monitoring.

Table 2.2 Equipment used during the Baseline Water Quality Monitoring Programme

Equipment	Model
Global Positioning Device	Garmin etrex 10
Water Depth Gauge	Speedtech Instrument SM-5A
Water Sampling Equipment	1510 Kemmerer Water Sampler
Salinity, DO, Temperature Measuring Meter	YSI Pro 2030
Current Velocity and Direction	Flow Probe FP11
Turbidity Meter	HACH Model 2100Q Turbid Meter

2.2.3 Monitoring Frequency and Timing

The water monitoring was carried out on three occasions (days) and the intervals between two sets of monitoring were not less than 36 hours. The

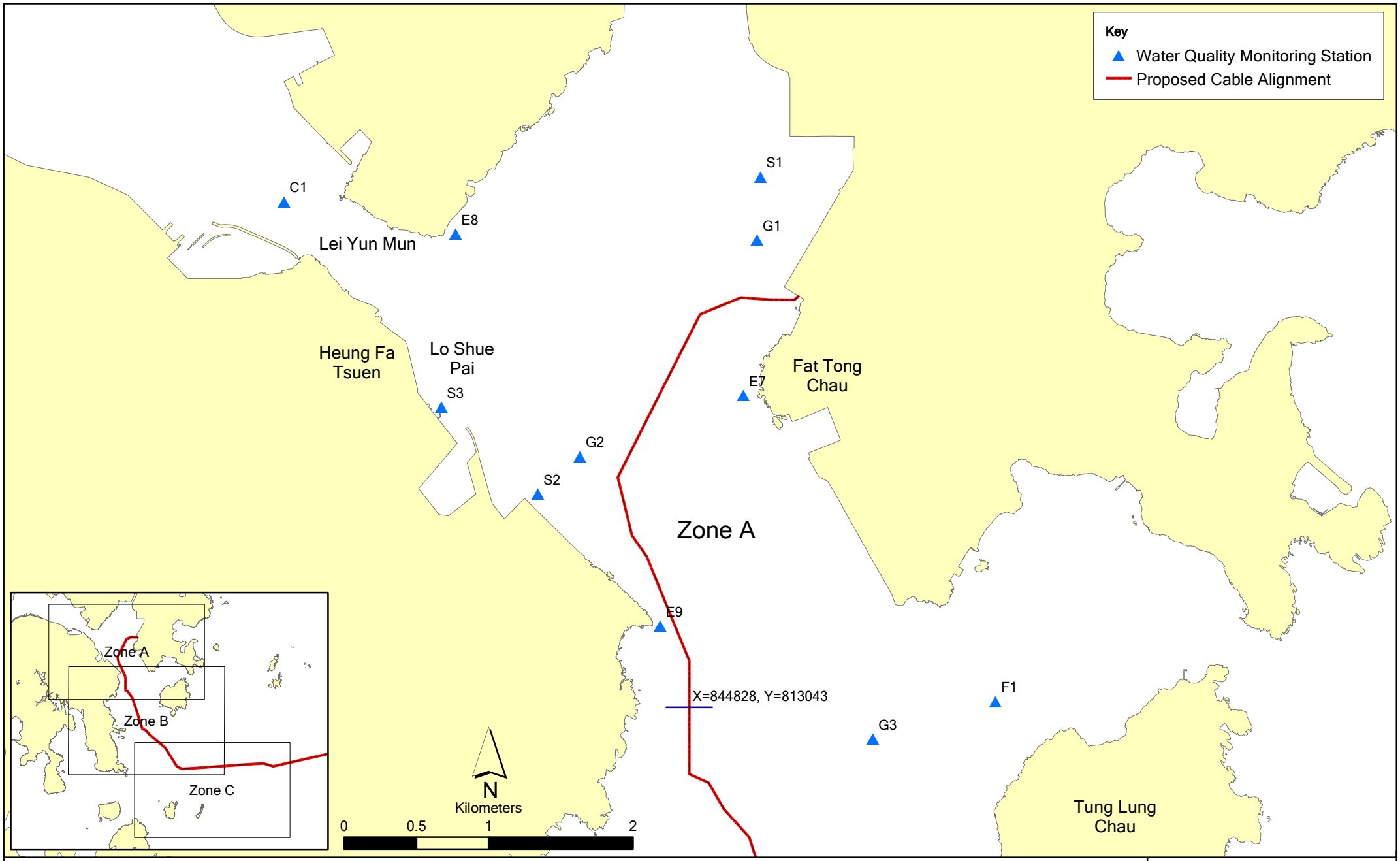

Figure 2.1

Proposed Water Quality Monitoring Station (Zone A)

File:0171870_Proposed_WQMS_ZoneA.mxd
Date: 17/09/2012

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water quality sampling was undertaken within a 3 hour window of 1.5 hour before and 1.5 hour after mid flood and mid-ebb tides. The tidal range selected for the baseline monitoring was at least 0.5 m for both flood and ebb tides as far as practicable.

Reference were made to the predicted tides at Tai Miu Wan, which is the tidal station nearest to the Project Site, published on the website of the Hong Kong Observatory [1]. Based on the predicted tidal levels at Tai Miu Wan, the baseline water quality monitoring was conducted between 29 August and 3 September 2012, following the schedule presented in *Annex A*. Schedule for baseline monitoring has been submitted to the Contractor, Independent Environmental Checker (IEC), Engineer Representative (ER) and Environmental Protection Department (EPD) one week prior to the commencement of the monitoring works.

2.2.4 *Sampling/ Testing Protocol*

All *in situ* monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use (see calibration reports in *Annex B*), and subsequently re-calibrated at-monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes were checked with certified standard solutions before each use.

For the on-site calibration of field equipment, the *BS 1427: 1993, Guide to Field and On-Site Test Methods for the Analysis of Waters* was observed. Sufficient stocks of spare parts were maintained for replacements when necessary. Backup monitoring equipment was made available.

Water samples for SS measurements were collected in high density polythene bottles, packed in ice (cooled to 4° C without being frozen), and delivered to a HOKLAS laboratory as soon as possible after collection.

3 replicate samples were collected from each of the monitoring events for *in situ* measurement and lab analysis.

2.2.5 *Laboratory Analysis*

All laboratory work was carried out in a HOKLAS accredited laboratory. Water samples of about 1,000 mL were collected at the monitoring and control stations for carrying out the laboratory determinations. The determination work started within the next working day after collection of the water samples. The SS laboratory measurements were provided within 2 days of the sampling event (48 hours). The analyses followed the standard methods as described in APHA Standard Methods for the *Examination of Water and Wastewater*, 19th Edition, unless otherwise specified (APHA 2540D for SS).

The QA/QC details were in accordance with requirements of HOKLAS or another internationally accredited scheme (*Annex C*)

[1] Hong Kong Observatory (2012) http://www.hko.gov.hk/tide/eQUBtide.htm [Accessed in March 2012]

2.2.6 *Sampling Depths & Replication*

Each station was sampled and measurements/ water samples were taken at three depths, namely, 1 m below water surface, mid-depth and 1 m above sea bed, except where the water depth less than 6 m, the mid-depth station may be omitted. For stations that are less than 3 m in depth, only the mid-depth sample was taken.

For *in situ* measurements, duplicate readings were made at each water depth at each station. Duplicate water samples were collected at each water depth at each station.

2.3 *BASELINE MONITORING RESULTS*

The monitoring data and graphical presentations for baseline water quality monitoring are provided in *Annex D*. No marine construction activities were observed in the vicinity of the monitoring stations during the baseline monitoring. No other major activities influencing water quality were identified during the monitoring period, and weather conditions were generally calm during the baseline monitoring period.

The observations from the monitoring results are as following:

- For all monitoring stations, water quality was variable throughout the baseline monitoring period and this represented natural fluctuation in water quality ;
- Fluctuation of Dissolved Oxygen (DO) was observed within the monitoring period whilst DO levels moved to a similar level across all the monitoring stations in the last day of monitoring. Hence, it is considered that DO levels between Sensitive Receivers and Control Stations are similar in average although fluctuation exists;
- DO levels at all depths were generally high for all samples, DO levels <4 mg L^{-1} were not recorded;
- Relatively higher levels of turbidity were recorded at Gradient Station G2 and Sensitive Receiver Station E9, S2 and S3 during mid-ebb and mid-flood tidal condition;
- Higher levels of suspended solids (SS) were recorded at Gradient Station G2 and Sensitive Receiver Station E9, S2 and S3 during mid-ebb. During mid-flood tidal condition, relatively higher levels of SS were recorded at Gradient Station G3 and Sensitive Receiver Station S1, S2 and S3; and
- The above sporadic patterns of relatively high levels of turbidity and SS in the water monitoring stations are considered to be a characteristic of water quality in this area of Hong Kong.

2.4 ACTION AND LIMIT LEVELS

The Action and Limit Levels were set in the *EM&A Manual* and the proposed Action and Limit Levels were determined as shown in *Table 2.3*.

Table 2.3 Determination of Action and Limit Levels for Water Quality

Parameter	Action Level	Limit Level[(d)]
SS in mgL^{-1} (Depth-averaged) [(a) (c)]	95%-ile of baseline data or	99%-ile of baseline data, and
	20% exceedance of value at any impact station compared with corresponding data from control station	30% exceedance of value at any impact station compared with corresponding data from control station
DO in mgL^{-1} [(b)]	Surface and Middle	Surface and Middle
	5%-ile of baseline data for surface and middle layer	5mg/L or 1%-ile of baseline for surface and middle layer
	Bottom	Bottom
	5%-ile of baseline data for bottom layers	2mg/L or 1%-ile of baseline data for bottom layer
Turbidity in NTU (Depth-averaged) [(a) (c)]	95%-ile of baseline data, or	99%-ile of baseline data, and
	20% exceedance of value at any impact station compared with corresponding data from control station	30% exceedance of value at any impact station compared with corresponding data from control station

Notes:

a. "Depth-averaged" is calculated by taking the arithmetic means of reading of all sampled depths.
b. For DO, non-compliance of the water quality limits occurs when the monitoring result is lower than the limits.
c. For SS and turbidity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
d. Limit level for DO was derived from the Water Quality Objectives (WQO) for Junk Bay, Eastern Buffer, and Mirs Bay Water Control Zones under the Water Pollution Control Ordinance (WPCO) Chapters 358L, 358Y, and 358I respectively.

The Action and Limit Levels have been determined based on baseline water quality monitoring data for all monitoring stations in Zone A. The results are presented in *Table 2.4*. Please note that the results are used to determine the Action and Limit Levels for the cable laying works to be undertaken in Zone A.

Table 2.4 Action and Limit Levels for Water Quality

Parameter	Action Level	Limit Level
SS in mgL^{-1} (Depth-averaged) [a] [c]	95%-ile of baseline data (6.27 mg L^{-1}), or	99%-ile of baseline data (6.40 mg L^{-1}) , and
	20% exceedance of value at any impact station compared with corresponding data from control station	30% exceedance of value at any impact station compared with corresponding data from control station
DO in mgL^{-1} [b]	Surface and Middle[d] 5%-ile of baseline data for surface and middle layer (4.36 mg L-1)	Surface and Middle[d] 5mg/L or 1%-ile of baseline for surface and middle layer (4.25 mg L-1)
	Bottom 5%-ile of baseline data for bottom layers (4.39 mg L^{-1})	Bottom 2mg/L or 1%-ile of baseline data for bottom layer (4.33 mg L^{-1})
Turbidity in NTU (Depth-averaged) [a] [c]	95%-ile of baseline data (4.38 NTU), or	99%-ile of baseline data (4.43 NTU), and
	20% exceedance of value at any impact station compared with corresponding data from control station	30% exceedance of value at any impact station compared with corresponding data from control station

Notes:

a. "Depth-averaged" is calculated by taking the arithmetic means of reading of all sampled depths.

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

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

d. The Action and Limit Level for DO for surface and middle layer were calculated from the combined pool of baseline surface layer data and baseline middle layer data.

3 CONCLUSION

Baseline water quality monitoring in Zone A has been conducted between 29 August and 3 September 2012 at 11 designated monitoring stations (including 7 Sensitive Receiver Stations, 3 Gradient Stations and 1 Control Station). The monitoring was conducted out in 3 days, at mid-flood and mid-ebb tides, at three depths (surface, middle and bottom). The intervals between two sets of monitoring were not less than 36 hours. During the monitoring period, no major activities influencing water quality were observed in the vicinity of the Project's marine works area. Water quality monitoring results are, therefore, considered to be representative of the baseline conditions of the areas where marine works will be undertaken for the Project.

The baseline monitoring results were used to determine the Action and Limit Levels for the DO, SS and turbidity for impact monitoring to be conducted at Zone A throughout the construction phase of the Project.

Annex A

Baseline Water Quality Monitoring Schedule for Zone A

ASE Submarine Cable System - Tseung Kwan O
Tentative Water Quality Baseline Monitoring Schedule - August 2012

Reference Tidal Station: Tai Miu Wan (source: HK Observatory Department) as of 21 August 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			01-Aug	02-Aug	03-Aug	04-Aug
05-Aug	06-Aug	07-Aug	08-Aug	09-Aug	10-Aug	11-Aug
12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	18-Aug
19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug	25-Aug
26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug	
			Mid-Ebb: 09:00 - 13:00 Mid-Flood: 14:30 - 18:30 **(Zone A, 11 stations)** *Baseline Monitoring*		Mid-Ebb: 10:30 - 14:30 Mid-Flood: 16:00 - 20:00 **(Zone A, 11 stations)** *Baseline Monitoring*	

The schedule is subject to agreement from the EPD and AFCD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due

ASE Submarine Cable System - Tseung Kwan O
Tentative Water Quality Baseline Monitoring Schedule - September 2012

Reference Tidal Station: Tai Miu Wan (source: HK Observatory Department) as of 21 August 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Sep
02-Sep	03-Sep	04-Sep	05-Sep	06-Sep	07-Sep	08-Sep
	Mid-Ebb: 11:00 - 15:00 Mid-Flood: 16:30 - 20:30 **(Zone A, 11 stations)** *Baseline Monitoring*					
09-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	15-Sep
16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep	22-Sep
23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep	29-Sep
30-Sep						

The schedule is subject to agreement from the EPD and AFCD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due

Annex B

Calibration Reports of Multi-parameter Sensor

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Internal Calibration Report of Dissolved Oxygen Meter

Equipment Ref. No.	:	ET/EW/008/005	Manufacturer	:	YSI
Model No.	:	Pro 2030	Serial No.	:	12A 100353
Date of Calibration	:	25/08/2012	Calibration Due Date	:	24/11/2012

Temperature Verification

Ref. No. of Reference Thermometer : ET/0521/001

Ref. No. of Water Bath : ---

	Temperature (°C)			
Reference Thermometer reading	Measured	20.2	Corrected	19.8
DO Meter reading	Measured	19.7	Difference	0.1

Standardization of sodium thiosulphate ($Na_2S_2O_3$) solution

Reagent No. of $Na_2S_2O_3$ titrant	CPE/012/4.5/001/5	Reagent No. of 0.025N $K_2Cr_2O_7$	CPE/012/4.4/001/12

	Trial 1	Trial 2
Initial Vol. of $Na_2S_2O_3$ (ml)	0.00	0.00
Final Vol. of $Na_2S_2O_3$ (ml)	40.10	40.05
Vol. of $Na_2S_2O_3$ used (ml)	40.10	40.05
Normality of $Na_2S_2O_3$ solution (N)	0.02494	0.02497
Average Normality (**N**) of $Na_2S_2O_3$ solution (N)	0.02496	
Acceptance criteria, Deviation	Less than ± 0.001N	

Calculation: Normality of $Na_2S_2O_3$, **N** = 1 / ml $Na_2S_2O_3$ used

Lineality Checking

Determination of dissolved oxygen content by Winkler Titration *

Purging Time (min)	2		5		10	
Trial	1	2	1	2	1	2
Initial Vol. of $Na_2S_2O_3$ (ml)	0.00	11.20	22.20	0.00	7.60	12.30
Final Vol. of $Na_2S_2O_3$ (ml)	11.20	22.20	29.90	7.60	12.30	17.20
Vol. (**V**) of $Na_2S_2O_3$ used (ml)	11.20	11.00	7.70	7.60	4.70	4.90
Dissolved Oxygen (**DO**), mg/L	7.50	7.37	5.16	5.09	3.15	3.28
Acceptance criteria, Deviation	Less than + 0.3mg/L		Less than + 0.3mg/L		Less than + 0.3mg/L	

Calculation: DO (mg/L) = **V** x **N** x 8000/298

Purging time, min	DO meter reading, mg/L			Winkler Titration result *, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
2	7.51	7.60	7.56	7.50	7.37	7.44	1.60
5	5.21	5.20	5.21	5.16	5.09	5.13	1.55
10	3.19	3.25	3.22	3.15	3.28	3.22	0.00
Linear regression coefficient				0.99990			

東業德勤測試顧問有限公司
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Internal Calibration Report of Dissolved Oxygen Meter

Zero Point Checking

DO meter reading, mg/L	0.00

Salinity Checking

Reagent No. of NaCl (10ppt)	CPE/012/4.7/001/28	Reagent No. of NaCl (30ppt)	CPE/012/4.8/001/28

Determination of dissolved oxygen content by Winkler Titration **

Salinity (ppt)	10		30	
Trial	1	2	1	2
Initial Vol. of $Na_2S_2O_3$ (ml)	0.00	11.50	23.20	33.90
Final Vol. of $Na_2S_2O_3$ (ml)	11.50	23.20	33.90	44.40
Vol. (**V**) of $Na_2S_2O_3$ used (ml)	11.50	11.70	10.70	10.50
Dissolved Oxygen (**DO**), mg/L	7.71	7.84	7.17	7.04
Acceptance criteria, Deviation	Less than + 0.3mg/L		Less than + 0.3mg/L	

Calculation: DO (mg/L) = **V** x **N** x 8000/298

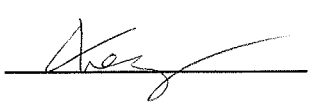
Salinity (ppt)	DO meter reading, mg/L			Winkler Titration result**, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
10	7.7	7.65	7.68	7.71	7.84	7.78	1.29
30	7.13	7.05	7.09	7.17	7.04	7.11	0.28

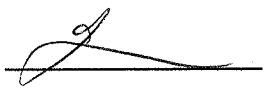
Acceptance Criteria

(1) Differenc between temperature readings from temperature sensor of DO probe and reference thermometer : < 0.5 °C
(2) Linear regression coefficient : >0.99
(3) Zero checking: 0.0mg/L
(4) Difference (%) of DO content from the meter reading and by winkler titration : within ± 5%

The equipment complies # / ~~does not comply~~ # with the specified requirements and is deemed acceptable # / ~~unacceptable~~ # for use.

" Delete as appropriate

Calibrated by : 

Approved by : 

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Performance Check of Salinity Meter

Equipment Ref. No. :	ET/EW/008/005	Manufacturer :	YSI
Model No. :	Pro 2030	Serial No. :	12A 100353
Date of Calibration :	25/08/2012	Due Date :	24/ 11/2012

Ref. No. of Salinity Standard used (30ppt)	S/001/3

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30.0	30.2	0.66

Acceptance Criteria

Difference : <10 %

The salinity meter complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use. Measurements are traceable to national standards.

Checked by : _____ Approved by : _____

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Performance Check of Turbidimeter

Equipment Ref. No. : ET/0505/008 Manufacturer : **HACH**

Model No. : 2100Q Serial No. : 10030 C 001191

Date of Calibration : 02/08/2012 Due Date : 01/11/2012

Gelex Vial Std	Theoretical Value (NTU)	Measured Value (NTU)	Difference %
0-10 NTU	5.70	5.62	1.41
10-100 NTU	52.1	52.7	1.15
100-1000 NTU	547	539	1.47

Acceptance Criteria

Difference : <5 %

The salinity meter complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use. Measurements are traceable to national standards.

Checked by : _____ Approved by : _____

Annex C

QA/QC Results for Suspended Solids Testing

QA/QC Results of Laboratory Analysis of Total Suspended Solids

Sampling Date	QC Sample	Sample Duplicate		Sample Spike	
	% Recovery *	Sample ID	% Error #	Sample ID	% Recovery @
29-08-2012	101.2	FC1S-1	3.92	FS1S-2	91.8
	96.1	FS1S-3	0.00	FE7M-1	98.0
	102.3	FE7M-2	4.88	FG3M-3	98.1
	100.8	FG3B-1	0.00	FS2B-2	98.1
	106.0	FS2B-3	2.90	FS3B-3	103.8
	100.0	EC1S-1	3.92	ES1S-2	101.9
	94.6	ES1S-3	0.00	EE7M-1	95.9
	96.1	EE7M-2	4.44	EG3M-3	103.9
	99.6	EG3B-1	0.00	ES2B-2	93.9
	98.3	ES2B-3	2.90	ES3B-3	100.0

Note: (*) % Recovery of QC sample should be between 80% to 120%.

(#) % Error of Sample Duplicate should be between 0% to 10%.

(@) % Recovery of Sample Spike should be between 80% to 120%.

(**) % Error of Sample Duplicate >10% but invalid due to sample results less than MDL.

Sampling Date	QC Sample	Sample Duplicate		Sample Spike	
	% Recovery *	Sample ID	% Error #	Sample ID	% Recovery @
31-08-2012	103.9	FC1S-1	4.88	FS1S-2	92.3
	105.5	FS1S-3	6.90	FE7M-1	104.0
	107.0	FE7M-2	0.00	FG3M-3	106.0
	104.4	FG3B-1	4.88	FS2B-2	91.8
	107.0	FS2B-3	2.99	FS3B-3	98.0
	100.4	EC1S-1	4.08	ES1S-2	106.1
	105.0	ES1S-3	0.00	EE7M-1	104.3
	95.6	EE7M-2	5.41	EG3M-3	96.2
	107.2	EG3B-1	3.64	ES2B-2	102.0
	93.0	ES2B-3	3.28	ES3B-3	102.1

Note: (*) % Recovery of QC sample should be between 80% to 120%.

(#) % Error of Sample Duplicate should be between 0% to 10%.

(@) % Recovery of Sample Spike should be between 80% to 120%.

(**) % Error of Sample Duplicate >10% but invalid due to sample results less than MDL.

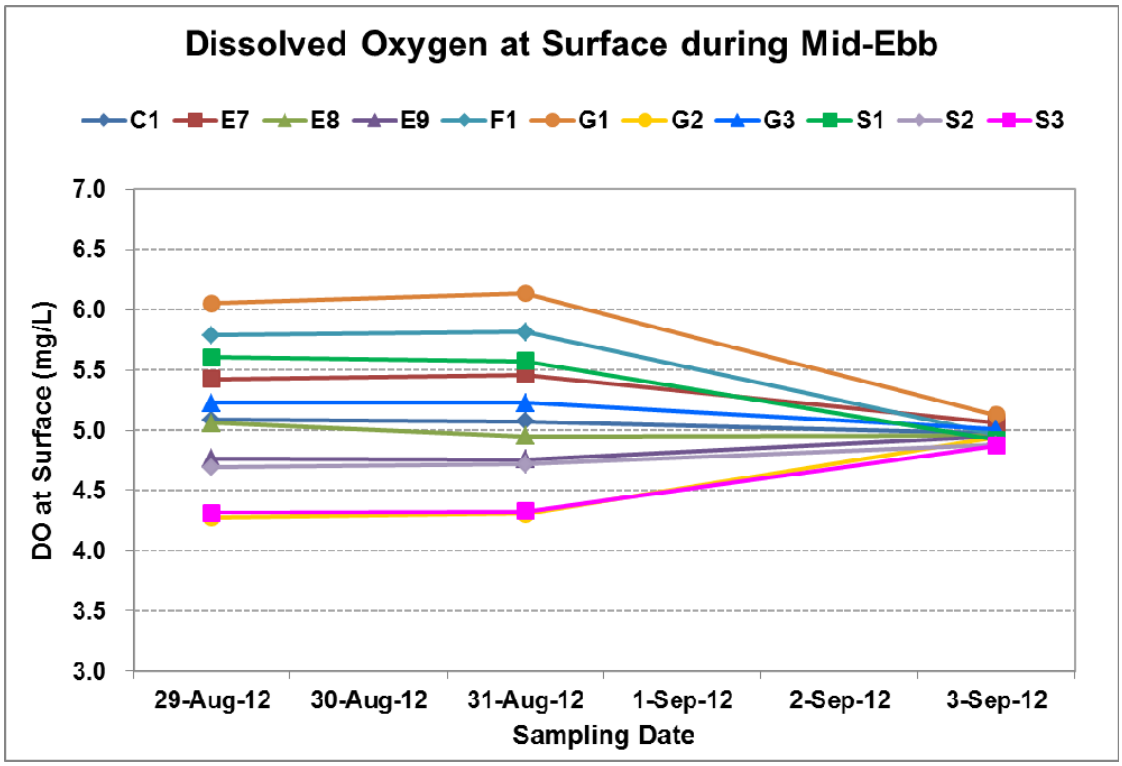
QA/QC Results of Laboratory Analysis of Total Suspended Solids

Sampling Date	QC Sample	Sample Duplicate		Sample Spike	
	% Recovery *	Sample ID	% Error #	Sample ID	% Recovery @
03-09-2012	105.0	FC1S-1	4.88	FS1S-2	96.2
	98.2	FS1S-3	7.41	FE7M-1	96.2
	94.3	FE7M-2	5.13	FG3M-3	93.9
	97.7	FG3B-1	4.44	FS2B-2	98.0
	105.4	FS2B-3	0.00	FS3B-3	101.9
	92.1	EC1S-1	4.26	ES1S-2	108.3
	107.6	ES1S-3	7.41	EE7M-1	98.0
	100.8	EE7M-2	0.00	EG3M-3	98.1
	97.5	EG3B-1	4.08	ES2B-2	96.0
	101.0	ES2B-3	0.00	ES3B-3	100.0

Note:
(*) % Recovery of QC sample should be between 80% to 120%.
(#) % Error of Sample Duplicate should be between 0% to 10%.
(@) % Recovery of Sample Spike should be between 80% to 120%.
(**) % Error of Sample Duplicate >10% but invalid due to sample results less than MDL.

Annex D

Baseline Water Quality Monitoring Results for Zone A



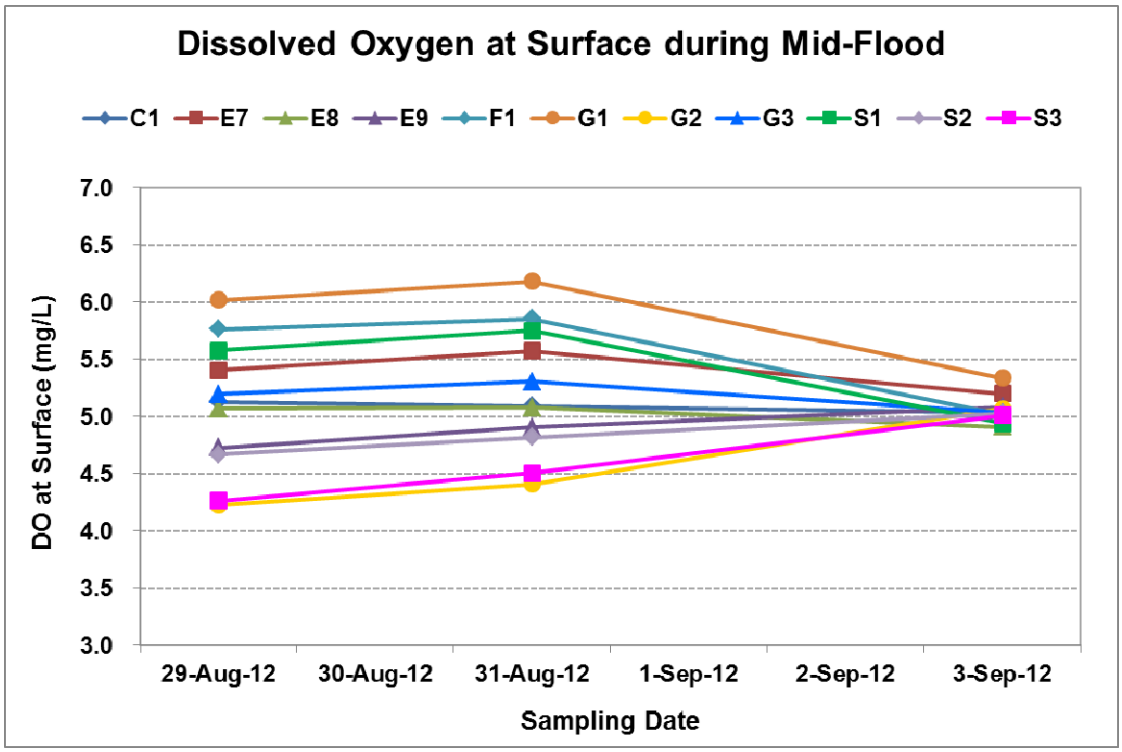
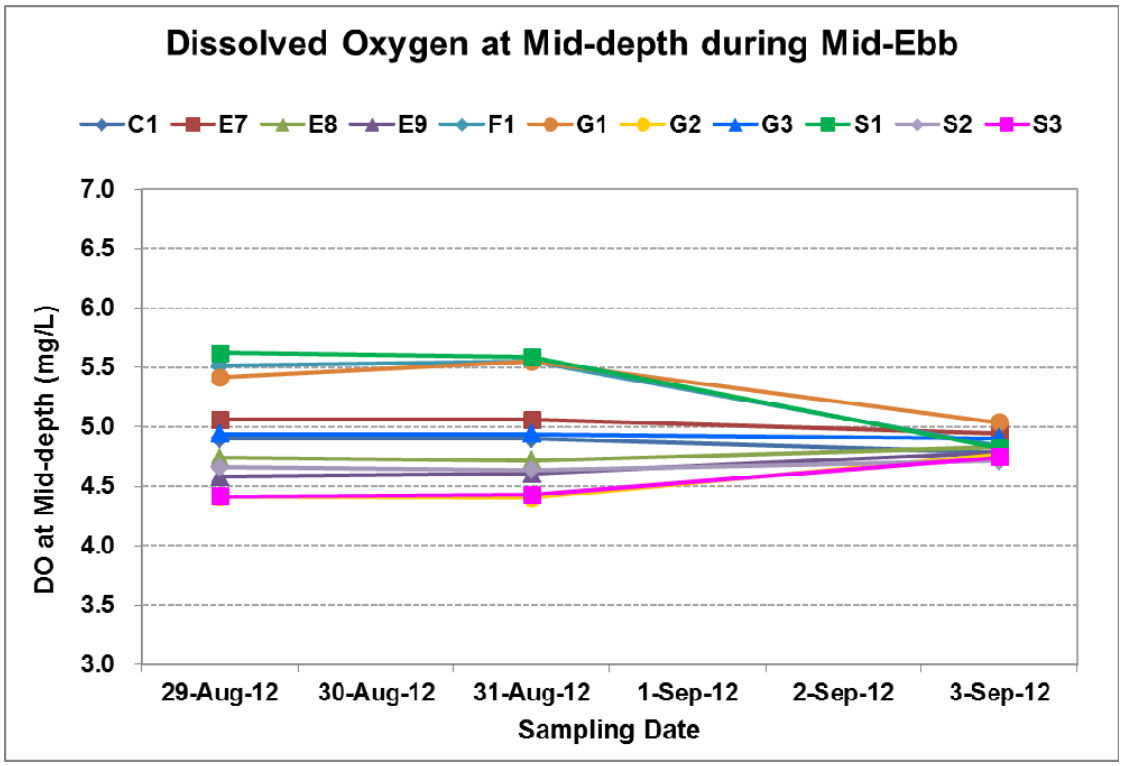


Figure D1 Dissolved oxygen (mg/L) at surface of water column measured during the baseline monitoring period from 29 August to 3 September for Zone A



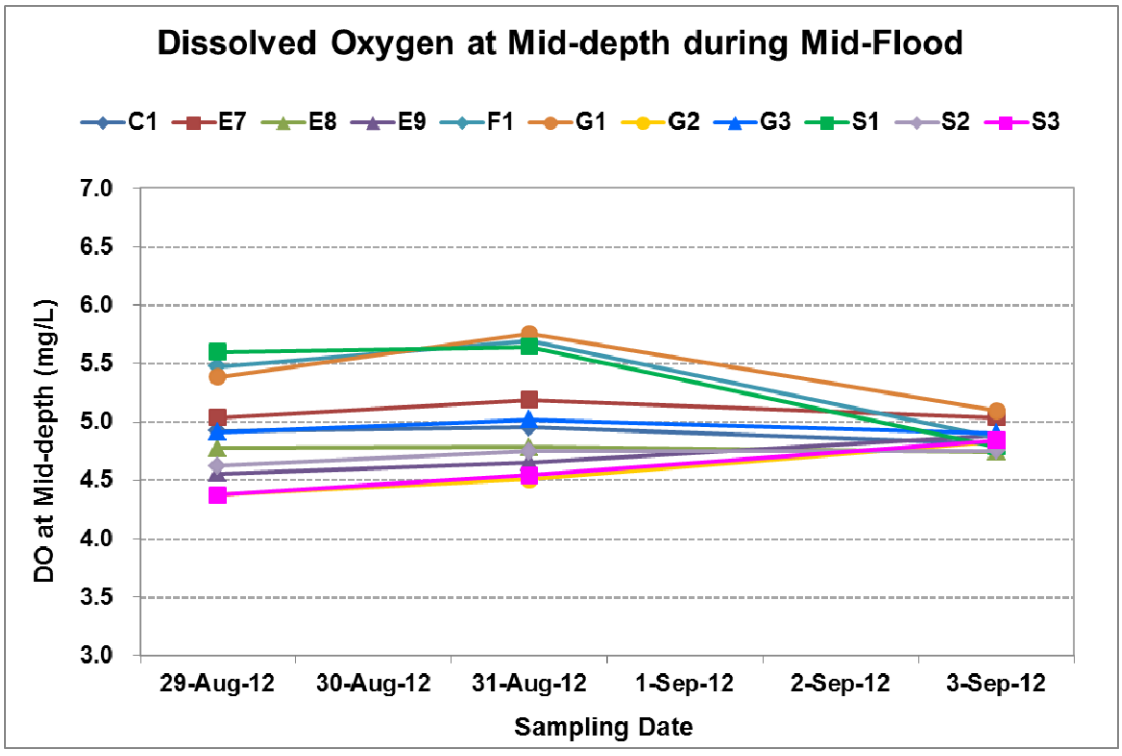
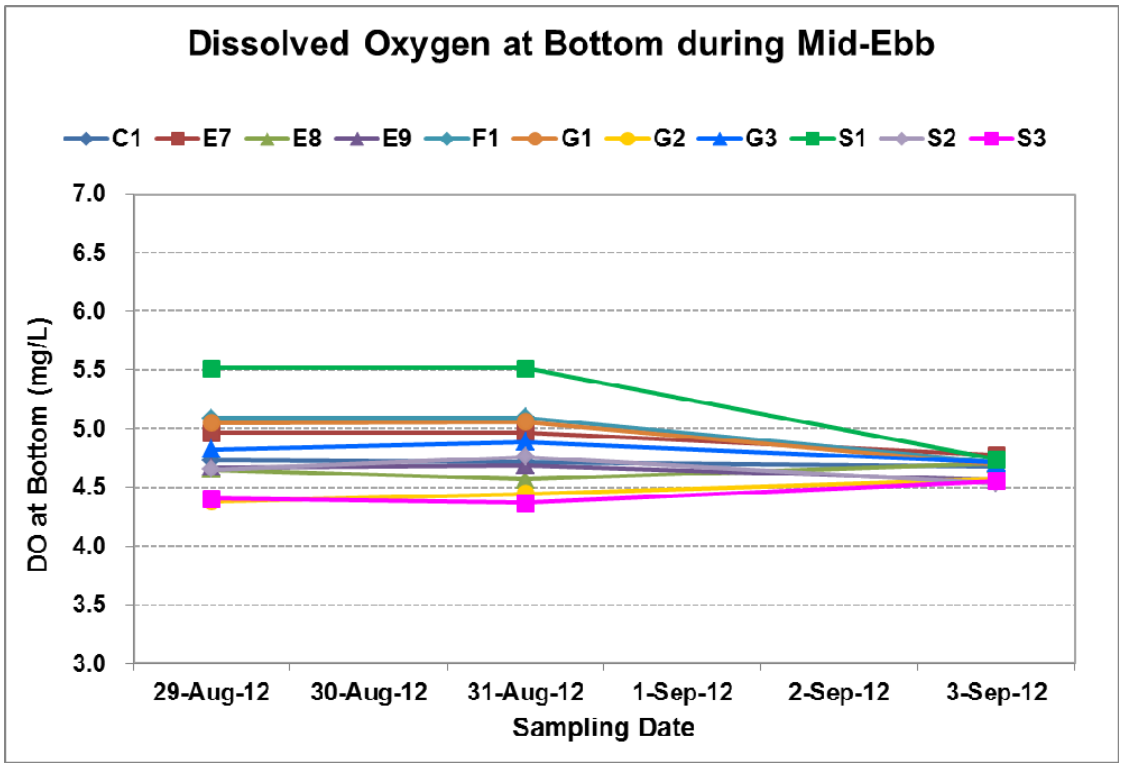


Figure D2 Dissolved oxygen (mg/L) at mid-depth of water column measured during the baseline monitoring period from 29 August to 3 September for Zone A



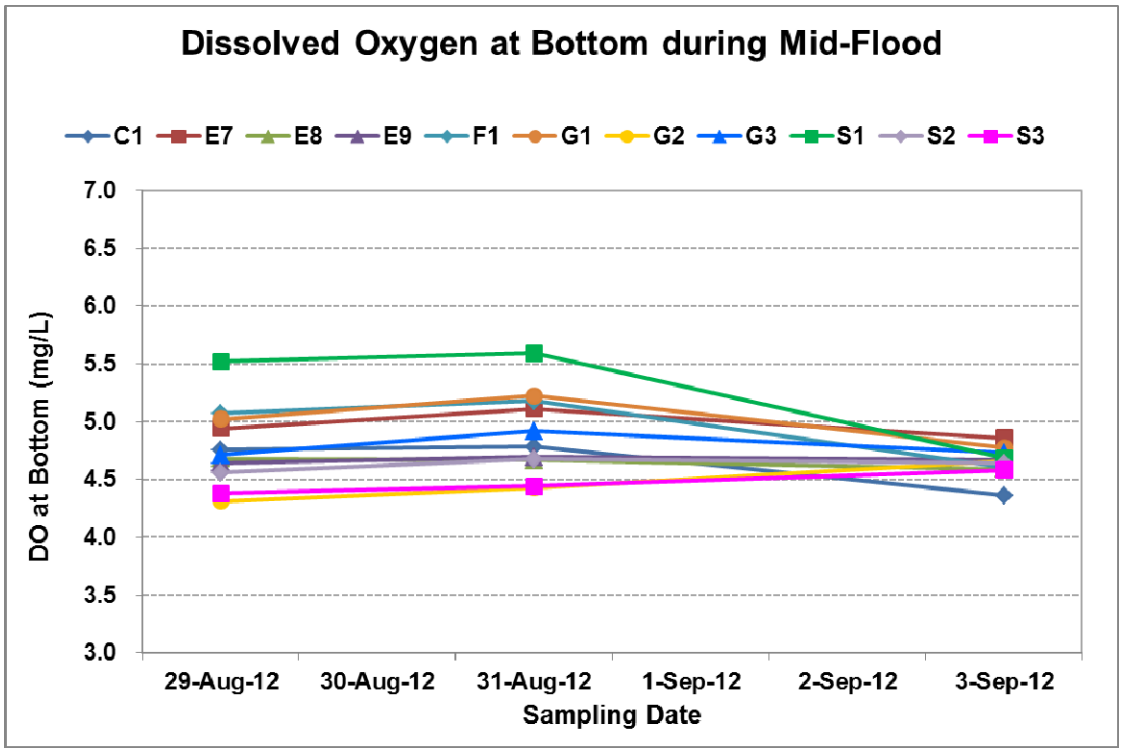
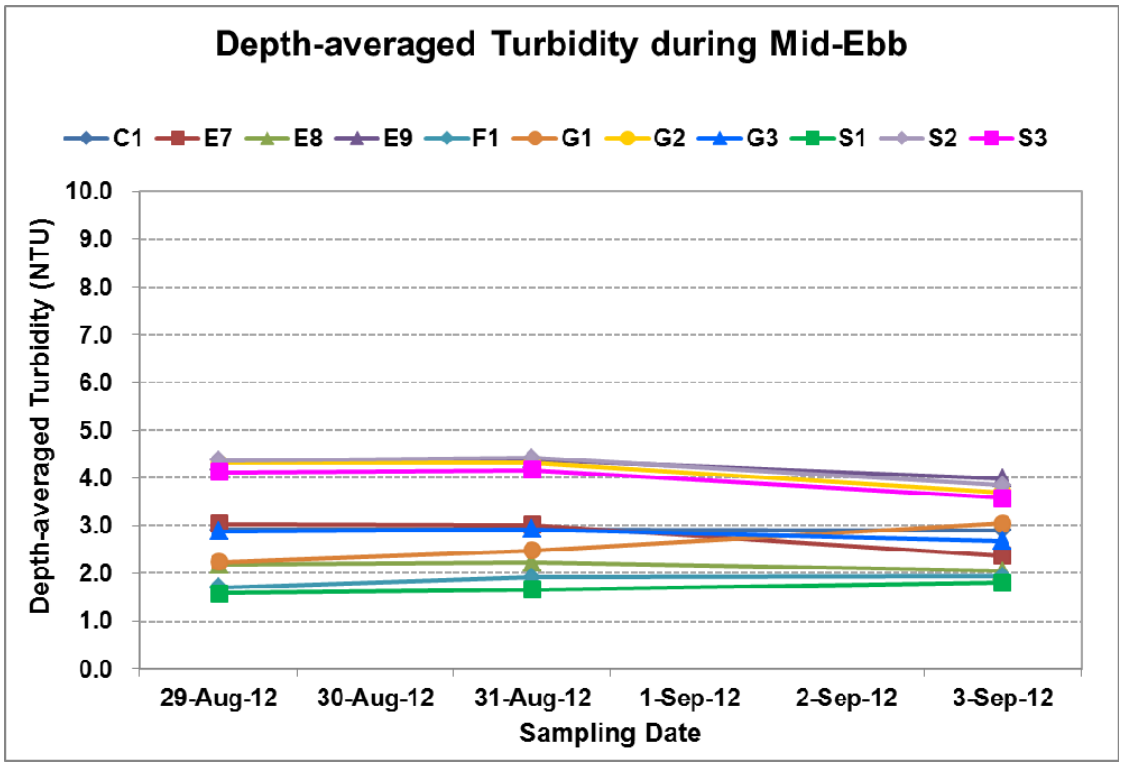


Figure D3 Dissolved oxygen (mg/L) at bottom of water column measured during the baseline monitoring period from 29 August to 3 September for Zone A



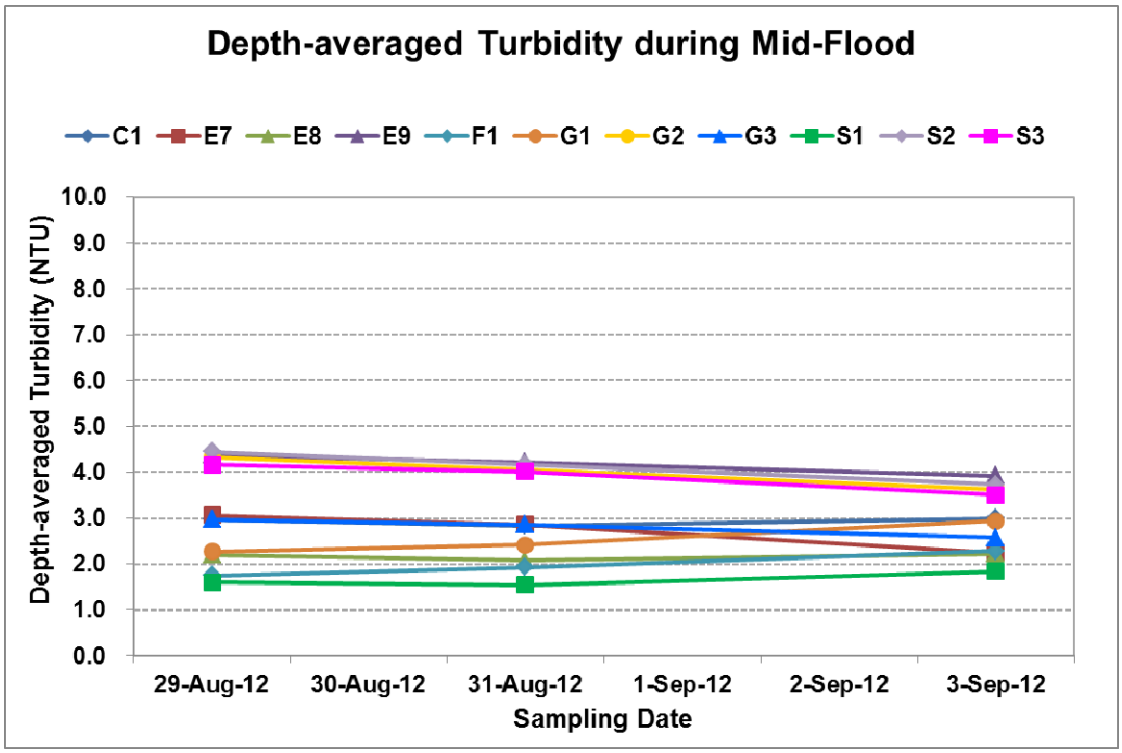
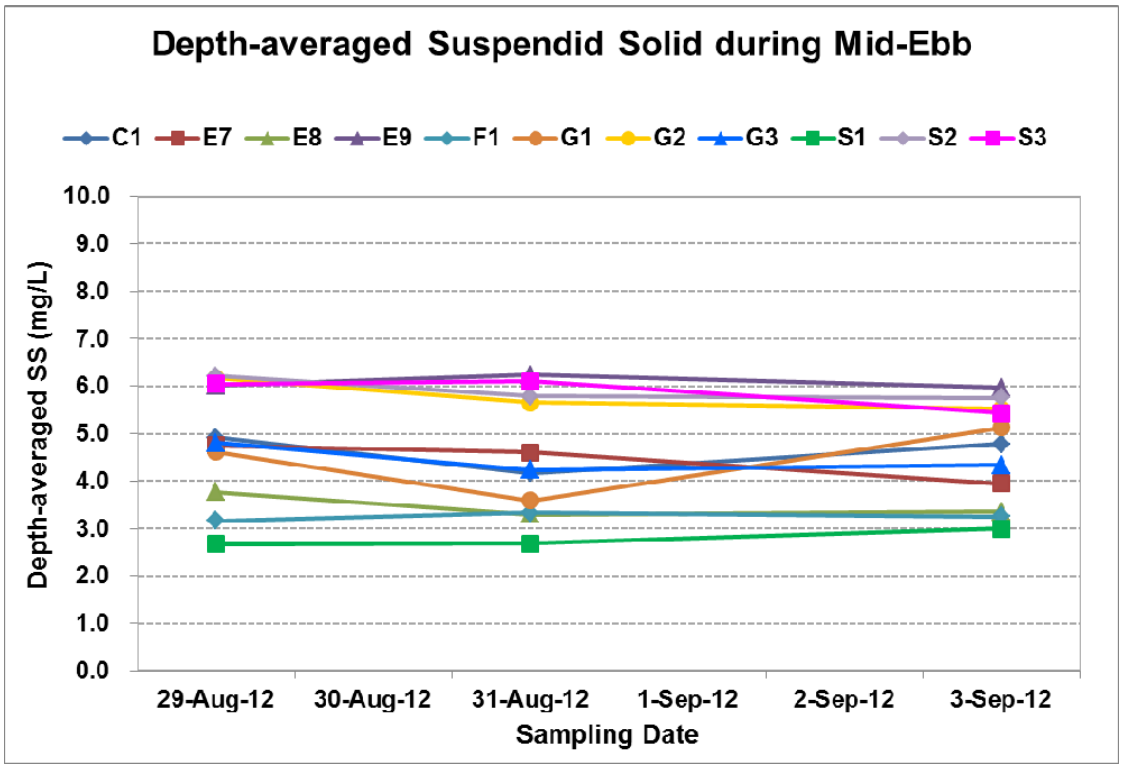


Figure D4 Depth-averaged turbidity (NTU) of water column measured during the baseline monitoring period from 29 August to 3 September for Zone A



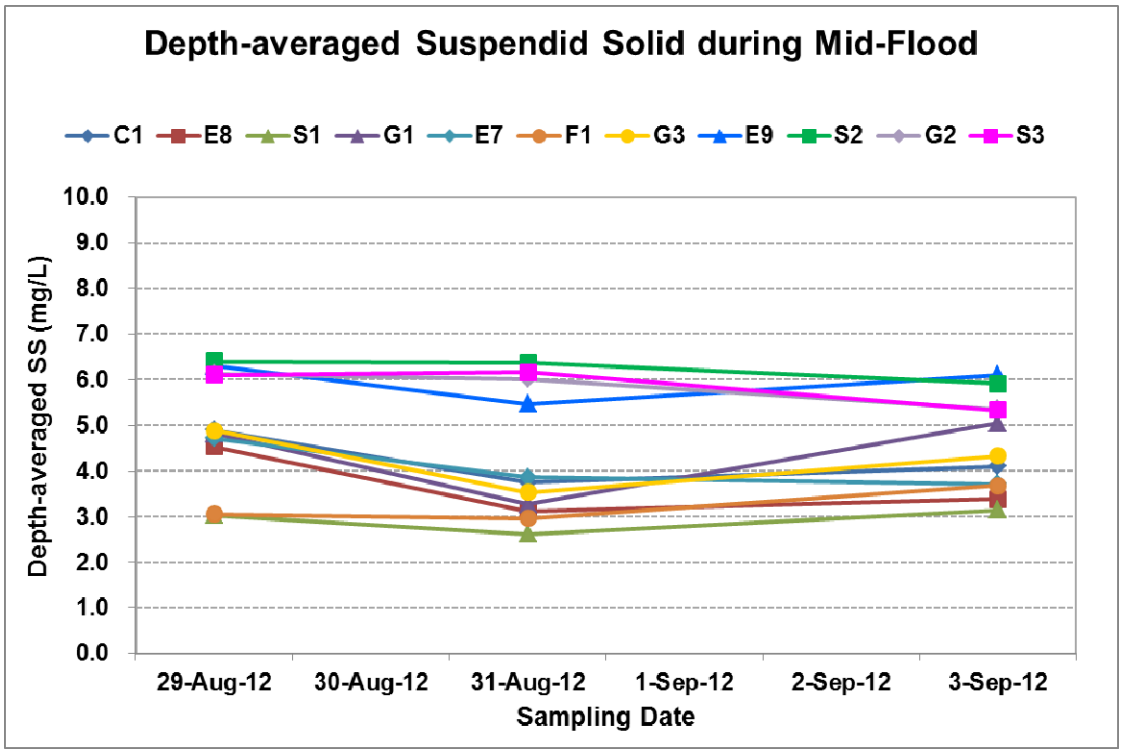


Figure D5 Depth-averaged suspended solid (mg/L) of water column measured during the baseline monitoring period from 29 August to 3 September for Zone A

Annex D1 Baseline Water Quality Monitoring Results during Mid-Flood Tide for 29 August 2012

Date:	29-Aug-12
Tide:	Mid-Flood
Weather:	Fine
Sea Conditions:	Small Wave
Zone	A

Location	Sampling Time	Water Depth (m)	Current direction	Current speed (ms^{-1})	Monitoring Depth	Temperrature (°C)			Salinity (ppt)			DO (mg/l)			DO Saturation (%)			Turbidity (NTU)				Suspended Solids (mg/l)			
						1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	D.A.**	1	2	Ave.*	D.A.**
C1	1430-1450	47.8	W	0.6	*Surface*	27.4	27.4	27.4	26.1	26.0	26.1	5.1	5.1	5.1	75.7	76.1	75.9	3.1	3.0	3.0		4.8	4.8	4.8	
					Middle	27.2	27.3	27.3	26.8	26.7	26.8	4.9	4.9	4.9	73.1	72.7	72.9	2.6	2.7	2.6	3.0	4.6	4.5	4.6	4.9
					Bottom	27.2	27.1	27.2	26.9	26.9	26.9	4.7	4.8	4.8	70.2	70.6	70.4	3.2	3.2	3.2		5.3	5.4	5.4	
E8	1455-1515	19.6	W	0.4	*Surface*	27.5	27.5	27.5	26.6	26.6	26.6	5.1	5.1	5.1	74.7	75.3	75.0	2.0	2.1	2.1		4.4	4.2	4.3	
					Middle	27.4	27.3	27.4	26.6	26.6	26.6	4.8	4.8	4.8	70.4	70.9	70.7	2.1	2.1	2.1	2.2	4.0	3.9	4.0	4.5
					Bottom	27.2	27.2	27.2	26.6	26.7	26.7	4.7	4.7	4.7	69.1	69.4	69.3	2.5	2.4	2.4		5.4	5.3	5.4	
S1	1520-1540	9.2	W	0.3	*Surface*	27.8	27.8	27.8	26.3	26.4	26.4	5.6	5.6	5.6	83.0	82.1	82.6	1.5	1.6	1.5		3.6	3.6	3.6	
					Middle	27.5	27.5	27.5	26.5	26.5	26.5	5.6	5.6	5.6	82.6	83.2	82.9	1.8	1.8	1.8	1.6	2.9	3.2	3.1	3.0
					Bottom	27.4	27.4	27.4	26.6	26.6	26.6	5.5	5.5	5.5	81.5	81.8	81.7	1.5	1.5	1.5		2.4	2.5	2.5	
G1	1543-1603	11.0	W	0.2	*Surface*	28.2	28.1	28.2	26.2	26.2	26.2	6.1	6.0	6.0	89.8	88.3	89.1	2.6	2.6	2.6		5.4	5.4	5.4	
					Middle	28.0	27.9	28.0	26.5	26.4	26.5	5.4	5.4	5.4	80.0	79.5	79.8	2.2	2.2	2.2	2.3	4.9	5.1	5.0	4.8
					Bottom	27.8	27.7	27.8	26.4	26.4	26.4	5.1	5.0	5.0	74.7	73.9	74.3	2.0	2.1	2.0		3.9	4.2	4.1	
F7	1607-1627	12.5	W	0.1	*Surface*	28.1	28.1	28.1	26.4	26.4	26.4	5.4	5.4	5.4	79.6	80.4	80.0	2.1	2.1	2.1		3.4	3.2	3.3	
					Middle	27.8	27.8	27.8	26.6	26.6	26.6	5.0	5.1	5.0	74.3	74.9	74.6	2.4	2.4	2.4	3.1	4.2	4.5	4.4	4.7
					Bottom	27.6	27.6	27.6	26.5	26.6	26.6	5.0	4.9	4.9	73.4	72.8	73.1	4.7	4.6	4.7		6.6	6.4	6.5	
F1	1637-1657	11.6	W	0.6	*Surface*	28.2	28.2	28.2	26.7	26.7	26.7	5.8	5.8	5.8	85.1	85.5	85.3	2.1	2.0	2.1		4.0	3.9	4.0	
					Middle	27.9	27.9	27.9	26.8	26.8	26.8	5.5	5.5	5.5	81.4	65.9	73.7	1.6	1.7	1.6	1.7	2.8	2.7	2.8	3.1
					Bottom	27.4	27.4	27.4	26.9	26.9	26.9	5.1	5.1	5.1	75.2	74.9	75.1	1.5	1.5	1.5		2.4	2.5	2.5	
G3	1702-1722	15.4	W	0.3	*Surface*	28.1	28.1	28.1	26.4	26.4	26.4	5.2	5.2	5.2	77.0	76.8	76.9	2.8	2.9	2.9		4.9	4.7	4.8	
					Middle	27.9	27.8	27.9	26.5	26.5	26.5	4.9	4.9	4.9	72.5	73.0	72.8	2.8	3.1	2.9	3.0	4.8	4.8	4.8	4.9
					Bottom	27.5	27.5	27.5	26.7	26.7	26.7	4.7	4.7	4.7	69.9	69.6	69.8	3.1	3.2	3.2		5.0	5.1	5.1	
E9	1727-1747	18.8	W	0.2	*Surface*	27.9	27.8	27.9	26.5	26.5	26.5	4.7	4.7	4.7	70.2	69.9	70.1	3.5	3.6	3.6		5.7	5.7	5.7	
					Middle	27.5	27.5	27.5	26.4	26.5	26.5	4.5	4.6	4.6	66.9	68.1	67.5	4.6	4.6	4.6	4.4	6.4	6.6	6.5	6.3
					Bottom	27.3	27.3	27.3	26.5	26.5	26.5	4.7	4.6	4.6	69.1	68.4	68.8	5.0	5.0	5.0		6.7	6.7	6.7	
S2	1752-1812	10.9	W	0.3	*Surface*	27.9	27.8	27.9	26.5	26.5	26.5	4.7	4.7	4.7	68.8	69.4	69.1	3.9	3.9	3.9		5.7	5.6	5.7	
					Middle	27.7	27.6	27.7	26.4	26.4	26.4	4.6	4.6	4.6	68.7	68.2	68.5	4.6	4.5	4.5	4.4	6.7	6.8	6.8	6.4
					Bottom	27.4	27.4	27.4	26.3	26.2	26.3	4.6	4.6	4.6	67.6	67.4	67.5	4.9	4.9	4.9		6.8	6.8	6.8	
G2	1817-1837	13.2	W	0.3	*Surface*	27.9	27.8	27.9	26.3	26.3	26.3	4.2	4.3	4.2	62.3	62.9	62.6	3.8	3.8	3.8		5.6	5.8	5.7	
					Middle	27.6	27.5	27.6	26.2	26.2	26.2	4.4	4.4	4.4	65.0	64.5	64.8	4.3	4.4	4.3	4.3	6.2	6.3	6.3	6.1
					Bottom	27.3	27.3	27.3	26.1	26.0	26.1	4.3	4.3	4.3	63.6	64.0	63.8	4.9	4.9	4.9		6.4	6.5	6.5	
S3	1842-1902	10.4	W	0.3	*Surface*	27.8	27.8	27.8	26.3	26.4	26.4	4.3	4.3	4.3	63.3	62.9	63.1	3.6	3.7	3.6		5.3	5.6	5.5	
					Middle	27.6	27.5	27.6	26.5	26.5	26.5	4.4	4.4	4.4	64.2	65.1	64.7	4.2	4.2	4.2	4.2	6.1	6.2	6.2	6.1
					Bottom	27.4	27.3	27.4	26.6	26.6	26.6	4.4	4.4	4.4	65.1	64.5	64.8	4.6	4.7	4.6		6.8	6.6	6.7	

Remark or Obsevation:

Note: * Average

** Depth Average

Annex D2 Baseline Water Quality Monitoring Results during Mid-Ebb Tide for 29 August 2012

Date:	29-Aug-12
Tide:	Mid-Ebb
Weather:	Cloudy
Sea Conditions:	Small Wave
Zone	A

Location	Sampling Time	Water Depth (m)	Current direction	Current speed (ms^{-1})	Monitoring Depth	Temperrature (°C)			Salinity (ppt)			DO (mg/l)			DO Saturation (%)			Turbidity (NTU)				Suspended Solids (mg/l)			
						1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	D.A.**	1	2	Ave.*	D.A.**
C1	0900-0925	47.0	E	0.5	*Surface*	27.4	27.4	27.4	26.1	26.1	26.1	5.1	5.1	5.1	74.1	73.9	74.0	3.0	3.0	3.0		4.8	4.9	4.9	
					Middle	27.4	27.4	27.4	26.8	26.7	26.8	4.9	4.9	4.9	71.3	71.5	71.4	2.6	2.6	2.6	2.9	4.8	4.8	4.8	4.9
					Bottom	27.3	27.3	27.3	27.0	26.9	27.0	4.7	4.7	4.7	69.3	69.7	69.5	3.2	3.2	3.2		5.0	5.2	5.1	
E8	0935-100	19.4	E	0.3	*Surface*	27.4	27.5	27.5	26.4	26.4	26.4	5.1	5.1	5.1	74.3	74.7	74.5	2.0	2.1	2.1		4.0	4.2	4.1	
					Middle	27.4	27.4	27.4	26.4	26.4	26.4	4.7	4.8	4.7	69.2	69.5	69.4	2.1	2.1	2.1	2.2	2.9	3.0	3.0	3.8
					Bottom	27.3	27.4	27.4	26.5	26.4	26.5	4.6	4.7	4.7	67.9	68.3	68.1	2.4	2.4	2.4		4.1	4.4	4.3	
S1	1010-1030	8.8	E	0.2	*Surface*	27.9	27.7	27.8	26.1	26.3	26.2	5.6	5.6	5.6	84.1	83.5	83.8	1.5	1.6	1.5		2.4	2.6	2.5	
					Middle	27.7	27.7	27.7	26.4	26.4	26.4	5.6	5.6	5.6	83.9	84.2	84.1	1.8	1.8	1.8	1.6	2.7	3.2	3.0	2.7
					Bottom	27.5	27.5	27.5	26.5	26.5	26.5	5.5	5.5	5.5	82.4	81.9	82.2	1.5	1.4	1.4		2.7	2.4	2.6	
G1	1045-1105	10.9	E	0.2	*Surface*	28.1	28.1	28.1	26.1	26.2	26.2	6.1	6.0	6.1	89.8	88.7	89.3	2.6	2.6	2.6		5.0	5.1	5.1	
					Middle	27.6	27.6	27.6	26.4	26.3	26.4	5.4	5.4	5.4	79.9	79.2	79.6	2.1	2.1	2.1	2.2	5.2	5.3	5.3	4.6
					Bottom	27.6	27.6	27.6	26.5	26.5	26.5	5.1	5.0	5.1	74.9	74.0	74.5	2.0	2.0	2.0		3.6	3.5	3.6	
E7	1115-1135	12.3	E	0.1	*Surface*	27.7	27.8	27.8	26.4	26.4	26.4	5.4	5.5	5.4	79.2	79.9	79.6	2.0	2.1	2.1		3.0	3.4	3.2	
					Middle	27.5	27.5	27.5	26.4	26.4	26.4	5.0	5.1	5.1	73.7	74.2	74.0	2.4	2.4	2.4	3.0	4.4	4.5	4.5	4.8
					Bottom	27.4	27.4	27.4	26.5	26.5	26.5	5.0	5.0	5.0	72.9	72.5	72.7	4.7	4.6	4.6		6.7	6.5	6.6	
F1	1140-1155	11.4	E	0.5	*Surface*	28.2	28.2	28.2	26.5	26.5	26.5	5.8	5.8	5.8	85.7	85.9	85.8	2.1	2.0	2.0		3.0	3.0	3.0	
					Middle	27.8	27.5	27.7	26.5	26.6	26.6	5.5	5.5	5.5	81.6	80.8	81.2	1.6	1.6	1.6	1.7	3.6	3.5	3.6	3.2
					Bottom	27.3	27.3	27.3	26.7	26.7	26.7	5.1	5.1	5.1	74.8	74.5	74.7	1.5	1.5	1.5		3.0	2.9	3.0	
G3	1200-1225	15.1	E	0.2	*Surface*	27.8	27.8	27.8	26.4	26.4	26.4	5.2	5.2	5.2	76.7	76.9	76.8	2.8	2.8	2.8		4.5	4.8	4.7	
					Middle	27.5	27.5	27.5	26.4	26.4	26.4	4.9	5.0	4.9	72.3	72.6	72.5	2.7	2.8	2.7	2.9	4.6	4.8	4.7	4.8
					Bottom	27.3	27.4	27.4	26.5	26.5	26.5	4.8	4.8	4.8	70.5	70.7	70.6	3.1	3.1	3.1		5.0	5.1	5.1	
E9	1235-1255	18.5	E	0.1	*Surface*	27.6	27.6	27.6	26.3	26.4	26.4	4.8	4.8	4.8	70.8	70.4	70.6	3.6	3.6	3.6		5.2	5.5	5.4	
					Middle	27.5	27.5	27.5	26.4	26.4	26.4	4.6	4.6	4.6	67.4	67.9	67.7	4.5	4.5	4.5	4.4	6.1	6.1	6.1	6.0
					Bottom	27.5	27.4	27.5	26.4	26.5	26.5	4.7	4.7	4.7	68.7	68.2	68.5	4.9	4.9	4.9		6.5	6.7	6.6	
S2	1300-1320	9.9	E	0.2	*Surface*	27.6	27.5	27.6	26.3	26.4	26.4	4.7	4.7	4.7	68.5	69.3	68.9	3.8	3.8	3.8		5.7	5.6	5.7	
					Middle	27.6	27.6	27.6	26.4	26.4	26.4	4.7	4.7	4.7	68.5	68.2	68.4	4.5	4.5	4.5	4.4	6.2	6.4	6.3	6.2
					Bottom	27.4	27.3	27.4	26.4	26.4	26.4	4.6	4.7	4.7	68.1	68.9	68.5	4.8	4.8	4.8		6.6	6.8	6.7	
G2	1325-1345	13.0	E	0.2	*Surface*	27.7	27.6	27.7	26.3	26.3	26.3	4.3	4.3	4.3	62.4	63.0	62.7	3.7	3.8	3.8		5.4	5.8	5.6	
					Middle	27.6	27.5	27.6	26.3	26.3	26.3	4.4	4.4	4.4	64.9	64.7	64.8	4.3	4.4	4.3	4.3	6.1	6.2	6.2	6.2
					Bottom	27.5	27.5	27.5	26.3	26.3	26.3	4.4	4.4	4.4	64.0	64.4	64.2	4.9	4.8	4.8		6.8	6.7	6.8	
S3	1350-1410	10.2	E	0.1	*Surface*	27.8	27.8	27.8	26.2	26.2	26.2	4.3	4.3	4.3	63.7	63.3	63.5	3.5	3.6	3.6		5.5	5.6	5.6	
					Middle	27.6	27.5	27.6	26.2	26.3	26.3	4.4	4.4	4.4	64.3	65.1	64.7	4.2	4.2	4.2	4.1	5.9	6.1	6.0	6.1
					Bottom	27.6	27.5	27.6	26.3	26.3	26.3	4.4	4.4	4.4	64.8	64.2	64.5	4.6	4.6	4.6		6.4	6.8	6.6	

Remark or Obsevation:

Note: * Average

** Depth Average

Annex D3 Baseline Water Quality Monitoring Results during Mid-Flood Tide for 31 August 2012

Date:	31-Aug-12
Tide:	Mid-Flood
Weather:	Cloudy
Sea Conditions:	Small Wave
Zone	A

Location	Sampling Time	Water Depth (m)	Current direction	Current speed (ms^{-1})	Monitoring Depth	Temperature (°C)			Salinity (ppt)			DO (mg/l)			DO Saturation (%)			Turbidity (NTU)				Suspended Solids (mg/l)			
						1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	D.A.**	1	2	Ave.*	D.A.**
C1	1530-1552	38.6	W	0.4	*Surface*	27.6	27.5	27.6	25.9	26.1	26.0	5.1	5.1	5.1	74.9	75.2	75.1	3.0	3.0	3.0		3.8	4.0	3.9	
					Middle	27.2	27.2	27.2	26.7	26.7	26.7	4.9	5.0	5.0	72.7	73.4	73.1	2.4	2.4	2.4	2.8	3.0	3.1	3.1	3.8
					Bottom	27.1	27.1	27.1	27.0	26.9	27.0	4.8	4.8	4.8	70.4	70.8	70.6	3.0	3.1	3.1		4.0	4.6	4.3	
E8	1557-1617	20.0	W	0.3	*Surface*	27.5	27.5	27.5	26.3	26.4	26.4	5.1	5.1	5.1	75.0	74.8	74.9	1.9	2.0	2.0		2.8	3.0	2.9	
					Middle	27.3	27.4	27.4	26.5	26.6	26.6	4.8	4.8	4.8	70.2	70.9	70.6	2.0	2.0	2.0	2.1	3.0	3.2	3.1	3.1
					Bottom	27.1	27.0	27.1	26.7	26.6	26.7	4.7	4.7	4.7	69.0	68.6	68.8	2.2	2.3	2.3		3.3	3.4	3.4	
S1	1621-1637	9.8	W	0.3	*Surface*	27.7	27.7	27.7	26.3	26.4	26.4	5.7	5.8	5.8	84.7	84.9	84.8	1.6	1.6	1.6		2.6	3.0	2.8	
					Middle	27.6	27.6	27.6	26.6	26.6	26.6	5.6	5.7	5.6	82.9	83.6	83.3	1.7	1.7	1.7	1.5	2.6	2.7	2.7	2.6
					Bottom	27.4	27.3	27.4	26.7	26.7	26.7	5.6	5.6	5.6	82.6	82.3	82.5	1.4	1.4	1.4		2.6	2.2	2.4	
G1	1651-1707	11.2	W	0.2	*Surface*	27.5	27.6	27.6	25.8	25.9	25.9	6.2	6.2	6.2	91.4	91.0	91.2	2.8	2.7	2.8		3.6	3.2	3.4	
					Middle	27.4	27.3	27.4	26.4	26.3	26.4	5.8	5.7	5.8	85.5	84.2	84.9	2.3	2.3	2.3	2.4	3.2	3.0	3.1	3.3
					Bottom	27.1	27.2	27.2	26.6	26.6	26.6	5.2	5.2	5.2	77.3	76.8	77.1	2.2	2.2	2.2		3.2	3.4	3.3	
E7	1717-1734	12.8	W	0.2	*Surface*	27.4	27.3	27.4	26.5	26.4	26.5	5.6	5.6	5.6	82.7	81.9	82.3	2.0	2.0	2.0		2.8	3.2	3.0	
					Middle	27.3	27.2	27.3	26.5	26.6	26.6	5.2	5.2	5.2	76.7	76.4	76.6	2.2	2.2	2.2	2.9	3.4	3.0	3.2	3.9
					Bottom	27.2	27.3	27.3	26.6	26.5	26.6	5.1	5.2	5.1	74.7	75.9	75.3	4.4	4.4	4.4		5.2	5.6	5.4	
F1	1739-1754	11.8	W	0.5	*Surface*	27.4	27.5	27.5	26.5	26.4	26.5	5.8	5.9	5.9	86.1	86.6	86.4	2.0	2.1	2.1		3.2	3.6	3.4	
					Middle	27.4	27.3	27.4	26.7	26.6	26.7	5.7	5.7	5.7	84.5	83.7	84.1	1.9	1.9	1.9	1.9	2.8	3.0	2.9	3.0
					Bottom	27.3	27.2	27.3	26.7	26.7	26.7	5.2	5.2	5.2	76.6	76.3	76.5	1.8	1.9	1.8		2.4	2.8	2.6	
G3	1800-1819	16.0	W	0.2	*Surface*	27.5	27.6	27.6	26.3	26.2	26.3	5.3	5.4	5.3	77.4	79.0	78.2	2.8	2.8	2.8		3.5	3.8	3.7	
					Middle	27.3	27.4	27.4	26.5	26.5	26.5	5.1	5.0	5.0	74.5	73.6	74.1	2.7	2.7	2.7	2.9	2.8	3.0	2.9	3.5
					Bottom	27.2	27.2	27.2	26.7	26.8	26.8	4.9	4.9	4.9	72.9	72.3	72.6	3.0	3.0	3.0		3.8	4.3	4.1	
E9	1829-1850	19.6	W	0.1	*Surface*	27.4	27.5	27.5	26.4	26.5	26.5	4.9	4.9	4.9	72.8	72.0	72.4	3.6	3.5	3.5		4.8	5.0	4.9	
					Middle	27.3	27.4	27.4	26.5	26.5	26.5	4.7	4.6	4.7	68.9	68.4	68.7	4.4	4.4	4.4	4.2	5.6	5.8	5.7	5.5
					Bottom	27.2	27.1	27.2	26.7	26.6	26.7	4.7	4.7	4.7	69.1	69.5	69.3	4.7	4.7	4.7		5.6	6.0	5.8	
S2	1855-1911	10.2	W	0.2	*Surface*	27.4	27.5	27.5	26.2	26.3	26.3	4.8	4.8	4.8	71.2	71.0	71.1	3.8	3.9	3.8		5.8	6.0	5.9	
					Middle	27.3	27.3	27.3	26.5	26.4	26.5	4.8	4.7	4.8	70.5	69.7	70.1	4.1	4.1	4.1	4.2	6.3	6.5	6.4	6.4
					Bottom	27.3	27.2	27.3	26.5	26.6	26.6	4.7	4.7	4.7	68.7	69.2	69.0	4.6	4.6	4.6		6.8	6.8	6.8	
G2	1916-1933	13.4	W	0.3	*Surface*	27.4	27.5	27.5	26.2	26.2	26.2	4.4	4.4	4.4	65.2	64.9	65.1	3.6	3.5	3.6		5.2	5.6	5.4	
					Middle	27.3	27.3	27.3	26.4	26.4	26.4	4.5	4.5	4.5	66.4	66.6	66.5	4.0	4.0	4.0	4.0	6.0	6.1	6.1	6.0
					Bottom	27.1	27.2	27.2	26.4	26.4	26.4	4.5	4.4	4.4	65.6	65.1	65.4	4.5	4.6	4.6		6.8	6.4	6.6	
S3	1938-1955	10.8	W	0.2	*Surface*	27.4	27.4	27.4	26.3	26.3	26.3	4.5	4.5	4.5	66.2	66.7	66.5	3.6	3.6	3.6		5.6	5.5	5.6	
					Middle	27.2	27.3	27.3	26.4	26.3	26.4	4.6	4.5	4.5	67.3	66.8	67.1	4.1	4.0	4.1	4.0	6.3	6.4	6.4	6.2
					Bottom	27.2	27.2	27.2	26.4	26.4	26.4	4.5	4.4	4.4	65.7	65.3	65.5	4.4	4.4	4.4		6.4	6.8	6.6	

Remark or Obsevation:

Note: * Average

** Depth Average

Annex D4 Baseline Water Quality Monitoring Results during Mid-Ebb Tide for 31 August 2012

Date:	31-Aug-12
Tide:	Mid-Ebb
Weather:	Cloudy
Sea Conditions:	Small Wave
Zone	A

Location	Sampling Time	Water Depth (m)	Current direction	Current speed (ms^{-1})	Monitoring Depth	Temperature (°C)			Salinity (ppt)			DO (mg/l)			DO Saturation (%)			Turbidity (NTU)				Suspended Solids (mg/l)			
						1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	D.A.**	1	2	Ave.*	D.A.**
C1	1030-1052	38.2	E	0.5	*Surface*	27.5	27.4	27.5	26.1	26.2	26.2	5.1	5.1	5.1	74.5	75.2	74.9	3.1	3.0	3.1		4.6	4.3	4.5	
					Middle	27.2	27.2	27.2	26.7	26.6	26.7	4.9	4.9	4.9	72.1	72.7	72.4	2.5	2.6	2.5	2.9	3.9	3.7	3.8	4.2
					Bottom	27.1	27.1	27.1	27.0	26.9	27.0	4.7	4.7	4.7	69.4	70.2	69.8	3.2	3.2	3.2		4.2	4.3	4.3	
E8	1057-1117	19.6	E	0.3	*Surface*	27.4	27.4	27.4	26.5	26.4	26.5	5.0	4.9	5.0	73.5	72.6	73.1	2.1	2.2	2.1		3.2	3.3	3.3	
					Middle	27.3	27.2	27.3	26.2	26.2	26.2	4.7	4.7	4.7	69.5	69.9	69.7	2.1	2.1	2.1	2.2	3.1	3.5	3.3	3.3
					Bottom	27.0	27.0	27.0	26.6	26.5	26.6	4.6	4.6	4.6	67.9	67.3	67.6	2.5	2.4	2.4		3.4	3.3	3.4	
S1	1121-1137	9.2	E	0.2	*Surface*	27.7	27.8	27.8	26.2	26.3	26.3	5.6	5.5	5.6	83.2	81.3	82.3	1.5	1.6	1.6		2.6	2.8	2.7	
					Middle	27.6	27.6	27.6	26.5	26.6	26.6	5.6	5.6	5.6	82.3	82.8	82.6	1.8	2.0	1.9	1.7	2.8	2.9	2.9	2.7
					Bottom	27.4	27.4	27.4	26.7	26.7	26.7	5.6	5.5	5.5	82.1	81.1	81.6	1.5	1.6	1.5		2.7	2.3	2.5	
G1	1151-1207	10.8	E	0.2	*Surface*	27.4	27.3	27.4	26.0	26.0	26.0	6.1	6.1	6.1	90.6	90.4	90.5	2.8	2.8	2.8		3.8	3.7	3.8	
					Middle	27.4	27.4	27.4	26.3	26.3	26.3	5.6	5.5	5.6	82.3	81.7	82.0	2.4	2.4	2.4	2.5	3.6	3.3	3.5	3.6
					Bottom	27.1	27.1	27.1	26.7	26.7	26.7	5.1	5.0	5.1	75.2	74.6	74.9	2.3	2.3	2.3		3.5	3.6	3.6	
E7	1217-1234	12.4	E	0.1	*Surface*	27.6	27.5	27.6	26.5	26.4	26.5	5.5	5.5	5.5	80.4	80.7	80.6	2.1	2.1	2.1		3.4	3.5	3.5	
					Middle	27.4	27.3	27.4	26.3	26.2	26.3	5.1	5.1	5.1	74.9	74.6	74.8	2.4	2.3	2.3	3.0	3.8	3.6	3.7	4.6
					Bottom	27.3	27.3	27.3	26.4	26.3	26.4	5.0	5.0	5.0	73.9	73.3	73.6	4.6	4.6	4.6		6.6	6.7	6.7	
F1	1239-1254	11.6	E	0.5	*Surface*	27.7	27.7	27.7	26.4	26.5	26.5	5.8	5.8	5.8	85.8	85.7	85.8	2.2	2.1	2.1		4.0	3.7	3.9	
					Middle	27.5	27.4	27.5	26.5	26.5	26.5	5.6	5.5	5.6	82.2	81.9	82.1	2.0	2.0	2.0	1.9	3.3	3.7	3.5	3.3
					Bottom	27.2	27.2	27.2	26.9	26.8	26.9	5.1	5.1	5.1	75.8	75.0	75.4	1.6	1.6	1.6		2.8	2.5	2.7	
G3	1300-1318	15.2	E	0.2	*Surface*	27.9	27.8	27.9	26.3	26.4	26.4	5.3	5.2	5.2	77.6	76.6	77.1	2.9	2.8	2.8		3.9	3.6	3.8	
					Middle	27.5	27.5	27.5	26.5	26.6	26.6	4.9	5.0	4.9	72.6	73.5	73.1	2.8	2.8	2.8	2.9	3.8	3.6	3.7	4.2
					Bottom	27.3	27.3	27.3	26.7	26.8	26.8	4.9	4.9	4.9	72.1	72.7	72.4	3.2	3.1	3.1		5.3	5.2	5.3	
E9	1328-1349	18.6	E	0.1	*Surface*	27.6	27.5	27.6	26.4	26.5	26.5	4.8	4.7	4.8	70.7	69.6	70.2	3.6	3.6	3.6		5.8	5.2	5.5	
					Middle	27.4	27.3	27.4	26.3	26.4	26.4	4.6	4.6	4.6	67.7	68.4	68.1	4.7	4.6	4.6	4.4	6.4	6.6	6.5	6.2
					Bottom	27.2	27.2	27.2	26.3	26.4	26.4	4.7	4.7	4.7	69.7	69.1	69.4	4.9	5.0	4.9		6.9	6.5	6.7	
S2	1353-1410	9.9	E	0.2	*Surface*	27.7	27.6	27.7	26.4	26.4	26.4	4.7	4.8	4.7	69.0	70.1	69.6	3.9	3.9	3.9		4.9	5.0	5.0	
					Middle	27.4	27.4	27.4	26.5	26.5	26.5	4.7	4.6	4.6	68.9	68.1	68.5	4.5	4.5	4.5	4.4	6.4	6.6	6.5	5.8
					Bottom	27.3	27.2	27.3	26.5	26.6	26.6	4.8	4.8	4.8	70.3	70.6	70.5	4.8	4.9	4.8		5.8	6.0	5.9	
G2	1417-1430	12.8	E	0.2	*Surface*	27.7	27.7	27.7	26.3	26.3	26.3	4.3	4.3	4.3	63.1	63.9	63.5	3.7	3.8	3.8		4.8	5.0	4.9	
					Middle	27.5	27.5	27.5	26.3	26.4	26.4	4.4	4.4	4.4	65.2	64.9	65.1	4.3	4.4	4.4	4.3	5.8	5.4	5.6	5.7
					Bottom	27.2	27.2	27.2	26.4	26.4	26.4	4.4	4.5	4.4	65.7	65.9	65.8	4.9	4.8	4.8		6.4	6.5	6.5	
S3	1430-1452	10.4	E	0.1	*Surface*	27.8	27.7	27.8	26.2	26.3	26.3	4.3	4.3	4.3	63.7	63.9	63.8	3.7	3.7	3.7		5.8	5.9	5.9	
					Middle	27.6	27.5	27.6	26.3	26.4	26.4	4.4	4.5	4.4	65.0	65.8	65.4	4.2	4.2	4.2	4.2	6.3	6.0	6.2	6.1
					Bottom	27.4	27.3	27.4	26.5	26.5	26.5	4.4	4.4	4.4	65.0	64.4	64.7	4.6	4.7	4.6		6.2	6.4	6.3	

Remark or Obsevation:

Note: * Average

** Depth Average

Annex D5 Baseline Water Quality Monitoring Results during Mid-Flood Tide for 3 September 2012

Date:	3-Sep-12
Tide:	Mid-Flood
Weather:	Fine
Sea Conditions:	Small Wave
Zone	A

Location	Sampling Time	Water Depth (m)	Current direction	Current speed (ms^{-1})	Monitoring Depth	Temperrature (°C)			Salinity (ppt)			DO (mg/l)			DO Saturation (%)			Turbidity (NTU)				Suspended Solids (mg/l)			
						1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	D.A.**	1	2	Ave.*	D.A.**
C1	1630-1652	38.5	W	0.4	*Surface*	28.2	28.1	28.2	25.8	25.8	25.8	5.1	5.0	5.0	75.2	73.6	74.4	2.9	2.9	2.9		4.0	3.8	3.9	
					Middle	27.7	27.6	27.7	26.3	26.3	26.3	4.8	4.8	4.8	71.7	70.9	71.3	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.1
					Bottom	27.0	27.1	27.1	26.9	30.1	28.5	4.4	4.3	4.4	64.7	64.1	64.4	3.1	3.1	3.1		4.3	4.5	4.4	
E8	1658-1717	19.9	W	0.4	*Surface*	28.1	28.2	28.2	25.8	25.7	25.8	4.9	4.9	4.9	72.2	72.8	72.5	2.0	2.0	2.0		2.9	3.0	3.0	
					Middle	27.6	27.8	27.7	26.2	26.2	26.2	4.7	4.8	4.7	69.6	70.6	70.1	2.1	2.1	2.1	2.2	3.2	3.5	3.4	3.4
					Bottom	27.4	27.3	27.4	26.8	26.7	26.8	4.6	4.6	4.6	67.5	68.1	67.8	2.2	3.0	2.6		3.7	4.0	3.9	
S1	1720-1737	10.9	W	0.4	*Surface*	28.1	28.2	28.2	26.0	26.1	26.1	4.9	5.0	4.9	72.8	73.1	73.0	1.7	1.7	1.7		3.0	2.8.	3.0	
					Middle	27.9	27.8	27.9	26.5	26.5	26.5	4.8	4.8	4.8	70.9	70.6	70.8	1.9	1.9	1.9	1.8	3.2	3.1	3.2	3.2
					Bottom	27.6	27.7	27.7	26.8	26.9	26.9	4.7	4.7	4.7	68.7	69.1	68.9	2.0	1.9	1.9		3.4	3.2	3.3	
G1	1750-1807	11.1	W	0.2	*Surface*	28.3	28.2	28.3	25.5	25.6	25.6	5.3	5.4	5.3	78.3	79.5	78.9	2.8	2.8	2.8		4.6	4.6	4.6	
					Middle	27.8	27.8	27.8	26.0	26.1	26.1	5.1	5.1	5.1	75.3	75.2	75.3	3.0	2.9	2.9	2.9	5.0	5.2	5.1	5.1
					Bottom	27.6	27.6	27.6	26.3	26.4	26.4	4.8	4.8	4.8	70.3	70.8	70.6	3.1	3.1	3.1		5.4	5.5	5.5	
E7	1817-1834	12.7	W	0.2	*Surface*	28.1	28.2	28.2	25.6	25.5	25.6	5.2	5.2	5.2	77.1	76.5	76.8	2.0	2.0	2.0		3.1	3.1	3.1	
					Middle	27.8	27.8	27.8	26.1	25.9	26.0	5.1	5.0	5.0	74.6	74.3	74.5	2.1	2.1	2.1	2.3	3.8	3.7	3.8	3.7
					Bottom	27.2	27.2	27.2	26.4	26.4	26.4	4.9	4.9	4.9	71.9	71.7	71.8	2.6	2.6	2.6		4.3	4.3	4.3	
F1	1839-1854	12.6	W	0.5	*Surface*	28.1	28.0	28.1	25.4	25.5	25.5	5.0	5.0	5.0	74.3	74.0	74.2	2.0	2.0	2.0		3.4	3.6	3.5	
					Middle	27.6	27.5	27.6	26.3	26.3	26.3	4.9	4.8	4.9	72.4	71.3	71.9	2.3	2.3	2.3	2.3	3.6	3.6	3.6	3.7
					Bottom	27.3	27.2	27.3	26.6	26.6	26.6	4.6	4.6	4.6	67.9	68.2	68.1	2.5	2.5	2.5		4.1	3.8	4.0	
G3	1900-1920	16.4	W	0.2	*Surface*	28.1	28.0	28.1	25.5	25.5	25.5	5.0	5.0	5.0	74.4	74.3	74.4	2.3	2.3	2.3		3.8	3.8	3.8	
					Middle	27.7	27.7	27.7	26.1	25.9	26.0	4.9	4.9	4.9	72.5	72.0	72.3	2.6	2.6	2.6	2.6	4.8	4.6	4.7	4.3
					Bottom	27.2	27.3	27.3	26.4	26.4	26.4	4.8	4.7	4.7	70.2	69.6	69.9	2.8	2.8	2.8		4.5	4.5	4.5	
E9	1930-1950	19.5	W	0.1	*Surface*	28.1	28.0	28.1	25.5	25.6	25.6	5.1	5.1	5.1	75.0	75.2	75.1	3.4	3.3	3.3		5.2	5.1	5.2	
					Middle	27.6	27.6	27.6	25.7	25.8	25.8	4.9	4.9	4.9	72.4	71.9	72.2	3.9	3.9	3.9	3.9	6.3	6.4	6.4	6.1
					Bottom	27.0	27.1	27.1	26.3	26.4	26.4	4.7	4.7	4.7	68.8	69.1	69.0	4.6	4.5	4.5		6.7	6.9	6.8	
S2	1955-2011	10.0	W	0.2	*Surface*	27.9	27.9	27.9	25.6	25.7	25.7	5.0	5.0	5.0	74.4	74.1	74.3	3.4	3.4	3.4		5.2	5.4	5.3	
					Middle	27.5	27.6	27.6	26.2	26.3	26.3	4.8	4.8	4.8	70.3	70.2	70.3	3.9	3.8	3.8	3.7	6.2	6.3	6.3	5.9
					Bottom	27.2	27.1	27.2	26.5	26.6	26.6	4.7	4.6	4.6	68.8	68.2	68.5	4.0	4.0	4.0		6.0	6.4	6.2	
G2	2016-2034	13.3	W	0.3	*Surface*	28.1	28.0	28.1	25.7	25.6	25.7	5.1	5.1	5.1	75.0	74.7	74.9	3.4	3.4	3.4		5.1	4.9	5.0	
					Middle	27.8	27.8	27.8	25.9	26.0	26.0	4.8	4.9	4.8	71.2	71.6	71.4	3.6	3.6	3.6	3.6	5.3	5.1	5.2	5.4
					Bottom	27.3	27.4	27.4	26.3	26.4	26.4	4.7	4.6	4.7	69.1	68.5	68.8	3.9	3.9	3.9		5.8	5.9	5.9	
S3	2038-2055	10.6	W	0.2	*Surface*	28.1	27.9	28.0	25.6	25.7	25.7	5.0	5.0	5.0	73.7	74.3	74.0	3.3	3.3	3.3		5.0	5.0	5.0	
					Middle	27.9	27.8	27.9	25.9	25.9	25.9	4.8	4.9	4.8	71.3	71.8	71.6	3.4	3.5	3.4	3.5	5.5	5.3	5.4	5.3
					Bottom	27.4	27.3	27.4	26.4	26.3	26.4	4.6	4.6	4.6	67.4	68.0	67.7	3.7	3.7	3.7		5.6	5.6	5.6	

Remark or Obsevation:

Note: * Average

** Depth Average

Annex D6 Baseline Water Quality Monitoring Results during Mid-Ebb Tide for 3 September 2012

Date:	3-Sep-12
Tide:	Mid-Ebb
Weather:	Fine
Sea Conditions:	Small Wave
Zone	A

Location	Sampling Time	Water Depth (m)	Current direction	Current speed (ms^{-1})	Monitoring Depth	Temperature (°C)			Salinity (ppt)			DO (mg/l)			DO Saturation (%)			Turbidity (NTU)				Suspended Solids (mg/l)			
						1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	1	2	Ave.*	D.A.**	1	2	Ave.*	D.A.**
C1	1100-1123	37.4	E	0.3	*Surface*	28.2	28.3	28.3	25.6	25.6	25.6	5.0	4.9	5.0	73.9	72.9	73.4	2.9	2.9	2.9		5.0	4.8	4.9	
					Middle	27.8	27.7	27.8	26.3	26.3	26.3	4.8	4.8	4.8	70.9	70.4	70.7	2.7	2.7	2.7	2.9	4.3	4.4	4.4	4.8
					Bottom	27.3	27.2	27.3	27.0	27.0	27.0	4.7	4.7	4.7	68.8	69.3	69.1	3.1	3.1	3.1		5.0	5.2	5.1	
E8	1127-1148	19.8	E	0.2	*Surface*	28.3	28.2	28.3	26.1	26.1	26.1	5.0	4.9	5.0	73.7	72.7	73.2	1.9	1.9	1.9		3.3	3.2	3.3	
					Middle	28.1	28.0	28.1	26.5	26.4	26.5	4.9	4.8	4.8	71.8	70.8	71.3	2.0	2.1	2.1	2.0	3.2	3.2	3.2	3.4
					Bottom	27.7	27.7	27.7	26.8	26.8	26.8	4.7	4.7	4.7	69.0	70.0	69.5	2.3	2.2	2.2		3.7	3.5	3.6	
S1	1152-1210	10.2	E	0.2	*Surface*	28.4	28.3	28.4	26.2	26.2	26.2	4.9	5.0	4.9	72.1	73.3	72.7	1.7	1.7	1.7		2.8	2.8	2.8	
					Middle	28.2	28.1	28.2	26.6	26.5	26.6	4.8	4.8	4.8	70.9	71.4	71.2	1.8	1.8	1.8	1.8	2.9	2.9	2.9	3.0
					Bottom	28.0	27.9	28.0	26.7	26.8	26.8	4.7	4.8	4.7	69.8	70.3	70.1	2.0	1.9	1.9		3.4	3.2	3.3	
G1	1223-1240	10.8	E	0.3	*Surface*	28.4	28.3	28.4	25.7	25.7	25.7	5.1	5.2	5.1	75.2	76.2	75.7	2.9	2.9	2.9		5.1	5.1	5.1	
					Middle	28.1	28.1	28.1	26.0	26.0	26.0	5.1	5.0	5.0	74.6	74.2	74.4	3.1	3.0	3.0	3.0	5.4	5.2	5.3	5.1
					Bottom	27.8	27.8	27.8	26.2	26.3	26.3	4.7	4.7	4.7	68.9	69.7	69.3	3.2	3.2	3.2		5.0	5.0	5.0	
E7	1249-1306	12.4	E	0.2	*Surface*	28.3	28.4	28.4	25.9	26.0	26.0	5.1	5.1	5.1	74.9	74.5	74.7	1.9	1.9	1.9		3.0	3.4	3.2	
					Middle	28.0	28.0	28.0	26.3	26.3	26.3	5.0	4.9	5.0	73.5	72.6	73.1	2.1	2.1	2.1	2.4	3.6	3.8	3.7	4.0
					Bottom	27.6	27.7	27.7	26.5	26.5	26.5	4.8	4.8	4.8	70.4	70.7	70.6	3.0	3.1	3.1		4.9	5.0	5.0	
F1	1310-1325	11.6	E	0.4	*Surface*	28.3	28.3	28.3	26.0	26.0	26.0	5.0	4.9	5.0	73.8	73.0	73.4	1.9	1.8	1.8		2.8	2.9	2.9	
					Middle	28.1	28.1	28.1	26.3	26.3	26.3	4.8	4.9	4.8	71.1	71.7	71.4	2.0	1.9	1.9	1.9	3.3	3.4	3.4	3.3
					Bottom	27.9	27.9	27.9	26.5	26.5	26.5	4.7	4.7	4.7	69.9	69.2	69.6	2.0	2.1	2.1		3.4	3.7	3.6	
G3	1330-1348	15.4	E	0.3	*Surface*	28.4	28.4	28.4	25.9	25.9	25.9	5.0	5.0	5.0	74.3	73.6	74.0	2.5	2.6	2.6		4.0	4.0	4.0	
					Middle	28.1	28.0	28.1	26.2	26.3	26.3	4.9	4.9	4.9	72.7	72.2	72.5	2.6	2.6	2.6	2.7	4.2	4.4	4.3	4.3
					Bottom	27.8	27.7	27.8	26.5	26.6	26.6	4.7	4.7	4.7	69.5	69.8	69.7	2.8	2.9	2.9		4.6	4.8	4.7	
E9	1358-1418	18.8	E	0.2	*Surface*	28.4	28.4	28.4	25.6	25.5	25.6	4.9	5.0	5.0	72.9	73.5	73.2	3.4	3.5	3.4		5.2	5.3	5.3	
					Middle	28.0	28.0	28.0	25.9	26.0	26.0	4.8	4.8	4.8	71.0	70.5	70.8	4.0	4.0	4.0	4.0	6.1	5.9	6.0	6.0
					Bottom	27.8	27.7	27.8	26.3	26.4	26.4	4.6	4.6	4.6	67.2	67.6	67.4	4.6	4.5	4.5		6.8	6.5	6.7	
S2	1422-1436	9.6	E	0.2	*Surface*	28.4	28.3	28.4	25.9	25.8	25.9	4.9	4.9	4.9	71.8	72.3	72.1	3.5	3.5	3.5		5.2	4.9	5.1	
					Middle	28.1	28.0	28.1	26.3	26.2	26.3	4.7	4.7	4.7	69.4	69.8	69.6	3.9	3.9	3.9	3.8	5.9	5.9	5.9	5.8
					Bottom	27.8	27.8	27.8	26.6	26.6	26.6	4.5	4.6	4.5	66.6	67.4	67.0	4.1	4.1	4.1		6.4	6.2	6.3	
G2	1440-1456	12.8	E	0.3	*Surface*	28.4	28.3	28.4	25.9	25.8	25.9	4.9	5.0	4.9	72.7	73.1	72.9	3.5	3.5	3.5		5.1	5.2	5.2	
					Middle	28.1	28.0	28.1	26.1	26.1	26.1	4.8	4.8	4.8	70.6	70.3	70.5	3.6	3.7	3.7	3.7	5.2	5.5	5.4	5.5
					Bottom	27.7	27.6	27.7	26.4	26.5	26.5	4.6	4.5	4.6	67.9	67.1	67.5	3.9	3.9	3.9		6.2	5.9	6.1	
S3	1500-1516	10.2	E	0.3	*Surface*	28.3	28.4	28.4	25.9	25.8	25.9	4.8	4.9	4.9	71.5	72.4	72.0	3.4	3.4	3.4		5.0	5.1	5.1	
					Middle	28.1	28.1	28.1	26.0	25.9	26.0	4.8	4.7	4.7	70.6	69.5	70.1	3.5	3.5	3.5	3.6	5.4	5.5	5.5	5.4
					Bottom	27.8	27.8	27.8	26.4	26.4	26.4	4.5	4.6	4.5	66.8	67.8	67.3	3.9	3.8	3.8		5.6	6.0	5.8	

Remark or Obsevation:

Note: * Average

** Depth Average

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