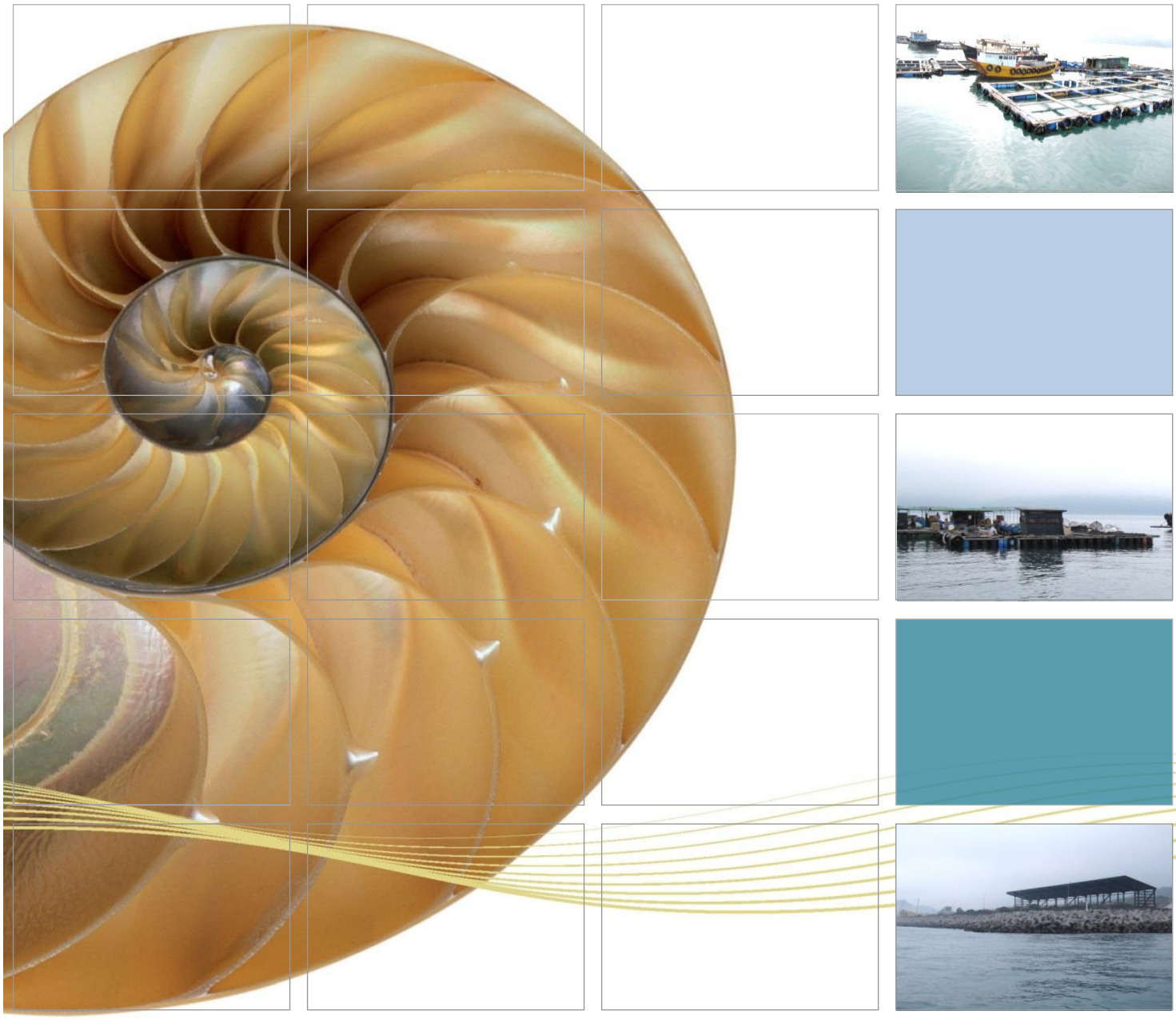

Asia Submarine-cable Express (ASE) – Tseung Kwan O

Post Project Water Quality Monitoring Report (Zone A)

26 March 2014

Environmental Resources Management
16/F DCH Commercial Centre
25 Westlands Road
Quarry Bay, Hong Kong
Telephone 2271 3000
Facsimile 2723 5660

www.erm.com

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

Environmental Resources Management

16/F DCH Commercial Centre
25 Westlands Road
Quarry Bay
Hong Kong
Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660
E-mail: post.hk@erm.com
http://www.erm.com

Post Project Water Quality Monitoring Report (Zone A)

Document Code: 0223932 WQM Post Project Flyer Sheet.doc

Client:	GMS No:
NTT Com Asia Ltd	0223932
Summary: This report presents the monitoring requirements, methodologies and results of the post project ambient marine water quality measurements at the monitoring locations near Tseung Kwan O in accordance with the EM&A Manual.	Date: 26 March 2014 Approved by: *Terence Fong* *Project Director*

v0	Post Project Water Quality Monitoring Report (Zone A)	JK	FZINO	TFONG	26 Mar 14
Revision	Description	By	Checked	Approved	Date

Distribution

☒ Internal

☒ Public

☐ Confidential

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

Reference Document/Plan

Document/~~Plan~~ to be ~~Certified~~/ Verified:	Post Project Water Quality Monitoring Report (Zone A)
Date of Report:	Wednesday, 26 March 2014
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 "A Post Project Monitoring Report to review the environmental status after Project marine installation and compare with the results as presented in the relevant Baseline Monitoring Report shall be provided within one month after completion of the Project marine installation works.."

"The Post Project Monitoring Report shall include the following details: brief project background information; drawings showing locations of the monitoring stations; full Project marine installation works programme with milestones of environmental protection/mitigation activities annotated; monitoring results together with the information including monitoring methodology, parameters monitored, monitoring locations (and depth), monitoring date, time, frequency and duration; review the environmental status after Project marine installation works and compare with results presented in the relevant Baseline Monitoring Report; and comments and conclusions."

EP Condition: Condition No. 2.4

Content: *Post Project Monitoring Report on Water Quality*

(ii)(c) 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 post project monitoring report on water quality within one month after completion of the marine works.

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: Wednesday, 26 March 2014

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: Wednesday, 26 March 2014

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The submarine cable installation works for the Asia Submarine-cable Express (ASE) cable system commenced in January 2014 and were completed in February 2014. This is the **Post Project Water Quality Monitoring Report (Zone A)** presenting results and findings of the post project water quality monitoring conducted during the period from 10 to 15 March 2014 in accordance with the *Updated Environmental Monitoring and Audit Manual* (*Updated EM&A Manual*).

Water Quality

Three monitoring events (days) were scheduled between 10 and 15 March 2014, at monitoring stations located in Zone A, to replicate monitoring activities conducted for baseline data gathering in accordance with the *Updated EM&A Manual*. Monitoring events at all designated monitoring stations in Zone A were performed on schedule.

In general, the Dissolved Oxygen (DO) levels recorded during the post project monitoring period were recorded mostly higher than results obtained during the baseline update monitoring period. Turbidity and Suspended Solid (SS) levels observed in the post project monitoring period were observed lower than the results recorded during the baseline update monitoring period at all designated stations. After detailed analyses, it is considered that the overall changes in DO, Turbidity and SS were driven by natural fluctuations.

Conclusion

Upon completion of the cable installation, the overall water quality at the impact stations in Zone A was found similar to that at the control station and was recorded higher in DO and lower in Turbidity and SS when compared with the baseline data. Given the fact that the control station is sufficiently far away from the cable alignment and water quality at this station could not be affected by the Project, it is concluded that the overall changes in DO, Turbidity and SS levels during the post-project monitoring period at all designated stations including the control station are likely to represent a natural phenomenon. It is considered that no deterioration of water quality was observed and the impacts from the Project works on water quality are negligible.

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by NTT Com Asia (NTTCA) as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme for the re-installation of a damaged section of the Asia-Submarine-cable Express (ASE) telecommunication cable (thereinafter called the "Project"). The ASE cable is approximately 7,200 km in length, connecting Japan and Singapore with branches to the Philippines, Hong Kong SAR (HKSAR) and Malaysia.

1.1 PURPOSE OF THE REPORT

This is the **Post Project Water Quality Monitoring Report (Zone A)**, which summarises the results of post project water quality monitoring as part of the EM&A programme during the reporting period from 10 to 15 March 2014. The post project monitoring results have been compared to the baseline water quality update monitoring results in order to investigate any impact of the Project marine works on water quality in the vicinity of the Project site.

1.2 STRUCTURE OF THE REPORT

The structure of the Report is as follows:

Section 1 : ***Introduction***
Provides details of the background, purpose and report structure.

Section 2 : ***Project Information***
Summarises background and scope of the project, the repair works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3 : ***Water Quality Monitoring Requirements***
Summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, and monitoring locations.

Section 4 : ***Implementation Status of Environmental Mitigation Measures***
Summarises the implementation of environmental protection measures during the reporting period.

Section 5 : ***Post Project Monitoring Results***
Summarises the monitoring results obtained in the reporting period for Zone A.

Section 6 : ***Conclusions***
Presents the key findings of the post project monitoring results.

2 PROJECT INFORMATION

2.1 BACKGROUND

In 2012/2013, NTT Com Asia (NTTCA) installed 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, with marine works in HK waters initially completed in January 2013. NTTCA was also responsible for securing the approval to land the ASE cable in Tseung Kwan O, Hong Kong SAR (HKSAR), the landing site for a number of submarine cables, and the landing site is at a Beach Manhole (BMH) after which the cable ultimately connects with a Data Centre in Tseung Kwan O (TKO) Industrial Estate. . From Tseung Kwan O, the cable extends westward approaching the Tathong Channel. Near to Cape Collinson, the cable is approximately parallel to the Tathong Channel until north of Waglan Island where it travels eastward to the boundary of HKSAR waters and enters the South China Sea. The total length of cable in Hong Kong SAR waters is approximately 33.5 km. A map of the cable route is presented in *Figure 2.1*.

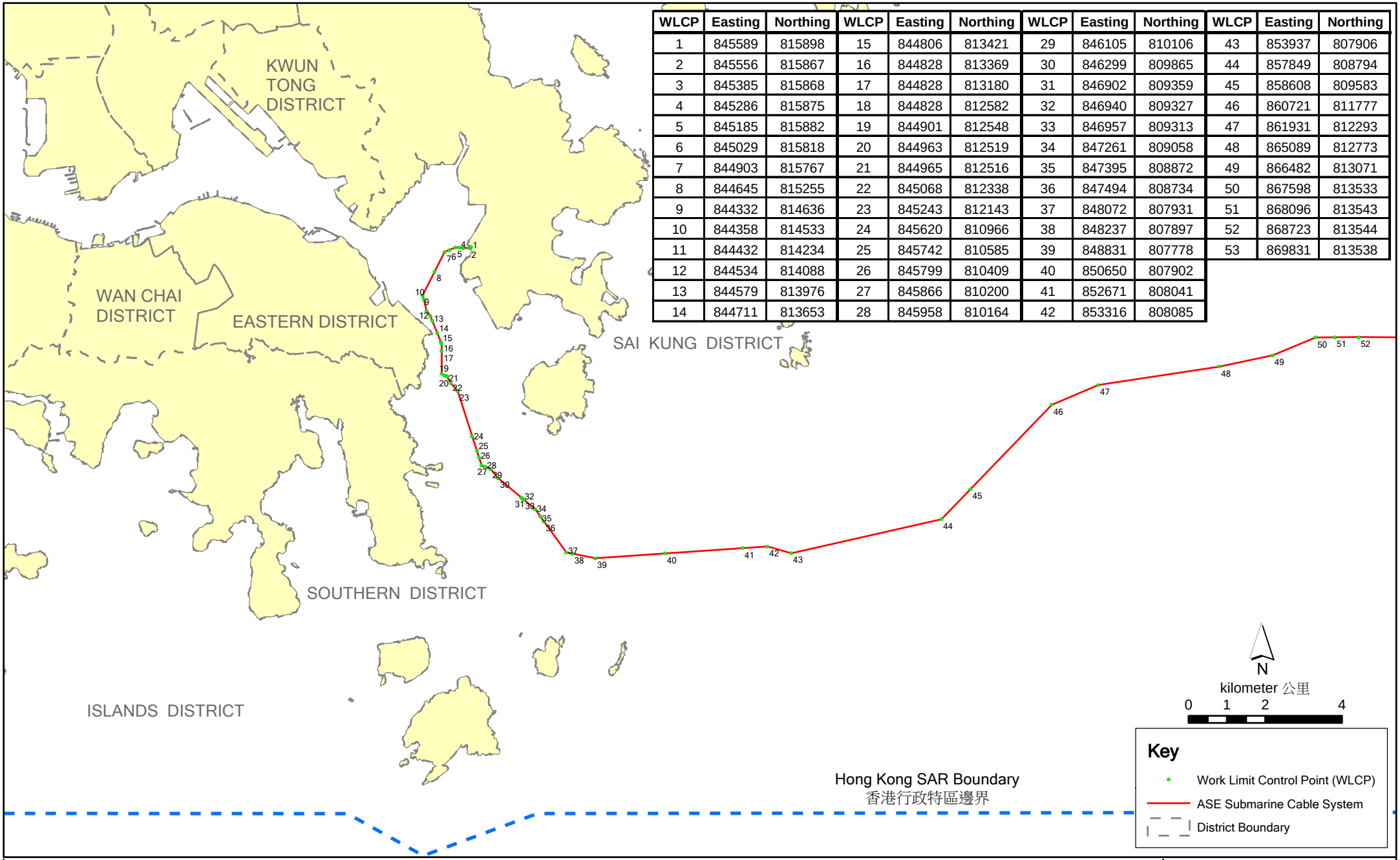
A Project Profile (PP-452/2011) which includes an assessment of the potential environmental impacts associated with the installation of the submarine telecommunications cable system was prepared and submitted to the Environmental Protection Department (EPD) under section 5.(1) (b) and 5.(11) of the *Environmental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

Pursuant to *Condition 2.4* of *EP- 433/2011*, an environmental monitoring and audit (EM&A) programme, as set out in the *Environmental Monitoring and Audit Manual (EM&A Manual*[1]*)* is required for this Project. Baseline data were collected prior to the start of cable installation works in 2012 and EM&A was conducted throughout the cable installation and after its completion in early 2013. as required in the *EM&A Manual*.

Upon inspection in October 2013 the ASE cable was found to be damaged and a section within Zone A (see *Figure 2.2*) required re-installation. The EM&A programme are therefore required to resume for the cable installation works in Hong Kong Waters and the *EM&A Manual* was updated to reflect these new repair works and produce the *Updated EM&A Manual*.

New baseline water quality 'update' monitoring was conducted prior to the start of re-installation works, in early November 2013, and results are summarised in the '*Baseline Water Quality Monitoring Update Report (Zone A)*' of December 2013.

(1) ERM (2012) EM&A Manual for Asia Submarine-cable Express (ASE) – Tseung Kwan O.



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 2.1

ASE Submarine Cable System (Layout Plan)

File: T:\GIS\CONTRACT\0223932\Mxd\0223932_Landing_Overview.mxd
Date: 22/1/2014

Environmental Resources Management

ERM

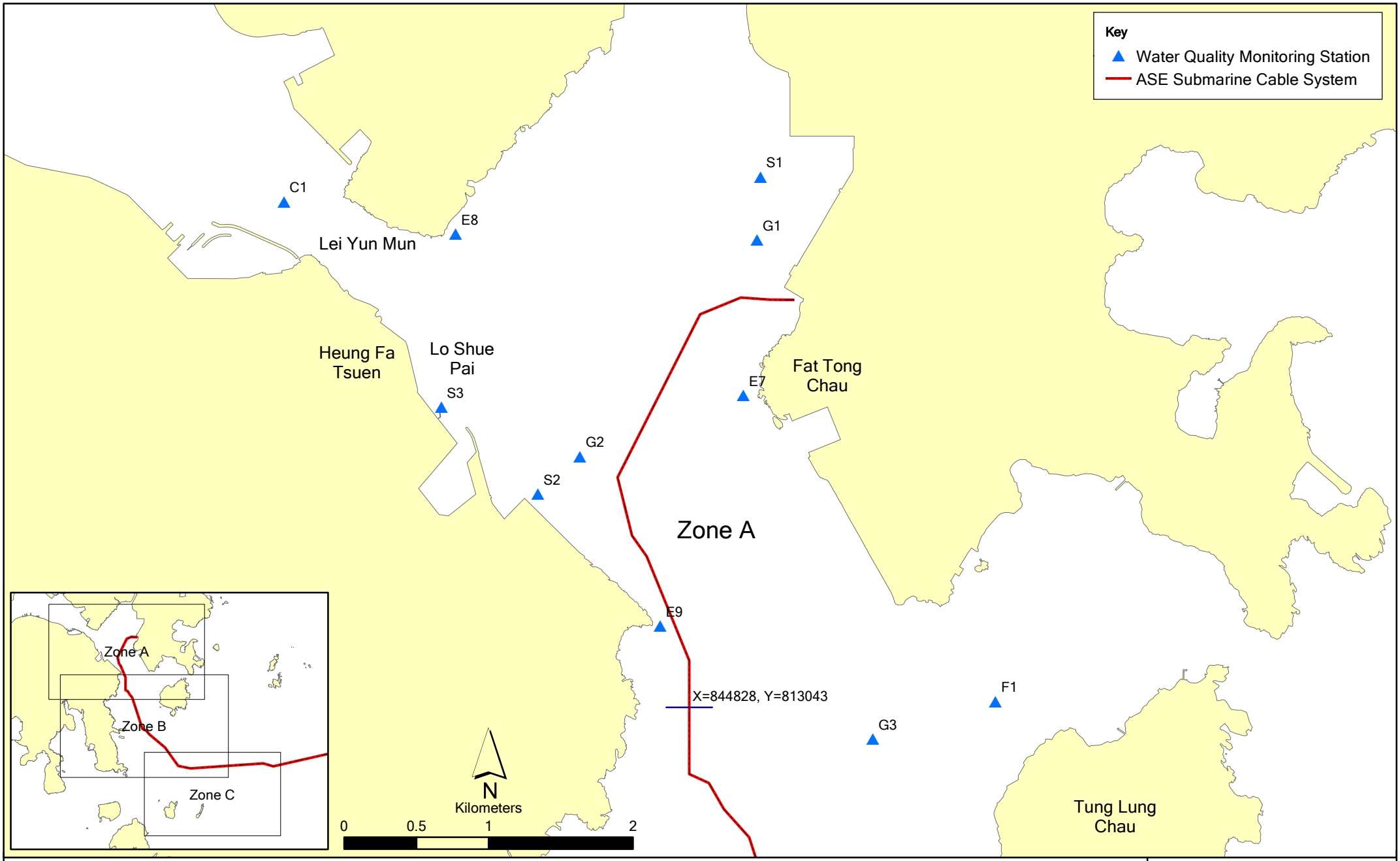


Figure 2.2

Water Quality Monitoring Station (Zone A)

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Date: 16/1/2014

Environmental Resources Management

ERM

Impact monitoring started on 12 January 2014, when the cable re-installation works commenced in Zone A. The initial cable installation works were completed on 5 February 2014 and the impact water quality monitoring ceased subsequently. The impact water quality monitoring results were summarized in the following reports:

- *2014 First Weekly Impact Water Quality Monitoring Report (Zone A);*
- *2014 Second Weekly Impact Water Quality Monitoring Report (Zone A);*
- *2014 Third Weekly Impact Water Quality Monitoring Report (Zone A);* and
- *2014 Forth Weekly Impact Water Quality Monitoring Report (Zone A).*

All marine works for the cable repair works were completed in early February 2014 and final confirmation of completion of the work after testing of the cable was given on Tuesday 4 March 2014. In accordance with the *Updated EM&A Manual*, post project water quality monitoring should comprise sampling on three occasions (days) within three weeks of completion of the marine installation works.

This **Post Project Water Quality Monitoring Report (Zone A)** presents the results and findings from the 2014 post project monitoring, conducted in the monitoring period 10-15 March 2014. It should be noted that cable repair works were only carried out in Zone A (Cape Collinson) and results of the post project monitoring data have therefore been compared against the results of the baseline water quality update monitoring in Zone A.

2.2 SITE DESCRIPTION

The cable installation works for the damaged section of the ASE cable were conducted near TKO in Zone A (*Figure 2.2*).

2.3 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences and reports on marine water quality for this Project is presented in *Table 2.1*.

Table 2.1 Summary of Environmental Licensing, Notification, Permit and Reporting Status

Permit / Licence / Notification / Report	Reference	Validity Period	Remarks
Environmental Permit	EP 433/2011	Throughout the construction and operation stages	Granted on 20 December 2011
EM&A Manual	-	Throughout the construction and operation stages	Submitted on 18 September 2012. Superseded by Updated EM&A Manual

Permit / Licence / Notification / Report	Reference	Validity Period	Remarks
Updated EM&A Manual	-	Throughout the construction and operation stages	Submitted in December 2013
Baseline Water Quality Monitoring Update Report (Zone A)	-	n/a	Submitted on 5 December 2013
2014 First Weekly Impact Water Quality Monitoring Report (Zone A)		n/a	Submitted on 23 January 2014
2014 Second Weekly Impact Water Quality Monitoring Report (Zone A)		n/a	Submitted on 30 January 2014
2014 Third Weekly Impact Water Quality Monitoring Report (Zone A)		n/a	Submitted on 6 February 2014
2014 Forth Weekly Impact Water Quality Monitoring Report (Zone A)		n/a	Submitted on 12 February 2014

3 WATER QUALITY MONITORING REQUIREMENTS

3.1 MONITORING LOCATIONS

In accordance with the *Updated EM&A Manual,* water quality monitoring samples were collected at eleven (11) stations, the same stations as baseline monitoring situated around the cable installation works in Zone A. The locations of the sampling stations within Zone A are shown in *Figure 2.2*.

- 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 nearby proposed cable works which may affect the Project marine installation 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 Project marine installation 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 Project marine installation works due to its remoteness from the works.

The co-ordinates of the above monitoring stations in Zone A are listed in *Table 3.1*.

Table 3.1 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
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

3.2 MONITORING PARAMETERS

The post project water quality monitoring was conducted in accordance with the requirements stated in the *Updated EM&A Manual*. Monitoring parameters are presented as below.

Parameters measured *in situ* were:

- Dissolved Oxygen (DO) (% saturation and mg L^{-1});
- Temperature (°C);
- Turbidity (NTU); and
- Salinity (‰).

The only parameter measured in the laboratory was:

- Suspended Solids (SS) (mgL^{-1}).

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

3.3 MONITORING EQUIPMENT AND METHODOLOGY

3.3.1 Monitoring Equipment

Table 3.2 summaries the equipment used for the post project water quality monitoring.

Table 3.2 Equipment Used during the Post Project Water Quality Monitoring

Equipment	Model
Global Positioning Device	Garmin etrex 10
Water Depth Gauge	Speedtech Instrument SM-5
Water Sampling Equipment	1520 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

3.3.2 *Monitoring Methodology*

Timing & Frequency

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 water quality sampling was undertaken within a 4 hour window of 2 hour before and 2 hour after mid flood and mid-ebb tides. The tidal range selected for the post project 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 post-project water quality monitoring was conducted between 10 and 15 March 2014, following the schedule presented in *Annex A*.

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.

Sampling/ Testing Protocols

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 will be 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

[1] Hong Kong Observatory (2013) http://www.hko.gov.hk/tide/eQUBtide.htm [Accessed in February 2013]

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.

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

3.3.3 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 B*).

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

Mitigation measures for water quality control were recommended in the Project Profile (PP-452/2011) and Environmental Permit (EP- 433/2011). The Contractor implemented the following select and relevant mitigation measures during cable re-installation works:

- The forward speed of the installation barge was limited to a maximum of 1 km/ hour;
- Water quality monitoring was carried out to verify that the project works were not resulting in any impacts to water quality, marine ecology and fisheries; and
- Prevention of leakage from construction equipment to reduce the runoff entering the marine waters was incorporated as part of good working practices.

A total of three (3) monitoring events (days) were scheduled in the monitoring period from 10 to 15 March 2014 (*Annex A*). Monitoring occasions at all designated monitoring stations within Zone A (conducted on 10, 13 and 15 March 2014) were performed on schedule. No major activities influencing the water quality were identified during the reporting period.

The post project monitoring data are presented in *Annex D* and have been compared with baseline update monitoring results.

The levels of DO measured during the post project monitoring period at different sampling depths were generally higher than those obtained during the baseline update monitoring period (*Figure D1-D3*). Elevation of DO concentration was detected at all the impact stations and the control station C1 (situated a long distance from the submarine cable alignment and not likely to be affected by the Project works) during the post project monitoring period. DO levels recorded at the impact stations were of similar magnitude to those measured at the control station C1.

Levels of Turbidity and SS measured during the post project monitoring period were generally lower compared to those measured during the baseline update monitoring period (*Figure D4-D5*). This occurred to all the monitoring stations including the control station C1, which is situated a long distance from the submarine cable alignment and not likely to be affected by the Project works. Turbidity and SS levels recorded at all the impact stations were generally of similar magnitude to those measured at the control station C1 during post project monitoring period. Replicated data at impact and control stations indicates that the situation was due to natural fluctuations.

Given the above information, particularly with regard to the control station, the overall changes in DO, Turbidity and SS levels during the post project monitoring period at all designated stations compared to baseline data are likely to represent a natural phenomenon.

6 CONCLUSION

This **Post Project Water Quality Monitoring Report (Zone A)** presents the EM&A work undertaken during the period from 10 to 15 March 2014 in accordance with the *Updated EM&A Manual* and the requirements under Environmental Permit (*EP- 433/2011*).

Post project water quality monitoring in Zone A was conducted within 3 weeks of confirmation that the marine cable repair works had been completed. The overall water quality at the impact stations in Zone A was found to be similar to that at the control station with higher DO levels and lower Turbidity and SS levels recorded compared to the updated baseline data. Given the fact that the control station is sufficiently far away from the cable alignment and water quality at this station could not be affected by the Project, it is concluded that the overall changes in DO, Turbidity and SS levels during the post-project monitoring period at all designated stations including the control station are likely to represent natural variation.

It is considered that no deterioration of water quality was observed between post project and baseline monitoring for this cable repair work and therefore the Project works had negligible impact on water quality.

Annex A

Post Project Water Quality Monitoring Schedule (Zone A)

Asia Submarine-cable Express (ASE) – Tseung Kwan O (Zone A)
Post-Project Marine Water Quality Monitoring (WQM) Schedule (10 to 15 Mar 14)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Mar
02-Mar	03-Mar	04-Mar	05-Mar	06-Mar	07-Mar	08-Mar
09-Mar	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar
	WQM Mid-Flood 8:19 (06:34 - 10:04) Mid-Ebb 20:50 (19:05 - 22:35)			**WQM** Mid-Ebb 10:46 (09:01 - 12:31) Mid-Flood 16:11 (14:26 - 17:56)		**WQM** Mid-Ebb 11:43 (09:58 - 13:28) Mid-Flood 17:36 (15:51 - 19:21)
16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar
23-Mar	24-Mar	25-Mar	26-Mar	27-Mar	28-Mar	29-Mar
30-Mar	31-Mar					

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/008/006	Manufacturer	:	YSI
Model No.	:	Pro 2030	Serial No.	:	12A 100554
Date of Calibration	:	19/12/2013	Calibration Due Date	:	~~18/03/2013~~ 18/03/2014 & 19/12/13

Temperature Verification

Ref. No. of Reference Thermometer : ET/0521/008

Ref. No. of Water Bath : ---

	Temperature (°C)			
Reference Thermometer reading	Measured	19.9	Corrected	19.6
DO Meter reading	Measured	19.4	Difference	0.2

Standardization of sodium thiosulphate ($Na_2S_2O_3$) solution

Reagent No. of $Na_2S_2O_3$ titrant	CPE/012/4.5/001/8	Reagent No. of 0.025N $K_2Cr_2O_7$	CPE/012/4.4/001/23

	Trial 1	Trial 2
Initial Vol. of $Na_2S_2O_3$ (ml)	1.00	12.00
Final Vol. of $Na_2S_2O_3$ (ml)	11.55	22.50
Vol. of $Na_2S_2O_3$ used (ml)	10.55	10.50
Normality of $Na_2S_2O_3$ solution (N)	0.02370	0.02381
Average Normality (**N**) of $Na_2S_2O_3$ solution (N)	0.02376	
Acceptance criteria, Deviation	Less than ± 0.001N	

Calculation: Normality of $Na_2S_2O_3$, **N** = 0.25 / 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	11.30	22.70	0.00	8.40	13.20
Final Vol. of $Na_2S_2O_3$ (ml)	11.30	22.70	30.80	8.40	13.20	18.10
Vol. (**V**) of $Na_2S_2O_3$ used (ml)	11.30	11.40	8.10	8.40	4.80	4.90
Dissolved Oxygen (**DO**), mg/L	7.21	7.27	5.17	5.36	3.06	3.13
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	7.10	7.30	7.20	7.21	7.27	7.24	0.55
5	5.14	5.50	5.32	5.17	5.36	5.27	0.94
10	3.09	3.31	3.29	3.06	3.13	3.10	5.95
Linear regression coefficient				0.9999			

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

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/012/4.7/002/13	Reagent No. of NaCl (30ppt)	CPE/012/4.8/002/13

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	11.80	24.10	35.20
Final Vol. of $Na_2S_2O_3$ (ml)	11.80	24.10	35.20	46.50
Vol. (**V**) of $Na_2S_2O_3$ used (ml)	11.80	12.30	11.10	11.30
Dissolved Oxygen (**DO**), mg/L	7.53	7.85	7.08	7.21
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	7.55	7.89	7.72	7.53	7.85	7.69	0.39
30	7.04	7.16	7.1	7.08	7.21	7.15	0.70

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 : _____

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Performance Check of Salinity Meter

Equipment Ref. No. :	ET/EW/008/006	Manufacturer :	YSI
Model No. :	Pro 2030	Serial No. :	12A 100554
Date of Calibration :	19/12/2013	Due Date :	18/03/2014

Ref. No. of Salinity Standard used (30ppt)	S/001/5

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30.0	30.8	2.63

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 : _____

Performance Check of Turbidity Meter

Equipment Ref. No. : ET/0505/010 Manufacturer : HACH

Model No. : 2100Q Serial No. : 11110 C 014260

Date of Calibration : 07/01/2014 Due Date : 06/04/2014

Gelex Vial Std	Theoretical Value (NTU)	Measured Value (NTU)	Difference %
0-10 NTU	5	5.11	2.18
10-100 NTU	50	51.1	2.18
100-1000 NTU	550	568	3.22

Acceptance Criteria

Difference : -5 % to 5%

The turbidity 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 @
3/10/2014	107.4	FC1S-1	3.92	FG1S-2	98.0
	105.3	FG1M-1	4.26	FG3M-2	93.1
	97.8	FG3B-1	0.00	FG2B-2	97.1
	106.1	FS3S-1	4.08	FS3B-2	100.0
	97.5	EC1S-1	4.08	EG1S-2	101.0
	99.2	EG1M-1	3.64	EG3M-2	104.9
	107.0	EG3B-1	3.64	EG2B-2	96.0
	103.0	ES3S-1	0.00	ES3B-2	98.0

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 @
3/13/2014	96	FC1S-1	4.44	FG1S-2	97.0
	105.8	FG1M-1	4.44	FG3M-2	105.9
	98.1	FG3B-1	0.00	FG2B-2	99.0
	99.8	FS3S-1	0.00	FS3B-2	101.0
	107.0	EC1S-1	4.44	EG1S-2	94.2
	105.3	EG1M-1	4.26	EG3M-2	92.2
	106.6	EG3B-1	0.00	EG2B-2	96.0
	104.1	ES3S-1	4.65	ES3B-2	101.0

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 @
3/15/2014	100.2	FC1S-1	4.08	FG1S-2	99.0
	93.1	FG1M-1	0.00	FG3M-2	97.1
	92.7	FG3B-1	0.00	FG2B-2	92.2
	104.5	FS3S-1	0.00	FS3B-2	95.2
	106.7	EC1S-1	0.00	EG1S-2	95.0
	94.8	EG1M-1	0.00	EG3M-2	94.1
	96.9	EG3B-1	0.00	EG2B-2	104.9
	92.8	ES3S-1	4.88	ES3B-2	104.8

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

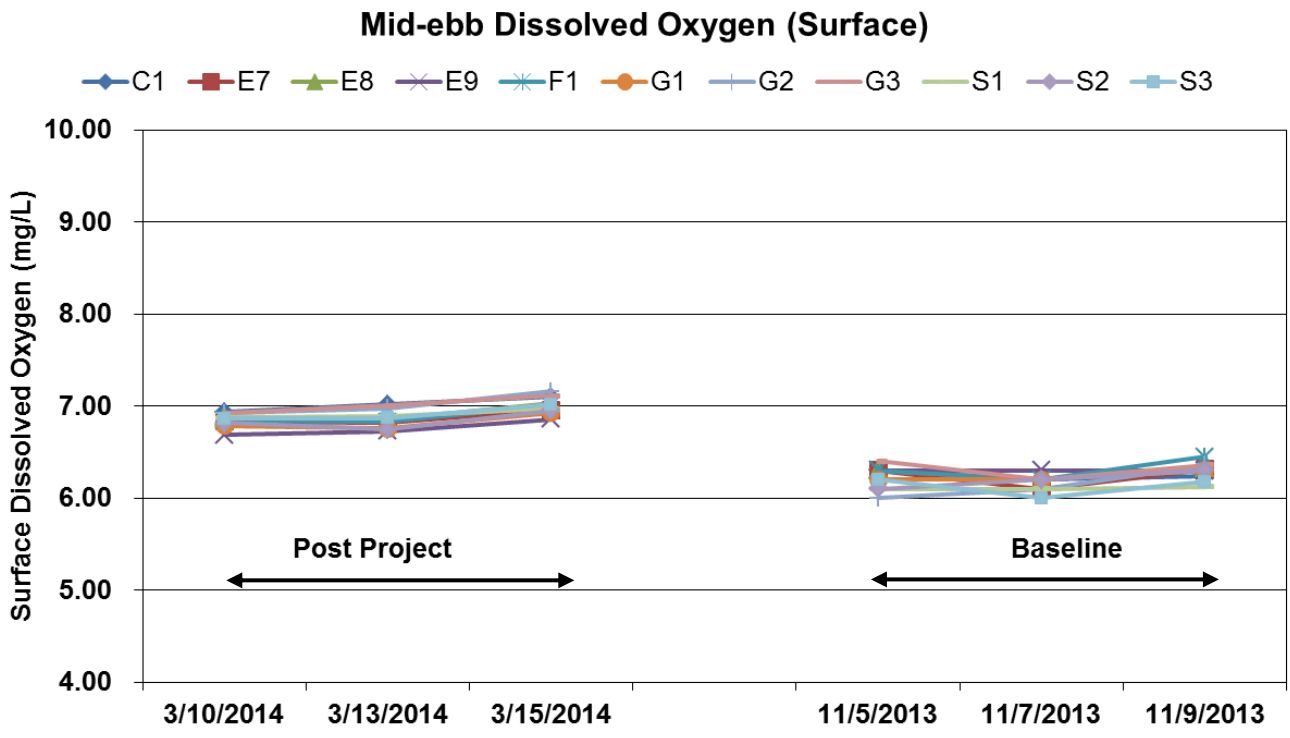
(#) % Error of Sample Duplicate should be between 0% to 10%.

(@) % 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

Post Project Water Quality Monitoring Results (Zone A)



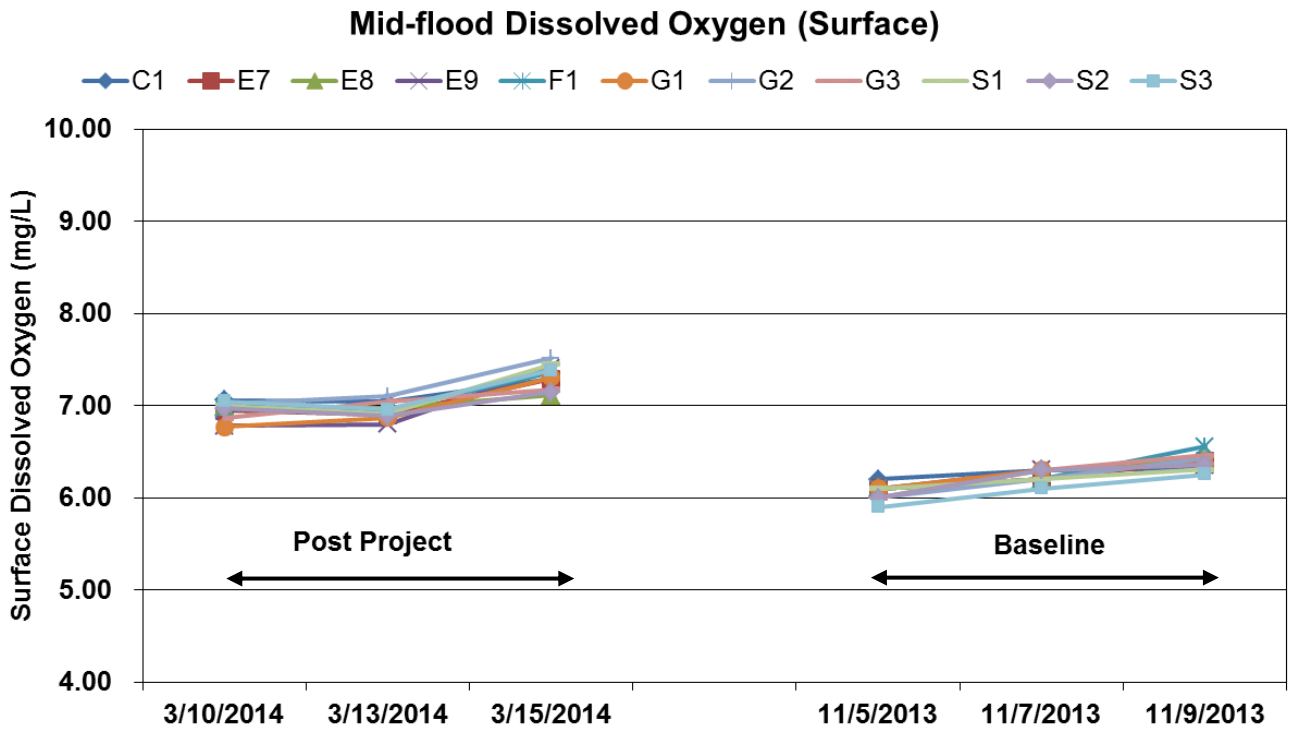
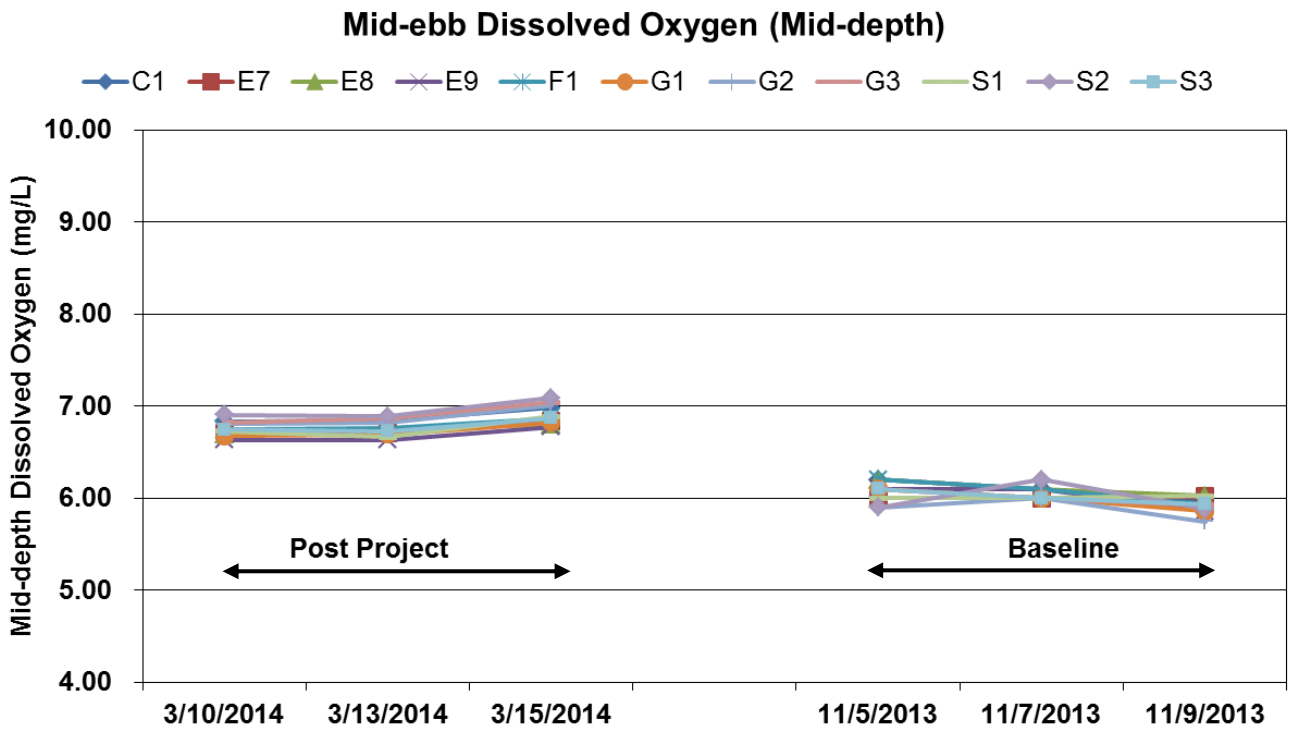


Figure D1 Dissolved oxygen (mg/L) at surface of water column measured during the post-project monitoring period from 10 to 15 March 2014 for Zone A

ERM



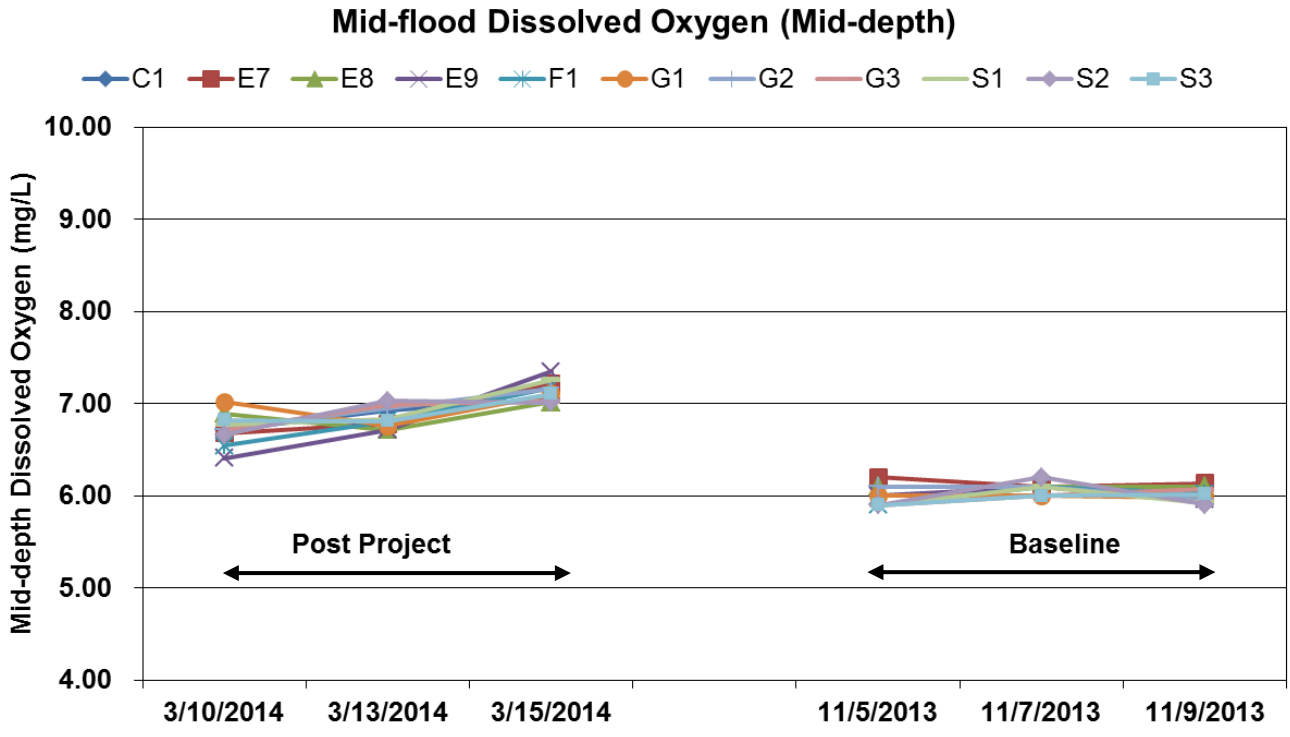
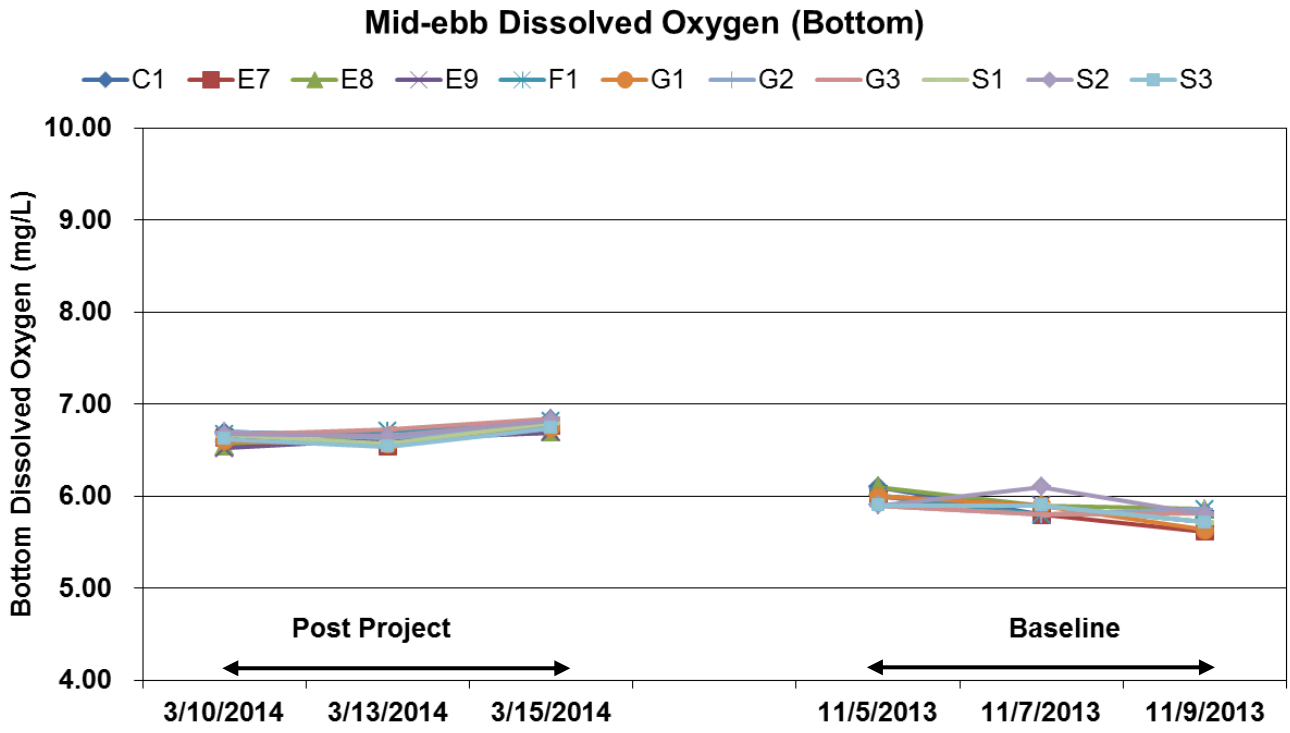


Figure D2 Dissolved oxygen (mg/L) at mid-depth of water column measured during the post-project monitoring period from 10 to 15 March 2014 for Zone A

ERM



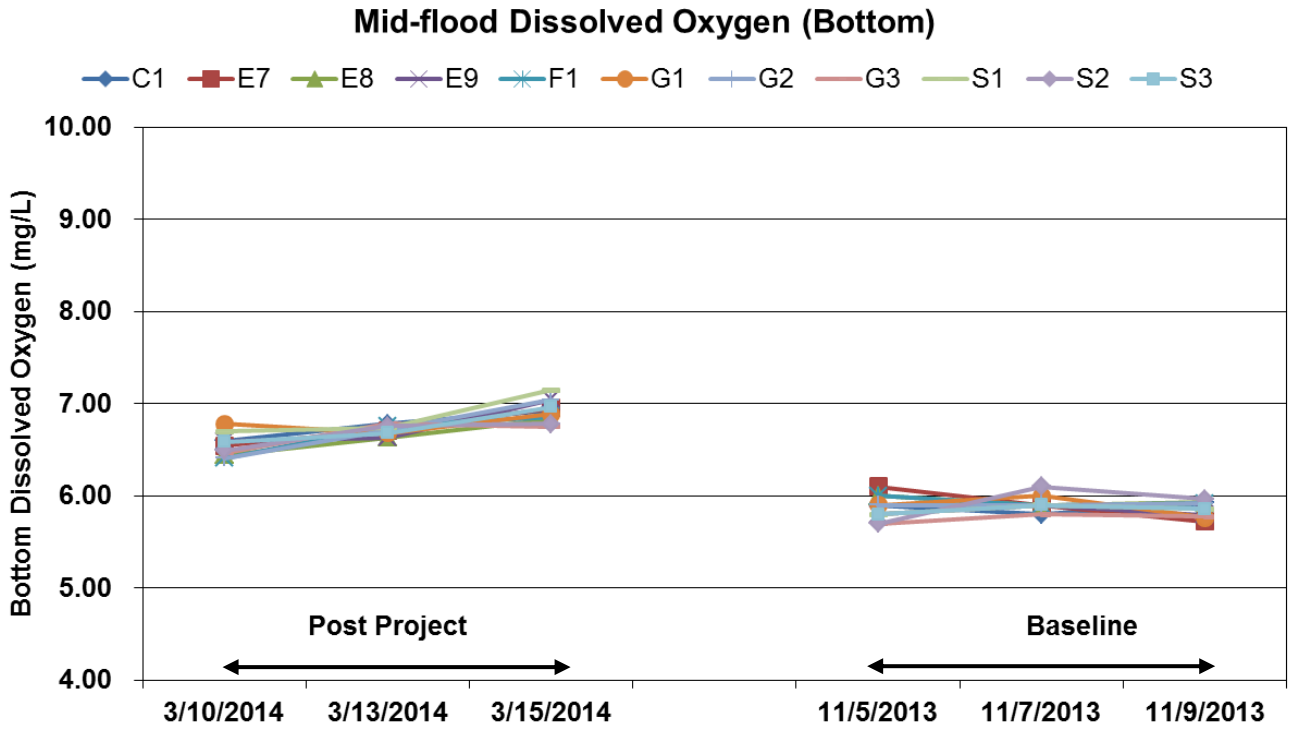
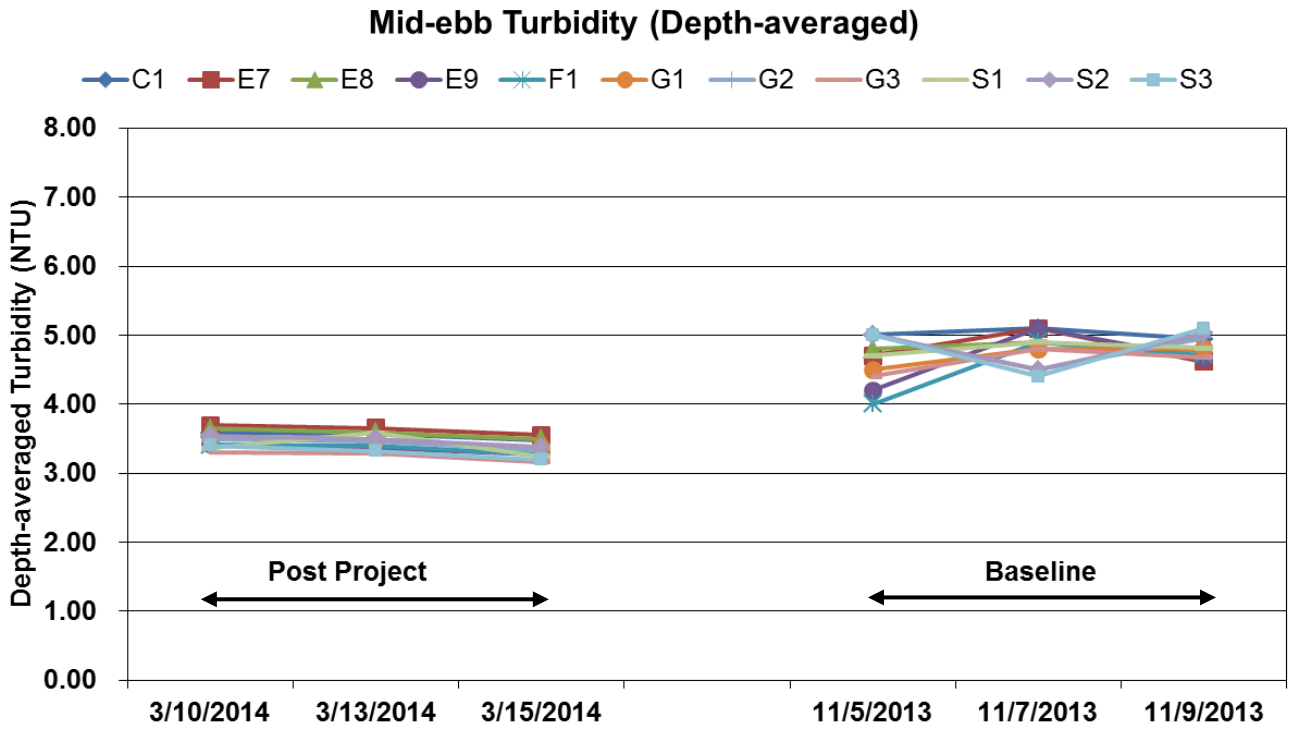


Figure D3 Dissolved oxygen (mg/L) at bottom of water column measured during the post-project monitoring period from 10 to 15 March 2014 for Zone A

ERM



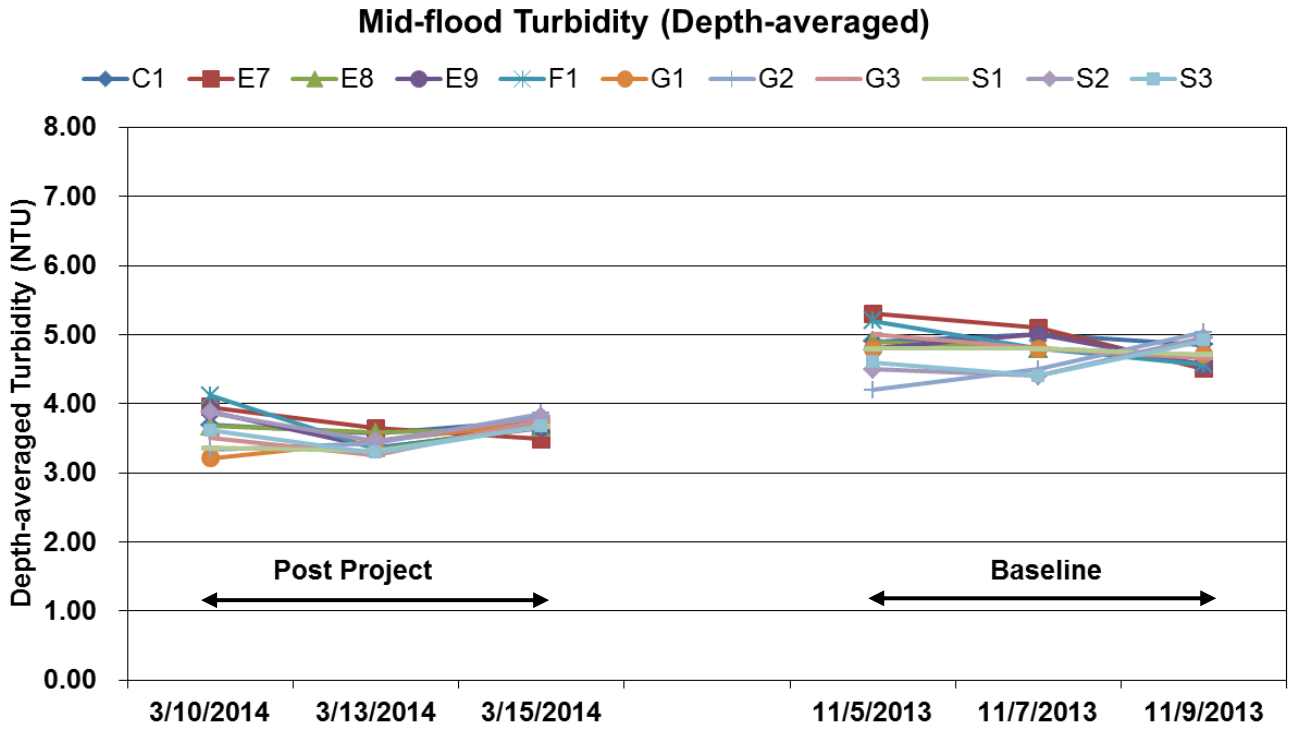
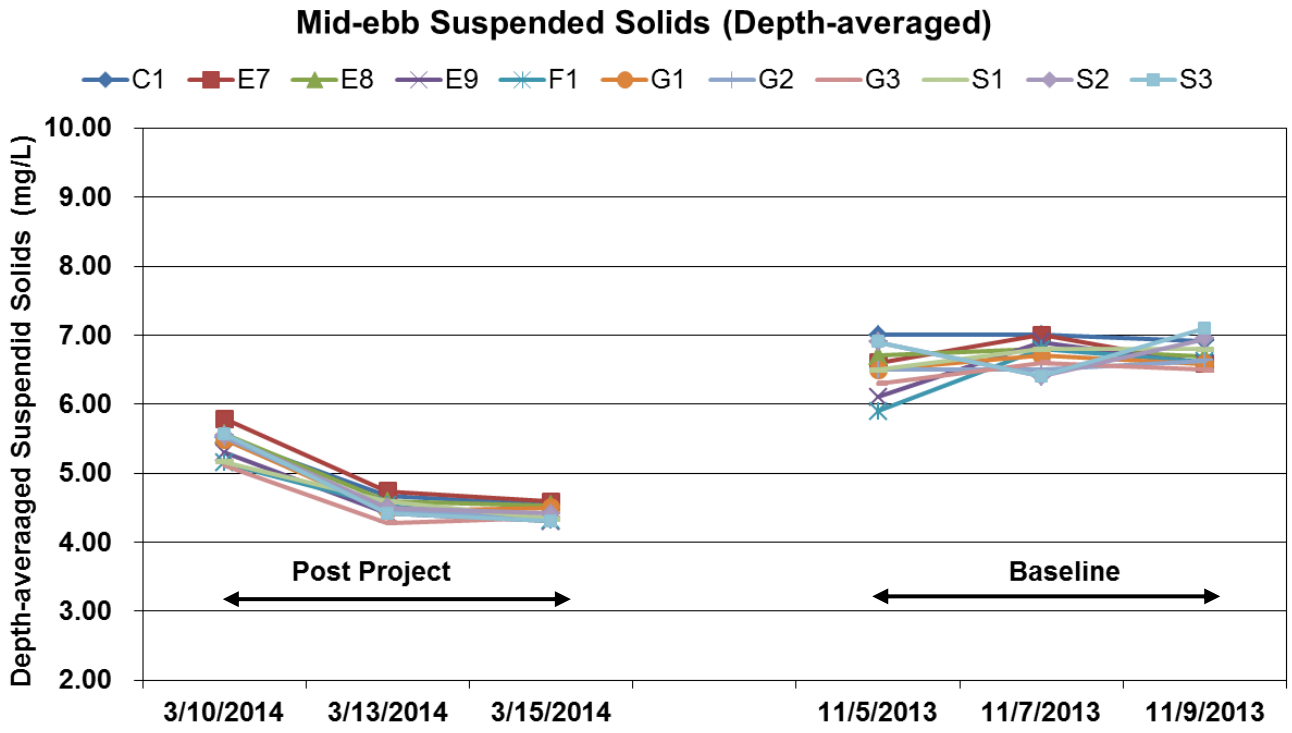


Figure D4 Depth-averaged turbidity (NTU) of water column measured during the post-project monitoring period from 10 to 15 March 2014 for Zone A

ERM



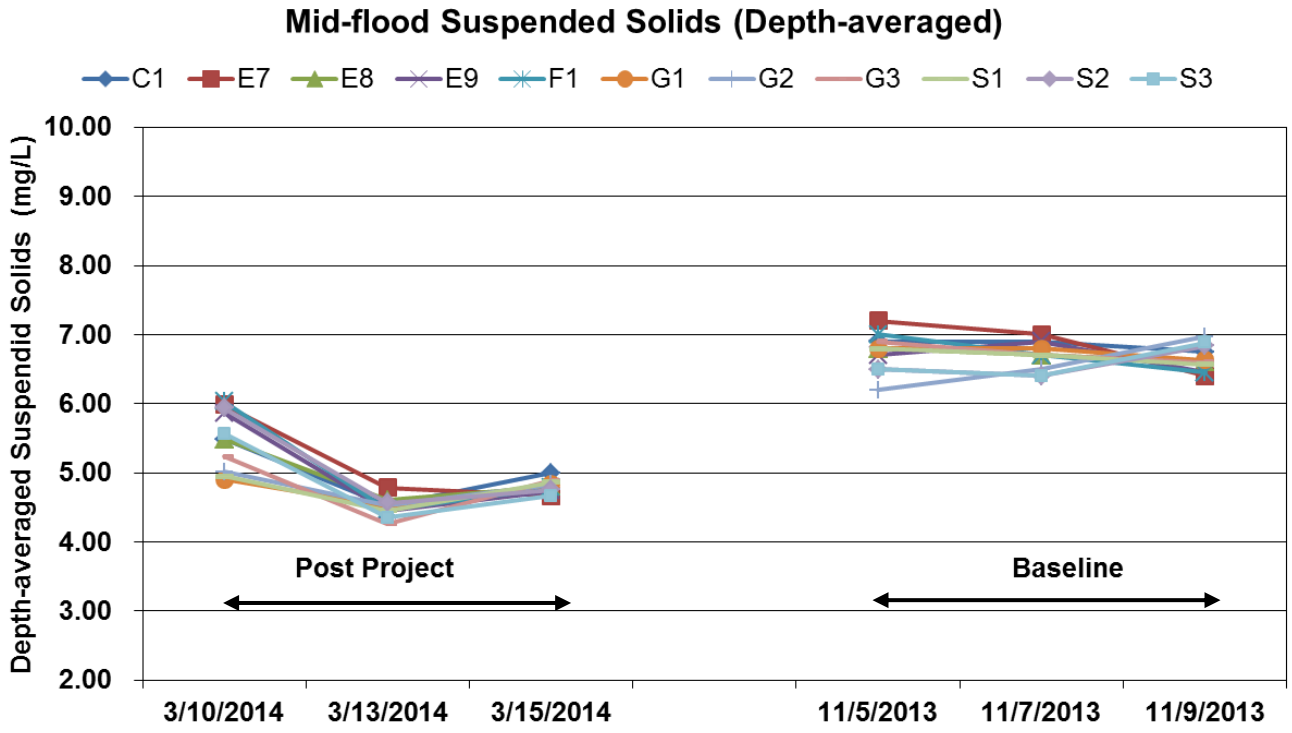


Figure D5 Depth-averaged suspended solid (mg/L) of water column measured during the post-project monitoring period from 10 to 15 March 2014 for Zone A

Date:	10-Mar-14
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	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	0809-0817	36.8	W	0.2	*Surface*	16.7	16.8	16.8	29.6	29.5	29.6	7.1	7.1	7.1	87.0	87.2	87.1	3.4	3.3	3.3		5.0	5.0	5.0	
					Middle	16.8	16.7	16.8	29.6	29.7	29.7	6.7	6.7	6.7	83.3	82.7	83.0	3.7	3.7	3.7	3.7	5.5	5.5	5.5	5.5
					Bottom	16.7	16.6	16.7	29.8	29.8	29.8	6.6	6.6	6.6	81.4	81.7	81.6	4.0	4.0	4.0		5.9	6.0	6.0	
E8	0820-0828	18.4	W	0.3	*Surface*	16.6	16.7	16.7	29.5	29.6	29.6	7.0	6.9	7.0	86.8	85.6	86.2	3.4	3.5	3.5		5.1	5.1	5.1	
					Middle	16.7	16.6	16.7	29.6	29.7	29.7	6.9	6.9	6.9	85.0	85.4	85.2	3.7	3.6	3.6	3.7	5.4	5.3	5.4	5.5
					Bottom	16.6	16.5	16.6	29.9	29.8	29.9	6.5	6.4	6.4	79.7	79.6	79.7	4.0	3.9	4.0		5.9	6.1	6.0	
S1	0831-0839	9.6	W	0.4	*Surface*	16.7	16.6	16.7	29.6	29.5	29.6	7.0	7.0	7.0	86.3	86.8	86.6	3.0	3.0	3.0		4.4	4.5	4.5	
					Middle	16.5	16.6	16.6	26.6	29.6	28.1	6.8	6.8	6.8	83.9	83.6	83.8	3.2	3.3	3.2	3.4	4.7	4.8	4.8	5.0
					Bottom	16.5	16.6	16.6	29.8	29.7	29.8	6.7	6.7	6.7	83.1	82.6	82.9	3.8	3.8	3.8		5.7	5.6	5.7	
G1	0842-0850	12.4	W	0.3	*Surface*	16.7	16.7	16.7	29.7	29.6	29.7	6.8	6.8	6.8	83.6	83.9	83.8	3.0	3.0	3.0		4.6	4.6	4.6	
					Middle	16.7	16.6	16.7	29.7	29.8	29.8	7.0	7.0	7.0	86.8	87.0	86.9	3.1	3.1	3.1	3.2	4.8	4.8	4.8	4.9
					Bottom	16.6	16.7	16.7	29.8	29.9	29.9	6.8	6.8	6.8	83.8	84.1	84.0	3.6	3.5	3.5		5.4	5.2	5.3	
E7	0853-0901	13.6	W	0.3	*Surface*	16.8	16.7	16.8	29.6	29.7	29.7	7.0	6.9	6.9	86.0	85.8	85.9	3.1	3.1	3.1		4.5	4.6	4.6	
					Middle	16.7	16.6	16.7	29.8	29.7	29.8	6.7	6.7	6.7	82.6	82.8	82.7	4.3	4.3	4.3	4.0	6.4	6.6	6.5	6.0
					Bottom	16.7	16.8	16.8	29.8	29.9	29.9	6.5	6.6	6.5	81.0	81.2	81.1	4.4	4.4	4.4		6.8	7.0	6.9	
F1	0904-0912	12.8	W	0.4	*Surface*	16.8	16.9	16.9	29.7	29.8	29.8	7.0	7.0	7.0	86.3	86.1	86.2	3.2	3.2	3.2		4.6	4.7	4.7	
					Middle	16.8	16.7	16.8	29.7	29.7	29.7	6.5	6.6	6.5	80.9	81.1	81.0	4.5	4.5	4.5	4.1	6.3	6.5	6.4	6.0
					Bottom	16.7	16.7	16.7	29.8	29.7	29.8	6.4	6.4	6.4	79.3	79.6	79.5	4.7	4.7	4.7		7.1	7.0	7.1	
G3	0915-0923	16.4	W	0.3	*Surface*	16.7	16.6	16.7	29.6	29.6	29.6	6.9	6.9	6.9	84.7	85.1	84.9	2.9	3.0	2.9		4.3	4.3	4.3	
					Middle	16.7	16.8	16.8	29.6	29.7	29.7	6.7	6.7	6.7	82.9	83.3	83.1	3.2	3.2	3.2	3.5	4.8	5.0	4.9	5.2
					Bottom	16.8	16.7	16.8	29.8	29.7	29.8	6.5	6.5	6.5	80.0	80.2	80.1	4.4	4.4	4.4		6.4	6.6	6.5	
E9	0926-0934	13.8	W	0.2	*Surface*	16.7	16.7	16.7	29.7	29.7	29.7	6.8	6.8	6.8	83.7	84.1	83.9	3.2	3.2	3.2		4.6	4.8	4.7	
					Middle	16.7	16.6	16.7	29.6	29.7	29.7	6.4	6.4	6.4	79.7	79.0	79.4	4.3	4.4	4.4	3.9	6.3	6.5	6.4	5.9
					Bottom	16.6	16.5	16.6	29.8	29.8	29.8	6.6	6.6	6.6	81.7	81.4	81.6	4.1	4.2	4.1		6.4	6.6	6.5	
S2	0937-0945	12.4	W	0.3	*Surface*	16.7	16.8	16.8	29.6	29.5	29.6	6.9	7.0	7.0	86.0	86.7	86.4	3.6	3.6	3.6		5.2	5.4	5.3	
					Middle	16.7	16.6	16.7	29.6	29.7	29.7	6.6	6.7	6.7	82.0	82.9	82.5	4.1	4.1	4.1	3.9	6.3	6.4	6.4	5.9
					Bottom	16.6	16.5	16.6	29.7	29.8	29.8	6.5	6.5	6.5	80.7	80.2	80.5	4.0	3.9	3.9		6.2	6.1	6.2	
G2	0948-0956	14.2	W	0.3	*Surface*	16.8	16.7	16.8	29.7	29.6	29.7	7.0	7.0	7.0	86.8	87.0	86.9	2.9	2.9	2.9		4.2	4.4	4.3	
					Middle	16.7	16.6	16.7	29.7	29.8	29.8	6.7	6.7	6.7	83.4	83.0	83.2	3.0	3.1	3.0	3.3	4.6	4.7	4.7	5.0
					Bottom	16.6	16.7	16.7	29.8	29.7	29.8	6.4	6.4	6.4	79.7	79.1	79.4	4.1	4.0	4.0		6.2	6.0	6.1	
S3	0959-1004	12.2	W	0.4	*Surface*	16.7	16.6	16.7	29.6	29.5	29.6	7.1	7.0	7.1	87.3	87.2	87.3	3.2	3.2	3.2		5.0	4.9	5.0	
					Middle	16.6	16.5	16.6	29.6	29.7	29.7	6.8	6.8	6.8	84.4	84.5	84.5	3.6	3.6	3.6	3.6	5.7	5.5	5.6	5.6
					Bottom	16.6	16.6	16.6	29.7	29.8	29.8	6.6	6.6	6.6	81.2	81.9	81.6	4.1	4.0	4.0		6.1	6.2	6.2	

Remark or Obsevation:

Note: * Average

** Depth Average

Date: 10-Mar-14

Tide: Mid-Ebb

Weather: Cloudy

Sea Conditions: Calm

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	1905-1922	36.6	W	0.2	*Surface*	16.8	16.8	16.8	29.7	29.7	29.7	6.9	6.9	6.9	85.7	85.8	85.8	3.5	3.5	3.5		5.0	5.2	5.1	
					Middle	16.8	16.8	16.8	29.7	29.7	29.7	6.8	6.8	6.8	84.4	84.5	84.5	3.6	3.6	3.6	3.6	5.5	5.6	5.6	5.5
					Bottom	16.7	16.7	16.7	29.8	29.8	29.8	6.7	6.7	6.7	82.8	82.6	82.7	3.7	3.7	3.7		5.8	6.0	5.9	
E8	1927-1938	18.2	W	0.2	*Surface*	16.7	16.7	16.7	29.6	29.6	29.6	6.9	6.9	6.9	85.0	84.9	85.0	3.5	3.5	3.5		5.2	5.2	5.2	
					Middle	16.8	16.8	16.8	29.7	29.7	29.7	6.7	6.7	6.7	82.7	82.7	82.7	3.7	3.7	3.7	3.6	5.7	5.6	5.7	5.6
					Bottom	16.7	16.8	16.8	29.8	29.8	29.8	6.5	6.6	6.5	80.7	80.8	80.8	3.7	3.8	3.7		5.8	5.9	5.9	
S1	1943-1955	9.4	W	0.3	*Surface*	16.7	16.7	16.7	29.7	29.7	29.7	6.9	6.9	6.9	84.9	84.8	84.9	3.3	3.3	3.3		4.8	5.0	4.9	
					Middle	16.8	16.8	16.8	29.8	29.8	29.8	6.7	6.7	6.7	83.1	83.2	83.2	3.4	3.4	3.4	3.4	5.2	5.2	5.2	5.2
					Bottom	16.8	16.8	16.8	29.9	29.9	29.9	6.7	6.7	6.7	82.4	82.3	82.4	3.5	3.5	3.5		5.4	5.4	5.4	
G1	2000-2011	12.2	W	0.2	*Surface*	16.8	16.8	16.8	29.7	29.7	29.7	6.8	6.8	6.8	83.9	83.8	83.9	3.3	3.3	3.3		5.1	5.2	5.2	
					Middle	16.8	16.8	16.8	29.8	29.8	29.8	6.7	6.7	6.7	82.4	82.5	82.5	3.5	3.5	3.5	3.5	5.4	5.5	5.5	5.5
					Bottom	16.9	16.9	16.9	29.8	29.8	29.8	6.6	6.6	6.6	81.5	81.8	81.7	3.7	3.8	3.7		5.9	5.8	5.9	
E7	2016-2027	12.4	W	0.2	*Surface*	16.7	16.7	16.7	29.6	29.6	29.6	6.8	6.8	6.8	84.3	84.4	84.4	3.6	3.6	3.6		5.4	5.6	5.5	
					Middle	16.8	16.8	16.8	29.8	29.8	29.8	6.7	6.7	6.7	83.2	83.3	83.3	3.7	3.7	3.7	3.7	5.8	5.9	5.9	5.8
					Bottom	16.8	16.8	16.8	29.8	29.8	29.8	6.6	6.6	6.6	81.9	82.0	82.0	3.8	3.8	3.8		6.0	6.0	6.0	
F1	2032-2044	12.6	W	0.3	*Surface*	16.8	16.8	16.8	29.7	29.7	29.7	6.9	6.8	6.8	84.7	84.6	84.7	3.3	3.3	3.3		4.6	4.8	4.7	
					Middle	16.8	16.7	16.8	29.8	29.8	29.8	6.7	6.8	6.7	83.3	83.4	83.4	3.4	3.4	3.4	3.4	5.1	5.2	5.2	5.2
					Bottom	16.7	16.7	16.7	29.8	29.8	29.8	6.7	6.7	6.7	82.3	82.4	82.4	3.6	3.6	3.6		5.6	5.6	5.6	
G3	2049-2100	16.2	W	0.3	*Surface*	16.7	16.8	16.8	29.7	29.7	29.7	6.9	6.9	6.9	85.4	85.5	85.5	3.0	3.0	3.0		4.4	4.5	4.5	
					Middle	16.8	16.8	16.8	29.8	29.8	29.8	6.8	6.8	6.8	84.4	84.2	84.3	3.3	3.4	3.3	3.3	5.2	5.4	5.3	5.1
					Bottom	16.8	16.7	16.8	29.8	29.8	29.8	6.7	6.7	6.7	82.4	82.1	82.3	3.6	3.6	3.6		5.6	5.6	5.6	
E9	2105-2116	13.6	W	0.3	*Surface*	16.7	16.7	16.7	29.8	29.8	29.8	6.7	6.7	6.7	82.4	82.5	82.5	3.3	3.3	3.3		5.0	5.0	5.0	
					Middle	16.8	16.8	16.8	29.8	29.9	29.9	6.6	6.6	6.6	81.9	82.0	82.0	3.4	3.4	3.4	3.4	5.2	5.4	5.3	5.3
					Bottom	16.8	16.7	16.8	29.8	29.9	29.9	6.5	6.5	6.5	80.7	80.3	80.5	3.6	3.6	3.6		5.6	5.6	5.6	
S2	2121-2132	12.3	W	0.2	*Surface*	16.7	16.7	16.7	29.6	29.6	29.6	6.8	6.8	6.8	84.0	84.2	84.1	3.4	3.4	3.4		5.3	5.3	5.3	
					Middle	16.8	16.7	16.8	29.7	29.8	29.8	6.9	6.9	6.9	85.3	85.2	85.3	3.5	3.5	3.5	3.5	5.5	5.5	5.5	5.6
					Bottom	16.8	16.8	16.8	29.8	29.8	29.8	6.7	6.7	6.7	82.4	82.5	82.5	3.7	3.7	3.7		5.8	5.9	5.9	
G2	2137-2148	14.0	W	0.2	*18*	16.7	16.8	16.8	29.7	29.7	29.7	6.9	6.9	6.9	85.4	85.5	85.5	3.3	3.3	3.3		5.1	5.2	5.2	
					18.1	16.7	16.8	16.8	29.8	29.8	29.8	6.8	6.8	6.8	84.0	84.0	84.0	3.5	3.5	3.5	3.5	5.4	5.4	5.4	5.5
					18.1	16.8	16.8	16.8	29.8	29.8	29.8	6.7	6.7	6.7	82.7	82.9	82.8	3.7	3.7	3.7		6.0	6.0	6.0	
S3	2153-2205	12.0	W	0.3	*Surface*	16.8	16.8	16.8	29.7	29.7	29.7	6.9	6.9	6.9	84.8	84.9	84.9	3.3	3.3	3.3		5.0	5.4	5.2	
					Middle	16.7	16.8	16.8	29.8	29.8	29.8	6.7	6.8	6.7	83.2	83.4	83.3	3.4	3.4	3.4	3.4	5.6	5.6	5.6	5.6
					Bottom	16.8	16.8	16.8	29.8	29.8	29.8	6.6	6.6	6.6	81.8	81.8	81.8	3.6	3.6	3.6		5.8	6.0	5.9	

Remark or Obsevation:

Note: * Average

** Depth Average

Date:	13-Mar-14
Tide:	Mid-Flood
Weather:	Cloudy
Sea Conditions:	Calm
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	1426-1441	36.9	W	0.3	*Surface*	17.0	17.1	17.1	29.7	29.7	29.7	7.0	7.1	7.0	86.9	87.1	87.0	3.4	3.4	3.4		4.4	4.4	4.4	
					Middle	17.1	17.2	17.2	29.8	29.9	29.9	6.9	6.9	6.9	85.7	86.0	85.9	3.6	3.6	3.6	3.6	4.5	4.6	4.6	4.5
					Bottom	17.3	17.4	17.4	29.9	29.9	29.9	6.8	6.8	6.8	84.1	84.3	84.2	3.7	3.7	3.7		4.7	4.6	4.7	
E8	1446-1500	18.4	W	0.2	*Surface*	17.0	17.0	17.0	29.7	29.8	29.8	7.0	7.0	7.0	86.1	86.3	86.2	3.4	3.5	3.4		4.4	4.6	4.5	
					Middle	17.1	17.2	17.2	29.8	29.8	29.8	6.7	6.7	6.7	83.4	83.6	83.5	3.6	3.6	3.6	3.6	4.7	4.5	4.6	4.6
					Bottom	17.2	17.3	17.3	29.9	29.8	29.9	6.6	6.6	6.6	82.2	82.5	82.4	3.7	3.7	3.7		4.6	4.8	4.7	
S1	1505-1519	9.6	W	0.2	*Surface*	17.0	17.1	17.1	29.7	29.7	29.7	6.9	6.9	6.9	85.6	85.3	85.5	3.2	3.2	3.2		4.3	4.4	4.4	
					Middle	17.2	17.3	17.3	29.7	29.8	29.8	6.8	6.8	6.8	84.6	84.9	84.8	3.3	3.3	3.3	3.3	4.4	4.5	4.5	4.5
					Bottom	17.3	17.4	17.4	29.9	29.8	29.9	6.7	6.8	6.7	83.6	83.9	83.8	3.4	3.4	3.4		4.6	4.5	4.6	
G1	1524-1538	12.4	W	0.3	*Surface*	17.0	17.0	17.0	29.7	29.7	29.7	6.9	6.9	6.9	85.1	84.9	85.0	3.2	3.3	3.3		4.4	4.2	4.3	
					Middle	17.1	17.2	17.2	29.8	29.8	29.8	6.8	6.8	6.8	83.7	83.9	83.8	3.4	3.4	3.4	3.5	4.4	4.6	4.5	4.5
					Bottom	17.2	17.3	17.3	29.9	29.9	29.9	6.7	6.7	6.7	82.8	83.1	83.0	3.7	3.7	3.7		4.7	4.8	4.8	
E7	1543-1557	12.6	W	0.3	*Surface*	17.0	17.0	17.0	29.6	29.7	29.7	6.9	6.9	6.9	85.2	85.5	85.4	3.5	3.5	3.5		4.8	4.6	4.7	
					Middle	17.1	17.2	17.2	29.7	29.7	29.7	6.8	6.8	6.8	83.9	84.1	84.0	3.6	3.7	3.6	3.6	4.7	4.9	4.8	4.8
					Bottom	17.3	17.4	17.4	29.8	29.9	29.9	6.7	6.7	6.7	83.2	83.4	83.3	3.8	3.8	3.8		4.8	4.9	4.9	
F1	1602-1616	12.8	W	0.2	*Surface*	17.0	17.1	17.1	29.6	29.6	29.6	6.9	7.0	7.0	85.8	86.0	85.9	3.2	3.2	3.2		4.3	4.2	4.3	
					Middle	17.2	17.3	17.3	29.7	29.8	29.8	6.8	6.8	6.8	84.3	84.5	84.4	3.3	3.3	3.3	3.4	4.5	4.4	4.5	4.5
					Bottom	17.4	17.5	17.5	29.8	29.9	29.9	6.8	6.8	6.8	83. 8	84.0	84.0	3.5	3.5	3.5		4.6	4.8	4.7	
G3	1621-1636	16.4	W	0.3	*Surface*	17.0	17.0	17.0	29.6	29.7	29.7	7.0	7.1	7.1	87.1	87.3	87.2	2.9	3.0	3.0		3.8	4.0	3.9	
					Middle	17.1	17.2	17.2	29.7	29.7	29.7	7.0	7.0	7.0	86.4	86.6	86.5	3.3	3.3	3.3	3.3	4.2	4.4	4.3	4.3
					Bottom	17.3	17.4	17.4	29.8	29.7	29.8	6.8	6.8	6.8	84.1	84.3	84.2	3.5	3.5	3.5		4.6	4.6	4.6	
E9	1641-1656	13.8	W	0.3	*Surface*	17.0	17.1	17.1	29.6	29.7	29.7	6.8	6.8	6.8	84.0	84.2	84.1	3.2	3.2	3.2		4.2	4.3	4.3	
					Middle	17.2	17.2	17.2	29.8	29.7	29.8	6.7	6.7	6.7	83.5	83.3	83.4	3.4	3.3	3.3	3.4	4.4	4.5	4.5	4.5
					Bottom	17.3	17.3	17.3	29.9	29.9	29.9	6.6	6.6	6.6	88.2	88.4	88.3	3.5	3.5	3.5		4.6	4.7	4.7	
S2	1701-1716	12.5	W	0.2	*Surface*	17.0	17.1	17.1	29.6	29.7	29.7	6.9	6.9	6.9	85.1	85.3	85.2	3.3	3.4	3.4		4.3	4.4	4.4	
					Middle	17.1	17.2	17.2	29.7	29.8	29.8	7.0	7.0	7.0	87.0	87.3	87.2	3.4	3.5	3.4	3.5	4.5	4.5	4.5	4.6
					Bottom	17.3	17.4	17.4	29.8	29.9	29.9	6.8	6.8	6.8	84.1	83.9	84.0	3.6	3.6	3.6		4.8	4.9	4.9	
G2	1721-1736	14.3	W	0.2	*Surface*	17.0	17.0	17.0	29.6	29.6	29.6	7.1	7.1	7.1	87.7	87.9	87.8	3.2	3.3	3.3		4.2	4.5	4.4	
					Middle	17.1	17.1	17.1	29.7	29.6	29.7	6.9	7.0	7.0	86.1	86.3	86.2	3.4	3.4	3.4	3.4	4.4	4.6	4.5	4.5
					Bottom	17.2	17.3	17.3	29.8	29.8	29.8	6.7	6.7	6.7	83.5	83.3	83.4	3.7	3.7	3.7		4.7	4.8	4.8	
S3	1741-1756	12.3	W	0.2	*Surface*	17.0	17.1	17.1	29.6	29.6	29.6	7.0	7.0	7.0	86.0	86.3	86.2	3.2	3.2	3.2		4.2	4.2	4.2	
					Middle	17.2	17.2	17.2	29.7	29.7	29.7	6.8	6.8	6.8	84.3	84.5	84.4	3.2	3.3	3.3	3.3	4.3	4.3	4.3	4.4
					Bottom	17.3	17.4	17.4	29.8	29.8	29.8	6.7	6.7	6.7	82.8	83.1	83.0	3.4	3.4	3.4		4.5	4.6	4.6	

Remark or Obsevation:

Note: * Average

** Depth Average

Date: 13-Mar-14

Tide: Mid-Ebb

Weather: Cloudy

Sea Conditions: Calm

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	0915-0926	36.2	W	0.3	*Surface*	17.2	17.1	17.2	29.9	29.8	29.9	7.0	7.0	7.0	84.5	84.2	84.4	3.4	3.4	3.4		4.4	4.7	4.6	
					Middle	17.3	17.2	17.3	29.8	29.8	29.8	6.9	6.8	6.8	82.2	81.9	82.1	3.6	3.6	3.6	3.6	4.8	4.6	4.7	4.7
					Bottom	17.2	17.4	17.3	29.9	29.9	29.9	6.6	6.7	6.6	79.7	80.2	80.0	3.7	3.7	3.7		4.7	4.8	4.8	
E8	0932-0943	18.1	W	0.3	*Surface*	17.1	17.0	17.1	29.8	29.6	29.7	6.9	6.9	6.9	82.6	82.4	82.5	3.4	3.5	3.4		4.3	4.2	4.3	
					Middle	17.3	17.2	17.3	29.9	29.9	29.9	6.7	6.8	6.8	81.1	81.5	81.3	3.6	3.7	3.7	3.6	4.7	4.8	4.8	4.6
					Bottom	17.2	17.2	17.2	29.8	29.9	29.9	6.6	6.7	6.7	79.8	80.4	80.1	3.7	3.7	3.7		4.7	4.8	4.8	
S1	0949-0959	9.3	W	0.3	*Surface*	17.1	17.2	17.2	29.9	29.8	29.9	6.9	6.9	6.9	82.8	82.9	82.9	3.4	3.4	3.4		4.6	4.5	4.6	
					Middle	17.3	17.2	17.3	29.8	29.8	29.8	6.7	6.7	6.7	80.3	80.1	80.2	3.6	3.6	3.6	3.6	4.4	4.6	4.5	4.6
					Bottom	17.4	17.4	17.4	29.9	29.9	29.9	6.6	6.6	6.6	79.1	79.3	79.2	3.7	3.7	3.7		4.6	4.8	4.7	
G1	1005-1016	12.1	W	0.3	*Surface*	17.1	17.0	17.1	29.8	29.8	29.8	6.8	6.8	6.8	81.2	81.4	81.3	3.3	3.3	3.3		4.3	4.2	4.3	
					Middle	17.2	17.3	17.3	29.9	29.8	29.9	6.7	6.7	6.7	80.7	80.4	80.6	3.5	3.4	3.4	3.5	4.6	4.3	4.5	4.5
					Bottom	17.4	17.3	17.4	29.7	29.8	29.8	6.5	6.6	6.6	78.8	79.4	79.1	3.7	3.7	3.7		4.8	4.5	4.7	
E7	1022-1035	12.3	W	0.3	*Surface*	17.1	17.2	17.2	29.7	29.6	29.7	6.8	6.8	6.8	82.2	81.8	82.0	3.5	3.5	3.5		4.6	4.8	4.7	
					Middle	17.3	17.4	17.4	29.7	29.7	29.7	6.7	6.7	6.7	80.7	80.8	80.8	3.6	3.7	3.7	3.7	4.7	4.9	4.8	4.7
					Bottom	17.4	17.4	17.4	29.9	29.8	29.9	6.5	6.6	6.5	78.5	79.1	78.8	3.8	3.8	3.8		4.6	4.8	4.7	
F1	1040-1050	12.4	W	0.2	*Surface*	17.0	17.2	17.1	29.8	29.7	29.8	6.8	6.8	6.8	82.3	82.4	82.4	3.3	3.3	3.3		4.5	4.6	4.6	
					Middle	17.3	17.4	17.4	29.7	29.8	29.8	6.8	6.8	6.8	84.1	81.3	82.7	3.3	3.3	3.3	3.4	4.4	4.3	4.4	4.5
					Bottom	17.2	17.4	17.3	29.9	29.8	29.9	6.7	6.7	6.7	83.3	83.2	83.3	3.5	3.6	3.5		4.6	4.8	4.7	
G3	1056-1108	16.0	W	0.3	*Surface*	17.2	17.1	17.2	29.7	29.7	29.7	7.0	7.0	7.0	86.7	86.6	86.6	3.0	3.0	3.0		3.8	4.0	3.9	
					Middle	17.4	17.3	17.4	29.8	29.7	29.8	6.9	6.9	6.9	85.1	85.2	85.2	3.3	3.3	3.3	3.3	4.3	4.4	4.4	4.3
					Bottom	17.5	17.4	17.5	29.8	29.8	29.8	6.7	6.7	6.7	83.7	83.3	83.5	3.5	3.6	3.6		4.6	4.6	4.6	
E9	1115--1127	13.6	W	0.3	*Surface*	17.2	17.1	17.2	29.8	29.7	29.8	6.7	6.7	6.7	83.0	83.4	83.2	3.2	3.2	3.2		4.2	4.3	4.3	
					Middle	17.3	17.3	17.3	29.9	29.8	29.9	6.7	6.6	6.6	82.5	82.1	82.3	3.4	3.4	3.4	3.4	4.4	4.2	4.3	4.4
					Bottom	17.5	17.4	17.5	29.9	29.9	29.9	6.6	6.6	6.6	82.5	82.0	82.3	3.5	3.5	3.5		4.6	4.8	4.7	
S2	1132-1143	12.1	W	0.2	*Surface*	17.2	17.1	17.2	29.7	29.7	29.7	6.8	6.7	6.7	83.7	83.1	83.4	3.4	3.4	3.4		4.4	4.3	4.4	
					Middle	17.3	17.2	17.3	29.8	29.9	29.9	6.9	6.9	6.9	85.2	85.6	85.4	3.5	3.5	3.5	3.5	4.5	4.6	4.6	4.5
					Bottom	17.4	17.5	17.5	29.9	29.8	29.9	6.7	6.6	6.7	82.7	82.5	82.6	3.6	3.6	3.6		4.7	4.5	4.6	
G2	1149-1205	14.0	W	0.2	*Surface*	17.2	17.1	17.2	29.6	29.7	29.7	7.0	7.0	7.0	86.3	86.2	86.3	3.3	3.3	3.3		4.4	4.2	4.3	
					Middle	17.3	17.2	17.3	29.7	29.8	29.8	6.8	6.8	6.8	84.4	84.7	84.6	3.4	3.4	3.4	3.5	4.3	4.4	4.4	4.5
					Bottom	17.4	17.5	17.5	29.8	29.8	29.8	6.7	6.6	6.6	82.6	82.2	82.4	3.7	3.7	3.7		4.7	4.8	4.8	
S3	1212-1230	12.0	W	0.2	*Surface*	17.2	17.1	17.2	29.7	29.6	29.7	6.9	6.9	6.9	85.1	84.9	85.0	3.2	3.2	3.2		4.4	4.2	4.3	
					Middle	17.2	17.4	17.3	29.8	29.9	29.9	6.7	6.7	6.7	83.2	83.6	83.4	3.3	3.3	3.3	3.3	4.3	4.4	4.4	4.4
					Bottom	17.5	17.4	17.5	29.9	29.9	29.9	6.5	6.6	6.5	81.0	81.5	81.3	3.5	3.5	3.5		4.6	4.6	4.6	

Remark or Obsevation:

Note: * Average

** Depth Average

Date:	15-Mar-14
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	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	1551-1606	36.8	E	0.4	*Surface*	17.0	17.1	17.1	29.5	29.6	29.6	7.3	7.3	7.3	89.9	90.2	90.1	3.7	3.8	3.8		5.0	5.0	5.0	
					Middle	17.2	17.3	17.3	29.7	29.7	29.7	7.0	7.1	7.1	87.0	87.4	87.2	3.9	4.0	4.0	3.8	5.2	5.3	5.3	5.0
					Bottom	17.4	17.3	17.4	29.7	29.8	29.8	6.9	6.9	6.9	85.5	85.8	85.7	3.6	3.6	3.6		4.7	4.8	4.8	
E8	1611-1626	15.8	E	0.3	*Surface*	17.1	17.1	17.1	29.4	29.5	29.5	7.1	7.1	7.1	87.9	87.7	87.8	3.4	3.3	3.4		4.5	4.6	4.6	
					Middle	17.2	17.2	17.2	29.6	29.6	29.6	7.0	7.0	7.0	86.6	86.8	86.7	3.7	3.7	3.7	3.7	4.7	4.8	4.8	4.8
					Bottom	17.3	17.2	17.3	29.7	29.7	29.7	6.8	6.9	6.8	84.2	84.6	84.4	3.9	3.9	3.9		5.0	5.2	5.1	
S1	1631-1646	9.8	E	0.3	*Surface*	17.0	17.0	17.0	29.5	29.5	29.5	7.4	7.5	7.5	91.6	92.4	92.0	3.4	3.4	3.4		4.6	4.8	4.7	
					Middle	17.1	17.2	17.2	29.6	29.6	29.6	7.2	7.3	7.3	89.4	89.9	89.7	3.7	3.7	3.7	3.7	4.8	4.9	4.9	4.9
					Bottom	17.3	17.3	17.3	29.7	29.7	29.7	7.1	7.2	7.2	88.0	88.5	88.3	3.9	3.9	3.9		5.0	5.1	5.1	
G1	1651-1706	12.4	E	0.2	*Surface*	17.1	17.0	17.1	29.4	29.4	29.4	7.3	7.3	7.3	90.1	90.3	90.2	3.7	3.6	3.6		4.8	4.8	4.8	
					Middle	17.2	17.1	17.2	29.5	29.6	29.6	7.1	7.1	7.1	87.9	87.6	87.8	3.8	3.8	3.8	3.7	5.0	4.8	4.9	4.8
					Bottom	17.3	17.2	17.3	29.7	29.7	29.7	6.9	6.9	6.9	84.9	85.2	85.1	3.7	3.7	3.7		4.7	4.9	4.8	
E7	1711-1726	13.0	E	0.2	*Surface*	17.1	17.1	17.1	29.5	29.6	29.6	7.3	7.3	7.3	89.9	90.2	90.1	3.3	3.2	3.3		4.3	4.5	4.4	
					Middle	17.2	17.2	17.2	29.7	29.7	29.7	7.2	7.2	7.2	89.3	89.0	89.2	3.6	3.5	3.5	3.5	4.7	4.6	4.7	4.7
					Bottom	17.3	17.3	17.3	29.8	29.7	29.8	6.9	7.0	7.0	85.6	86.1	85.9	3.7	3.6	3.7		4.9	5.0	5.0	
F1	1731-1746	13.4	E	0.3	*Surface*	17.2	17.1	17.2	29.5	29.5	29.5	7.3	7.4	7.4	90.6	91.1	90.9	3.4	3.5	3.5		4.6	4.5	4.6	
					Middle	17.2	17.3	17.3	29.6	29.6	29.6	7.2	7.2	7.2	88.5	88.8	88.7	3.7	3.7	3.7	3.7	4.8	4.7	4.8	4.8
					Bottom	17.3	17.4	17.4	29.7	29.7	29.7	6.9	6.8	6.9	84.9	84.5	84.7	3.9	3.8	3.8		5.0	5.1	5.1	
G3	1750-1806	16.8	E	0.3	*Surface*	17.2	17.2	17.2	29.6	29.6	29.6	7.2	7.2	7.2	88.5	88.8	88.7	3.8	3.7	3.8		4.9	4.8	4.9	
					Middle	17.3	17.2	17.3	29.7	29.7	29.7	7.1	7.0	7.0	87.1	86.6	86.9	3.9	4.0	4.0	3.8	5.0	5.2	5.1	4.9
					Bottom	17.3	17.3	17.3	29.7	29.8	29.8	6.7	6.8	6.8	82.9	83.7	83.3	3.5	3.6	3.6		4.6	4.8	4.7	
E9	1811-1824	14.0	E	0.2	*Surface*	17.1	17.1	17.1	29.6	29.6	29.6	7.4	7.4	7.4	91.6	91.4	91.5	3.3	3.4	3.4		4.2	4.4	4.3	
					Middle	17.2	17.2	17.2	29.7	29.7	29.7	7.3	7.4	7.4	90.6	90.9	90.8	3.6	3.7	3.7	3.7	4.7	4.8	4.8	4.7
					Bottom	17.3	17.3	17.3	29.7	29.7	29.7	7.1	7.0	7.1	87.3	86.8	87.1	3.9	4.0	4.0		5.2	5.1	5.2	
S2	1826-1841	12.8	E	0.4	*Surface*	17.1	17.1	17.1	29.5	29.5	29.5	7.2	7.1	7.2	88.5	88.0	88.3	3.6	3.6	3.6		4.4	4.5	4.5	
					Middle	17.2	17.2	17.2	29.7	29.7	29.7	7.0	7.0	7.0	86.4	86.7	86.6	3.8	3.9	3.9	3.8	4.8	4.7	4.8	4.8
					Bottom	17.3	17.3	17.3	29.7	29.8	29.8	6.8	6.8	6.8	83.5	83.9	83.7	3.9	4.0	3.9		5.0	5.1	5.1	
G2	1846-1901	14.0	E	0.3	*Surface*	17.1	17.1	17.1	29.6	29.6	29.6	7.5	7.5	7.5	93.0	92.6	92.8	3.8	3.7	3.8		4.7	4.6	4.7	
					Middle	17.2	17.2	17.2	29.7	29.7	29.7	7.2	7.2	7.2	88.3	88.7	88.5	4.0	3.9	3.9	3.9	5.0	5.1	5.1	4.8
					Bottom	17.3	17.3	17.3	29.7	29.8	29.8	7.0	7.1	7.0	86.6	87.3	87.0	3.8	3.9	3.9		4.8	4.8	4.8	
S3	1906-1921	12.0	E	0.2	*Surface*	17.1	17.1	17.1	29.6	29.6	29.6	7.4	7.4	7.4	91.1	91.3	91.2	3.4	3.5	3.5		4.2	4.3	4.3	
					Middle	17.3	17.2	17.3	29.7	29.7	29.7	7.1	7.1	7.1	87.9	87.6	87.8	3.7	3.8	3.8	3.7	4.8	4.6	4.7	4.7
					Bottom	17.3	17.3	17.3	29.7	29.8	29.8	6.9	7.0	7.0	85.7	86.3	86.0	3.8	3.8	3.8		4.9	5.2	5.1	

Remark or Obsevation:

Note: * Average

** Depth Average

Date: 15-Mar-14
Tide: Mid-Ebb
Weather: Cloudy
Sea Conditions: Calm
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	0958-1013	36.4	W	0.3	*Surface*	17.1	17.2	17.2	29.6	29.5	29.6	7.1	7.1	7.1	87.6	87.9	87.8	3.3	3.3	3.3		4.4	4.4	4.4	
					Middle	17.3	17.2	17.3	29.6	29.7	29.7	7.0	7.0	7.0	86.4	86.6	86.5	3.5	3.6	3.5	3.5	4.5	4.6	4.6	4.6
					Bottom	17.4	17.3	17.4	29.8	29.7	29.8	6.8	6.9	6.8	84.8	85.0	84.9	3.6	3.6	3.6		4.6	4.8	4.7	
E8	1018-1032	15.2	W	0.2	*Surface*	17.1	17.0	17.1	29.6	29.7	29.7	7.0	7.0	7.0	86.8	87.0	86.9	3.3	3.4	3.4		4.3	4.2	4.3	
					Middle	17.2	17.1	17.2	29.7	29.8	29.8	6.8	6.8	6.8	84.1	84.3	84.2	3.5	3.5	3.5	3.5	4.7	4.6	4.7	4.5
					Bottom	17.4	17.4	17.4	29.8	29.8	29.8	6.7	6.7	6.7	82.9	83.1	83.0	3.6	3.6	3.6		4.6	4.8	4.7	
S1	1037-1052	9.2	W	0.3	*Surface*	17.0	17.1	17.1	29.6	29.6	29.6	7.0	7.0	7.0	86.3	86.1	86.2	3.1	3.2	3.2		4.0	4.3	4.2	
					Middle	17.3	17.2	17.3	29.7	29.6	29.7	6.9	6.9	6.9	85.2	85.4	85.3	3.3	3.3	3.3	3.2	4.3	4.4	4.4	4.3
					Bottom	17.3	17.4	17.4	29.7	29.8	29.8	6.8	6.8	6.8	84.2	84.3	84.3	3.3	3.3	3.3		4.4	4.6	4.5	
G1	1057-1112	11.8	W	0.3	*Surface*	17.1	17.1	17.1	29.6	29.7	29.7	6.9	6.9	6.9	85.8	85.6	85.7	3.2	3.2	3.2		4.3	4.2	4.3	
					Middle	17.1	17.2	17.2	29.7	29.6	29.7	6.8	6.8	6.8	84.4	84.6	84.5	3.3	3.3	3.3	3.4	4.6	4.4	4.5	4.5
					Bottom	17.3	17.2	17.3	29.7	29.8	29.8	6.7	6.8	6.7	83.5	83.6	83.6	3.6	3.6	3.6		4.7	4.8	4.8	
E7	1117-1132	12.2	W	0.3	*Surface*	17.0	17.1	17.1	29.6	29.7	29.7	7.0	7.0	7.0	85.9	86.1	86.0	3.4	3.4	3.4		4.3	4.5	4.4	
					Middle	17.2	17.1	17.2	29.7	29.8	29.8	6.8	6.9	6.8	84.6	84.9	84.8	3.5	3.6	3.6	3.6	4.6	4.8	4.7	4.6
					Bottom	17.2	17.3	17.3	29.9	29.8	29.9	6.8	6.8	6.8	83.8	84.1	84.0	3.7	3.7	3.7		4.5	4.8	4.7	
F1	1137-1152	12.6	W	0.3	*Surface*	17.1	17.0	17.1	29.6	29.6	29.6	7.0	7.0	7.0	86.5	86.7	86.6	3.2	3.1	3.1		4.0	4.2	4.1	
					Middle	17.1	17.2	17.2	29.8	29.7	29.8	6.9	6.9	6.9	85.0	85.2	85.1	3.2	3.2	3.2	3.3	4.4	4.3	4.4	4.3
					Bottom	17.3	17.2	17.3	29.8	29.9	29.9	6.8	6.8	6.8	84.5	84.6	84.6	3.5	3.4	3.4		4.5	4.5	4.5	
G3	1157-1212	16.2	W	0.2	*Surface*	17.1	17.1	17.1	29.6	29.7	29.7	7.1	7.1	7.1	87.8	88.0	87.9	2.9	2.9	2.9		4.0	4.2	4.1	
					Middle	17.1	17.2	17.2	29.8	29.8	29.8	7.0	7.1	7.0	87.0	87.3	87.2	3.2	3.2	3.2	3.2	4.3	4.4	4.4	4.4
					Bottom	17.4	17.3	17.4	29.8	29.9	29.9	6.8	6.9	6.8	84.8	85.1	85.0	3.4	3.4	3.4		4.6	4.6	4.6	
E9	1217-1232	13.4	W	0.3	*Surface*	17.1	17.2	17.2	29.6	29.7	29.7	6.9	6.9	6.9	84.7	84.9	84.8	3.1	3.2	3.1		4.0	4.1	4.1	
					Middle	17.3	17.2	17.3	29.7	29.6	29.7	6.8	6.8	6.8	84.2	83.9	84.1	3.3	3.2	3.3	3.3	4.2	4.4	4.3	4.3
					Bottom	17.3	17.4	17.4	29.7	29.8	29.8	6.7	6.7	6.7	82.2	82.4	82.3	3.4	3.4	3.4		4.5	4.6	4.6	
S2	1237-1252	12.2	W	0.2	*Surface*	17.1	17.1	17.1	29.6	29.7	29.7	6.9	7.0	7.0	85.8	86.0	85.9	3.3	3.3	3.3		4.1	4.2	4.2	
					Middle	17.2	17.3	17.3	29.8	29.7	29.8	7.1	7.1	7.1	87.7	88.0	87.9	3.3	3.4	3.3	3.4	4.4	4.5	4.5	4.4
					Bottom	17.4	17.3	17.4	29.8	29.9	29.9	6.8	6.8	6.8	84.8	84.5	84.7	3.5	3.5	3.5		4.6	4.7	4.7	
G2	1257-1311	13.8	W	0.3	*Surface*	17.1	17.0	17.1	29.6	29.6	29.6	7.2	7.2	7.2	88.4	88.6	88.5	3.2	3.2	3.2		4.0	4.2	4.1	
					Middle	17.2	17.1	17.2	29.7	29.8	29.8	7.0	7.0	7.0	86.8	87.0	86.9	3.3	3.3	3.3	3.3	4.2	4.3	4.3	4.4
					Bottom	17.2	17.3	17.3	29.9	29.8	29.9	6.8	6.8	6.8	84.1	83.9	84.0	3.6	3.6	3.6		4.6	4.8	4.7	
S3	1315-1328	11.6	W	0.2	*Surface*	17.0	17.1	17.1	29.6	29.5	29.6	7.0	7.0	7.0	86.7	87.0	86.9	3.1	3.1	3.1		4.0	4.2	4.1	
					Middle	17.3	17.2	17.3	29.6	29.7	29.7	6.9	6.9	6.9	85.0	85.2	85.1	3.2	3.2	3.2	3.2	4.4	4.6	4.5	4.3
					Bottom	17.3	17.4	17.4	29.7	29.8	29.8	6.7	6.8	6.7	83.5	83.8	83.7	3.3	3.4	3.3		4.4	4.2	4.3	

Remark or Obsevation:

Note: * Average
** Depth Average

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Environmental Resources Management

16/F DCH Commercial Centre
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