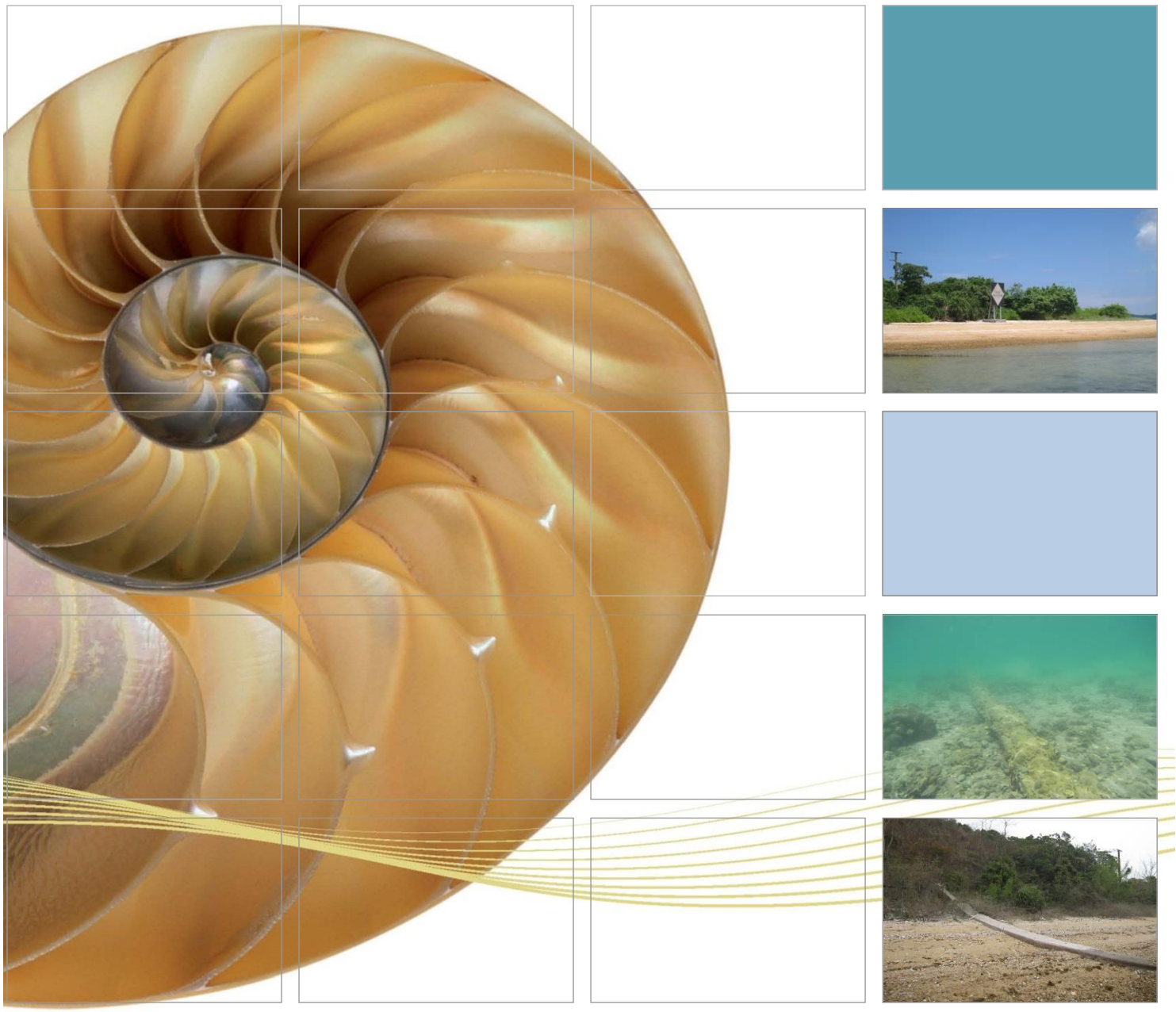


Proposed 11kV Submarine Cables Replacement Connecting Liu Ko Ngam and Pak Sha Tau Tsui at Kat O - Environmental Monitoring & Audit

Post Project Water Quality Monitoring Report

13 June 2016

Submitted by
Environmental Resources Management
16/F Berkshire House
25 Westlands Road
Quarry Bay, Hong Kong
Telephone 2271 3000
Facsimile 2723 5660

www.erm.com

Proposed 11kV Submarine Cables Replacement Connecting Liu Ko Ngam and Pak Sha Tau Tsui at Kat O - Environmental Monitoring & Audit

Environmental Certification Sheet

EP-461/2013

Reference Document/Plan

Document/~~Plan~~ to be ~~Certified~~/ Verified:	Post Project Water Quality Monitoring Report
Date of Report:	13 June 2016
Date prepared by Environmental Team:	13 June 2016
Date received by IC:	13 June 2016

Reference Project Profile Annex E EM&A Requirement and EP Requirement

EM&A Requirement: Project Profile, Annex E EM&A Requirements, Section E1

Content: *Water Quality Monitoring and Reporting*

E.1.3 "Post Project Monitoring will comprise sampling on three occasions (days) within one week after completion of the cable installation works at the same location as the Baseline Monitoring Stations during mid flood and mid ebb tides."

E.1.5 "Schedule for impact monitoring should be submitted to EPD and AFCD at least 1 week before commencement of the monitoring works for agreement. A letter report shall be provided to EPD and AFCD that shall include the monitoring results and an interpretation of monitoring results. The monitoring data should be provided graphically to show the relationship between the Control, Gradient and Impact Stations and compliance or noncompliance with respect to the Action/Limit Levels. The reports to be provided by the environmental contractor shall include: one Baseline Monitoring Report; Weekly Impact Monitoring Reports; and one Post Project Monitoring Report….. The post Project Monitoring Report shall be provided within one week of completion of the Post Project Survey."

EP Condition: Condition No. 2.1

Content: *Water Quality Monitoring*

2.1 All measures described in the Project Profile (No. PP-489/2013) submitted by the applicant on 30 May 2013 shall be fully implemented.

IC Verification

I hereby verify that the above referenced document/~~plan~~ complies with the above referenced condition of EP-461/2013.

Terence Fong, Date: 13 June 2016

Independent Checker

Proposed 11kV Submarine Cables Replacement Connecting Liu Ko Ngam and Pak Sha Tau Tsui at Kat O - Environmental Monitoring & Audit

Environmental Resources Management

16/F Berkshire House
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

Document Code: 0259952_Post Project Water Quality Monitoring Report.doc

Client: CLP Power Hong Kong Limited (CLP)		Project No: 0259952			
Summary: This document presents the monitoring requirements, methodologies and results of post project water quality measurements in the reporting period from 25 May to 3 June 2016 at the monitoring locations near the proposed 11kV submarine cables replacement connecting Liu Ko Ngam and Pak Sha Tau Tsui at Kat O.		Date: 13 June 2016 Approved by: *Terence Fong* *Partner*			
v0	Post Project Water Quality Monitoring Report_v0	YL	TF	TF	13/6/16
Revision	Description	By	Checked	Approved	Date

Distribution

☐ Internal

☒ Public

☐ Confidential

CONTENTS

LIST OF TABLES

LIST OF ANNEXES

The submarine cable installation works for the 11kV submarine cable connecting Liu Ko Ngam to Pak Sha Tau Tsui at Kat O commenced in the week starting 21 December 2015 and were completed in May 2016. This is the *Post Project Water Quality Monitoring Report*, presenting results and findings of the post project water quality monitoring conducted during the period from 25 May to 3 June 2016, in accordance with the *Environmental Monitoring and Audit Requirement* (*EM&A Requirement*).

A total of three (3) monitoring events (days) were scheduled in the monitoring period from 25 May to 3 June 2016 (i.e. 25 May, 1 and 3 June 2016). On 27 May 2016, Typhoon Signal No. 3 was issued at 05:40 in the morning [1] and thereby the scheduled post project monitoring on 27 May 2016 was cancelled with the consideration of health and safety and postponed to 1 June 2016. The scheduled post project monitoring on 30 May 2016 was accordingly postponed to 3 June 2016.

Post project water quality monitoring was conducted after the confirmation that the Project marine works had been completed. The overall water quality in post project monitoring is observed higher in DO levels and lower in Turbidity and SS levels than the baseline monitoring results. During the post project monitoring, water quality at the impact stations is found to be similar to that at the control stations. It is noted that the control stations are located at sufficient distance from the cable alignment and water quality at control stations are unlikely to be affected by the Project works. Therefore it is considered that the overall water quality changes in DO, Turbidity and SS levels during the post-project monitoring period are not caused by the Project marine works but a reflection of natural background fluctuation.

It is concluded that no deterioration of water quality occurred after the completion of Project marine works and the Project works had negligible impact on water quality.

[1] http://www.weather.gov.hk/cgi-bin/hko/warndb_e1.pl?opt=1&sgnl=1.or.higher&start_ym=201605&end_ym=201606&submit=Submit+Query

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by CLP Power Hong Kong Limited (CLP) as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme for the installation of an 11kV submarine cable connecting Liu Ko Ngam to Pak Sha Tau Tsui at Kat O (the Project).

1.1 PURPOSE OF THE REPORT

This is the *Post Project Water Quality Monitoring Report*, which summarises the results of post project water quality monitoring as part of the EM&A programme during the period from 25 May to 3 June 2016. The post project monitoring results have been compared to the baseline water quality 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 marine 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 post project monitoring period.

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

2 PROJECT INFORMATION

2.1 BACKGROUND

CLP Power Hong Kong Limited (CLP) proposes to enhance the security of power supply to Kat O Island. At present, there is only one set of 11kV submarine cable connecting Liu Ko Ngam to Pak Sha Tau Tsui at Kat O for power supply. The existing 11kV submarine cable is however more than 30 years old and deteriorating, thus potentially limiting the continuous supply of electricity in the future. CLP therefore proposes to replace the existing 11kV submarine cable connecting Liu Ko Ngam to Pak Sha Tau Tsui at Kat O to ensure the continuous power supply for Kat O. The Project involves the installation of an 11kV cable circuit consisting of two individual cables, with an intended burial depth up to 5 m for the submarine cable section and about 1 m for the land section. The two submarine cables (except the shore end sections which will be at only about 1 m separation and joining into a single cable trench at each landing site) will be 30 m away from each other and running parallel along the alignment. In areas (especially near the landing site) where the cable burial depth does not meet the requirements due to seabed geotechnical constraints, a protective cover such as a concrete slab will be adopted. The total length of the proposed cable alignment is approximately 880 m. A map showing the proposed submarine cable route is presented in *Figure 2.1*.

A *Project Profile* (Register No. PP-489/2013, *Replacement of the Existing 11kV Submarine Cable Circuit Connecting Liu Ko Ngam and Pak Sha Tau Tsui at Kat O*) which includes an assessment of the potential environmental impacts associated with the installation of the submarine cables was prepared and submitted to the Environmental Protection Department (EPD) according to *Section 5(11)* of *the Environmental Impact Assessment Ordinance (EIAO)* for the application for Permission to apply directly for *Environmental Permit* (*EP*). On 11 July 2013 EPD approved the *Project Profile* (*PP*) and a direct application for *EP* was submitted on 23 July 2013 (Application No. AEP-461/2013). On 27 August 2013 EPD granted an environmental permit for the Project (EP - 461/2013) pursuant to *Section 10* of *EIAO*.

Pursuant to *Condition 2.1* of the *EP*, Water Quality Sampling, as set out in the approved *PP Annex E Environmental Monitoring & Audit (EM&A) Requirements* (henceforth "*EM&A Requirement*"), is required for this Project. Water Quality Sampling shall be conducted prior to and throughout the cable installation works, and after its completion as set out in the *EM&A Requirement*.

Baseline water quality monitoring was conducted prior to the installation works and results were summarised in the *Baseline Water Quality Monitoring Report* of November 2015.

Impact monitoring started on 22 December 2015, when the cable installation works commenced. Impact monitoring is being conducted twice a week during cable installation works and is suspended when no works are carried

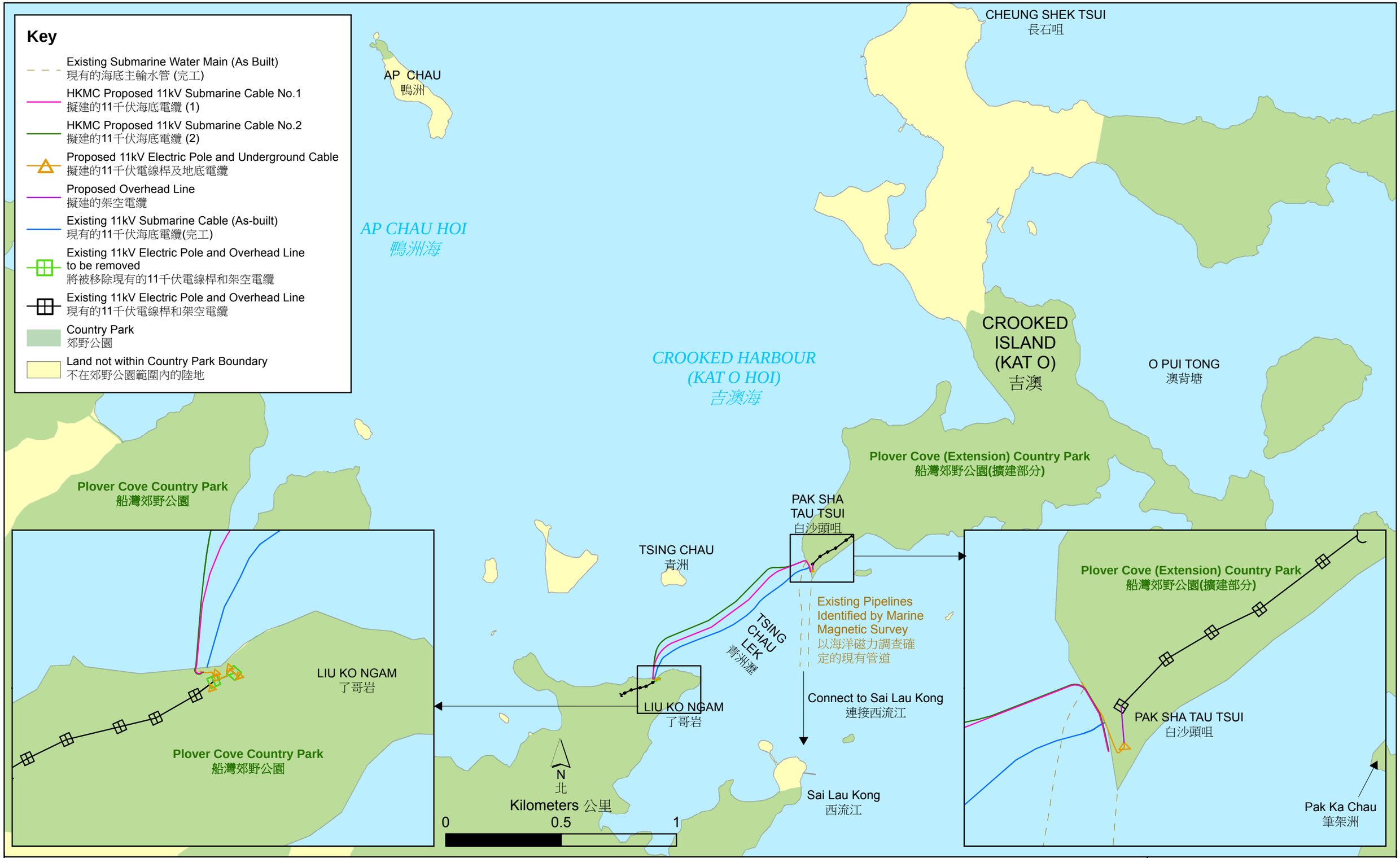


Figure 2.1
圖2.1

Alignment of the Proposed 11kV Submarine Cable Circuit from Liu Ko Ngam to Pak Sha Tau Tsui
了哥岩至白沙頭咀的擬建11kV海底電纜路線

File: T:\GIS\CONTRACT\0259952\Mxd\0259952_Alignment_of_the_Proposed_11kV_Submarine_Cable.mxd
Date: 2/12/2015

Environmental Resources Management

ERM

out. The water quality impact monitoring is used to reflect the water quality conditions and to identify potential water quality impacts during the cable installation works. With reference to the *EM&A Requirement* reporting will be weekly but if there are no exceedances of Action and Limit Levels during the first three weeks of impact water quality monitoring, a bi-weekly impact monitoring report will be provided within 1 week of completing every two weekly monitoring surveys.

All marine works for the cable installation works were completed in May 2016 and final confirmation of completion of all the marine works was given on 19 May 2016. In accordance with the *EM&A Requirement*, post project water quality monitoring comprised sampling on three occasions (days) within one week after the completion of the cable installation works at the same location as the baseline monitoring stations during mid flood and mid ebb tides.

This *Post Project Water Quality Monitoring Report* presents the results and findings of post project monitoring, conducted in the period from 25 May to 3 June 2016.

2.2 SITE DESCRIPTION

The cable installation works were conducted between Pak Sha Tau Shui and Liu Ko Ngam as shown in *Figure 2.1*.

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
Project Profile	PP-489/2013	Throughout the construction and operation stages	Submitted on 30 May 2013
Environmental Permit	EP-461/2013	Throughout the construction and operation stages	Granted on 27 August 2013
Baseline Water Quality Monitoring Report	-	Throughout the construction period	Submitted on 20 November 2015
First Weekly Impact Water Quality Monitoring Report	-	Construction period of week from 21 to 27 December 2015	Submitted on 4 January 2016
Second Weekly Impact Water Quality Monitoring Report	-	Construction period of week from 28 December 2015 to 3 January 2016	Submitted on 11 January 2016
Third Weekly Impact Water Quality Monitoring Report	-	Construction period from 4 to 10 January 2016	Submitted on 18 January 2016

Permit / Licence / Notification / Report	Reference	Validity Period	Remarks
Bi-weekly Impact Monitoring Report (4th Report)	-	Construction period from 11 to 24 January 2016	Submitted on 1 February 2016
Fifth Water Quality Impact Monitoring Report	-	Construction period from 1 to 7 and 15 to 21 February 2016	Submitted on 26 February 2016
Sixth Water Quality Impact Monitoring Report	-	Construction period from 22 February to 13 March 2016	Submitted on 18 March 2016
Seventh Water Quality Impact Monitoring Report	-	Construction period from 14 March to 3 April 2016	Submitted on 7 April 2016
Eighth Water Quality Impact Monitoring Report	-	Construction period from 4 April to 15 May 2016	Submitted on 17 May 2016

3 WATER QUALITY MONITORING REQUIREMENTS

3.1 MONITORING LOCATIONS

In accordance with the *EM&A Requirement,* water quality monitoring samples were collected at the ten (10) stations situated around the cable installation works, following commencement of Project marine installation works. The locations of the sampling stations are shown in *Figure 3.1*.

- C1 is a Control Station to the north of the cable alignment (approximately 1.4 km away) with the same coordinates as EPD routine monitoring station MM2, which is not supposed to be influenced by the construction works due to its remoteness to the Project works area;
- C2 is a Control Station to the south of the cable alignment (over a distance of 1.6 km) with the same coordinates as EPD routine monitoring station MM7, which is not supposed to be influenced by the construction works due to its remoteness to the Project site;
- SR1 is Impact Station used to monitor the effect of the cable installation works on coral communities of high ecological concern at Tsing Chau;
- SR2 is Impact Station used to monitor the effect of the cable installation works on coral communities of high ecological concern at Ngau Shi Wu Wan;
- SR3 is Impact Station used to monitor the effect of the cable installation works on Lai Chi Wo/ Yan Chau Tong Marine Park (to the west of the Project site);
- SR4 is Impact Station used to monitor the effect of the cable installation works on Yan Chau Tong Marine Park (to the south of the Project site);
- SR5 is Impact Station used to monitor the effect of the cable installation works on Sai Lau Kong FCZ;
- G1 is regarded as a Gradient Station in between Impact Station SR1 and the construction work alignment;
- G2 is Gradient Station located between Impact Stations SR2, SR4 and SR5 and construction work alignment; and
- G3 is Gradient Station located between Impact Stations SR3 and the construction work alignment and landing point at Kiu Ko Ngam.

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

Key 圖例

- Water Quality Monitoring Stations 水質監察站
- Proposed 11kV Submarine Cable 擬議鋪設的11千伏海底電纜
- Existing 11kV Submarine Cable (As built) 現有的11千伏海底電纜（完工情況）
- Fish Culture Zone 魚類養殖區
- Marine Park 海岸公園
- Coral Colonies of High Ecological Value 具高生態價值的珊瑚群落
- Artificial Reef Depolyment Site 人工魚礁放置地點
- Recognized Seagrass Habitat 認可海草生境

Water Quality Monitoring Stations 水質監察站	Easting 東經	Northing 北緯
SR1	846957.82	843601.61
SR2	847041.35	843125.56
SR3	846208.21	843365.71
SR4	847534.45	842914.89
SR5	847209.44	842883.44
G1	846580.39	843334.26
G2	847066.97	843218.44
G3	847031.21	843538.70
C1	846615.32	844892.99
C2	848633.26	842648.35

AP CHAU 鴨洲
AP CHAU HOI 鴨洲海
KAT O HOI 吉澳海
C1
CROOKED ISLAND (KAT O) 吉澳
O PUI TONG 澳背塘
TSING CHAU 青洲
PAK SHA TAU TSUI 白沙頭咀
SR1
G3
SR3
G1
Yan Chau Tong Marine Park 印洲塘海岸公園
G2
SR2
LIU KO NGAM 了哥岩
SR4
SR5
LAI CHI WO 荔枝窩
NGAU SHI WU WAN 牛屎湖灣
SAI LAU KONG 西流江
C2
Yan Chau Tong Marine Park 印洲塘海岸公園
N 北
Meters 米
0 500 1,000

Figure 3.1
圖 3.1

Water Quality Monitoring Stations

水質監察站

File: T:\GIS\CONTRACT\0259952\Mxd\0259952_WQMS.mxd
Date: 30/12/2015

Environmental Resources Management

ERM

Table 3.1 Water Quality Monitoring Stations

Station	Nature	Easting	Northing
C1	Control Station	846615.32	844892.99
C2	Control Station	848633.26	842648.35
SR1	Impact Station	846957.82	843601.61
SR2	Impact Station	847041.35	843125.56
SR3	Impact Station	846208.21	843365.71
SR4	Impact Station	847534.45	842914.89
SR5	Impact Station	847209.44	842883.44
G1	Gradient Station	846580.39	843334.26
G2	Gradient Station	847025.97	843218.44
G3	Gradient Station	847031.21	843538.70

3.2 MONITORING PARAMETERS

The water quality impact monitoring was conducted in accordance with the requirements stated in the *EM&A Requirement*. Monitoring parameters are presented below.

The parameters measured *in situ* were:

- Dissolved Oxygen (DO) (% saturation and mg/L)
- Water temperature (°C)
- Turbidity (Nephelometric Turbidity Units [NTU])
- Salinity (parts per thousand [ppt])

The only parameter to be measured in the laboratory was:

- Suspended solids (SS) (mg/L)

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, sampling depth, current velocity and direction, time, weather conditions, sea conditions (where appropriate), tidal state (where appropriate), special phenomena and work activities undertaken around the monitoring and Project works area that may have influenced the monitoring results.

These parameters will be monitored at all designated marine water quality monitoring stations throughout the whole impact monitoring phase.

3.3 MONITORING EQUIPMENT AND METHODOLOGY

3.3.1 Monitoring Equipment

Table 3.2 summaries the equipment used for the impact water quality monitoring.

Table 3.2 Equipment Used during Impact Water Quality Monitoring

Equipment	Model
Global Positioning Device	GARMIN eTrex 10
Water Depth Gauge	Speedtech Instruments SM-5
Water Sampling Equipment	Wildlife Kemmerer 1520
Salinity, DO, Temperature Measuring Meter	YSI PRO 2030
Current Velocity and Direction	Global Water FP111
Turbidity Meter	HACH 2100Q

3.3.2 *Monitoring Frequency and Timing*

The water quality monitoring was carried out on three (3) occasions (days) and the intervals between the two sets of monitoring were not less than 36 hours. The water quality sampling was undertaken within a 3 hour window of 1.5 hours before and 1.5 hours 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 was made to the predicted tides at Ko Lau 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 Ko Lau Wan, the water quality impact monitoring was conducted on 25 May, 1 June and 3 June 2016, following the schedule presented in *Annex A*.

3.3.3 *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 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 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.

At each measurement / sampling depth, two (2) consecutive *in-situ* measurements (DO concentration and saturation, temperature, turbidity, and salinity) and two water samples for SS were taken for lab analysis.

[1] Hong Kong Observatory (2016) http://www.hko.gov.hk/tide/eQUBtide.htm [Accessed in May 2016]

3.3.4 Laboratory Analysis

All laboratory works 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 two (2) days of the sampling event (i.e. within 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*).

3.3.5 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.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

Mitigation measures for water quality control were recommended in the *Project Profile (PP-489/2013)* and *Environmental Permit (EP-461/2013)*. The following selected and relevant mitigation measures were implemented during cable installation works:

- Water quality monitoring was carried out to verify that there was no deterioration of water quality during the construction of the Project;
- Silt curtains around the dredgers were installed to reduce the dispersion of sediments from the landing sites;
- Closed grab dredgers were used to avoid dispersion of suspended solids into the sea;
- All barges used for the transport of dredged materials were fitted with tight bottom seals in order to prevent leakage of material during loading and transport;
- All barges were filled to a level, which ensures that material does not spill over during loading and transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action;
- The forward speed of the jetting machine was limited to a maximum of 80 m/hour and normal working hours (7am – 7pm) operation.
- A frame-type silt curtain on both sides of the water jetting burial machine/ tool were installed in order to reduce the dispersion of sediments during the cable laying works

A total of three (3) monitoring events (days) were scheduled in the post project monitoring period from 25 May to 3 June 2016 (i.e. 25 May, 1 and 3 June 2016). On 27 May 2016, Typhoon Signal No. 3 was issued at 05:40 [1] in the morning and therefore scheduled post project monitoring on 27 May 2016 was cancelled with the consideration of health and safety and postponed to 1 June 2016. The scheduled post project monitoring on 30 May 2016 was accordingly postponed to 3 June 2016.

No major activities influencing the water quality were identified during the reporting period.

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

The levels of DO measured during the post project monitoring at different sampling depths were generally higher than those obtained during the baseline monitoring period (*Figure D1-D3 of Annex D*). Elevations of DO concentration were detected at all the impact stations and the control stations C1 and C2. Control stations are situated at a sufficient distance from the submarine cable alignment and unlikely 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 stations C1 and C2.

Levels of Turbidity and SS measured during the post project monitoring were generally lower compared to those measured during the baseline monitoring period (*Figure D4-D5 of Annex D*). This occurred to all the monitoring stations including the control stations C1 and C2. Turbidity and SS levels recorded at all the impact stations were of similar magnitude to those measured at the control stations C1 and C2 during post project monitoring period.

Given the above information, the overall changes in DO, Turbidity and SS levels during the post project monitoring period at all designated stations compared to baseline data are considered to represent the natural background fluctuation in water quality.

[1] http://www.weather.gov.hk/cgi-bin/hko/warndb_e1.pl?opt=1&sgnl=1.or.higher&start_ym=201605&end_ym=201606&submit=Submit+Query

6 CONCLUSION

This *Post Project Water Quality Monitoring Report* presents the EM&A work undertaken during the period from 25 May to 3 June 2016 (i.e. 25 May, 1 and 3 June 2016 in accordance with the *EM&A Requirement* and the requirements under *Environmental Permit (EP-461/2013).*

Post project water quality monitoring was conducted after the confirmation that the Project marine works had been completed. The overall water quality in post project monitoring was higher in DO levels and lower in Turbidity and SS levels than the baseline monitoring results. During the post project monitoring, water quality at the impact stations is found to be similar to that at the control stations. It is noted that the control stations are located at sufficient distance from the cable alignment and water quality at control stations are unlikely to be affected by the Project works. Therefore it is considered that the overall water quality changes in DO, Turbidity and SS levels during the post-project monitoring period are not caused by the Project marine works but a reflection of natural background fluctuation.

It is concluded that no deterioration of water quality occurred after the completion of Project marine works and the Project works had negligible impact on water quality.

Annex A

Post Project Water Quality Monitoring Schedule

Replacement of the Existing 11 KV Submarine Cable Circuit Connecting Liu Ko Ngam and Pak Sha Tau at Kat O
Post Marine Water Quality Monitoring (WQM) Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
22-May	23-May	24-May	25-May	26-May	27-May	28-May
			WQM Mid-Flood 9:26 (07:41 - 11:11) Mid-Ebb 16:13 (14:28 - 17:58)			
29-May	30-May	31-May	01-Jun	02-Jun	03-Jun	04-Jun
			WQM Mid-Ebb 9:03 (07:18 - 10:48) Mid-Flood 15:04 (13:19 - 16:49)		**WQM** Mid-Ebb 10:53 (09:08 - 12:38) Mid-Flood 17:11 (15:26 - 18:56)	

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	:	27/04/2016	Calibration Due Date	:	26/05/2016

Temperature Verification

Ref. No. of Reference Thermometer : ET/0521/017

Ref. No. of Water Bath : ---

	Temperature (°C)			
Reference Thermometer reading	Measured	20.0	Corrected	19.9
DO Meter reading	Measured	19.8	Difference	0.1

Standardization of sodium thiosulphate ($Na_2S_2O_3$) solution

Reagent No. of $Na_2S_2O_3$ titrant	CPE/012/4.5/001/13	Reagent No. of 0.025N $K_2Cr_2O_7$	CPE/012/4.4/002/09

	Trial 1	Trial 2
Initial Vol. of $Na_2S_2O_3$ (ml)	0.00	10.15
Final Vol. of $Na_2S_2O_3$ (ml)	10.15	20.40
Vol. of $Na_2S_2O_3$ used (ml)	10.15	10.25
Normality of $Na_2S_2O_3$ solution (N)	0.02463	0.02439
Average Normality (N) of $Na_2S_2O_3$ solution (N)	0.02451	
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	10.90	21.90	0.00	6.80	10.50
Final Vol. of $Na_2S_2O_3$ (ml)	10.90	21.90	28.50	6.80	10.50	14.10
Vol. (V) of $Na_2S_2O_3$ used (ml)	10.90	11.00	6.60	6.80	3.70	3.60
Dissolved Oxygen (**DO**), mg/L	7.17	7.24	4.34	4.47	2.43	2.37
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	7.28	7.36	7.32	7.17	7.24	7.21	1.51
5	4.15	4.26	4.21	4.34	4.47	4.41	4.64
10	2.25	2.38	2.32	2.43	2.37	2.40	3.39
Linear regression coefficient				0.9979			

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/012/4.7/003/22	Reagent No. of NaCl (30ppt)	CPE/012/4.8/003/22

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	11.30	22.70	32.30
Final Vol. of $Na_2S_2O_3$ (ml)	11.30	22.70	32.30	41.90
Vol. (**V**) of $Na_2S_2O_3$ used (ml)	11.30	11.40	9.60	9.60
Dissolved Oxygen (**DO**), mg/L	7.44	7.50	6.32	6.32
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	7.22	7.31	7.27	7.44	7.50	7.47	2.71
30	6.55	6.34	6.45	6.32	6.32	6.32	2.04

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 : 27/04/2016 Due Date : 26/05/2016

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

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30.0	29.7	-1.00

(*) Difference (%) = (Measured Salinity – Salinity Standard value) / Salinity Standard value x 100

Acceptance Criteria

Difference : -10 % to 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

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	:	27/05/2016	Calibration Due Date	:	26/06/2016

Temperature Verification

Ref. No. of Reference Thermometer : ET/0521/017

Ref. No. of Water Bath : ---

	Temperature (°C)			
Reference Thermometer reading	Measured	20.0	Corrected	19.9
DO Meter reading	Measured	19.9	Difference	0.0

Standardization of sodium thiosulphate ($Na_2S_2O_3$) solution

Reagent No. of $Na_2S_2O_3$ titrant	CPE/012/4.5/001/13	Reagent No. of 0.025N $K_2Cr_2O_7$	CPE/012/4.4/002/10

	Trial 1	Trial 2
Initial Vol. of $Na_2S_2O_3$ (ml)	0.00	10.20
Final Vol. of $Na_2S_2O_3$ (ml)	10.20	20.50
Vol. of $Na_2S_2O_3$ used (ml)	10.20	10.30
Normality of $Na_2S_2O_3$ solution (N)	0.02451	0.02427
Average Normality (N) of $Na_2S_2O_3$ solution (N)	0.02439	
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	11.00	22.00	0.00	6.70	10.30
Final Vol. of $Na_2S_2O_3$ (ml)	11.00	22.00	28.60	6.70	10.30	13.70
Vol. (V) of $Na_2S_2O_3$ used (ml)	11.00	11.00	6.60	6.70	3.60	3.40
Dissolved Oxygen (DO), mg/L	7.20	7.20	4.32	4.39	2.36	2.23
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	7.46	7.39	7.43	7.20	7.20	7.20	3.14
5	4.13	4.25	4.19	4.32	4.39	4.36	3.98
10	2.51	2.22	2.37	2.36	2.23	2.30	3.00
Linear regression coefficient				0.9952			

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/012/4.7/003/23	Reagent No. of NaCl (30ppt)	CPE/012/4.8/003/23

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	11.40	22.90	32.40
Final Vol. of $Na_2S_2O_3$ (ml)	11.40	22.90	32.40	42.00
Vol. (V) of $Na_2S_2O_3$ used (ml)	11.40	11.50	9.50	9.60
Dissolved Oxygen (**DO**), mg/L	7.46	7.53	6.22	6.29
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	7.21	7.25	7.23	7.46	7.53	7.50	3.67
30	6.58	6.54	6.56	6.22	6.29	6.26	4.68

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 :	27/05/2016	Due Date :	26/06/2016

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

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30.0	30.3	1.00

(*) Difference (%) = (Measured Salinity – Salinity Standard value) / Salinity Standard value x 100

Acceptance Criteria

Difference : -10 % to 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 Turbidity Meter

Equipment Ref. No. : ET/0505/011 Manufacturer : HACH

Model No. : 2100Q Serial No. : 12060 C 018447

Date of Calibration : 27/04/2016 Due Date : 26/05/2016

Ref. No. of Turbidity Standard used (4000NTU)	005/6.1/001/9

Theoretical Value of Turbidity Standard (NTU)	Measured Value (NTU)	Difference % *
20	20.2	1.00
100	103	3.00
800	776	-3.00

(*) Difference = (Measured Value – Theoretical Value) / Theoretical Value x 100

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.

Prepared by : _____ Checked by : _____

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Performance Check of Turbidity Meter

Equipment Ref. No.	: ET/0505/011	Manufacturer	: HACH
Model No.	: 2100Q	Serial No.	: 12060 C 018447
Date of Calibration	: 27/05/2016	Due Date	: 26/06/2016

Ref. No. of Turbidity Standard used (4000NTU)	005/6.1/001/10

Theoretical Value of Turbidity Standard (NTU)	Measured Value (NTU)	Difference % *
20	19.8	-1.00
100	98.7	-1.30
800	789	-1.38

(*) Difference = (Measured Value – Theoretical Value) / Theoretical Value x 100

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.

Prepared by : _____ Checked by : _____

Annex C

QA/QC Results for Suspended Solids Testing

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

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 @
5/25/2016	100.2	FC1-S1	0.00	FSR3-M2	97.1
	106.4	FSR3-B1	3.64	FG1-B2	101.4
	103.0	FG2-M1	9.52	EC2 -B2	93.0
	97.5	ESR1-M1	4.88	ESR5-M2	97.9
	99.2	ESR5-B1	3.92	EG3-B2	92.5
	---	---	---	---	---

Note: (*) % Recovery of QC sample should be between 85.5% to 113.5%.
(#) % 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 PQ

Sampling Date	QC Sample	Sample Duplicate		Sample Spike	
	% Recovery *	Sample ID	% Error #	Sample ID	% Recovery @
6/1/2016	94.7	FC1-S1	5.13	FSR3-M2	101.2
	99.2	FSR3-B1	8.70	FG1-B2	104.3
	93.7	FG2-M1	5.41	EC2 -B2	98.4
	99.2	ESR1-M1	0.00	ESR5-M2	97.7
	107.3	ESR5-B1	3.08	EG3-B2	99.6
	---	---	---	---	---

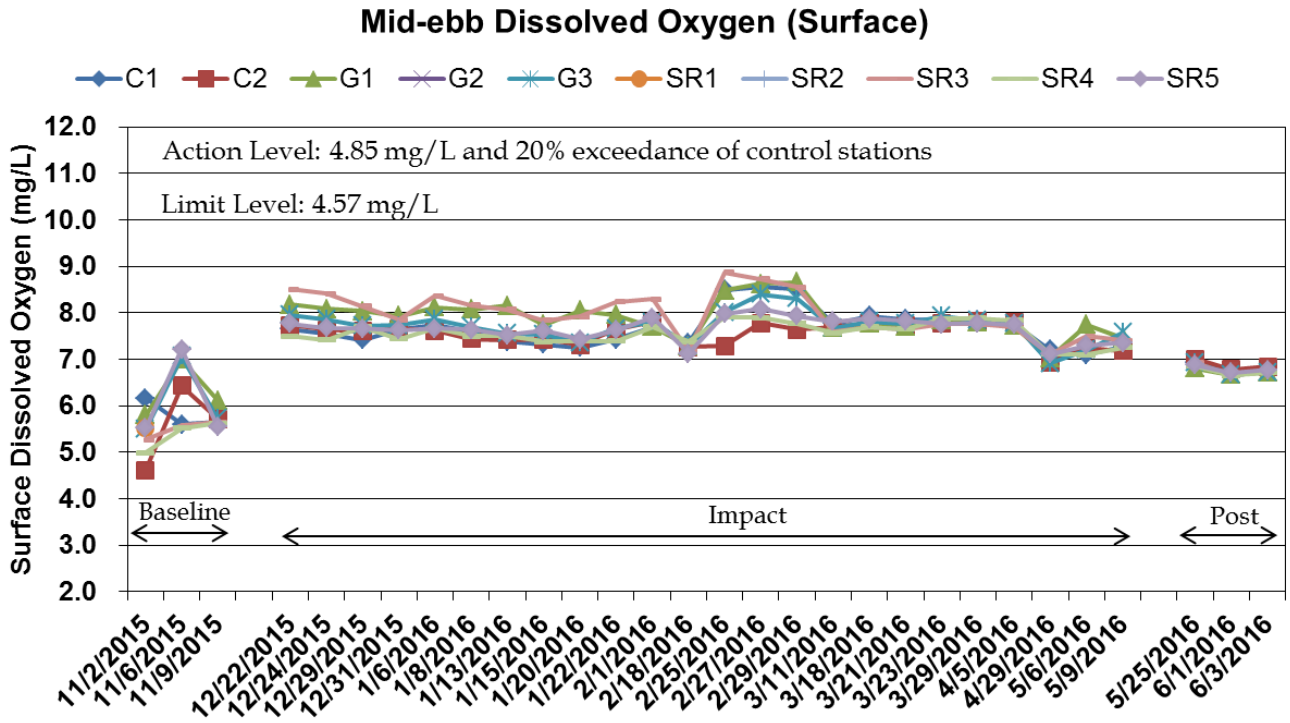
Note: (*) % Recovery of QC sample should be between 85.5% to 113.5%.
(#) % Error of Sample Duplicate should be between 0% to 10%.
(@) % Recovery of Sample Spike should be between 80% to 120%.
(**) % Error of Sample Duplicate >10% but invalid due to sample results less than PQ

Sampling Date	QC Sample	Sample Duplicate		Sample Spike	
	% Recovery *	Sample ID	% Error #	Sample ID	% Recovery @
6/3/2016	94.6	FC1-S1	0.00	FSR3-M2	97.0
	101.7	FSR3-B1	7.41	FG1-B2	107.1
	101.0	FG2-M1	8.00	EC2 -B2	92.3
	104.3	ESR1-M1	0.00	ESR5-M2	92.7
	96.2	ESR5-B1	3.64	EG3-B2	95.5
	---	---	---	---	---

Note: (*) % Recovery of QC sample should be between 85.5% to 113.5%.
(#) % 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 PQ

Annex D

Post Project Water Quality Monitoring Results



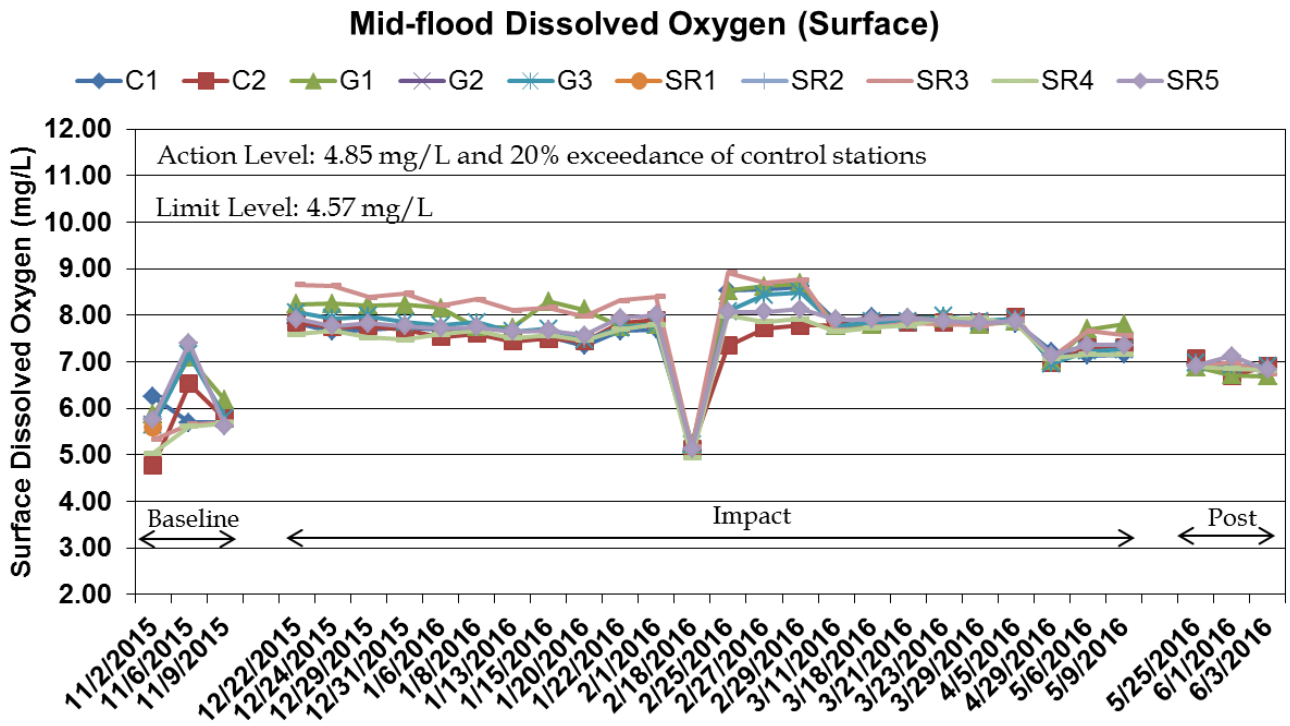
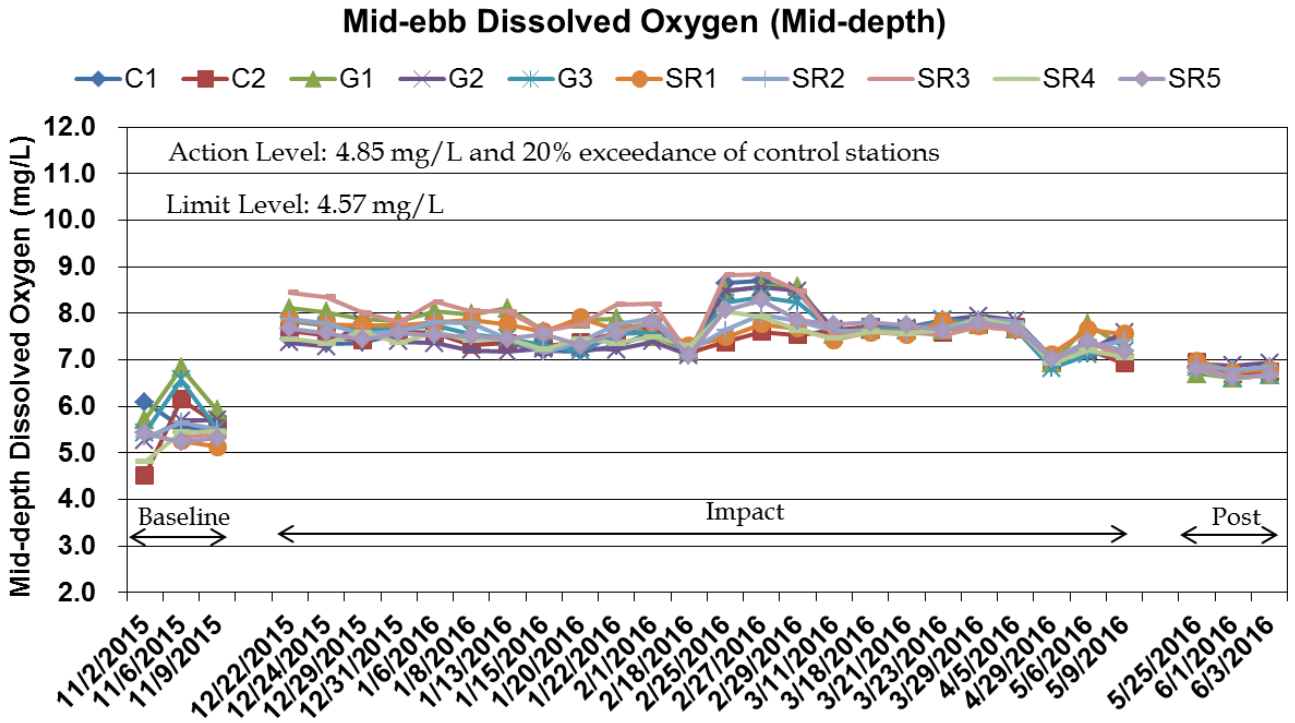


Figure D1 Dissolved oxygen (mg/L) at surface of water column measured during the baseline and impact monitoring, and post project monitoring period from 25 May to 3 June 2016



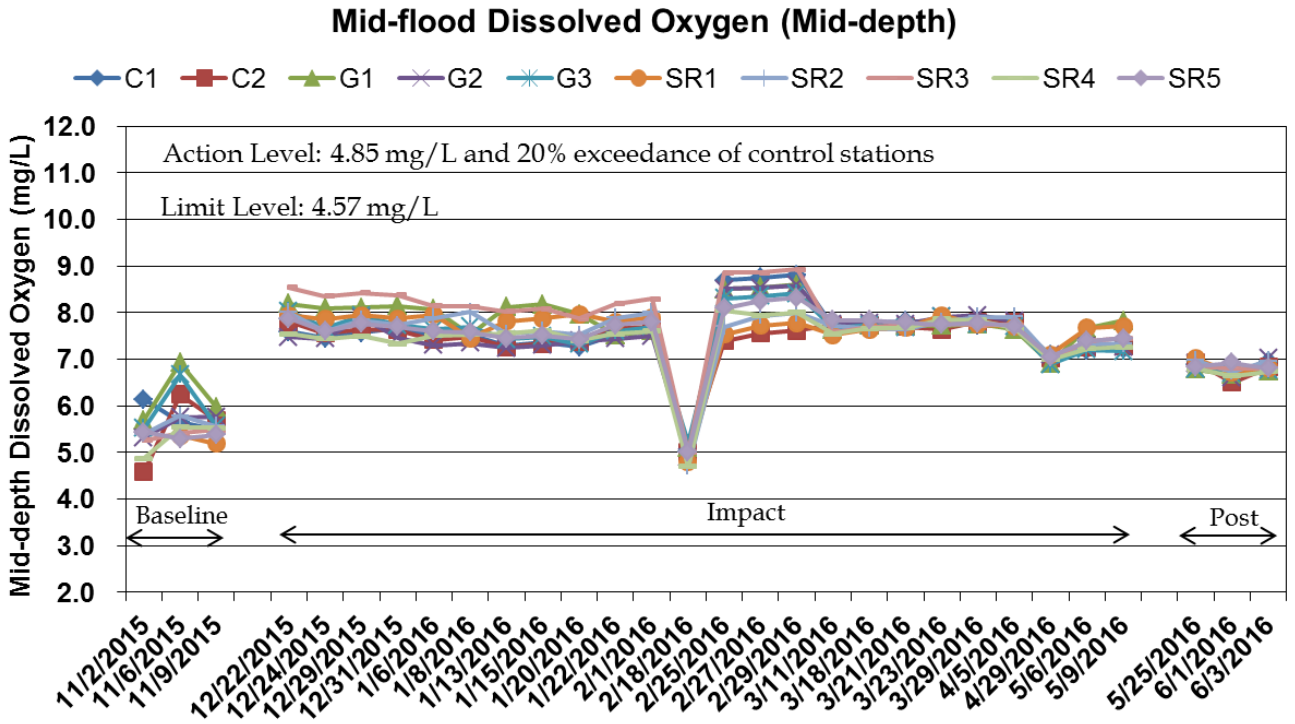
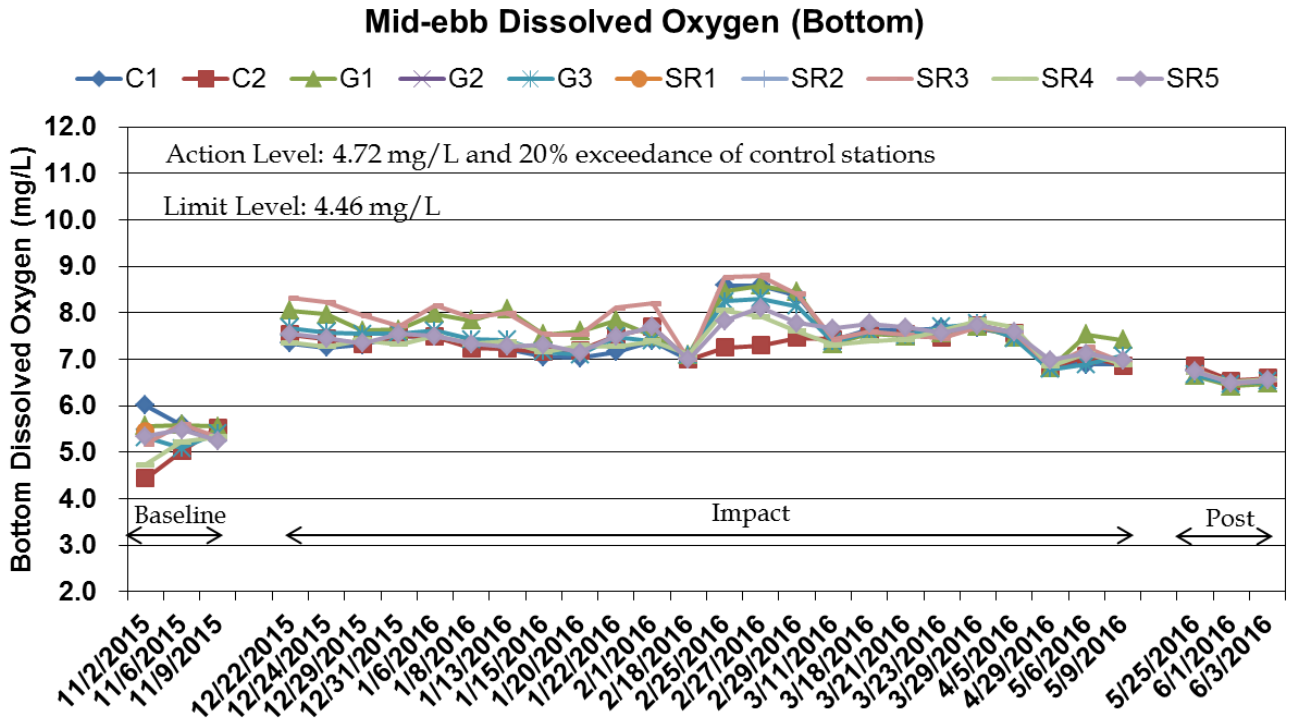


Figure D2 Dissolved oxygen (mg/L) at mid-depth of water column measured during the baseline and impact monitoring, and post project monitoring period from 25 May to 3 June 2016



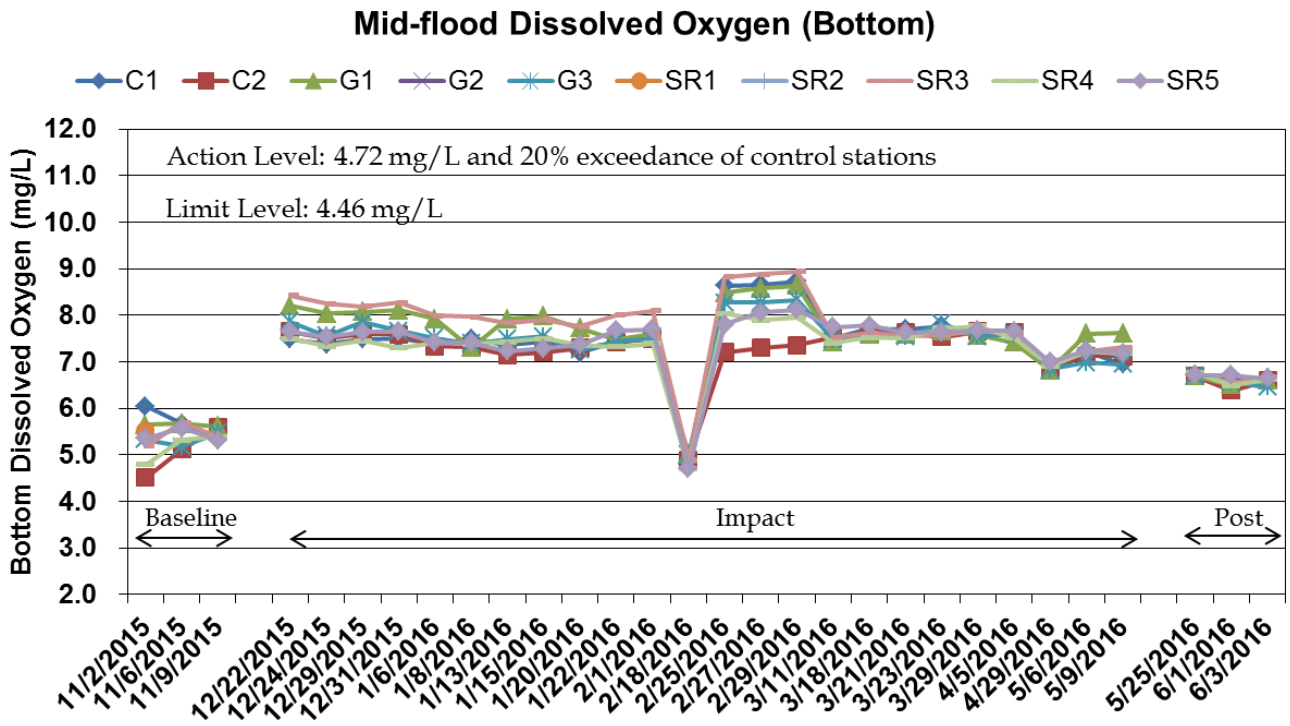


Figure D3 Dissolved oxygen (mg/L) at bottom of water column measured during the baseline and impact monitoring, and post project monitoring period from 25 May to 3 June 2016

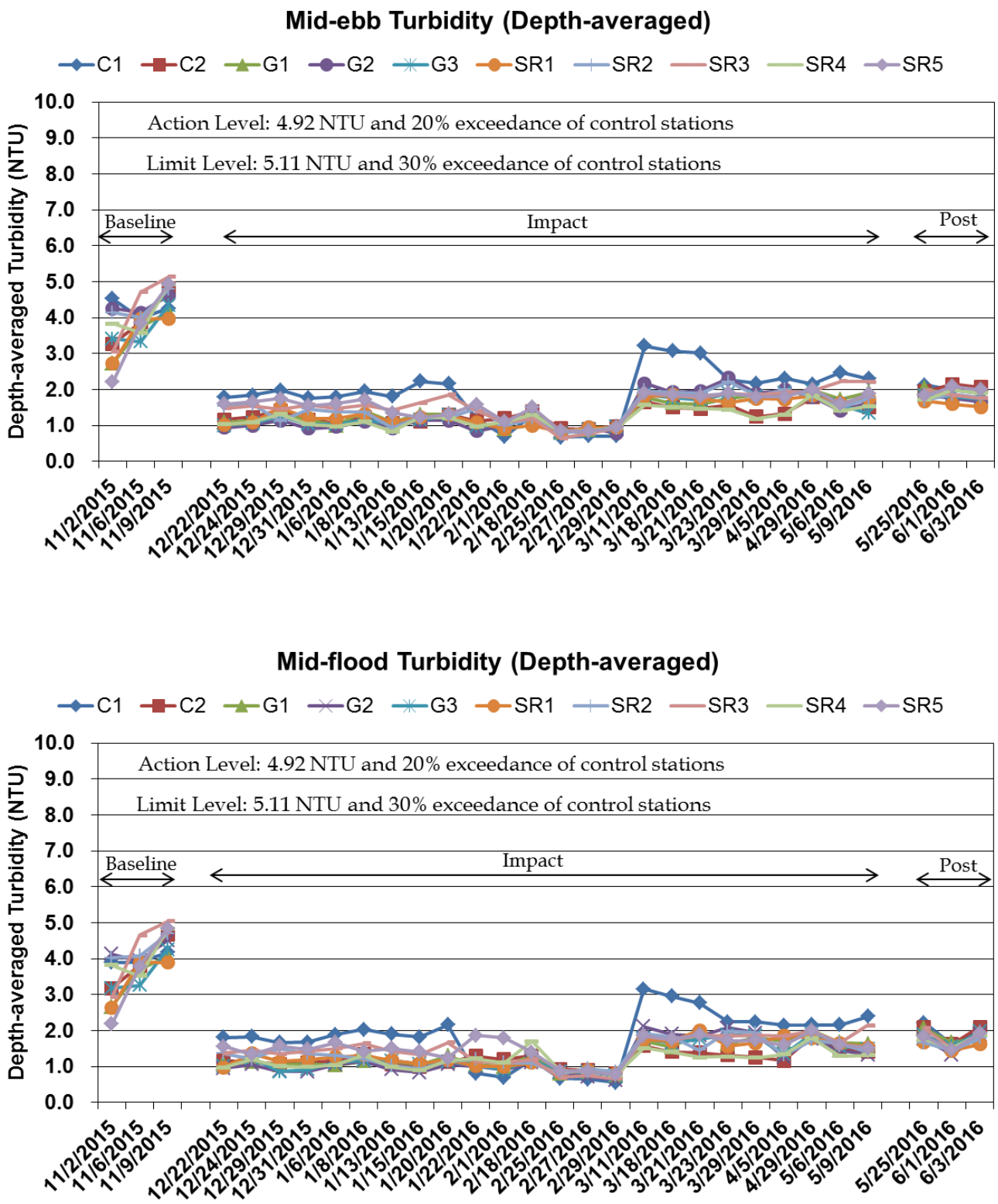
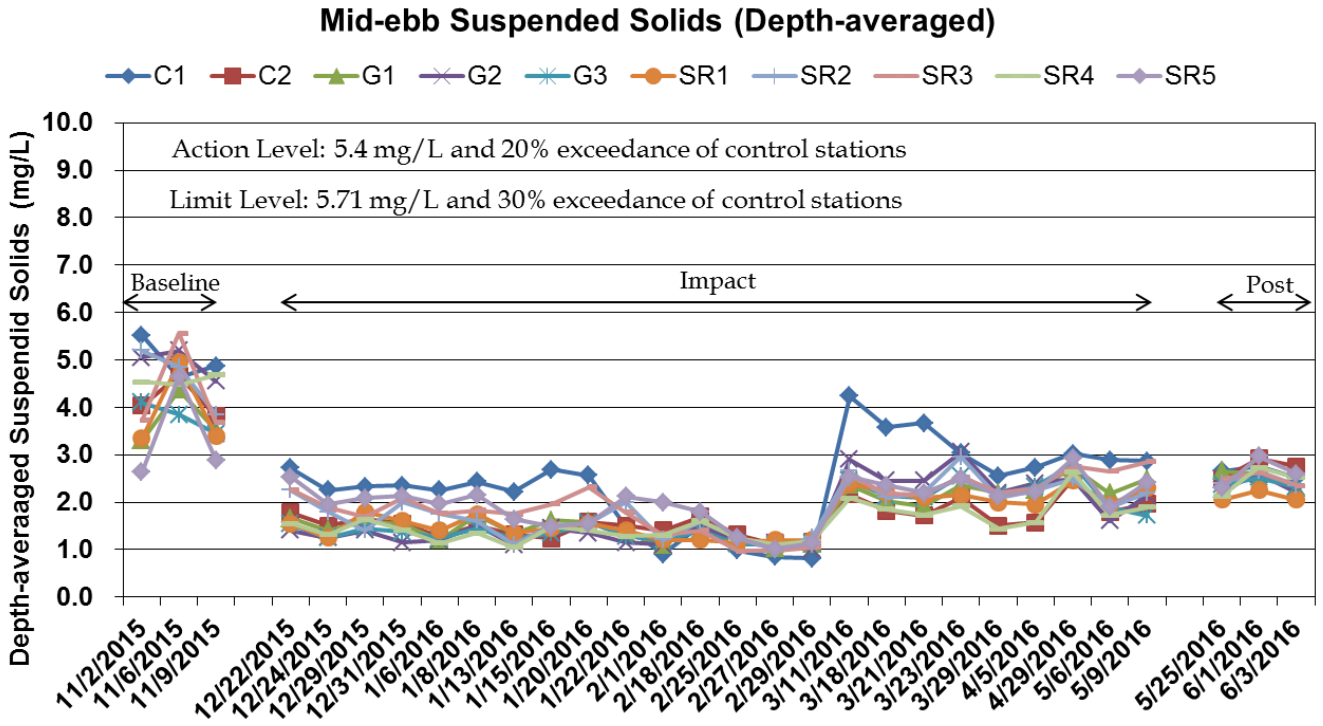


Figure D4 Depth-averaged turbidity (NTU) of water column measured during the baseline and impact monitoring, and post project monitoring period from 25 May to 3 June 2016



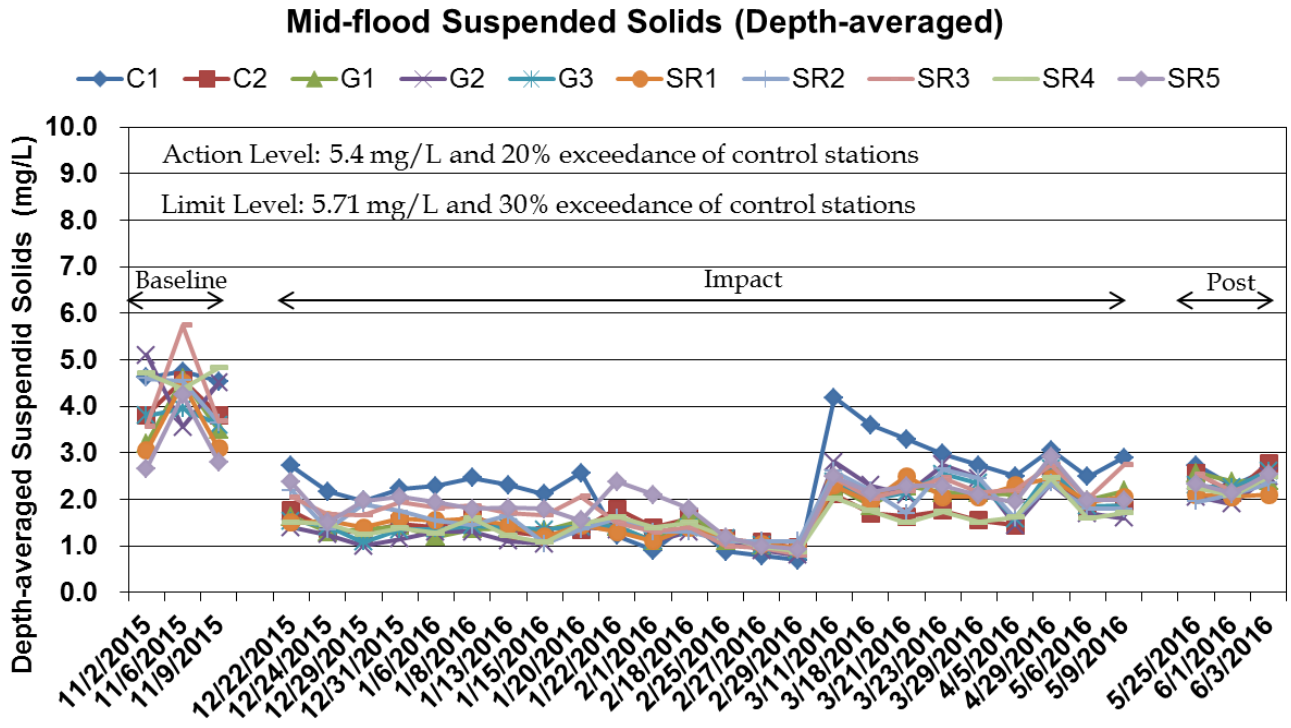


Figure D5 Depth-averaged suspended solid (mg/L) of water column measured during the baseline and impact monitoring, and post project monitoring period from 25 May to 3 June 2016

ERM

Date:	25-May-16
Tide:	Mid-Flood
Weather:	Fine
Sea Conditions:	Small Wave

Location	Sampling Time	Current direction	Current speed (ms^{-1})	Water Depth (m)	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	0841-0855	E	0.2	13.0	*Surface*	26.4	26.3	26.4	31.2	31.2	31.2	7.0	7.0	7.0	103.0	102.6	102.8	2.0	2.1	2.1		2.4	2.5	2.5	
					Middle	26.2	26.2	26.2	31.2	31.2	31.2	6.9	6.9	6.9	101.1	101.7	101.4	2.2	2.2	2.2	2.2	2.6	2.7	2.7	2.7
					Bottom	26.0	26.0	26.0	31.4	31.5	31.5	6.7	6.7	6.7	98.8	99.0	98.9	2.4	2.4	2.4		3.1	3.1	3.1	
C2	1100-1110	E	0.2	13.6	*Surface*	26.4	26.4	26.4	31.3	31.3	31.3	7.1	7.1	7.1	104.5	103.9	104.2	1.9	1.9	1.9		2.2	2.3	2.3	
					Middle	26.3	26.3	26.3	31.4	31.4	31.4	7.0	6.9	6.9	102.6	102.1	102.4	2.0	2.1	2.0	2.1	2.5	2.5	2.5	2.6
					Bottom	26.1	26.1	26.1	31.6	31.6	31.6	6.7	6.7	6.7	98.9	98.3	98.6	2.3	2.4	2.4		2.9	3.0	3.0	
G1	0920-0933	E	0.1	11.8	*Surface*	26.5	26.4	26.5	31.2	31.2	31.2	6.9	6.9	6.9	101.7	102.0	101.9	1.9	2.0	1.9		2.3	2.4	2.4	
					Middle	26.2	26.2	26.2	31.3	31.3	31.3	6.8	6.8	6.8	100.1	99.5	99.8	2.0	2.1	2.0	2.1	2.5	2.5	2.5	2.6
					Bottom	26.0	25.9	26.0	31.5	31.5	31.5	6.7	6.7	6.7	98.2	98.7	98.5	2.3	2.2	2.3		2.9	2.8	2.9	
G2	1005-1010	E	0.1	2.6	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.3	26.3	26.3	31.1	31.1	31.1	6.9	6.9	6.9	102.1	101.9	102.0	1.8	1.7	1.8	1.8	2.0	2.1	2.1	2.1
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
G3	0947-1000	E	0.2	15.6	*Surface*	26.4	26.4	26.4	31.1	31.1	31.1	7.0	7.0	7.0	103.3	102.8	103.1	1.7	1.8	1.8		2.1	2.2	2.2	
					Middle	26.2	26.1	26.2	31.2	31.2	31.2	6.8	6.8	6.8	100.3	99.9	100.1	1.9	1.9	1.9	1.9	2.3	2.2	2.3	2.3
					Bottom	26.0	25.9	26.0	31.4	31.5	31.5	6.7	6.7	6.7	98.3	98.7	98.5	2.0	2.0	2.0		2.5	2.5	2.5	
SR1	0938-0942	E	0.2	2.4	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.5	26.5	26.5	31.0	31.0	31.0	7.0	7.0	7.0	104.0	103.5	103.8	1.7	1.7	1.7	1.7	2.1	2.1	2.1	2.1
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR2	1015-1020	E	0.1	1.8	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.4	26.5	26.5	31.0	31.0	31.0	7.0	7.0	7.0	103.2	102.8	103.0	1.7	1.6	1.7	1.7	2.0	1.9	2.0	2.0
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR3	0905-0917	E	0.1	6.8	*Surface*	26.4	26.4	26.4	31.3	31.2	31.3	6.9	6.9	6.9	102.1	102.3	102.2	1.9	2.0	1.9		2.3	2.4	2.4	
					Middle	26.3	26.4	26.4	31.3	31.3	31.3	6.9	6.8	6.8	101.1	100.6	100.9	2.0	2.1	2.1	2.1	2.5	2.6	2.6	2.6
					Bottom	26.2	26.2	26.2	31.4	31.4	31.4	6.8	6.8	6.8	99.9	99.6	99.8	2.2	2.2	2.2		2.7	2.8	2.8	
SR4	1043-1055	E	0.2	6.8	*Surface*	26.4	26.4	26.4	31.3	31.3	31.3	6.9	6.9	6.9	102.0	102.2	102.1	1.6	1.7	1.6		2.0	2.1	2.1	
					Middle	26.4	26.4	26.4	31.3	31.3	31.3	6.8	6.8	6.8	100.3	100.7	100.5	1.7	1.8	1.8	1.8	2.3	2.3	2.3	2.3
					Bottom	26.2	26.1	26.2	31.4	31.4	31.4	6.8	6.8	6.8	100.0	99.6	99.8	1.8	1.9	1.9		2.4	2.4	2.4	
SR5	1025-1038	E	0.1	9.6	*Surface*	26.3	26.3	26.3	31.2	31.3	31.3	6.9	6.9	6.9	102.2	101.7	102.0	1.8	1.7	1.7		2.2	2.1	2.2	
					Middle	26.2	26.2	26.2	31.3	31.3	31.3	6.9	6.8	6.8	101.0	100.6	100.8	1.8	1.8	1.8	1.8	2.3	2.3	2.3	2.3
					Bottom	26.1	26.1	26.1	31.5	31.4	31.5	6.7	6.7	6.7	99.1	98.7	98.9	1.9	2.0	2.0		2.5	2.6	2.6	

Remark or Obsevation:

1. * Average; ** Depth Average
2. 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.

Date:	25-May-16
Tide:	Mid-Ebb
Weather:	Fine
Sea Conditions:	Small Wave

Location	Sampling Time	Current direction	Current speed (ms^{-1})	Water Depth (m)	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	1428-1440	W	0.1	11.5	*Surface*	26.6	26.7	26.7	31.1	31.0	31.1	6.9	6.9	6.9	102.4	102.7	102.6	1.9	1.9	1.9		2.3	2.4	2.4	
					Middle	26.6	26.6	26.6	31.0	31.0	31.0	6.9	6.8	6.8	101.5	100.9	101.2	2.1	2.1	2.1	2.1	2.5	2.7	2.6	2.7
					Bottom	26.4	26.5	26.5	31.0	31.0	31.0	6.7	6.8	6.8	99.8	100.3	100.1	2.4	2.4	2.4		3.0	3.0	3.0	
C2	1611-1624	W	0.2	13.4	*Surface*	26.3	26.4	26.4	31.1	31.1	31.1	7.0	7.0	7.0	103.9	103.5	103.7	1.9	1.8	1.8		2.3	2.4	2.4	
					Middle	26.4	26.4	26.4	31.1	31.0	31.1	7.0	6.9	7.0	103.2	102.7	103.0	1.9	2.0	1.9	1.9	2.4	2.5	2.5	2.5
					Bottom	26.4	26.3	26.4	31.1	31.1	31.1	6.9	6.8	6.9	101.8	101.2	101.5	2.0	2.1	2.1		2.6	2.7	2.7	
G1	1456-1509	W	0.1	11.4	*Surface*	26.6	26.6	26.6	31.0	31.1	31.1	6.8	6.8	6.8	100.9	100.6	100.8	1.9	2.0	1.9		2.4	2.5	2.5	
					Middle	26.5	26.5	26.5	31.0	31.0	31.0	6.7	6.7	6.7	98.9	99.5	99.2	2.0	1.9	1.9	2.0	2.6	2.5	2.6	2.7
					Bottom	26.5	26.5	26.5	31.0	31.0	31.0	6.6	6.7	6.7	98.1	99.2	98.7	2.2	2.3	2.2		2.9	3.0	3.0	
G2	1529-1534	W	0.2	2.4	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.4	26.5	26.5	31.0	31.0	31.0	6.9	6.9	6.9	102.1	102.6	102.4	1.8	1.9	1.8	1.8	2.2	2.3	2.3	2.3
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
G3	1516-1528	W	0.1	15.2	*Surface*	26.5	26.7	26.6	31.0	31.0	31.0	6.9	6.9	6.9	102.7	102.1	102.4	1.7	1.6	1.7		2.1	2.0	2.1	
					Middle	26.7	26.6	26.7	31.1	31.1	31.1	6.8	6.9	6.8	100.9	101.4	101.2	1.8	1.9	1.9	1.8	2.4	2.5	2.5	2.4
					Bottom	26.6	26.6	26.6	31.1	31.0	31.1	6.7	6.7	6.7	98.4	98.9	98.7	2.0	2.0	2.0		2.6	2.6	2.6	
SR1	1510-1515	W	0.1	2.2	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.5	26.5	26.5	31.0	31.0	31.0	7.0	7.0	7.0	103.2	103.5	103.4	1.7	1.7	1.7	1.7	2.0	2.1	2.1	2.1
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR2	1536-1541	W	0.1	1.6	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.5	26.5	26.5	31.0	31.0	31.0	6.9	6.9	6.9	102.4	101.8	102.1	1.7	1.7	1.7	1.7	2.3	2.5	2.4	2.4
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR3	1441-1454	W	0.1	6.4	*Surface*	26.6	26.7	26.7	31.1	31.1	31.1	6.9	6.9	6.9	102.6	102.3	102.5	1.8	1.9	1.9		2.2	2.3	2.3	
					Middle	26.6	26.6	26.6	31.0	31.0	31.0	6.9	6.9	6.9	101.5	101.7	101.6	2.0	2.0	2.0	2.0	2.6	2.6	2.6	2.5
					Bottom	26.5	26.5	26.5	31.1	31.1	31.1	6.8	6.8	6.8	100.6	100.5	100.6	2.1	2.1	2.1		2.5	2.7	2.6	
SR4	1557-1610	W	0.1	6.6	*Surface*	26.6	26.5	26.6	31.0	31.1	31.1	6.8	6.9	6.9	98.8	101.7	100.3	1.6	1.6	1.6		1.9	2.0	2.0	
					Middle	26.4	26.3	26.4	31.1	31.0	31.1	6.8	6.8	6.8	100.3	100.5	100.4	1.7	1.8	1.7	1.7	2.1	2.2	2.2	2.1
					Bottom	26.4	26.4	26.4	31.0	31.0	31.0	6.7	6.7	6.7	99.5	99.8	99.7	1.8	1.8	1.8		2.2	2.4	2.3	
SR5	1543-1556	W	0.1	9.4	*Surface*	26.7	26.6	26.7	31.0	31.1	31.1	6.9	6.9	6.9	102.0	101.7	101.9	1.8	1.7	1.7		2.2	2.1	2.2	
					Middle	26.6	26.6	26.6	31.1	31.1	31.1	6.8	6.8	6.8	100.8	100.6	100.7	1.8	1.8	1.8	1.8	2.3	2.3	2.3	2.3
					Bottom	26.5	26.5	26.5	31.1	31.1	31.1	6.7	6.8	6.7	99.5	99.9	99.7	1.9	1.9	1.9		2.5	2.4	2.5	

Remark or Obsevation:

1. * Average; ** Depth Average
2. 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.

Date:	1-Jun-16
Tide:	Mid-Flood
Weather:	Fine
Sea Conditions:	Small Wave

Location	Sampling Time	Current direction	Current speed (ms^{-1})	Water Depth (m)	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	1319-1333	W	0.2	11.7	*Surface*	27.2	27.1	27.2	29.5	29.4	29.5	6.8	6.9	6.9	101.3	101.5	101.4	1.4	1.5	1.4		1.9	2.0	2.0	
					Middle	27.0	26.9	27.0	29.6	29.7	29.7	6.7	6.8	6.7	99.4	99.6	99.5	1.7	1.7	1.7	1.6	2.4	2.4	2.4	2.3
					Bottom	26.8	26.7	26.8	29.8	29.8	29.8	6.6	6.6	6.6	97.3	97.1	97.2	1.7	1.8	1.8		2.5	2.6	2.6	
C2	1230-1549	W	0.3	13.6	*Surface*	27.0	26.9	27.0	29.5	29.6	29.6	6.7	6.7	6.7	98.9	99.1	99.0	1.5	1.5	1.5		2.0	1.8	1.9	
					Middle	26.9	26.7	26.8	29.7	29.8	29.8	6.5	6.5	6.5	96.1	95.8	96.0	1.7	1.6	1.7	1.6	2.2	2.2	2.2	2.1
					Bottom	26.6	26.5	26.6	29.9	29.8	29.9	6.4	6.4	6.4	93.9	94.1	94.0	1.7	1.7	1.7		2.3	2.3	2.3	
G1	1347-1401	W	0.3	11.2	*Surface*	27.0	26.9	27.0	29.5	29.6	29.6	6.7	6.7	6.7	99.3	99.5	99.4	1.5	1.5	1.5		2.2	2.0	2.1	
					Middle	26.8	26.7	26.8	29.7	29.8	29.8	6.7	6.7	6.7	98.6	98.4	98.5	1.7	1.7	1.7	1.7	2.4	2.4	2.4	2.4
					Bottom	26.6	26.5	26.6	29.9	29.9	29.9	6.5	6.5	6.5	95.6	95.8	95.7	1.8	1.8	1.8		2.7	2.6	2.7	
G2	1428-1438	W	0.3	2.4	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.8	26.9	26.9	29.7	29.6	29.7	6.6	6.6	6.6	97.3	97.5	97.4	1.3	1.3	1.3	1.3	1.9	1.9	1.9	1.9
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
G3	1411-1426	W	0.4	15.3	*Surface*	27.0	26.9	27.0	29.3	29.4	29.4	6.9	6.9	6.9	102.6	102.4	102.5	1.4	1.5	1.5		2.1	2.1	2.1	
					Middle	26.8	26.7	26.8	29.5	29.6	29.6	6.7	6.7	6.7	98.9	98.7	98.8	1.5	1.6	1.5	1.6	2.3	2.3	2.3	2.3
					Bottom	26.6	26.6	26.6	29.7	29.8	29.8	6.6	6.6	6.6	96.4	96.6	96.5	1.6	1.7	1.7		2.4	2.3	2.4	
SR1	1403-1409	W	0.3	2.2	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.9	26.8	26.9	29.6	29.7	29.7	6.7	6.7	6.7	98.9	99.1	99.0	1.4	1.5	1.4	1.4	2.1	2.0	2.1	2.1
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR2	1440-1450	W	0.3	1.6	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.7	26.8	26.8	29.6	29.6	29.6	6.7	6.8	6.7	99.4	99.6	99.5	1.4	1.5	1.5	1.5	2.1	2.1	2.1	2.1
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR3	1335-1345	E	0.3	6.3	*Surface*	27.1	27.0	27.1	29.4	29.4	29.4	7.0	7.0	7.0	103.5	103.7	103.6	1.4	1.4	1.4		2.0	2.0	2.0	
					Middle	26.9	26.9	26.9	29.5	29.6	29.6	6.8	6.8	6.8	100.4	100.6	100.5	1.5	1.5	1.5	1.5	2.1	2.3	2.2	2.2
					Bottom	26.7	26.6	26.7	29.7	29.8	29.8	6.5	6.6	6.6	96.3	96.6	96.5	1.6	1.6	1.6		2.2	2.4	2.3	
SR4	1512-1526	W	0.3	6.7	*Surface*	27.1	27.1	27.1	29.4	29.4	29.4	6.9	6.9	6.9	101.4	101.6	101.5	1.3	1.4	1.4		1.8	1.8	1.8	
					Middle	26.9	26.8	26.9	29.6	29.5	29.6	6.6	6.7	6.7	98.1	98.3	98.2	1.5	1.5	1.5	1.5	2.2	2.0	2.1	2.1
					Bottom	26.7	26.6	26.7	29.8	29.8	29.8	6.5	6.5	6.5	95.4	95.6	95.5	1.7	1.7	1.7		2.3	2.4	2.4	
SR5	1453-1509	W	0.3	9.7	*Surface*	27.1	27.1	27.1	29.5	29.6	29.6	7.1	7.1	7.1	105.7	105.5	105.6	1.3	1.3	1.3		1.9	1.9	1.9	
					Middle	26.9	27.0	27.0	29.7	29.7	29.7	6.9	6.9	6.9	102.3	102.1	102.2	1.5	1.5	1.5	1.5	2.1	2.1	2.1	2.1
					Bottom	26.6	26.7	26.7	29.8	29.9	29.9	6.7	6.7	6.7	98.6	98.8	98.7	1.6	1.6	1.6		2.3	2.5	2.4	

Remark or Obsevation:

1. * Average; ** Depth Average
2. 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.

Date:	1-Jun-16
Tide:	Mid-Ebb
Weather:	Fine
Sea Conditions:	Small Wave

Location	Sampling Time	Current direction	Current speed (ms^{-1})	Water Depth (m)	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	0820-0830	W	0.3	11.3	*Surface*	26.6	26.6	26.6	29.4	29.4	29.4	6.7	6.7	6.7	98.5	98.8	98.7	1.8	1.8	1.8		2.5	2.6	2.6	
					Middle	26.5	26.5	26.5	29.5	29.5	29.5	6.7	6.6	6.6	97.6	97.2	97.4	1.9	2.0	2.0	2.0	2.8	2.7	2.8	2.8
					Bottom	26.3	26.3	26.3	29.8	29.8	29.8	6.5	6.5	6.5	94.9	95.4	95.2	2.2	2.2	2.2		2.9	3.0	3.0	
C2	1010-1025	W	0.2	13.4	*Surface*	26.6	26.6	26.6	29.4	29.4	29.4	6.8	6.8	6.8	99.6	100.0	99.8	1.9	2.0	2.0		2.8	2.9	2.9	
					Middle	26.4	26.4	26.4	29.6	29.6	29.6	6.7	6.7	6.7	98.3	98.0	98.2	2.0	2.1	2.1	2.2	2.7	2.9	2.8	2.9
					Bottom	26.2	26.2	26.2	29.7	29.8	29.8	6.5	6.6	6.5	95.6	96.0	95.8	2.4	2.5	2.4		3.0	3.2	3.1	
G1	0848-0859	W	0.2	11.0	*Surface*	26.7	26.7	26.7	29.5	29.5	29.5	6.7	6.7	6.7	97.9	98.5	98.2	1.6	1.6	1.6		2.3	2.4	2.4	
					Middle	26.6	26.6	26.6	29.5	29.5	29.5	6.6	6.6	6.6	97.1	96.9	97.0	1.8	1.7	1.8	1.8	2.4	2.6	2.5	2.6
					Bottom	26.3	26.3	26.3	29.7	29.7	29.7	6.4	6.4	6.4	93.9	94.4	94.2	2.1	2.1	2.1		3.0	2.9	3.0	
G2	0923-0928	W	0.1	2.2	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.6	26.6	26.6	29.4	29.4	29.4	6.9	6.9	6.9	101.0	100.6	100.8	1.7	1.8	1.7	1.7	2.5	2.7	2.6	2.6
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
G3	0910-0920	W	0.1	15.0	*Surface*	26.7	26.7	26.7	29.3	29.4	29.4	6.7	6.7	6.7	98.2	97.9	98.1	1.6	1.6	1.6		2.3	2.2	2.3	
					Middle	26.5	26.5	26.5	29.5	29.5	29.5	6.6	6.6	6.6	96.9	97.4	97.2	1.8	1.9	1.8	1.8	2.6	2.5	2.6	2.5
					Bottom	26.3	26.3	26.3	29.8	29.8	29.8	6.5	6.5	6.5	95.1	94.6	94.9	2.1	2.0	2.0		2.7	2.8	2.8	
SR1	0901-0906	W	0.2	2.0	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.5	26.6	26.6	29.3	29.3	29.3	6.8	6.7	6.7	99.0	98.6	98.8	1.6	1.6	1.6	1.6	2.3	2.2	2.3	2.3
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR2	0930-0935	W	0.1	1.4	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.6	26.6	26.6	29.4	29.4	29.4	6.8	6.8	6.8	99.9	99.5	99.7	1.8	1.9	1.9	1.9	2.6	2.7	2.7	2.7
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR3	0835-0845	W	0.2	6.0	*Surface*	26.6	26.6	26.6	29.4	29.4	29.4	6.7	6.7	6.7	98.1	97.8	98.0	1.7	1.7	1.7		2.4	2.4	2.4	
					Middle	26.6	26.6	26.6	29.4	29.4	29.4	6.6	6.6	6.6	97.1	97.3	97.2	1.8	1.8	1.8	1.8	2.7	2.5	2.6	2.6
					Bottom	26.4	26.4	26.4	29.5	29.6	29.6	6.5	6.5	6.5	95.4	95.0	95.2	2.0	2.0	2.0		2.9	2.9	2.9	
SR4	0955-1007	W	0.2	6.4	*Surface*	26.6	26.6	26.6	29.3	29.3	29.3	6.7	6.7	6.7	97.7	97.9	97.8	1.8	1.8	1.8		2.4	2.4	2.4	
					Middle	26.6	26.6	26.6	29.4	29.4	29.4	6.6	6.6	6.6	97.1	97.3	97.2	2.0	2.1	2.0	2.0	2.7	2.7	2.7	2.7
					Bottom	26.4	26.4	26.4	29.6	29.6	29.6	6.5	6.5	6.5	95.8	95.0	95.4	2.2	2.2	2.2		3.2	3.0	3.1	
SR5	0940-0951	W	0.2	9.4	*Surface*	26.7	26.7	26.7	29.5	29.5	29.5	6.7	6.7	6.7	98.9	98.6	98.8	1.9	1.9	1.9		2.7	2.6	2.7	
					Middle	26.6	26.6	26.6	29.5	29.5	29.5	6.6	6.6	6.6	97.2	97.7	97.5	2.1	2.1	2.1	2.1	2.8	3.0	2.9	3.0
					Bottom	26.4	26.4	26.4	29.7	29.7	29.7	6.5	6.5	6.5	95.6	95.0	95.3	2.3	2.2	2.3		3.3	3.4	3.4	

Remark or Obsevation:

1. * Average; ** Depth Average
2. 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.

Date:	3-Jun-16
Tide:	Mid-Flood
Weather:	Fine
Sea Conditions:	Calm

Location	Sampling Time	Current direction	Current speed (ms^{-1})	Water Depth (m)	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	1527-1538	E	0.1	11.6	*Surface*	27.8	27.7	27.8	29.6	29.5	29.6	6.8	6.8	6.8	102.5	102.0	102.3	1.9	1.9	1.9		2.6	2.4	2.5	
					Middle	27.5	27.6	27.6	29.6	29.6	29.6	7.0	6.9	7.0	104.5	103.9	104.2	2.1	2.0	2.0	2.1	2.7	2.6	2.7	2.7
					Bottom	27.2	27.3	27.3	29.8	29.9	29.9	6.7	6.6	6.7	99.9	99.4	99.7	2.3	2.3	2.3		2.8	2.8	2.8	
C2	1720-1734	E	0.1	13.2	*Surface*	27.7	27.8	27.8	29.5	29.5	29.5	6.9	6.9	6.9	104.0	103.5	103.8	1.9	2.0	2.0		2.5	2.7	2.6	
					Middle	27.7	27.8	27.8	29.6	29.6	29.6	6.9	6.8	6.8	102.7	102.2	102.5	2.1	2.0	2.0	2.1	2.8	2.7	2.8	2.8
					Bottom	27.6	27.5	27.6	29.8	29.9	29.9	6.6	6.6	6.6	99.1	98.3	98.7	2.2	2.3	2.3		3.0	3.0	3.0	
G1	1551-1559	E	0.1	11.0	*Surface*	27.8	27.8	27.8	29.7	29.7	29.7	6.7	6.7	6.7	100.6	100.2	100.4	1.6	1.7	1.7		2.1	2.2	2.2	
					Middle	27.7	27.7	27.7	29.7	29.8	29.8	6.7	6.8	6.7	101.0	101.3	101.2	1.7	1.8	1.8	1.8	2.3	2.4	2.4	2.4
					Bottom	27.4	27.3	27.4	29.9	29.9	29.9	6.6	6.6	6.6	98.9	98.5	98.7	2.1	2.0	2.0		2.7	2.7	2.7	
G2	1627-1634	E	0.1	2.0	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	27.6	27.6	27.6	29.7	27.6	28.7	7.0	7.0	7.0	105.4	105.0	105.2	1.8	1.9	1.9	1.9	2.4	2.6	2.5	2.5
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
G3	1611-1624	E	0.1	14.9	*Surface*	27.7	27.7	27.7	29.6	29.7	29.7	6.9	6.9	6.9	103.9	103.5	103.7	1.7	1.8	1.8		2.3	2.3	2.3	
					Middle	27.5	27.5	27.5	29.7	29.7	29.7	6.8	6.8	6.8	101.7	101.2	101.5	1.9	2.0	2.0	2.0	2.5	2.7	2.6	2.6
					Bottom	27.3	27.3	27.3	29.8	29.9	29.9	6.4	6.5	6.5	96.4	97.0	96.7	2.2	2.1	2.2		3.0	2.9	3.0	
SR1	1602-1608	E	0.1	1.8	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	27.7	27.6	27.7	29.4	29.4	29.4	6.8	6.8	6.8	101.8	102.6	102.2	1.6	1.7	1.6	1.6	2.0	2.2	2.1	2.1
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR2	1637-1644	E	0.1	1.5	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	27.6	27.5	27.6	29.6	29.6	29.6	7.0	6.9	7.0	104.7	104.1	104.4	1.8	1.8	1.8	1.8	2.3	2.4	2.4	2.4
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR3	1540-1548	E	0.1	6.6	*Surface*	27.7	27.7	27.7	29.6	29.7	29.7	6.8	6.7	6.8	101.5	101.1	101.3	1.7	1.8	1.8		2.3	2.4	2.4	
					Middle	27.7	27.7	27.7	29.7	29.7	29.7	6.8	6.8	6.8	102.1	101.8	102.0	1.9	1.9	1.9	1.9	2.3	2.5	2.4	2.5
					Bottom	27.5	27.4	27.5	29.7	29.8	29.8	6.7	6.7	6.7	100.3	99.8	100.1	2.0	2.1	2.1		2.6	2.8	2.7	
SR4	1704-1716	E	0.1	6.5	*Surface*	27.7	27.7	27.7	29.4	29.5	29.5	6.8	6.8	6.8	102.6	102.1	102.4	1.8	1.7	1.7		2.3	2.3	2.3	
					Middle	27.7	27.6	27.7	29.5	29.5	29.5	6.8	6.7	6.7	101.4	100.8	101.1	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
					Bottom	27.6	27.6	27.6	29.7	29.6	29.7	6.6	6.6	6.6	99.4	98.9	99.2	2.0	2.0	2.0		2.6	2.7	2.7	
SR5	1648-1701	E	0.2	9.4	*Surface*	27.7	27.6	27.7	29.7	29.7	29.7	6.9	6.8	6.8	102.7	102.1	102.4	1.8	1.8	1.8		2.4	2.3	2.4	
					Middle	27.6	27.6	27.6	29.8	29.7	29.8	6.8	6.8	6.8	101.8	102.3	102.1	2.0	1.9	1.9	1.9	2.6	2.5	2.6	2.6
					Bottom	27.4	27.5	27.5	29.8	29.9	29.9	6.7	6.6	6.6	99.7	99.1	99.4	2.1	2.0	2.0		2.8	2.7	2.8	

Remark or Obsevation:

1. * Average; ** Depth Average
2. 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.

Date:	3-Jun-16
Tide:	Mid-Ebb
Weather:	Fine
Sea Conditions:	Calm

Location	Sampling Time	Current direction	Current speed (ms^{-1})	Water Depth (m)	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	1008-1020	W	0.2	11.2	*Surface*	26.7	26.6	26.7	29.4	29.5	29.5	6.8	6.8	6.8	99.4	99.7	99.6	1.7	1.7	1.7		2.2	2.3	2.3	
					Middle	26.6	26.7	26.7	29.5	29.6	29.6	6.7	6.7	6.7	98.6	98.1	98.4	1.9	1.9	1.9	1.9	2.5	2.5	2.5	2.5
					Bottom	26.4	26.3	26.4	29.8	29.9	29.9	6.5	6.6	6.5	95.9	96.8	96.4	2.1	2.1	2.1		2.8	2.8	2.8	
C2	1225-1238	W	0.3	13.0	*Surface*	26.8	26.7	26.8	29.4	29.5	29.5	6.8	6.9	6.8	100.5	101.0	100.8	1.8	1.9	1.9		2.4	2.5	2.5	
					Middle	26.5	26.4	26.5	29.6	29.5	29.6	6.8	6.8	6.8	99.2	99.0	99.1	1.9	2.0	2.0	2.1	2.6	2.7	2.7	2.8
					Bottom	26.2	26.3	26.3	29.8	29.9	29.9	6.6	6.6	6.6	96.5	97.0	96.8	2.3	2.4	2.4		3.1	3.2	3.2	
G1	1038-1050	W	0.1	10.8	*Surface*	26.8	26.7	26.8	29.5	29.6	29.6	6.7	6.7	6.7	98.8	99.5	99.2	1.5	1.6	1.5		2.0	2.1	2.1	
					Middle	26.7	26.6	26.7	29.6	29.5	29.6	6.7	6.7	6.7	98.0	97.8	97.9	1.7	1.6	1.7	1.7	2.2	2.2	2.2	2.3
					Bottom	26.3	26.4	26.4	29.7	29.8	29.8	6.5	6.5	6.5	94.9	95.3	95.1	2.0	2.0	2.0		2.7	2.6	2.7	
G2	1123-1135	W	0.1	1.8	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.7	26.6	26.7	29.4	29.5	29.5	7.0	6.9	6.9	102.0	101.5	101.8	1.6	1.7	1.7	1.7	2.2	2.2	2.2	2.2
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
G3	1108-1120	W	0.2	14.6	*Surface*	26.8	26.7	26.8	29.4	29.5	29.5	6.7	6.7	6.7	99.1	98.8	99.0	1.5	1.5	1.5		2.0	1.9	2.0	
					Middle	26.6	26.5	26.6	29.6	29.5	29.6	6.7	6.7	6.7	97.8	98.3	98.1	1.7	1.8	1.7	1.7	2.3	2.3	2.3	2.3
					Bottom	26.4	26.5	26.5	29.7	29.8	29.8	6.5	6.5	6.5	96.1	95.6	95.9	2.0	1.9	1.9		2.8	2.6	2.7	
SR1	1053-1105	W	0.1	1.6	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.6	26.7	26.7	29.3	29.4	29.4	6.8	6.8	6.8	100.0	99.5	99.8	1.5	1.5	1.5	1.5	2.0	2.1	2.1	2.1
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR2	1138-1150	W	0.1	1.2	*Surface*	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
					Middle	26.7	26.8	26.8	29.5	29.4	29.5	6.9	6.8	6.9	100.8	100.5	100.7	1.8	1.8	1.8	1.8	2.3	2.4	2.4	2.4
					Bottom	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		---	---	---	
SR3	1023-1035	W	0.2	6.4	*Surface*	26.6	26.7	26.7	29.5	29.4	29.5	6.7	6.7	6.7	99.1	98.7	98.9	1.6	1.6	1.6		2.1	2.2	2.2	
					Middle	26.6	26.5	26.6	29.5	29.6	29.6	6.7	6.7	6.7	98.0	98.2	98.1	1.8	1.7	1.7	1.8	2.4	2.3	2.4	2.4
					Bottom	26.5	26.4	26.5	29.6	29.6	29.6	6.6	6.5	6.5	96.4	95.9	96.2	1.9	2.0	1.9		2.5	2.6	2.6	
SR4	1208-1220	W	0.2	6.2	*Surface*	26.7	26.6	26.7	29.3	29.4	29.4	6.7	6.7	6.7	98.6	98.9	98.8	1.7	1.7	1.7		2.2	2.3	2.3	
					Middle	26.5	26.6	26.6	29.4	29.5	29.5	6.7	6.7	6.7	98.0	98.2	98.1	1.9	2.0	1.9	1.9	2.5	2.6	2.6	2.5
					Bottom	26.4	26.3	26.4	29.6	29.7	29.7	6.6	6.6	6.6	96.7	96.0	96.4	2.1	2.1	2.1		2.8	2.7	2.8	
SR5	1153-1205	W	0.2	9.2	*Surface*	26.8	26.7	26.8	29.5	29.6	29.6	6.8	6.8	6.8	99.9	99.6	99.8	1.8	1.8	1.8		2.3	2.4	2.4	
					Middle	26.6	26.7	26.7	29.7	29.6	29.7	6.7	6.7	6.7	98.1	98.6	98.4	2.0	2.0	2.0	2.0	2.7	2.7	2.7	2.6
					Bottom	26.5	26.4	26.5	29.8	29.8	29.8	6.6	6.5	6.6	96.6	95.9	96.3	2.2	2.1	2.2		2.8	2.7	2.8	

Remark or Obsevation:

1. * Average; ** Depth Average
2. 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.

ERM has over 140 offices
Across the following
countries worldwide

Argentina	New Zealand
Australia	Panama
Belgium	Peru
Brazil	Poland
Canada	Portugal
China	Puerto Rico
Colombia	Romania
France	Russia
Germany	Singapore
Hong Kong	South Africa
Hungary	Spain
India	Sweden
Indonesia	Taiwan
Ireland	Thailand
Italy	The Netherlands
Japan	United Arab Emirates
Kazakhstan	United Kingdom
Korea	United States
Malaysia	Vietnam
Mexico	

Environmental Resources Management

16/F Berkshire House
25 Westlands Road
Quarry Bay, Hong Kong

T: 2271 3000
F: 2723 5660

www.erm.com