



**Capco** 青山發電有限公司  
Castle Peak Power Co. Ltd.

## Black Point Gas Supply Project

*Sixteenth Monthly Environmental Monitoring & Audit (EM&A) Report – First Phase Project*

13 July 2012

### Environmental Resources Management

21/F Lincoln House  
Taikoo Place, 979 King's Road  
Island East, Hong Kong  
Telephone 2271 3000  
Facsimile 2723 5660

[www.erm.com](http://www.erm.com)



# Black Point Gas Supply Project




## Environmental Resources Management

21/F Lincoln House  
979 King's Road  
Taikoo Place  
Island East  
Hong Kong  
Telephone: (852) 2271 3000  
Facsimile: (852) 2723 5660  
E-mail: post.hk@erm.com  
http://www.erm.com

**Sixteenth Monthly Environmental Monitoring & Audit (EM&A)  
Report – First Phase Project**

**ERM Document Code: 0124291\_First Phase 16th Monthly  
EM&A\_Rev 0.doc**

**CAPCO Document Code : BPGSP-ERML-PR-4-ENV-09-042**

Client: <b>CAPCO</b>		Project No: 0124291			
Summary:  This document presents the Sixteenth Monthly Environmental Monitoring and Audit (EM&A) Report for the First Phase Black Point Gas Supply Project.		Date: 13 July 2012			
		Approved by:   <i>Dr Robin Kennish</i> Director			
0	16 <sup>th</sup> Monthly EM&A Report – First Phase	Var	JNG	RK	13/07/12
Revision	Description	By	Checked	Approved	Date
<p>This report has been prepared by Environmental Resources Management the trading name of 'ERM Hong-Kong, Limited', with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.</p> <p>We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.</p> <p>This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.</p>		<p>Distribution</p> <p><input checked="" type="checkbox"/> Government</p> <p><input checked="" type="checkbox"/> Public</p> <p><input type="checkbox"/> Confidential</p>  			

**Black Point Gas Supply Project (First Phase)  
Environmental Certification Sheet  
EP-391/2010/A**


**Reference Document/Plan**

Document/ <del>Plan</del> to be Certified/ Verified:	Sixteenth Monthly Environmental Monitoring & Audit (EM&A) Report - June 2012
Date of Report:	13 July 2012
Date prepared by ET:	13 July 2012
Date received by IEC:	13 July 2012


**Reference EM&A Manual/ EP Requirement**

EP Condition:  <i>Condition No. 5.3</i>  Two hard copies and one electronic copy of monthly EM&A Reports shall be submitted to the Director within 2 weeks after the end of the reporting month. Additional copies of the submission shall be provided to the Director upon request from the Director.
--

**ET Certification**

I hereby certify that the above referenced document/ <del>plan</del> complies with the above referenced condition of EP-391/2010/A.	
Dr Helen Chiu, Environmental Team Leader:	
	Date: 13 July 2012

**IEC Verification**

I hereby verify that the above referenced document/ <del>plan</del> complies with the above referenced condition of EP-391/2010/A.	
Dr Anne Kerr, Independent Environmental Checker:	
	Date: 13 July 2012

## CONTENTS

	<i>EXECUTIVE SUMMARY</i>	<i>I</i>
<i>1</i>	<i>INTRODUCTION</i>	<i>1</i>
<i>1.1</i>	<i>PURPOSE OF THE REPORT</i>	<i>1</i>
<i>1.2</i>	<i>STRUCTURE OF THE REPORT</i>	<i>1</i>
<i>2</i>	<i>PROJECT INFORMATION</i>	<i>3</i>
<i>2.1</i>	<i>PROJECT BACKGROUND</i>	<i>3</i>
<i>2.2</i>	<i>PROJECT SCOPE (FIRST PHASE)</i>	<i>3</i>
<i>2.3</i>	<i>WORKS PROGRAMME &amp; WORKS LOCATIONS</i>	<i>5</i>
<i>2.4</i>	<i>CONSTRUCTION ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD</i>	<i>6</i>
<i>2.5</i>	<i>STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS</i>	<i>6</i>
<i>3</i>	<i>IMPLEMENTATION STATUS ON ENVIRONMENTAL MITIGATION MEASURES</i>	<i>11</i>
<i>4</i>	<i>EM&amp;A RESULTS</i>	<i>12</i>
<i>4.1</i>	<i>SITE INSPECTIONS &amp; AUDITS</i>	<i>12</i>
<i>4.2</i>	<i>WATER QUALITY MONITORING</i>	<i>12</i>
<i>4.3</i>	<i>WASTE MANAGEMENT</i>	<i>15</i>
<i>4.4</i>	<i>MARINE ECOLOGY MONITORING</i>	<i>15</i>
<i>5</i>	<i>ENVIRONMENTAL NON-CONFORMANCE</i>	<i>17</i>
<i>5.1</i>	<i>SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE</i>	<i>17</i>
<i>5.2</i>	<i>SUMMARY OF ENVIRONMENTAL COMPLAINT</i>	<i>17</i>
<i>5.3</i>	<i>SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION</i>	<i>17</i>
<i>6</i>	<i>UPCOMING WORKS FOR THE NEXT REPORTING PERIOD</i>	<i>18</i>
<i>6.1</i>	<i>CONSTRUCTION ACTIVITIES FOR THE COMING MONTH</i>	<i>18</i>
<i>6.2</i>	<i>MONITORING SCHEDULE FOR THE COMING MONTHS</i>	<i>18</i>
<i>7</i>	<i>CONCLUSIONS</i>	<i>19</i>

*ANNEXES*

*ANNEX A            IMPLEMENTATION SCHEDULE OF MITIGATION &  
PRECAUTIONARY MEASURES*

*ANNEX B            WASTE FLOW TABLE*

*ANNEX C            SCHEDULES FOR WATER QUALITY IMPACT MONITORING AND  
ADDITIONAL MARINE MAMMAL MONITORING*

*ANNEX D            IMPACT WATER QUALITY MONITORING RESULTS – JUNE 2012*

*ANNEX E            MARINE MAMMAL SIGHTING RECORD*

## EXECUTIVE SUMMARY

The Castle Peak Power Company Limited (CAPCO), a joint venture between CLP Power Hong Kong Limited (CLP) and ExxonMobil Energy Limited (EMEL) with CLP as operator, and its Contractor for Gas Receiving Station (GRS) construction, Leighton Contractors (Asia) Limited (Leighton), commenced the construction of the First Phase of the Black Point Gas Supply Project (BPGSP) at the Co-located GRS area on 15 March 2011. This is the sixteenth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 to 30 June 2012 in accordance with the Updated EM&A Manual for the First Phase Project submitted under EP-391/2010/A, FEP-01/391/2010/A and FEP-02/391/2010/A.

### Environmental Site Inspection & Audit

A monthly joint environmental site inspection/ audit was carried out by the representatives of the Contractor, the Environmental Team (ET), CLP and the Independent Environmental Checker (IEC). Environmental performance complied with the environmental requirements and all necessary mitigation measures were properly implemented.

### Water Quality

Marine water quality impact monitoring was conducted in the reporting month during periods when there were dredging activities in Hong Kong waters and/ or in Mainland Chinese (PRC) Waters within 2.5 km from HKSAR boundary. Occasional exceedances of Action and Limit Levels for water quality were recorded during the reporting month. Following the review of monitoring data and marine works details in accordance with the procedures stipulated in the Event and Action Plan of Updated EM&A Manual, these exceedances were considered to be due to natural variation in water quality characteristic of western Hong Kong waters and were unlikely to be due to the Project's dredging activities.

### Waste Management

CAPCO and the Contractors have followed the Waste Management Plan (WMP) for handling of inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction wastes). Wastes generated during this reporting period were summarised.

### Marine Ecology

Daily marine mammal exclusion zone monitoring was undertaken during the period of dredging activities in Hong Kong waters. No marine mammal was sighted during the exclusion zone monitoring.

Construction phase dolphin monitoring survey was conducted in June 2012 to record information on dolphin distribution and abundance in the Project areas. Three sightings of the Indo-Pacific humpback dolphin *Sousa chinensis* were observed during the survey.

### Environmental Complaints, Non-compliance & Summons

No non-compliance with EIA recommendations, EP conditions and other requirements associated with the construction of the First Phase Project was recorded in this reporting period.

No environmental complaint was received in this reporting period.

No environmental summons was received in this reporting period.

### Upcoming Works for the Next Reporting Period

Works to be undertaken in the coming monitoring period include continuing construction work of Satellite Instrument Enclosure (SIE) Building, on-shore concrete trough and new pipe racks in the co-located GRS area, continuing excavation and pipe laying for the Gas Header, installation of pre-cast units for the offshore concrete trough, and marine dredging works for pipeline installation within Hong Kong waters.

Potential environmental impacts arising from the construction activities in the coming month are expected to be mainly associated with dust, noise, site runoff, waste management, marine water quality and marine ecology.

## 1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) and Mott MacDonald Hong Kong Limited was appointed by the Castle Peak Power Company Limited (CAPCO) as the Environmental Team (ET) and the Independent Environmental Checker (IEC), respectively, to undertake Environmental Monitoring and Audit (EM&A) activities for the First Phase of the Black Point Gas Supply Project (BPGSP) (*the First Phase Project*).

### 1.1 PURPOSE OF THE REPORT

This is the sixteenth monthly EM&A report which summarises the impact monitoring results and inspection/ audit findings for the EM&A programme during the reporting period from **1 to 30 June 2012**.

### 1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1 : **Introduction**

details the scope and structure of the report.

Section 2 : **Project Information**

summarises the background and scope of the First Phase Project, works locations, construction programme, the construction works undertaken and the status of Environmental Permits (EP)/licences over the construction phase of the First Phase Project.

Section 3 : **Implementation Status on Environmental Mitigation Measures**

summarises the implementation of environmental mitigation measures as recommended in the approved EIA report, EM&A Manual, EP and relevant environmental requirements stated in the Contract Specification.

Section 4 : **EM&A Results**

summarises the monitoring results, if any, obtained in the reporting period and the findings of the monthly site inspection undertaken within the reporting period.

Section 5 : **Environmental Non-conformance**

summarises any non-compliance of environmental performance standard, and environmental complaints and environmental summons received within the reporting period.



Section 6 : **Upcoming Works for the next Reporting Period**  
summarises the impact forecast and monitoring schedule for the next reporting month.

Section 7 : **Conclusions**

## 2 PROJECT INFORMATION

### 2.1 PROJECT BACKGROUND

The Black Point Gas Supply Project (BPGSP) at the Black Point Power Station (BPPS), proposed by the Castle Peak Power Company Limited (CAPCO), a joint venture between CLP Power Hong Kong Limited (CLP) and ExxonMobil Energy Limited (EMEL) with CLP as operator, will provide facilities to import replacement gas from Mainland China.

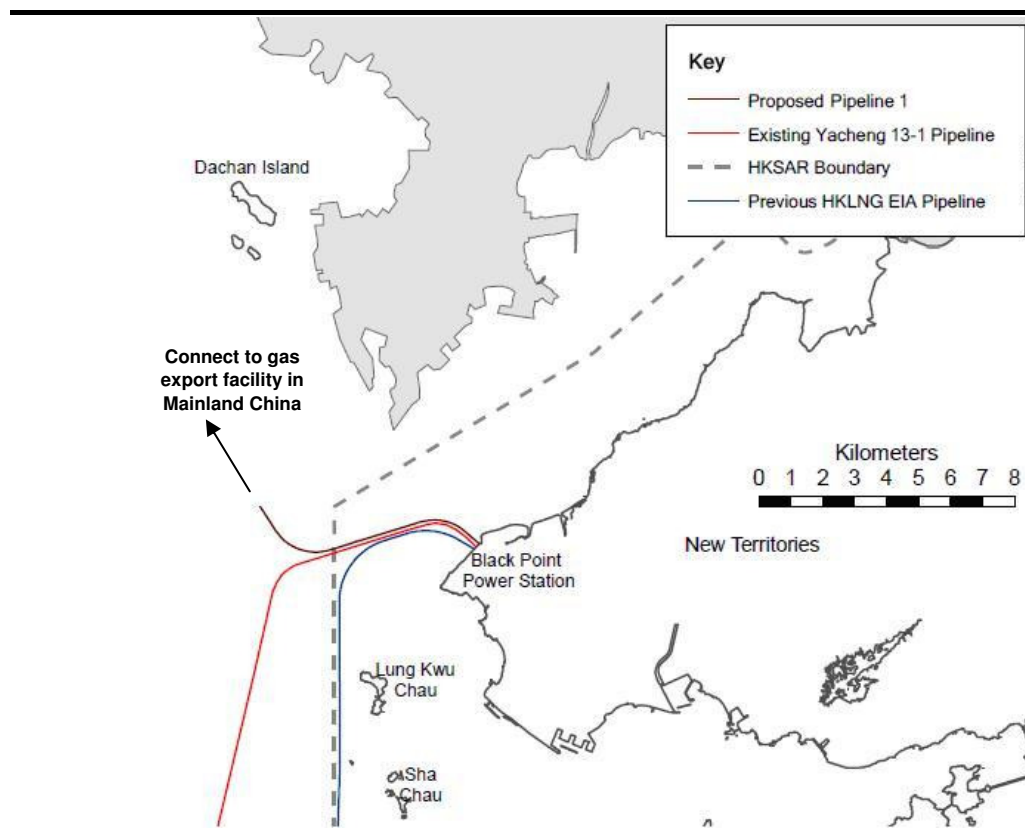
The First Phase of the BPGSP (hereafter referred to as the First Phase Project) will involve the construction and operation by PetroChina Company Limited (as the operator of the new CAPCO/PetroChina pipeline joint venture) of one submarine natural gas pipeline connecting BPPS with a gas export facility in Mainland China, while CAPCO is constructing and operating one gas receiving station (GRS) at BPPS.

An EIA of the BPGSP, including the First Phase Project, was prepared in accordance with the *EIA Study Brief* (No. ESB-208/2009) and the *Technical Memorandum of the Environmental Impact Assessment Process (EIAO-TM)* and submitted under the EIAO in February 2010. Subsequent to the approval of the EIA (*EIAO Register Number AEIAR-150/2010*) on 27 April 2010, an Environmental Permit (EP-391/2010) (EP) for the First Phase Project was granted by the Director of Environmental Protection (DEP) on 25 May 2010. A Further Environmental Permit (FEP) FEP-01/391/2010 was granted to the Contractor, Leighton Contractors (Asia) Limited, of the First Phase Project on 24 February 2011. Another FEP, FEP-02/391/2010/A, was issued to the Contractor, Wai Kee (Zens) Construction & Transportation Co., Ltd, on 23 March 2012. Applications for variation of the EP and FEP-01/391/2010 of the First Phase Project were submitted to the DEP and two EP variations, EP-391/2010/A and FEP-01/391/2010/A, were granted to CAPCO and Leighton Contractors (Asia) Limited respectively on 24 November 2011.

### 2.2 PROJECT SCOPE (FIRST PHASE)

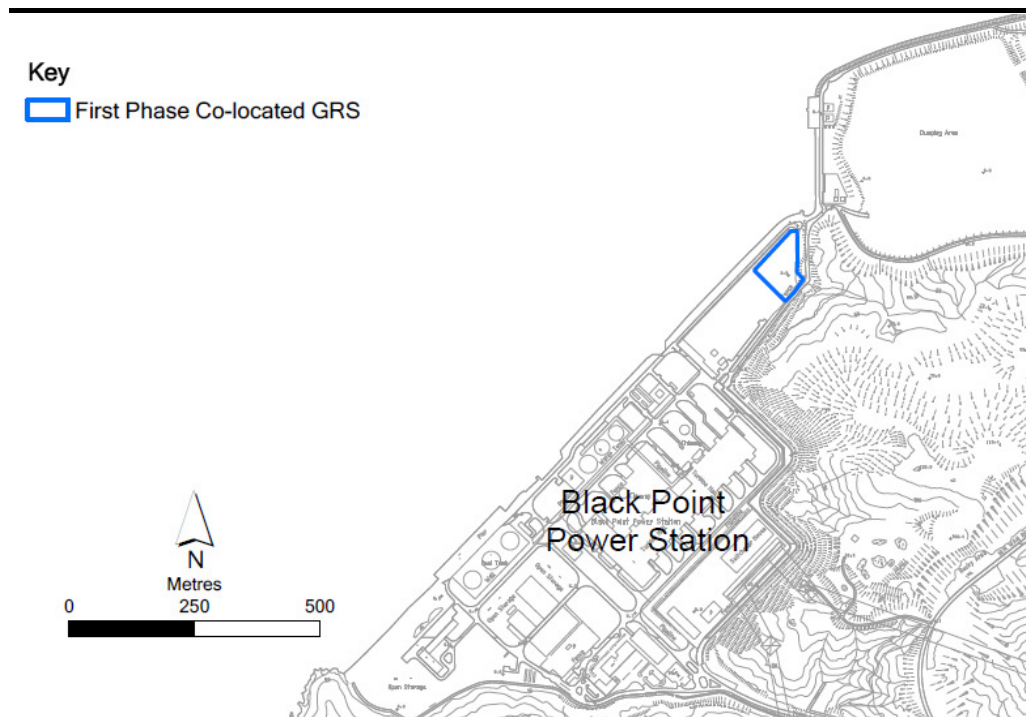
The proposed pipeline will traverse from the BPPS to a natural gas export facility in southern Guangdong Province, across the Urmston Road shipping channel and the Tonggu Waterway. It will be installed to the north of the existing Yacheng 13-1 Pipeline by approximately 100 m. Indicative routing of the proposed pipeline is depicted in *Figure 2.1*.

Figure 2.1 *Indicative Alignment of the Cross-Boundary Submarine Gas Pipeline Connecting the BPPS and the New Gas Export Facility in Mainland China*



The GRS is proposed to be located at the BPPS and will be constructed and operated within the site boundary of the BPPS, co-located with the existing GRS operated by the China National Offshore Oil Corporation (CNOOC) (hence referred to as the *Co-located GRS*). The proposed location of the Co-located GRS is presented on *Figure 2.2*.

Figure 2.2 Location of the First Phase Gas Receiving Station (GRS)



2.3 WORKS PROGRAMME & WORKS LOCATIONS

The construction works at the Co-located GRS area commenced on 15 March 2011. The preliminary construction programme is given in Figure 2.3. The locations of works are shown in Figure 2.4. The Sensitive Receivers in the vicinity of the proposed pipeline route are shown in Figure 2.5.

Figure 2.3 Preliminary Construction Programme for the First Phase of the Black Point Gas Supply Project

First Phase Construction Co-located GRS & Pipeline 1	Month																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Construction of GRS																								
- Installation of GRS Facilities																								
Construction of Submarine Pipeline																								
- Dredging																								
- Installation																								
- Jetting																								
- Rock Dumping																								
- Testing																								

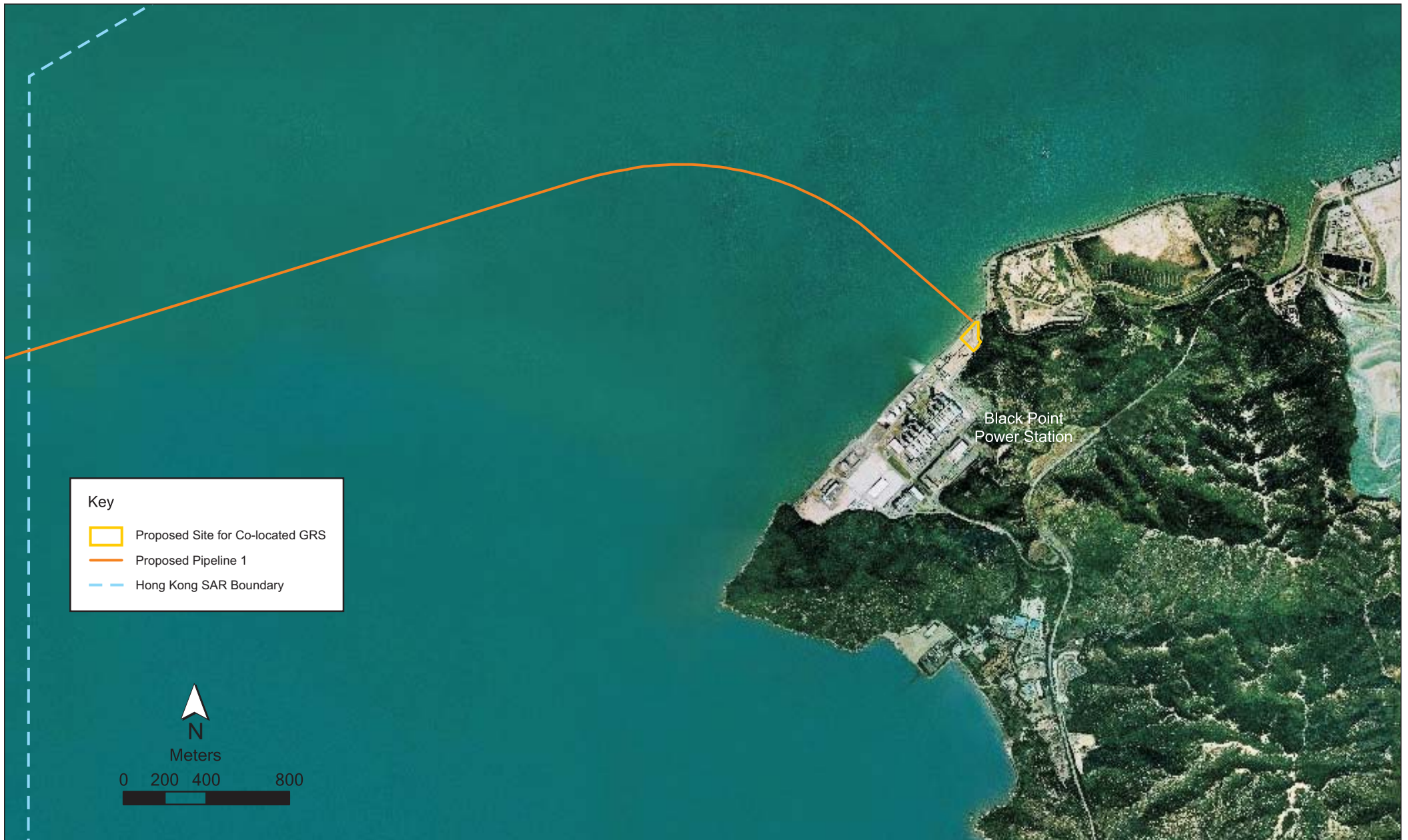


Figure 2.4

Locations of Works for the First Phase of the Black Point Gas Supply Project

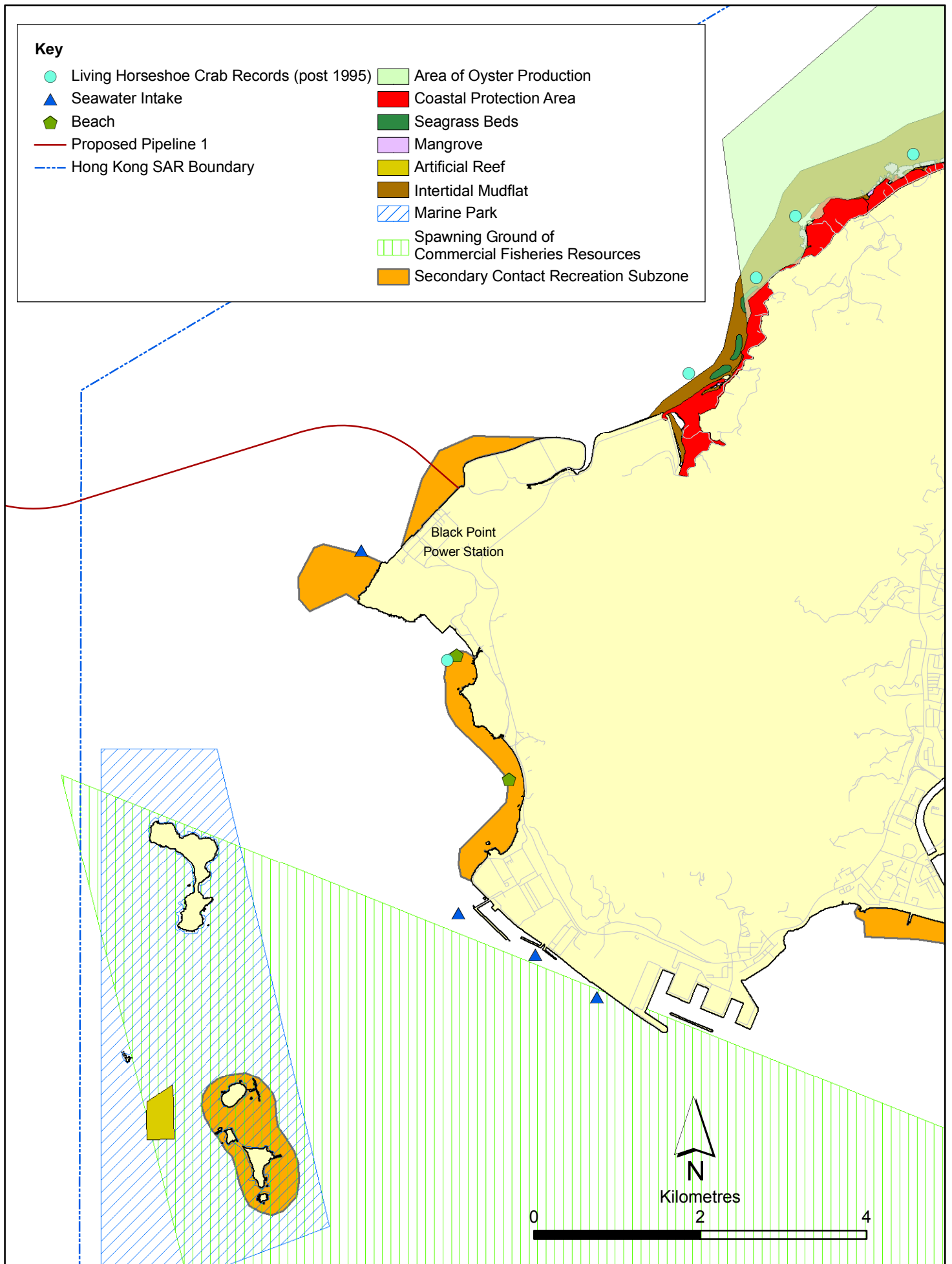


Figure 2.5

Surrounding Environment in the vicinity of Black Point

File: 0124291\_surrounding env.mxd  
Date: 02/12/2010

Environmental  
Resources  
Management



## 2.4 CONSTRUCTION ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 2.1*. The locations of the construction activities are shown in *Figure 2.6*.

**Table 2.1** *Summary of Construction Activities Undertaken during the Reporting Period*

Construction Activities Undertaken
<ul style="list-style-type: none"> <li>• Construction work of SIE Building, on-shore concrete trough and new pipe racks in the co-located GRS area</li> <li>• Excavation and pipe laying for Gas Header</li> <li>• Installation of pre-cast units for the offshore concrete trough</li> <li>• Dredging works for pipeline installation</li> </ul>

## 2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in *Table 2.2*.

Figure 2.6 Locations of the Construction Activities - June 2012

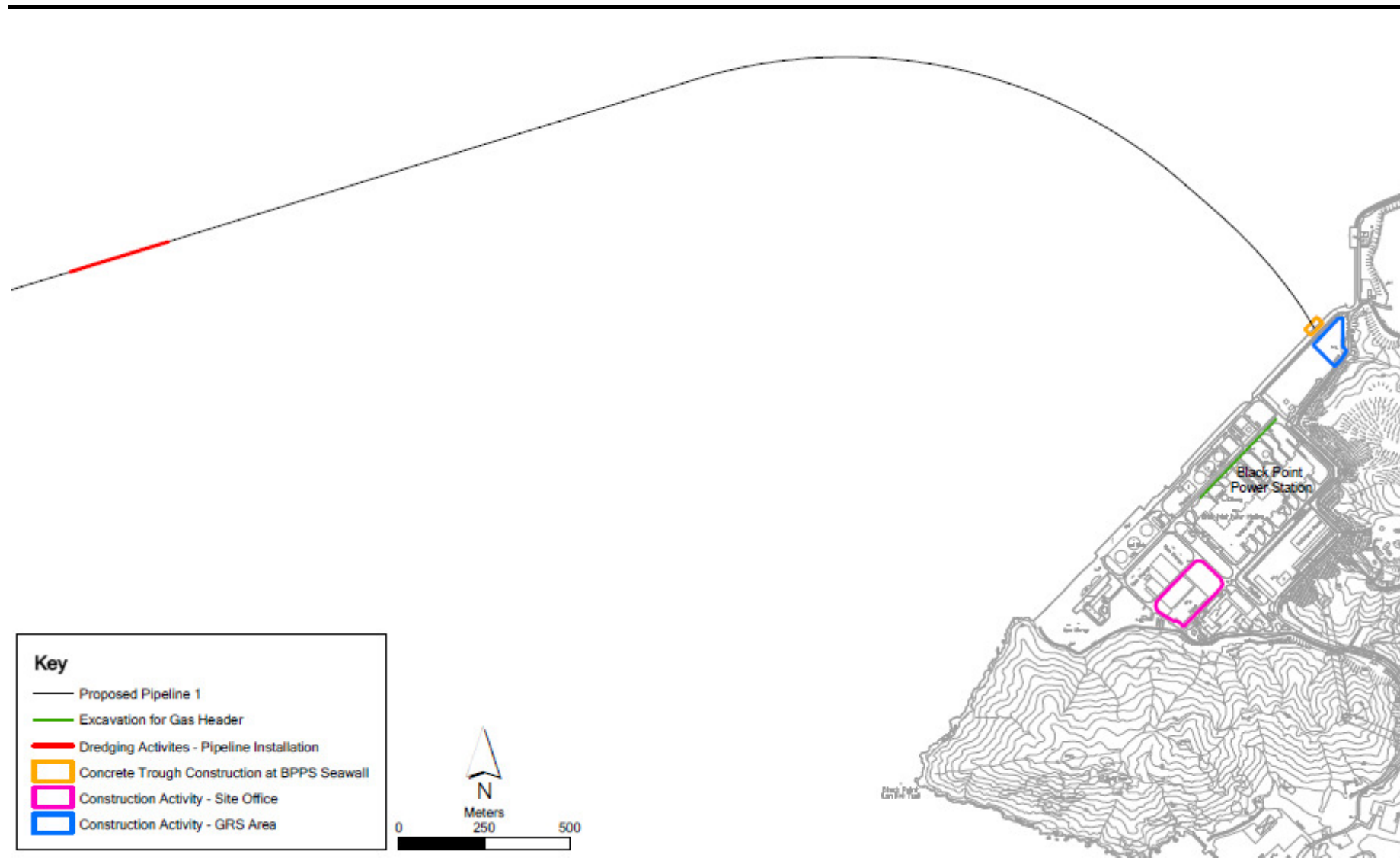




Table 2.2 Summary of Environmental Licensing, Notification and Permit Status

Permit/ Licenses/ Notification	Reference	Validity Period	Status	Remarks
<i>CAPCO</i>				
Environmental Permit	EP-391/2010	Throughout the Contract	Superseded by Environmental Permit No. EP-391/2010/A	Permit granted on 25 May 2010
Environmental Permit	EP-391/2010/A	Throughout the Contract	Valid	Permit granted on 24 Nov 2011
Allocation of Sediment Disposal Sites	(OHS3C-01) in FM4/IC/70A	up to 31 December 2012	Valid	Allocation granted on 4 Oct 2010, extension applied on 23 Dec 2011 and 22 June 2012 and subsequently approved.
<i>Leighton Contractors (Asia) Limited</i>				
Further Environmental Permit	FEP-01/391/2010	Throughout the Contract	Superseded by Environmental Permit No. FEP-01/391/2010/A	Permit granted on 24 February 2011
Further Environmental Permit	FEP-01/391/2010/A	Throughout the Contract	Valid	Permit granted on 24 Nov 2011
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation	--	--	Revised	Reference Number for Notification Pursuant to APC (Construction Dust) Regulation: 325647
Construction Noise Permit	GW-RW00286-11	1 May 2011 to 30 Oct 2011	Expired; new permit granted	Permit granted on 21 April 2011
Construction Noise Permit	GW-RW0423-11	3 July 2011 to 21 August 2011	Expired; new permit granted	Permit granted on 28 June 2011
Construction Noise Permit	GW-RW0461-11	31 July 2011 to 29 January 2012	Expired; new permit granted	Permit granted on 12 July 2011
Construction Noise Permit	GW-RW0491-11	21 August 2011 to 21 Feb 2012	Expired; new permit granted	Permit granted on 22 July 2011
Construction Noise Permit	GW-RW0526-11	11 September 2011 to 4 March 2012	Expired; new permit granted	Permit granted on 5 August 2011

Permit/ Licenses/ Notification	Reference	Validity Period	Status	Remarks
Construction Noise Permit	GW-RW0033-12	30 January 2012 to 30 July 2012	Valid	Permit granted on 17 January 2012
Construction Noise Permit	GW-RW0121-12	11 March 2012 to 09 September 2012	Valid	Permit granted on 21 February 2012
Registration of Waste Producer under Waste Disposal (Chemical Waste)(General) Regulation	WPN 5213-432-L1048-05	Throughout the Contract	Valid	Granted on 19 April 2011 Renewed on 14 March 2012
Marine Dumping Permit	EP/MD/ 12-128	1 April 2012 to 31 July 2012	Valid	Permit granted on 23 March 2012; for dredged sediment requiring Type 1 – Open Sea Disposal
<i>Wai Kee (Zens) Construction &amp; Transportation Co., Ltd</i>				
Further Environmental Permit	FEP-02/391/2010/A	Throughout the Contract	Valid	Permit granted on 23 March 2012
Construction Noise Permit	GW-RW0215-12	15 April 2012 to 14 October 2012	Valid	Permit granted on 26 March 2012
Marine Dumping Permit	EP/MD/12-142	20 April 2012 to 30 July 2012	Valid	Permit granted on 20 April 2012; for dredged sediment requiring Type 1 – Open Sea Disposal
Marine Dumping Permit	EP/MD/12-141	26 April 2012 to 25 May 2012	Expired; new permit granted	Permit granted on 26 April 2012; for dredged sediment requiring Type 1 – Open Sea Disposal (Dedicated Site) or Type 2 – Confined Marine Disposal
Marine Dumping Permit	EP/MD/13-014	26 May 2012 to 25 June 2012	Valid	Permit granted on 22 May 2012; for dredged sediment requiring Type 1 – Open Sea Disposal (Dedicated Site) or Type 2 – Confined Marine Disposal
Marine Dumping Permit	EP/MD/13-026	10 June 2012 to 21 July 2013	Valid	Permit granted on 7 June 2012; for dredged sediment requiring Type 1 – Open Sea Disposal

Permit/ Licenses/ Notification	Reference	Validity Period	Status	Remarks
Marine Dumping Permit	EO/MD/13-032	26 June 2012 to 25 July 2012	Valid	Permit granted on 21 June 2012; for dredged sediment requiring Type 1 Open Sea Disposal (Dedicated Site) and Type 2 Confined Marine Disposal
Chemical Waste Producer Registration	5213-432-W3140-02	Throughout the Contract	Valid	Registration granted on 15 June 2012

### IMPLEMENTATION STATUS ON ENVIRONMENTAL MITIGATION MEASURES

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, EM&A Manual, EP and FEP. The implementation status of the measures during the reporting period is summarised in the Implementation Schedule of Mitigation Measures (*Annex A*).

Status of required submissions under the EP during the reporting period is presented in *Table 3.1*.

**Table 3.1** *Status of Required Submission*

EP Condition	Submission	Date of Submission to EPD
Condition 1.11	Notification on commencement of construction of the Project	14 January 2011
Condition 2.3	Submission of Updated EM&A Manual	1 March 2011
Condition 2.4	Submission of Updated EM&A Programme	1 March 2011
Condition 3.1	Notification on Management Organization of the Main Construction Company	22 February 2011
Condition 3.4	Submission of Waste Disposal Plan (WDP)	1 March 2011
Condition 3.5	Submission of Waste Management Plan (WMP)	11 April 2011
Condition 5.1	Submission of Baseline Marine Water Quality Monitoring Report (Final)	18 April 2011
Condition 5.3	Submission of Monthly EM&A Report – May 2012	14 June 2012

## 4 EM&A RESULTS

### 4.1 SITE INSPECTIONS & AUDITS

A monthly joint site inspection was conducted by representatives of the Contractor, the ET, CAPCO and the IEC on 28 June 2012. Locations inspected included the dredging barge GD1, the Co-located GRS area, the project site office compound, the gas header excavation area, temporary stockpiling area and the project store. There was no non-compliance recorded during the site inspection.

Environmental performance complied with environmental requirements and all necessary mitigation measures were properly implemented. Most stockpiles of excavated materials were properly covered by tarpaulin, while a stockpile of excavated materials at the Co-located GRS area were being covered by the Contractor. The Contractor was reminded to complete covering of all stockpiles with tarpaulin.

The ET will keep track of the construction activities to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

### 4.2 WATER QUALITY MONITORING

During this reporting period, marine dredging activities for submarine pipeline trench construction in PRC waters within 2.5 km from HKSAR boundary continued from 1 June 2012. The dredging activities in Hong Kong waters for the construction of pipeline along the Urmston Road Section commenced on 6 June 2012.

Per plan and in accordance with the requirements described in the Updated EM&A Manual, marine water quality impact monitoring was conducted during periods when there were dredging activities. It was noted that dredging works in PRC waters within 2.5 km from HKSAR boundary were completed on 24 June 2012. Consequently impact monitoring was undertaken three times per week between 1 and 22 June 2012 for dredging activities in PRC waters within 2.5 km from HKSAR boundary. Impact monitoring was undertaken three times per week between 7 and 30 June 2012 for dredging activities in Hong Kong waters (see monitoring schedule for the present reporting period in *Annex C*).

Monitoring results are presented graphically in *Annex D* and key observations are described below. It is useful to note that some adverse weather conditions, including heavy rainfall, Thunderstorm Warning and Tropical Cyclone Signal, were recorded during the monitoring period. In addition,

heavy marine traffic (not associated with this Project) was commonly observed nearby the monitoring stations with several mud/sand carrying vessels passed by during the sampling event. Both weather conditions and marine traffic may affect the monitoring results.

#### 4.2.1 *Impact Monitoring during Dredging Activities in Hong Kong Waters*

Dissolved oxygen (DO) levels from surface, mid-depth and bottom waters from Impact, Control, Reference and Sensitive Receiver stations were generally similar. DO levels were variable throughout the monitoring period. Low levels of DO levels were occasionally recorded during both mid-ebb and mid-flood tides. Whilst DO levels were relatively low at times, DO levels returned to normal levels shortly which represented natural fluctuation in water quality.

Similar to DO levels, turbidity and SS levels were generally similar at all stations and variable throughout the monitoring period. High levels of turbidity and SS were occasionally recorded during both mid-ebb and mid-flood tides. Such fluctuations were also observed during baseline monitoring and are considered to be sporadic events and characteristic of water quality in this area of Hong Kong. Turbidity and SS levels returned to normal levels shortly.

A total of nine monitoring events were undertaken and exceedances were recorded on 14, 23, 26 and 28 June 2012. No monitoring was conducted on 19 and 30 June 2012 due to adverse weather condition. Exceedances in the Action Levels, and occasionally the Limit Levels, of surface, mid-depth and bottom DO were observed. It is considered that the observed low DO levels may represent a natural phenomenon associated with heavy rainfall and increased input from the Pearl River over the monitoring days. Also, significant halocline and slight thermocline were consistently observed during the monitoring period. Some bottom DO levels were measured within a layer of cooler, more saline waters, and it is likely that the bottom layer was less well-oxygenated due to the stratification with limited vertical mixing. This is considered as a natural phenomenon common in the hot wet season in Hong Kong.

The depth-averaged Suspended Solids levels at all monitoring events were in compliance with the Action and Limit Levels, whereas exceedances in the Action Level of depth-averaged Turbidity level were recorded. As explained above, high level of turbidity, and occasionally SS, in this area are considered to be sporadic and characteristic of water quality in this area of Hong Kong. The observed turbidity exceedances were thus not considered to be of environmental concern.

A closed grab dredger was used and silt curtains were deployed and working properly during dredging works. The level of dredging activities was within the working rate described in the EP and approved EIA Report. Following

the review of monitoring data and marine works details in accordance with the procedures stipulated in the Event and Action Plan of Updated EM&A Manual, these exceedances were considered to be due to natural variation in water quality characteristic of western Hong Kong waters and were unlikely to be due to the Project's dredging activities.

#### 4.2.2 *Impact Monitoring during Dredging Activities in PRC Waters within 2.5 km from HKSAR boundary*

DO levels from surface, mid-depth and bottom waters from Impact, Control, Reference and Sensitive Receiver stations were generally similar, and DO levels were variable throughout the monitoring period, which represented natural fluctuation in water quality. Whilst DO levels were relatively low at times, DO levels returned to normal levels shortly.

Similar to DO levels, turbidity and SS levels were generally similar at all stations and variable throughout the monitoring period. High levels of turbidity and SS were occasionally recorded during both mid-ebb and mid-flood tides. Such fluctuations were also observed during baseline monitoring and are considered to be sporadic events and characteristic of water quality in this area of Hong Kong. Turbidity and SS levels returned to normal levels shortly.

A total of 10 monitoring events were conducted and exceedances were recorded on 4, 8, 13, 15, 20 and 22 June 2012. Exceedances in the Action Levels, and occasionally the Limit Levels, of surface, mid-depth and bottom DO were observed. It is considered that the observed low DO levels may represent a natural phenomenon associated with heavy rainfall and increased input from the Pearl River over the monitoring days. Also, significant halocline and slight thermocline were consistently observed during the monitoring period. Some bottom DO levels were measured within a layer of cooler, more saline waters, and it is likely that the bottom layer was less well-oxygenated due to the stratification with limited vertical mixing. This is considered as a natural phenomenon common in the hot wet season in Hong Kong.

Exceedances in the Action Levels, and occasionally the Limit Levels, of depth-averaged turbidity and SS levels were recorded. As explained above, high level of turbidity and SS in this area are considered to be sporadic and characteristic of water quality in this area of Hong Kong. The observed turbidity and SS exceedances were thus not considered to be of environmental concern.

Closed grab dredgers were used and silt curtains were deployed during dredging works, and the dredging rates were within the limits described in the approved EIA Report. Following the review of monitoring data and marine works details in accordance with the procedures stipulated in the Event and Action Plan of Updated EM&A Manual, these exceedances were

considered to be due to natural seasonal variation in water quality characteristic of western Hong Kong waters and were unlikely to be due to the Project's dredging activities.

#### 4.3 WASTE MANAGEMENT

Wastes generated during this reporting period include mainly construction and demolition (C&D) materials (inert public fill and non-inert construction wastes) and sewage. Reference has been made to the Monthly Summary Waste Flow Table prepared by Leighton Contractors (Asia) Limited and Wai Kee (*Annex B*). The quantities of different types of wastes are summarized in *Table 4.1* with reference to relevant handling records for this Project.

**Table 4.1 Quantities of Different Wastes Generated during the Reporting Period**

Month / Year	Quantity								
	C&D Materials (inert) (a)	C&D Materials (non- inert) (b)	Chemical Waste (c)	Recyclable Materials (d)	C&D Materials (Inert) Re- used (e)	Sewage (f)	Marine Sediment(g)		
							Type I (h)	Type II (i)	
June 2012	1,910 tonnes	9.8 tonnes	0 kg	1,179 kg	400 tonnes	190 m <sup>3</sup>	8,600 m <sup>3</sup>	13,650 m <sup>3</sup>	

Notes:

- (a) Inert C&D materials include concrete, rubble, earth, boulder, sand, tile, masonry and used bentonite and were disposed of at the Tuen Mun Area 38 Public Fill.
- (b) Non-inert C&D materials after segregation were sent to WENT Landfill.
- (c) A licensed waste collector has been engaged for the collection of chemical wastes for disposal or recycling at licensed facilities.
- (d) Recyclable materials include metals, paper, cardboard, plastics, timber and others.
- (e) Inert C&D materials recycled include broken concrete, materials reused in the First Phase Project and materials reused in other Projects.
- (f) Sewage generated by toilets with holding tanks was collected and disposed of off-site at Pillar Point Sewage Treatment Works.
- (g) Marine sediment generated from dredging activities by the Contractor (Wai Kee).
- (h) Type I sediments are disposed of at the South Cheung Chau Sea Sediment Disposal Area
- (i) Type II sediments are disposed of at the Mud Pit V of East of Sha Chau Confined Marine Sediment Disposal facility

#### 4.4 MARINE ECOLOGY MONITORING

##### 4.4.1 Marine Mammal Exclusion Zone Monitoring

Daily marine mammal exclusion zone monitoring was undertaken during the period of dredging activities in Hong Kong waters. No marine mammal was sighted during the exclusion zone monitoring.

##### 4.4.2 Additional Marine Mammal Monitoring

Per plan, additional marine mammal monitoring during the construction phase of the First Phase Project was conducted once per month to record



information on dolphin distribution and abundance in the Project areas. The first monthly construction phase marine mammal monitoring survey was conducted on 20 June 2012. The survey was conducted as per the methodology described in the Updated EM&A Manual for the First Phase Project.

A total of 25.8 km of survey effort was collected from the first monthly line-transect vessel survey for the construction phase monitoring. Three sightings of the Indo-Pacific humpback dolphin *Sousa chinensis* was observed near the HKSAR Boundary at about 0.1 km to 1.5 km north of the proposed pipeline alignment (*Figure 4.1*). The sighting records are provided in *Annex E*.

**Key**

- Marine Mammal Sighting (June 2012)
- Proposed Line Transects for Dolphin Monitoring
- Proposed Pipeline 1
- · - · - Hong Kong SAR Boundary

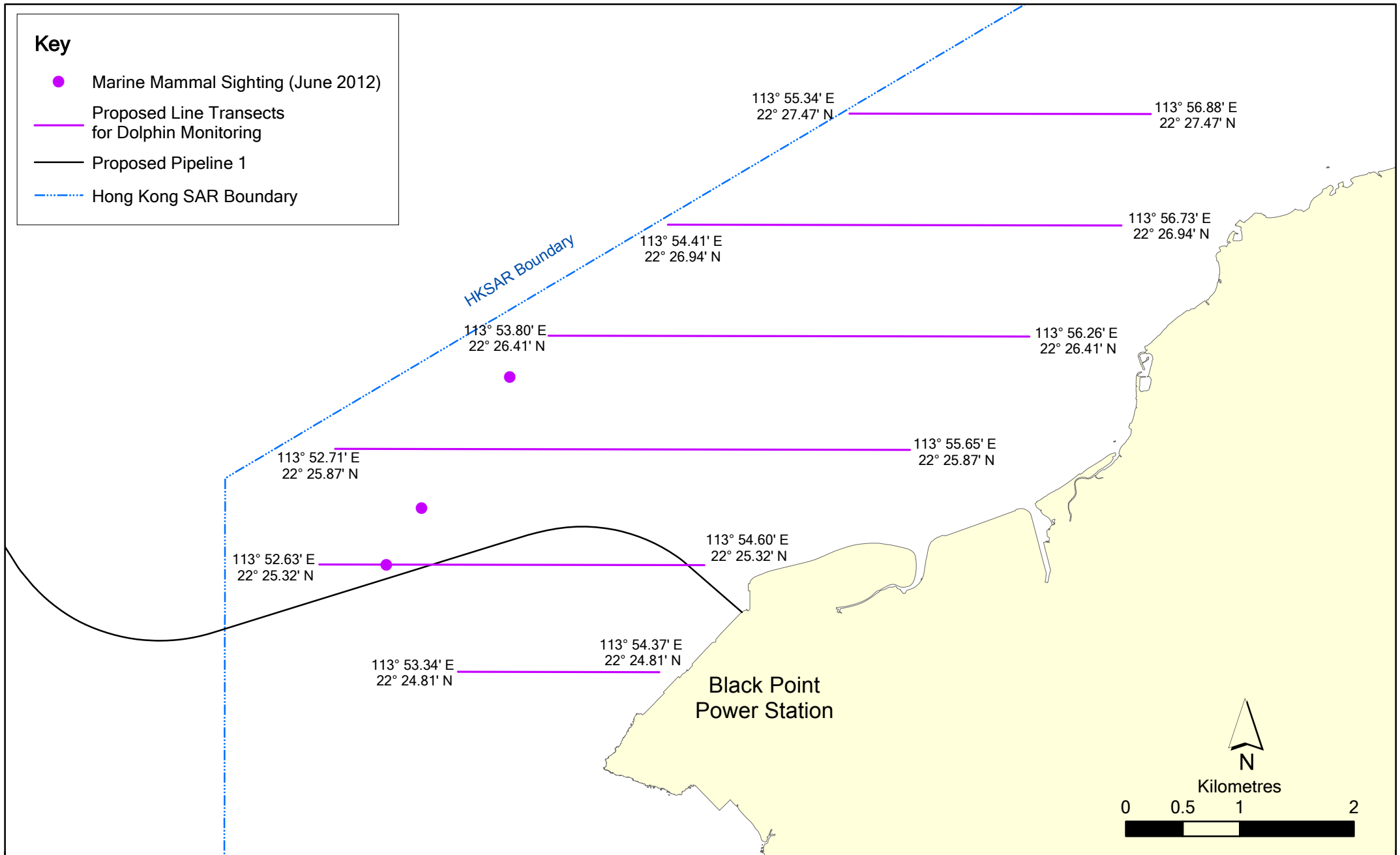


Figure 4.1

Line Transects for Additional Marine Mammal Monitoring

5 ENVIRONMENTAL NON-CONFORMANCE

5.1 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE

No non-compliance of EIA/ EM&A/ EP/ legislative requirements was recorded during the reporting period.

5.2 SUMMARY OF ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting period.

5.3 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

No summons/ prosecution was received during the reporting period.

## 6 UPCOMING WORKS FOR THE NEXT REPORTING PERIOD

### 6.1 CONSTRUCTION ACTIVITIES FOR THE COMING MONTH

Works to be undertaken for the coming reporting period are summarized in *Table 6.1*.

**Table 6.1** *Construction Works to Be Undertaken in the Coming Month*

Work to be taken
<ul style="list-style-type: none"> <li>• Continue construction work of SIE Building, on-shore concrete trough and new pipe racks in the co-located GRS area</li> <li>• Continue excavation works and pipe laying for Gas Header</li> <li>• Installation of pre-cast units for the offshore concrete trough</li> <li>• Marine dredging works for pipeline installation within Hong Kong waters</li> </ul>

Potential environmental impacts arising from the above construction activities are mainly associated with dust, noise, site runoff, waste management, marine water quality and marine ecology.

### 6.2 MONITORING SCHEDULE FOR THE COMING MONTHS

Impact monitoring for marine water quality and additional marine mammal monitoring are scheduled for the next reporting period (*Annex C*). The monitoring programme has been reviewed and was considered as adequate to cater for the nature of works in progress.

## CONCLUSIONS

This Sixteenth Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 30 June 2012, in accordance with EM&A Manual and the requirements of EP-391/2010/A, FEP-01/391/2010/A and FEP-02/391/2010/A.

Dredging activities were undertaken during this reporting period and construction phase water quality and marine mammal monitoring were conducted in accordance with the requirements described in the Updated EM&A Manual. Exceedances of Action and Limit Levels for water quality were recorded in six and four monitoring events during dredging activities in PRC waters and Hong Kong waters, respectively. The review of monitoring data suggested that marine dredging activities have proceeded in an environmentally acceptable manner.

A monthly joint environmental site inspection was conducted in the reporting period. It confirmed that the environmental mitigation measures recommended in the EIA Report were properly implemented by the Contractor.

No non-compliance event was recorded during the reporting period.

No complaint and summons/prosecution was received during the reporting period.

The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Annex A

# Implementation Schedule of Mitigation & Precautionary Measures

## Annex A-1 Implementation Schedule for Environmental Protection Measures for the Black Point Gas Supply Project (First Phase)

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
<b>1. Air Quality Measures</b>					
S4.8	Dust control measures stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i> will be implemented during the construction of the GRS to control the potential fugitive dust emissions.	Land Site / During Construction	Contractor(s)	Air Pollution Control (Construction Dust) Regulation	✓
S4.8	Site practices such as regular maintenance and checking of the diesel powered mechanical equipment will be adopted to avoid any black smoke emissions and to minimize gaseous emissions.	Land Site / During Construction	Contractor(s)	-	✓
S4.10	EM&A in the form of site inspection and audit of dust generating activities.	Land Site / During Construction	Environmental Team (ET) & Independent Environmental Checker (IEC)	Environmental Impact Assessment Ordinance	✓
S4.10	A commissioning test for heaters will be conducted to ensure the stack design, heater operation and the emission information adopted in the assessment is maintained.	Land Site / During Construction/ commissioning	CAPCO	-	N/A. Test to be conducted prior to commissioning.
S4.6, EP4.1	The GRS shall be designed and operated in accordance with the following parameters: <ul style="list-style-type: none"> <li>The maximum number of gas heaters shall not be more than seven, and no more than six gas heaters shall be operated simultaneously. The total amount of NO<sub>x</sub> and CO emissions emitted from the heaters in operation shall not be more than 8.22kg and 5.14kg per hour respectively;</li> <li>The stack height shall not be less than 15m above ground;</li> <li>The exhaust gas velocity of the gas heaters shall not be less than 10ms<sup>-1</sup> under full load operation; and</li> <li>The exhaust gas temperature of the gas heaters shall not be less than 280 °C under full load operation.</li> </ul>	Land Site / During Design and Operation	CAPCO	-	N/A. To be checked during detailed engineering stage.

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
<b>2. Noise</b>					
S5.7	EM&A in the form of site inspection and audit of construction activities.	Land Site / During Construction	Environmental Team (ET) & Independent Environmental Checker (IEC)	Environmental Impact Assessment Ordinance	✓
<b>3. Water Quality</b>					
S6 Annex 6A	Dredging/ jetting plants will be required to comply with the rates modelled in the EIA (S6 Annex 6A and Annex 14A-2) for the various activities assessed.	Marine works areas / During Construction	Contractor(s) and ET	-	✓
S6.9	Dredged marine mud will be disposed of in a gazetted marine disposal area in accordance with the <i>Dumping at Sea Ordinance (DASO)</i> permit conditions.	Dredged areas/ During Construction	Contractor(s)	Dumping at Sea Ordinance	✓
S6.9	Disposal vessels will be fitted with tight bottom seals in order to prevent leakage of material during transport.	Dredged areas/ During Construction	Contractor(s)	Dumping at Sea Ordinance	✓
S6.9	Barges will be filled to a level, which ensures that material does not spill over during transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action.	Dredged areas/ During Construction	Contractor(s)	-	✓
S6.9	After dredging, any excess materials will be cleaned from decks and exposed fittings before the vessel is moved from the dredging area.	Dredged areas/ During Construction	Contractor(s)	Dumping at Sea Ordinance	✓
S6.9	The contractor(s) will confirm that the works cause no visible foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the dredging site.	Dredged areas/ During Construction	Contractor(s)	-	✓
S6.9	Monitoring and automation systems will be used to improve the crew's information regarding the various dredging parameters to improve dredging accuracy and efficiency.	Dredged areas/ During Construction	Contractor(s)	-	✓
S6.9	Control and monitoring systems will be used to alert the crew to leaks or any other potential risks such as chemicals and oils.	Dredged areas/ During Construction	Contractor(s)	-	✓



EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S6.9	When the dredged material has been unloaded at the disposal areas, any material that has accumulated on the deck or other exposed parts of the vessel will be removed and placed in the hold or a hopper. Under no circumstances will decks be washed clean in a way that permits material to be released overboard.	Dredged areas/ During Construction	Contractor(s)	Dumping at Sea Ordinance	✓
S6.9	Dredgers will maintain adequate clearance between vessels and the seabed at all states of the tide and reduce operations speed to ensure that excessive turbidity is not generated by turbulence from vessel movement or propeller wash.	Dredged areas/ During Construction	Contractor(s)	-	✓
S6.9	Mitigation measures to be implemented during submarine pipeline installation activities are presented in <i>Annex 14A-2</i> .	Marine works areas / During Construction	Contractor(s)	-	✓
S6.9	Channels, earth bunds or sand bag barriers will be provided on site to direct stormwater to silt removal facilities. The design of silt removal facilities (e.g. silt traps or sedimentation facilities) will make reference to the guidelines in <i>Appendix A1 of ProPECC PN 1/94</i> . All drainage facilities and erosion and sediment control structures will be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit will be removed regularly.	Land Site / During Construction	Contractor(s)	ProPECC PN 1/94 TM standard under the WPCO	✓
S6.9	Earthworks to form the final surfaces will be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	Land Site / During Construction	Contractor(s)	-	N/A
S6.9	Appropriate surface drainage will be designed and provided where necessary.	Land Site / During Construction	Contractor(s)	-	✓
S6.9	The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in <i>Appendix A2 of ProPECC PN 1/94</i> .	Land Site / During Construction	Contractor(s)	ProPECC PN 1/94	N/A
S6.9	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.	Land Site / During Construction	Contractor(s)	-	N/A

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S6.9	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge will be adequately designed for the controlled release of storm flows.	Land Site / During Construction	Contractor(s)	-	✓
S6.9	The temporary diverted drainage will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Land Site / During Construction	Contractor(s)	-	N/A
S6.9	During the early stages of work, portable chemical toilets will be used and the effluent will either be shipped offsite or be disposed of at sewage treatment work (STW) at BPPS.	All facilities / During Construction	Contractor(s)	-	✓. Toilets with holding tanks have been provided. Portable chemical toilets will be provided
S6.9	Debris and refuse generated on-site will be collected, handled and disposed of properly to avoid entering the nearby WSRs. Stockpiles of cement and other construction materials will be kept covered when not being used.	All facilities / During Construction	Contractor(s)	-	✓
S6.9	Oil leakage or spillage will be contained and clean up immediately. Waste oil will be collected and stored for recycling or disposal, in accordance with the <i>Waste Disposal Ordinance</i> .	All facilities / During Construction	Contractor(s)	Waste Disposal Ordinance	✓
S6.10	Water quality monitoring shall be undertaken for suspended solids, salinity, turbidity, and dissolved oxygen. If exceedances occur due to dredging/ jetting activities, event and action plan shall be adopted.	Designated monitoring stations as defined in EM&A Manual / Construction period for dredging/ jetting works	ET	Environmental Impact Assessment Ordinance	✓
S6.9	The surface runoff from the GRS should be connected to a storm water channel via a grit and oil interceptor. These grit and oil interceptors will be regularly cleaned and maintained in good working condition. Trapped oil and grease should be disposed of periodically by waste collection contractor using a suitable liquid waste collection vehicle	GRS/ During Operation	CAPCO	-	✓
S6.9	Any oil leakage or spillage will be contained and cleaned up immediately.	GRS/ During Operation	CAPCO	-	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S6.9	Waste oil will be collected and stored for recycling or disposal in accordance with the <i>Waste Disposal Ordinance</i> .	GRS/ During Operation	CAPCO	Waste Disposal Ordinance	✓
<b>4. Waste Management</b>					
S7.5	The Contractor shall identify a coordinator/ approved personnel for implementing standard site practices and managing wastes. The waste coordinator shall implement the Waste Management Plan which specifies procedures such as a recording system to facilitate tracking of loads and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. Responsibilities also include arrangements for collection and effective disposal of wastes to appropriate facilities.	Contract mobilisation / During construction	Contractor(s)	-	✓
S7.5	The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges. A trip ticket system (TTS) for the removal of C&D materials from the site to the designated disposal facility will be implemented.	Contract mobilisation / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation  Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes  DEVB TC(W) No. 6/2010, Trip-ticket System for Disposal of Construction and Demolition Material  Water Pollution Control Ordinance	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	A 'chit' ticket system (TTS) for the disposal of C&D materials will be implemented.	Contract mobilisation / During construction	Contractor(s)	Waste Disposal (Charges for Disposal of Construction Waste) Regulation	✓
S7.5	No waste shall be burnt on site. Wastes shall be collected by licensed waste haulier and be disposed of at licence sites.	Land site / During construction	Contractor(s)	Air Pollution Control Ordinance	✓
S7.5	Rock and soil may be excavated from site formation works and that will be reused as fill material for the Project as far as practicable.	Land site / During construction	Contractor(s)	WBTC No. 2/93, Public Dumps	✓
S7.5	Material shall be reused on site as far as practicable, including formwork plywood, topsoil and excavated material.	Land site / During construction	Contractor(s)	WBTC 32/92, The Use of Tropical Hard Wood on Construction Site	✓
S7.5	C&D materials will be sorted on site into inert waste (public fill) and non-inert waste (construction waste). Public fill will be disposed of at public fill reception facilities (e.g. Tuen Mun Area 38 or other locations as agreed with CEDD). Construction waste, such as timber, paper, plastics and general refuse, cannot be reused and need to be disposed of at the West New Territories (WENT) Landfill.	Land site / During construction	Contractor(s)	-	✓
S7.5	The site and surroundings shall be kept tidy and litter free. Waste storage area shall be properly cleaned and shall not cause windblown litter and dust nuisance.	All areas / During construction	Contractor(s)	WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness. Works Bureau, Hong Kong SAR Government	✓
S7.5	Stockpiled material shall avoid vegetated areas.	Land site / During construction	Contractor(s)		✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Stockpiles shall be covered by tarpaulins and/or watered as needed.	Land site / During construction, particularly dry season	Contractor(s)	Air Pollution Control (Construction Dust) Regulation	<>
S7.5	Storage of material on site shall be kept to a minimum. Construction materials shall be planned and stocked carefully to reduce amount of waste generated and avoid unnecessary generation of waste.	All areas / During construction	Contractor(s)	-	✓
S7.5	Use of reusable non-timber formwork to reduce the amount of C&D materials	All areas / During construction	Contractor(s)	Works Branch Technical Circular (WBTC) No. 32/92, The Use of Tropical Hard Wood on Construction Site	✓
S7.5	Prior to disposal of construction waste, wood, steel and other metals will be separated to the extent practical, for re-use and/or recycling to reduce the quantity of waste to be disposed of to landfill	All areas / During construction	Contractor(s)	-	✓
S7.5	Wheel washing facilities shall be used by all trucks leaving the site to prevent the transfer of mud onto public roads.	Site entrances and exits / During construction	Contractor(s)	Air Pollution Control (Construction Dust) Regulation	✓
S7.5	Any unused chemicals and those with remaining functional capacity shall be recycled to the extent practical.	Land site / During construction	Contractor(s)	-	✓
S7.5	Temporary storage areas for general refuse shall be enclosed or contained to avoid environmental impacts.	All areas / During construction	Contractor(s)	WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Sufficient dustbins shall be provided for storage of waste. Wastes shall be timely cleared and shall be disposed of to the nearest licensed facility.	All areas / During construction	Contractor(s)	WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.	✓
S7.5	Waste oils, chemicals or solvents shall not be disposed of to drain. Drainage systems, sumps and oil interceptors shall be cleaned and maintained regularly.	All facilities / During construction	Contractor(s)	-	✓
S7.5	Standard site practice shall be implemented to avoid waste generation and promote waste minimisation.	All facilities / During construction	Contractor(s)	-	✓
S7.5	Waste materials such as paper, metal, timber and waste oil shall be recycled as far as practicable. Different types of waste shall be segregated and stored of in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal. Recycling bins will be provided at strategic locations to facilitate recovery of aluminium can and waste paper from the site.	Land Site / During construction	Contractor(s)	ETWBTC No. 33/2002, Management of Construction and Demolition Material Including Rock	✓
S7.5	C&D materials will be wetted as quickly as possible to the extent practice after filling to reduce the potential dust and water quality impacts of site formation works	All facilities / During construction	Contractor(s)	-	✓
S7.5	Dredged marine mud shall be disposed of in marine disposal sites designated by the Marine Fill Committee (MFC) and under the requirements of the <i>Dumping at Seas Ordinance</i> .	Dredging / During construction	Contractor(s)	Dumping at Sea Ordinance	✓
S7.5	Waste containers shall be in good condition and fitted with lids or covers to prevent waste from escaping or the ingress of water. Waste containers shall be in a secure area on hardstanding.	All facilities / During construction	Contractor(s)	WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.	✓
S7.5	Proper storage and site practices shall be adopted to reduce the potential for damage or contamination of construction materials.	All facilities / During construction	Contractor(s)	-	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste	All facilities / During construction	Contractor(s)	-	✓
S7.5	Emergency equipment to deal with any spillage or fire shall be kept on site.	All facilities / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation  Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓
S7.5	Suitable chemical waste storage areas shall be formed at the works site for temporary storage pending collection. Chemical wastes shall be separated for special handling and shall be disposed of via a licensed waste collector at appropriate licensed treatment facility, e.g. the Chemical Waste Treatment Centre at Tsing Yi.	Land site/ Chemical Waste Treatment Centre at Tsing Yi/ During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation  Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓
S7.5	Containers used for storage of chemical waste shall be: <ul style="list-style-type: none"> <li>• Maintained in good condition and clearly labelled in both English and Chinese;</li> <li>• Suitable for the substance they are holding, resistant to corrosion, and securely closed; and</li> <li>• Capacity of less than 450 L unless the specifications have been approved by the EPD.</li> </ul>	All facilities / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation  Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Storage areas for chemical waste shall: <ul style="list-style-type: none"> <li>• Be clearly labelled and used solely for the storage of chemical waste;</li> <li>• Be enclosed on at least 3 sides;</li> <li>• Have adequate ventilation;</li> <li>• Be arranged so that incompatible materials are appropriately separated</li> <li>• Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; and</li> <li>• Be covered to prevent rainfall from entering</li> </ul>	All facilities / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation  Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓
S7.5	Leaking containers shall be contained and removed from site as soon as is reasonably practicable.	All facilities / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation  Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓
S7.5	Training shall be provided to site personnel in proper waste management and chemical handling procedures, the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.	All facilities / During construction	Contractor(s)	-	✓
S7.5	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site inspection and audit programme shall be undertaken. Waste flow tables (WFT) will be used as a recording system to document the amount of waste generated, recycled and disposed of (including the disposal sites).	All facilities / During construction	ET and IEC	-	✓



EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Appropriate measures to reduce windblown litter and dust transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	All facilities / During construction	Contractor(s)	-	✓
<b>5. Marine Ecology (Marine Mammals)</b>					
S8.8	The vessel operators will be required to control and manage all effluent from vessels	Marine works area / During construction	Contractor(s) and ET	-	✓
S8.8	A policy of no dumping of rubbish, food, oil, or chemicals will be strictly enforced. This will also be covered in the contractor briefings	Marine works area / During construction	Contractor(s) and ET	-	✓
S8.8	All vessel operators working on the Project construction phase will be given a briefing, alerting them to the possible presence of dolphins in the area, and the guidelines for safe vessel operation in the presence of cetaceans. If high speed vessels are used by the contractors, they will be required to slow to 10 knots when passing through a high density dolphin area (Sha Chau and Lung Kwu Chau)	Marine works area / During construction	Contractor(s) and ET	-	✓
S8.8	The vessel operators engaged during the construction phase will be required to use predefined and regular routes, as these will become known to dolphins using these waters	Marine works area / During construction	Contractor(s) and ET	-	✓
S8.8	A marine mammal exclusion zone within a radius of 250 m from dredgers/ jetting machine will be implemented during the construction phase. Qualified observer(s) will scan the 250 m-exclusion zone for at least 30 minutes prior to the start of dredging. If cetaceans are observed in the exclusion zone, dredging/ jetting will be delayed until they have left the area. As per previous practice in Hong Kong, should cetaceans move into the works area during dredging/ jetting, it is considered that cetaceans will have acclimatised themselves to the works therefore cessation of dredging is not required	Works areas along the pipeline route / During Dredging/ Jetting for the Gas Pipeline Installation	Contractor(s) and ET	-	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S8.8	Except for the pipeline section along Urmston Road, dredging/ jetting works shall be restricted to a daily maximum of 12 hours with daylight operations. Because of marine traffic constraints, dredgers/ jetting machine may need to operate 24 hours on the pipeline section which crosses the Urmston Road channel off Black Point enabling completion in the shortest possible time	Works areas along the pipeline route / During Dredging/ Jetting for the Gas Pipeline Installation	Contractor(s) and ET	-	✓
S8.8	Monitoring will be conducted for the distribution and abundance of dolphins during the construction and post-construction phase of the project. Three months of pre-construction dolphin monitoring will also be conducted. The protocols for this will be agreed with AFCD in advance.	Marine works areas / Pre-construction, during construction and post-construction	CAPCO	-	✓
<b>6. Fisheries</b>					
S9.10	Geophysical survey will be conducted during the pre-construction and post-construction of pipeline works to confirm the seabed would be reinstated to its original level.	Pre-construction and Post-construction after pipeline works	ET	-	✓. Pre-construction phase geophysical survey completed.
<b>7. Landscape &amp; Visual</b>					
S10.5.11	Site hoardings to be compatible with surrounding landscape.	Land site / During Construction	Contractor(s)	-	✓
S10.5.11	The tree requiring removal is to be compensated in accordance with relevant government guidelines	Land site / During Construction	Contractor(s)	-	✓
S10.6.13	The colours of the proposed GRS should be selected to complement the existing industrial surroundings.	Land site / Pre-Construction (Detail Design)	Contractor(s)	-	N/A. To be checked.
<b>8. Cultural Heritage</b>					
No mitigation measures were specified in the EIA report as no sites of terrestrial or marine archaeological potential are located in the Project Area.					
<b>9. Hazard to Life</b>					

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
EP3.12	The first major piece of equipment in the GRS for connecting the offshore pipeline shall be an Emergency Shutdown (ESD) valve, which can be closed in order to isolate the GRS from the source of gas in the event of an emergency	Land site / Pre-Construction (Detail Design)	CAPCO	-	N/A. To be checked during detailed engineering design.

## Remark:

- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Leighton Contractors (Asia) Limited
- Δ Deficiency of Mitigation Measures but rectified by Leighton Contractors (Asia) Limited
- N/A Not Applicable in Reporting Period

## Annex A-2 Summary of Mitigation Measures during the Dredging/ Jetting Activities for this Project

Marine Work Location (Zone)	Marine Work & Plant Type	No. of Plant	Specific Mitigation Measures	Status
Gas Pipeline – Shore Approach (KP 4.89 – KP 4.78)	Dredging by Closed Grab Dredger	1	Grab dredging speed shall be no more than 57 m per day or 4.75 m per hour, whichever is less. Silt curtain(s) will be installed during grab dredging operations along this pipeline section *.	N/A. No dredging along this Section during the reporting period
Gas Pipeline – Black Point to Urmston Road (KP 4.78 – KP 2.52)	Trenching by Jetting Machine	1	Jetting speed shall be no more than 360 m per day or 30 m per hour, whichever is less. Silt curtain(s) will be installed along the marine works areas during jetting operations for the installation of this pipeline section *. The extent of silt curtain(s) installation will be determined based on site condition (e.g. bathymetry of the works area) and navigation safety considerations. Details of the design and implementation of the silt curtain(s) will be developed before construction and verified by the Independent Environmental Checker (IEC) and agreed with EPD. Should non-compliance occur at the respective impact station during water quality monitoring, the use of additional mitigation measures will be examined by the ET and the IEC, discussed with the Contractor, EPD and CAPCO.	N/A. No jetting during the reporting period
Gas Pipeline – across Urmston Road (KP 2.52 – KP 0.73)	Dredging by Closed Grab Dredger	1	Grab dredging speed shall be no more than 57 m per day or 2.5 m per hour, whichever is less. Should non-compliance occur at the respective impact station during water quality monitoring, the use of additional mitigation measures, such as cage-type silt curtain, will be examined by the ET and the IEC, discussed with the Contractor, EPD and CAPCO *.	✓. Silt curtains were deployed
Gas Pipeline – from Urmston Road to HKSAR boundary (KP 0.73 – KP 0)	Trenching by Jetting Machine	1	Jetting speed shall be no more than 360 m per day or 30 m per hour, whichever is less. Should non-compliance occur at the respective impact station during water quality monitoring, the use of additional mitigation measures will be examined by the ET and the IEC, discussed with the Contractor, EPD and CAPCO *.	N/A. No jetting during the reporting period

\* Details of silt curtain installation shall be submitted to the IEC for verification prior to the commencement of dredging/jetting works.

## Remark:

- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Contractor
- Δ Deficiency of Mitigation Measures but rectified by Contractor
- N/A Not Applicable in Reporting Period

Annex B

## Waste Flow Table

## Waste Flow Table Year: 2012

Month	Actual Quantities of Inert Construction Waste Reused/Recycled			Actual Quantities of Construction Waste Recycled						Actual Quantities of Disposed Material			
	Broken Concrete <sup>1</sup> Recycled (tonnes)	Re-used in Project (tonnes)	Re-used in Other Projects <sup>2</sup> (tonnes)	Metals Recycled (kg)	Paper Recycled (kg)	Cardboard Packaging Recycled (kg)	Plastic <sup>3</sup> Recycled (kg)	Timber (kg)	Others <sup>4</sup> (nos.)	Chemical Waste <sup>5</sup> to Licensed Facilities		Inert Construction Waste <sup>6</sup> to Public Fill (tonnes)	Construction Waste to Landfill (tonnes)
										Liquid (litres)	Solid (kg)		
Jan	0	0	0	0	0	0	0	0	0	0	0	4974.25	11.55
Feb	0	0	0	10	780	0	0	0	0	0	250	2786.54	10
Mar	0	0	0	6445	625	0	0	0	0	0	0	3574.56	6.69
Q1 total	0	0	0	6455	1405	0	0	0	0	0	250	11335	28.24
Apr	0	0	0	15	775	0	0	0	0	0	0	833.48	33.92
May	0	0	0	7080	510	300	50	0	162	0	0	113.48	11.47
Jun	0	400	0	25	590	540	5	0	19	0	0	1910.25	9.83
Q2 total	0	400	0	7120	1875	840	55	0	181	0	0	2857	55.22
Jul													
Aug													
Sep													
Q3 total	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct													
Nov													
Dec													
Q4 total	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Grand total</b>	<b>0</b>	<b>400</b>	<b>0</b>	<b>13575</b>	<b>3280</b>	<b>840</b>	<b>55</b>	<b>0</b>	<b>181</b>	<b>0</b>	<b>250</b>	<b>14192.56</b>	<b>83.46</b>

Note / Definition:

1. Broken concrete for recycling into aggregates (eg Tuen Mun Area 38).
2. Other projects include third-parties (eg quarries).
3. Plastic refers to plastic bottles/containers, plastic sheets/foam from packaging material.
4. Examples of other waste recycled may include tyres and computer equipment

5. Chemical waste is split into 2 components: liquid waste (eg spent lubricating oil) and solid waste (eg spent batteries).

6. Inert construction waste is also known as public fill. It includes, for example, concrete, rubble, earth, boulder, sand, tile, masonry and used bentonite.

Wai Kee (Zens) Construction & Transportation Co., Ltd.

Black Point Gas Supply Project - The Second West-East Gas Pipeline Project-Hong Kong

**Monthly Summary Waste Flow Table (June 2012)**

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (3)	Chemical Waste	Marine Sediment	
	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	S. Cheung Chau/ m <sup>3</sup> (Type I)	E. Sha Chau/ m <sup>3</sup> (Type II)
JAN												
FEB												
MAR												
APR												
MAY												
JUNE											8,600	13,650
SUB-TOTAL											8,600	13,650
JULY												
AUG												
SEPT												
OCT												
NOV												
DEC												
TOTAL											8,600	13,650

Forecast of Total Quantities of C&D Materials to be Generated from the Contract											
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (3)	Chemical Waste	Marine Sediment	
[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000m <sup>3</sup> ]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	S. Cheung Chau/ m <sup>3</sup> (Type I)	E. Sha Chau/ m <sup>3</sup> (Type II)
										72,800	145,600

- Notes :
- (1) The performance targets are given in PS Clause 6(14)
  - (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the site
  - (3) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material
  - (4) The contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50000m<sup>3</sup>

Annex C

Schedules for Water Quality  
Impact Monitoring and  
Additional Marine Mammal  
Monitoring



**Black Point Gas Supply Project (First Phase)  
Water Quality Impact Monitoring Schedule - June 2012**

Impact-HK Monitoring: Water Quality Monitoring for Dredging and Jetting Activities in Hong Kong Waters. For monitoring stations please refer to Figure 1.

Impact-PRC Monitoring: Water Quality Monitoring During Dredging Activities in PRC Waters within 2.5 km from HKSAR boundary. For monitoring stations please refer to Figure 2.

Reference Tidal Station: Lok On Pai (Source: HK Observatory Department)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Jun	2-Jun
					Mid-Flood; 1647hrs Mid-Ebb; 1017hrs <i>Impact-PRC Monitoring</i>	
3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	8-Jun	9-Jun
	Mid-Flood; 1954hrs Mid-Ebb; 1245hrs <i>Impact-PRC Monitoring</i>		Mid-Flood; 0717hrs Mid-Ebb; 1421hrs <i>Impact-PRC Monitoring</i>	Mid-Flood; 0803hrs Mid-Ebb; 1508hrs <i>Impact-HK Monitoring</i>	Mid-Flood; 0850hrs Mid-Ebb; 1554hrs <i>Impact-PRC Monitoring</i>	Mid-Flood; 0941hrs Mid-Ebb; 1640hrs <i>Impact-HK Monitoring</i>
10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun
	Mid-Flood; 1153hrs Mid-Ebb; 1818hrs <i>Impact-PRC Monitoring</i>	Mid-Flood; 1314hrs Mid-Ebb; 1914hrs <i>Impact-HK Monitoring</i>	Mid-Flood; 1444hrs Mid-Ebb; 0903hrs <i>Impact-PRC Monitoring</i>	Mid-Flood; 1604hrs Mid-Ebb; 0957hrs <i>Impact-HK Monitoring</i>	Mid-Flood; 1708hrs Mid-Ebb; 1040hrs <i>Impact-PRC Monitoring</i>	Mid-Flood; 1802hrs Mid-Ebb; 1118hrs <i>Impact-HK Monitoring</i>
17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun
	Mid-Flood; 1927hrs Mid-Ebb; 1227hrs <i>Impact-PRC Monitoring</i>	Mid-Flood* Mid-Ebb* <i>Impact-HK Monitoring</i>	Mid-Flood; 2039hrs Mid-Ebb; 1337hrs <i>Impact-PRC Monitoring</i>	Mid-Flood; 0702hrs Mid-Ebb; 1412hrs <i>Impact-HK Monitoring</i>	Mid-Flood; 0741hrs Mid-Ebb; 1447hrs <i>Impact-PRC Monitoring</i>	Mid-Flood; 0821hrs Mid-Ebb; 1523hrs <i>Impact-HK Monitoring</i>
24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun
		Mid-Flood; 1058hrs Mid-Ebb; 1728hrs <i>Impact-HK Monitoring</i>		Mid-Flood; 1353hrs Mid-Ebb; 1947hrs <i>Impact-HK Monitoring</i>		Mid-Flood* Mid-Ebb* <i>Impact-HK Monitoring</i>

\* Monitoring was cancelled due to adverse weather condition.

**Black Point Gas Supply Project (First Phase)  
Schedule for Additional Marine Mammal Monitoring (Construction Phase) - June 2012**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Jun	2-Jun
3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	8-Jun	9-Jun
10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun
17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun
			<i>Additional Marine Mammal Monitoring (Construction Phase)</i>			
24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun

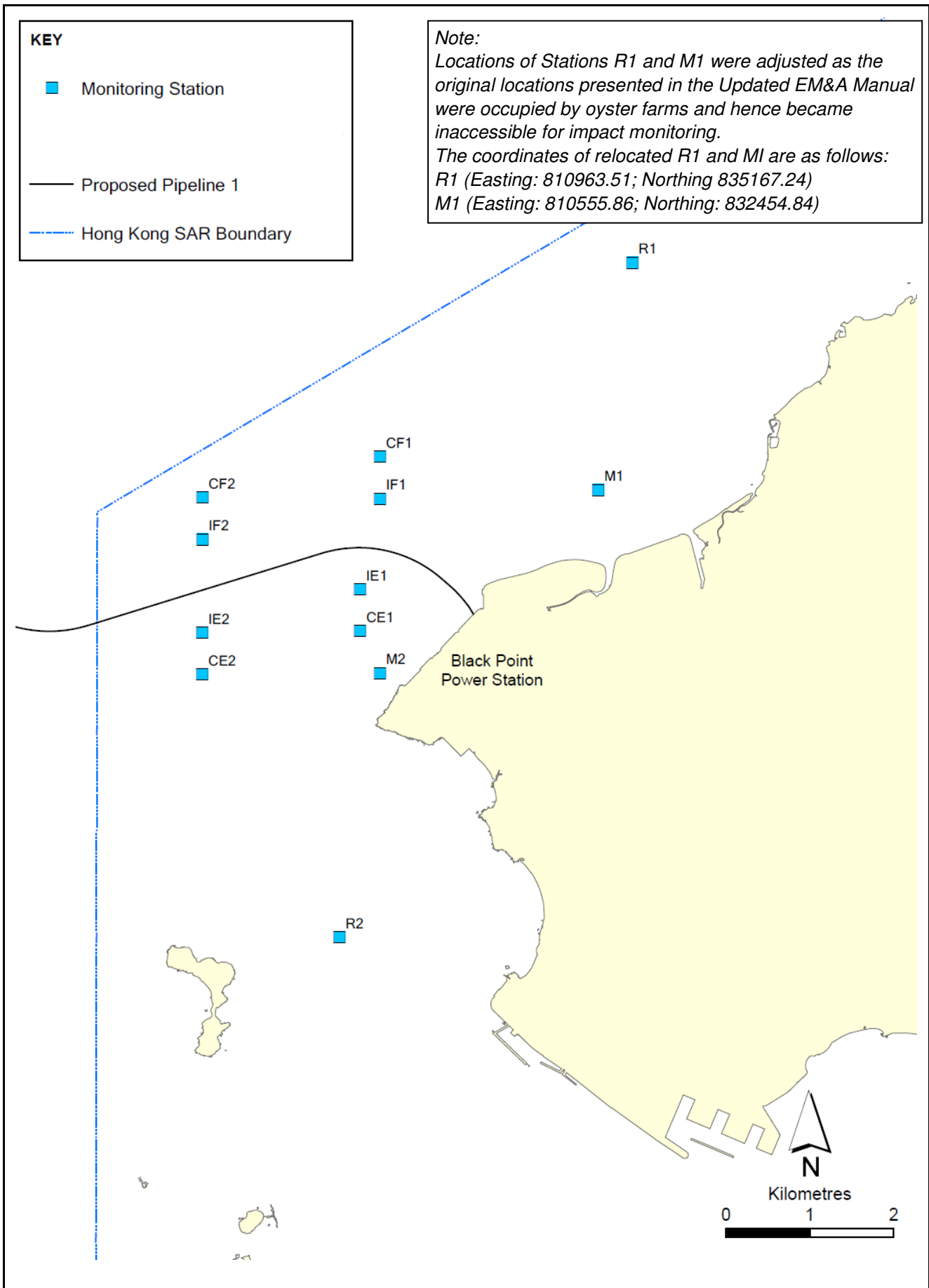


Figure 1 Water Quality Monitoring Stations during Dredging Activities in Hong Kong Waters

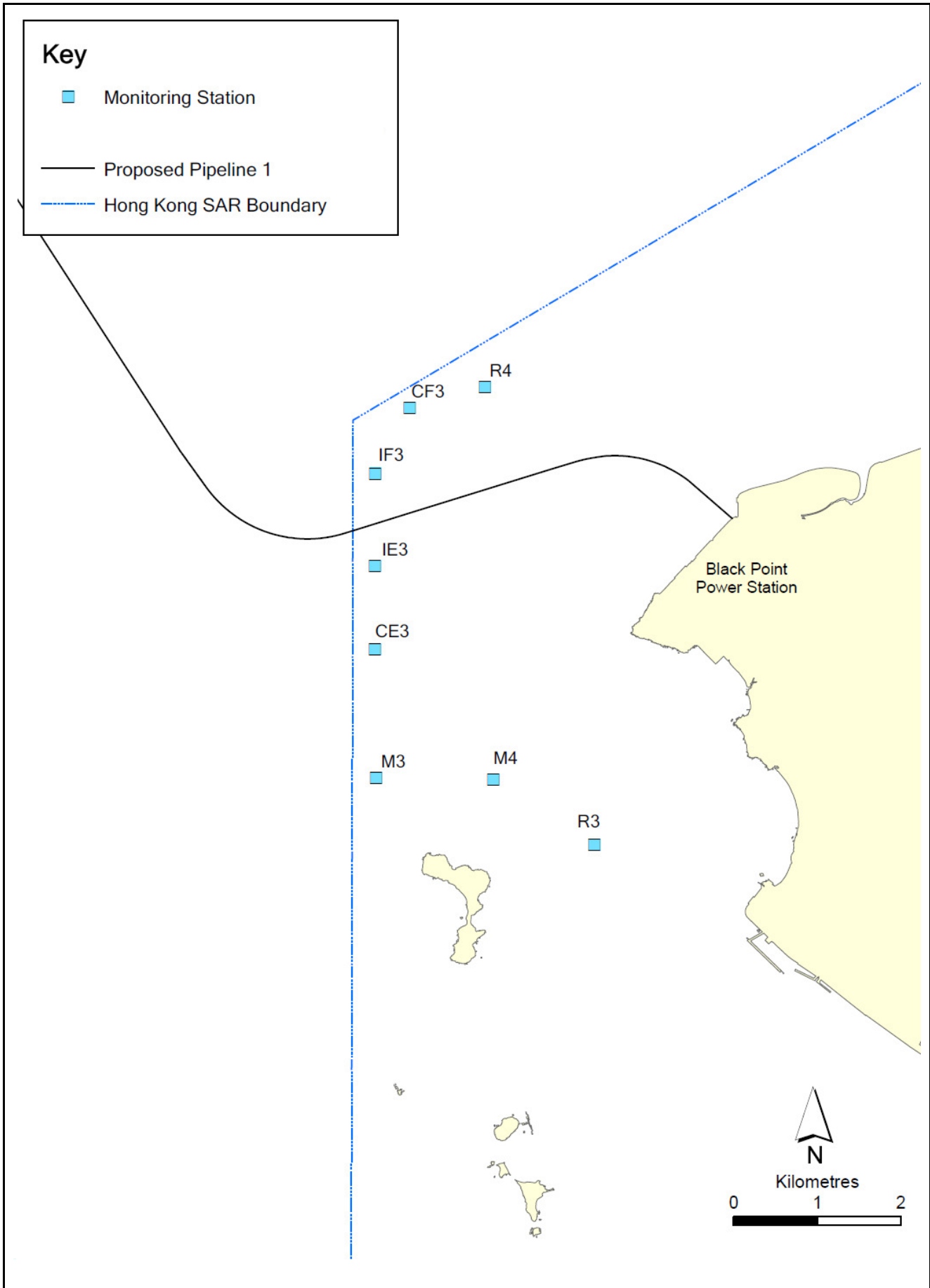


Figure 2 Water Quality Monitoring Stations during Dredging Activities in PRC Waters within 2.5 km of HKSAR Boundary

Environmental  
Resources  
Management



**Black Point Gas Supply Project (First Phase)  
Tentative Water Quality Impact Monitoring Schedule - July 2012**

Impact-HK Monitoring: Water Quality Monitoring for Dredging and Jetting Activities in Hong Kong Waters. For monitoring stations please refer to Figure 3.1.

Impact-PRC Monitoring: Water Quality Monitoring During Dredging Activities in PRC Waters within 2.5 km from HKSAR boundary. For monitoring stations please refer to Figure 3.2.

Reference Tidal Station: Lok On Pai (Source: HK Observatory Department)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Jul	Public Holiday	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul
		Mid-Flood: 12:35 Mid-Ebb: 19:50  <i>Impact-HK Monitoring</i>		Mid-Flood: 7:08 Mid-Ebb: 14:09  <i>Impact-HK Monitoring</i>		Mid-Flood: 8:42 Mid-Ebb: 15:32  <i>Impact-HK Monitoring</i>
8-Jul		9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
		Mid-Flood: 11:18 Mid-Ebb: 17:22  <i>Impact-HK Monitoring</i>		Mid-Flood: 8:07 Mid-Ebb: 13:59  <i>Impact-HK Monitoring</i>		Mid-Flood: 10:05 Mid-Ebb: 17:05  <i>Impact-HK Monitoring</i>
15-Jul		16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
		Mid-Flood: 12:06 Mid-Ebb: 19:11  <i>Impact-HK Monitoring</i>		Mid-Flood: 13:19 Mid-Ebb: 20:15  <i>Impact-HK Monitoring</i>		Mid-Flood: 7:37 Mid-Ebb: 14:30  <i>Impact-HK Monitoring</i>
22-Jul		23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
		Mid-Flood: 9:52 Mid-Ebb: 16:18  <i>Impact-HK Monitoring</i>		Mid-Flood: 12:14 Mid-Ebb: 18:03  <i>Impact-HK Monitoring</i>		Mid-Flood: 8:31 Mid-Ebb: 15:48  <i>Impact-HK Monitoring</i>
29-Jul		30-Jul	31-Jul			
		Mid-Flood: 11:35 Mid-Ebb: 18:52  <i>Impact-HK Monitoring</i>				

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

**Black Point Gas Supply Project (First Phase)  
Tentative Water Quality Impact Monitoring Schedule - July 2012**

Impact-HK Monitoring: Water Quality Monitoring for Dredging and Jetting Activities in Hong Kong Waters. For monitoring stations please refer to Figure 3.1.

Impact-PRC Monitoring: Water Quality Monitoring During Dredging Activities in PRC Waters within 2.5 km from HKSAR boundary. For monitoring stations please refer to Figure 3.2.

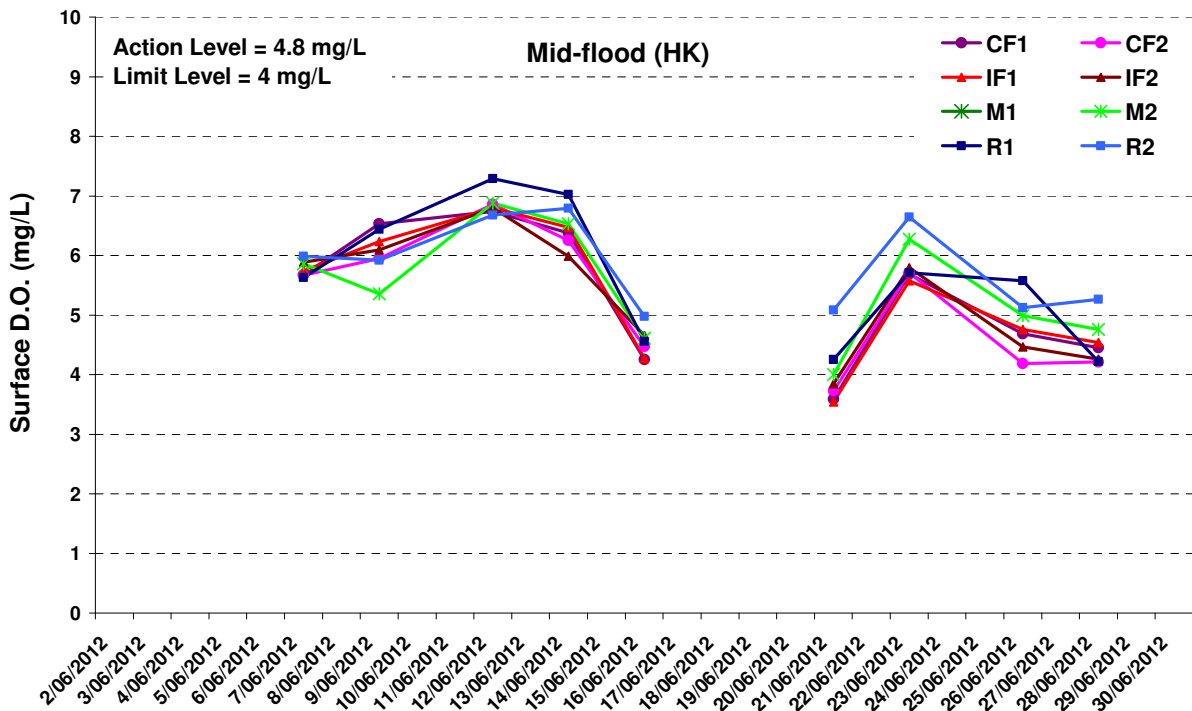
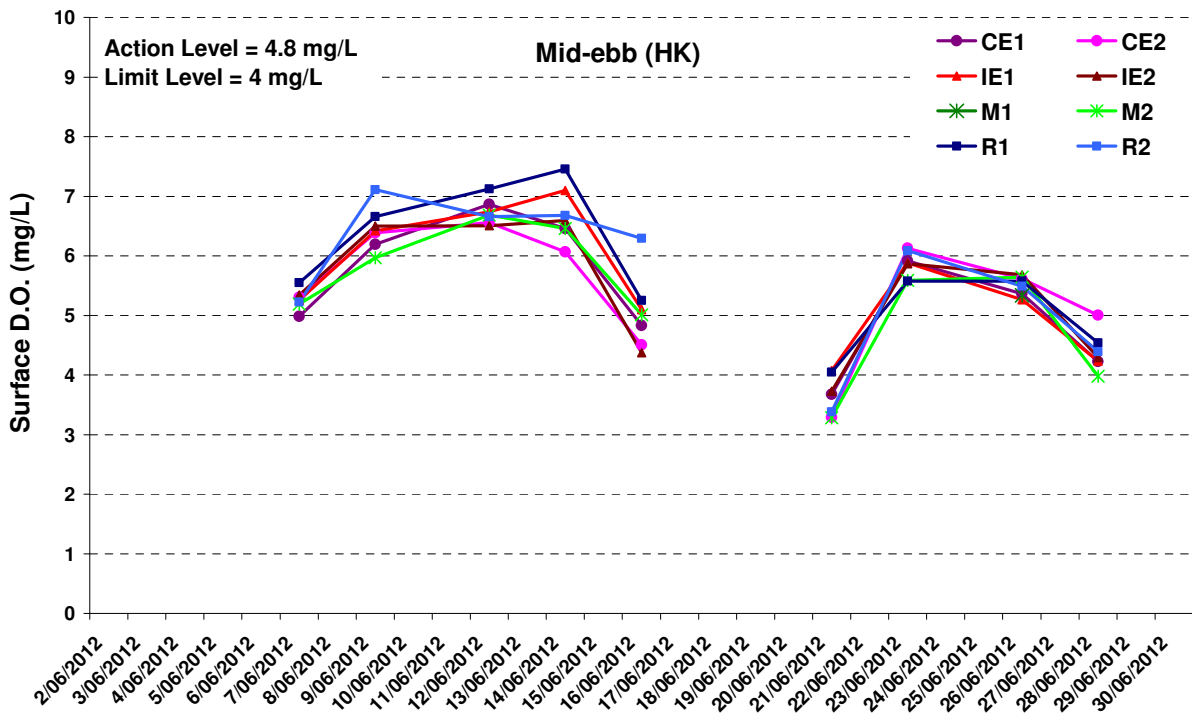
Reference Tidal Station: Lok On Pai (Source: HK Observatory Department)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Jul	Public Holiday	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul
			<i>Additional Marine Mammal Monitoring (Construction Phase)</i>			
8-Jul		9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
15-Jul		16-Jul	17-Jul	18-Jul	19-Jul	20-Jul
22-Jul		23-Jul	24-Jul	25-Jul	26-Jul	27-Jul
29-Jul		30-Jul	31-Jul			

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

Annex D

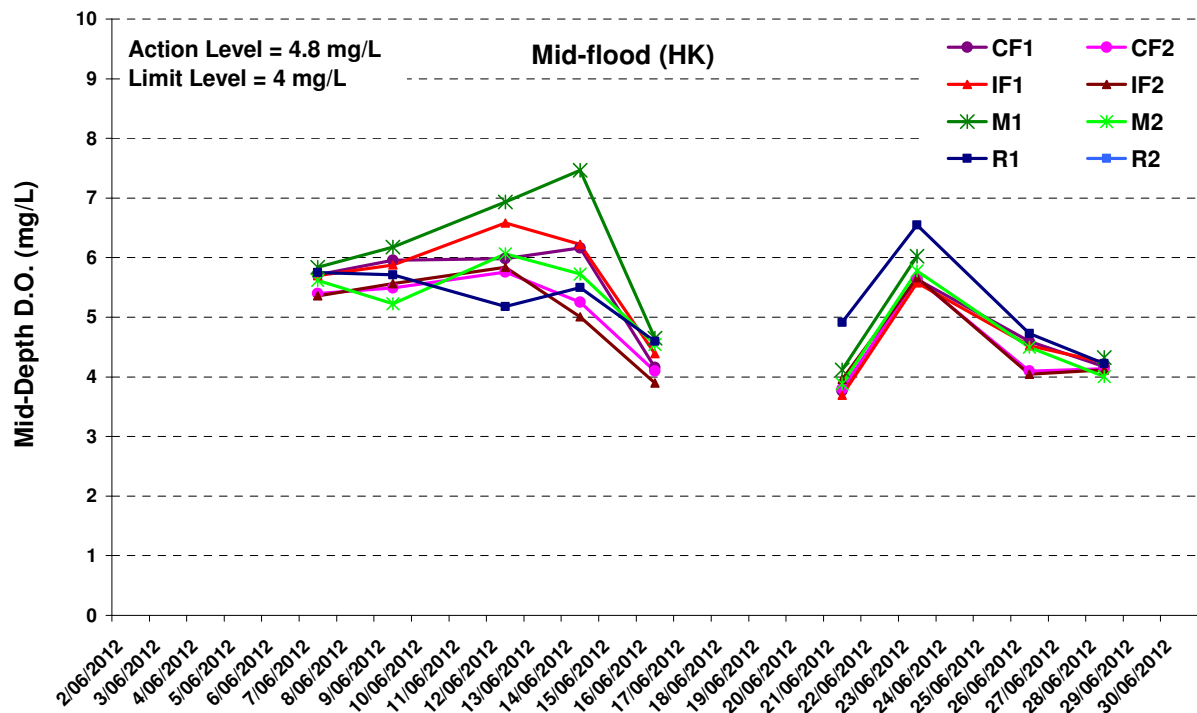
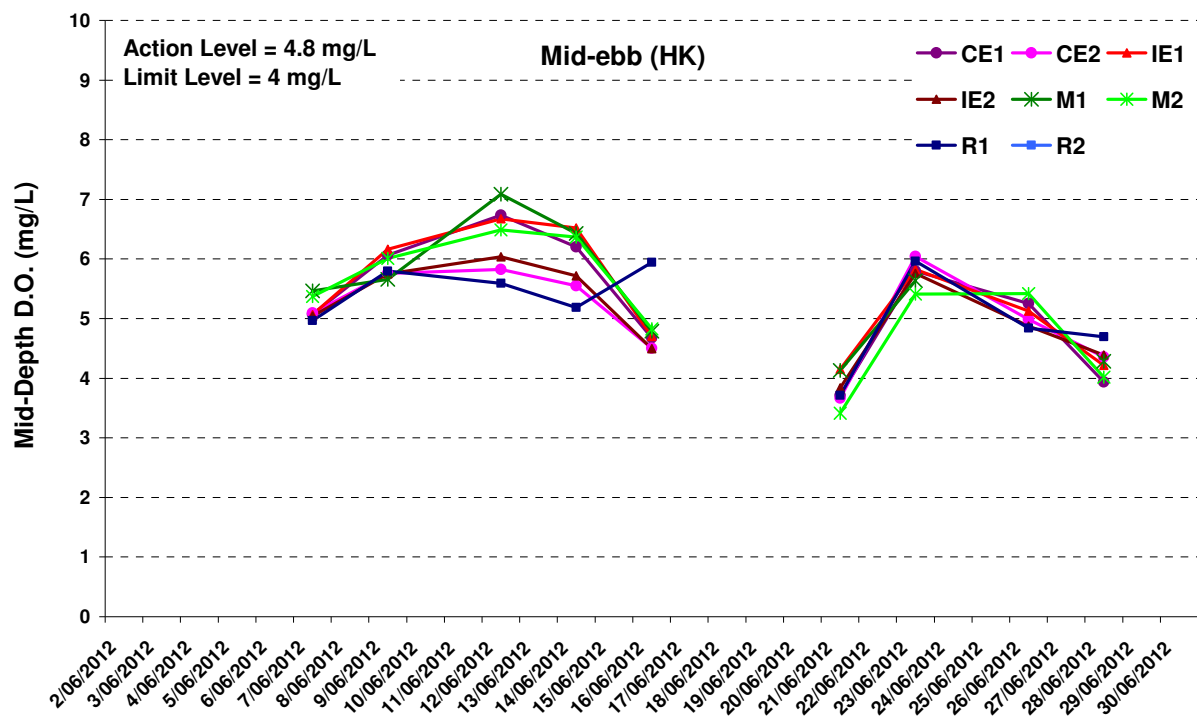
Impact Water Quality  
Monitoring Result – June  
2012



\* No data for Station M1 due to shallow water depth (< 3m).

**Figure D1 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 7 and 30 June 2012 at Monitoring Stations for Hong Kong Dredging Works. No monitoring was conducted on 19 and 30 June 2012 due to adverse weather condition. Note no dredging works was undertaken on 7, 16, 19, 21 and 30 June 2012.**

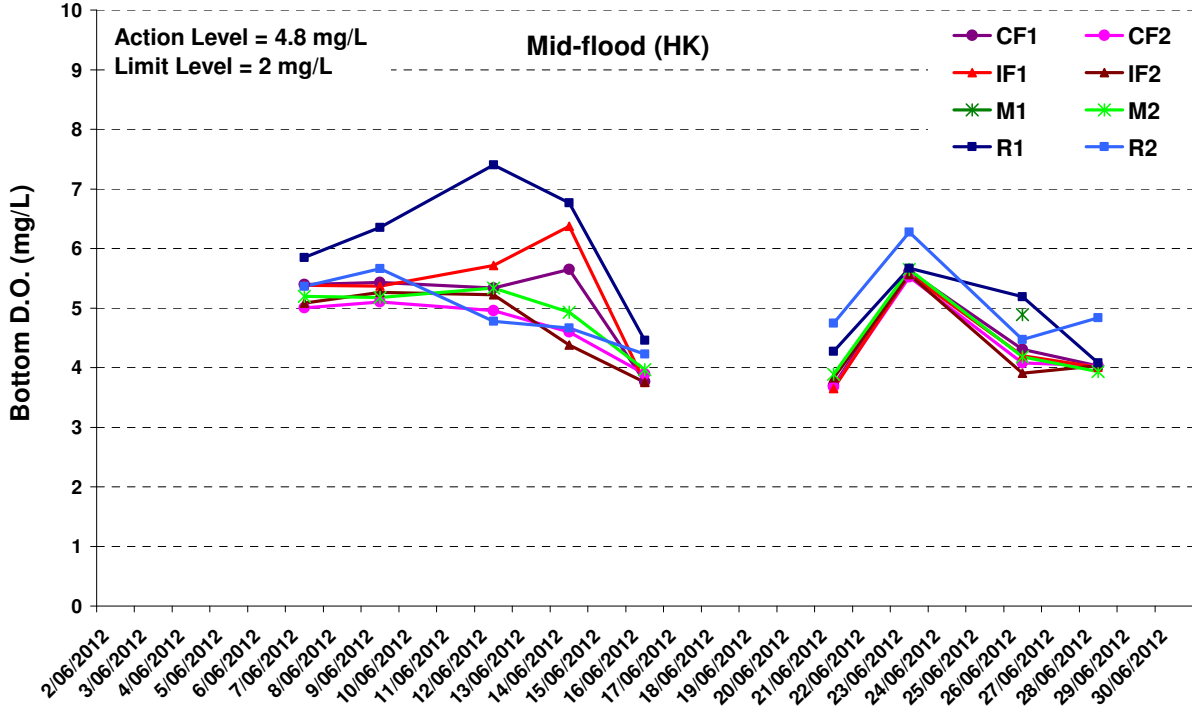
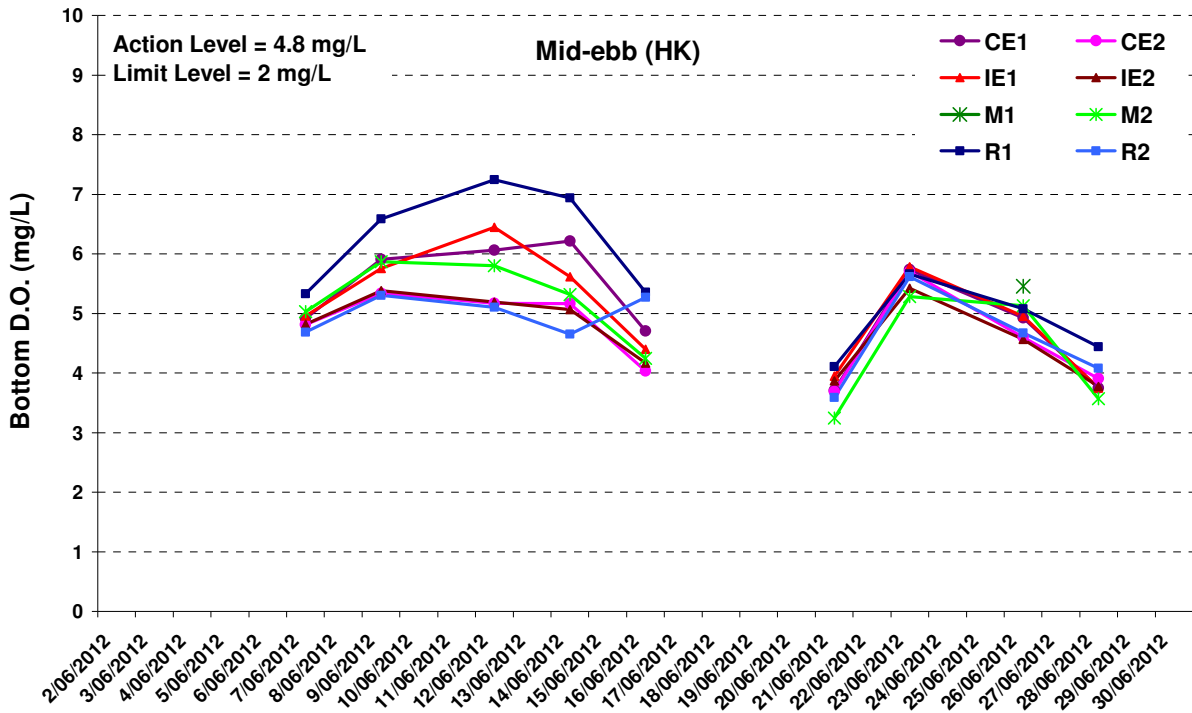




\* No data for Station R1 due to shallow water depth (< 6m).

Figure D2 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 7 and 30 June 2012 at Monitoring Stations for Hong Kong Dredging Works. No monitoring was conducted on 19 and 30 June 2012 due to adverse weather condition. Note no dredging works was undertaken on 7, 16, 19, 21 and 30 June 2012.





\* No data for Station M1 due to shallow water depth (< 3m).

**Figure D3 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom water between 7 and 30 June 2012 at Monitoring Stations for Hong Kong Dredging Works. No monitoring was conducted on 19 and 30 June 2012 due to adverse weather condition. Note no dredging works was undertaken on 7, 16, 19, 21 and 30 June 2012.**





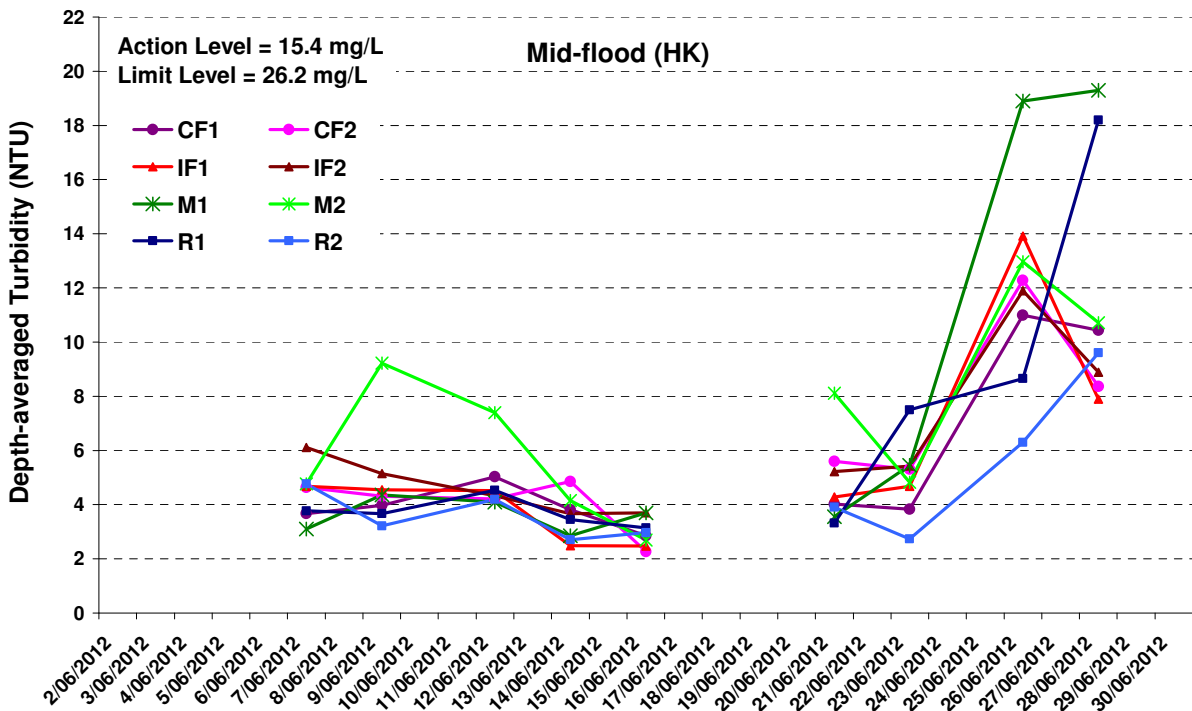
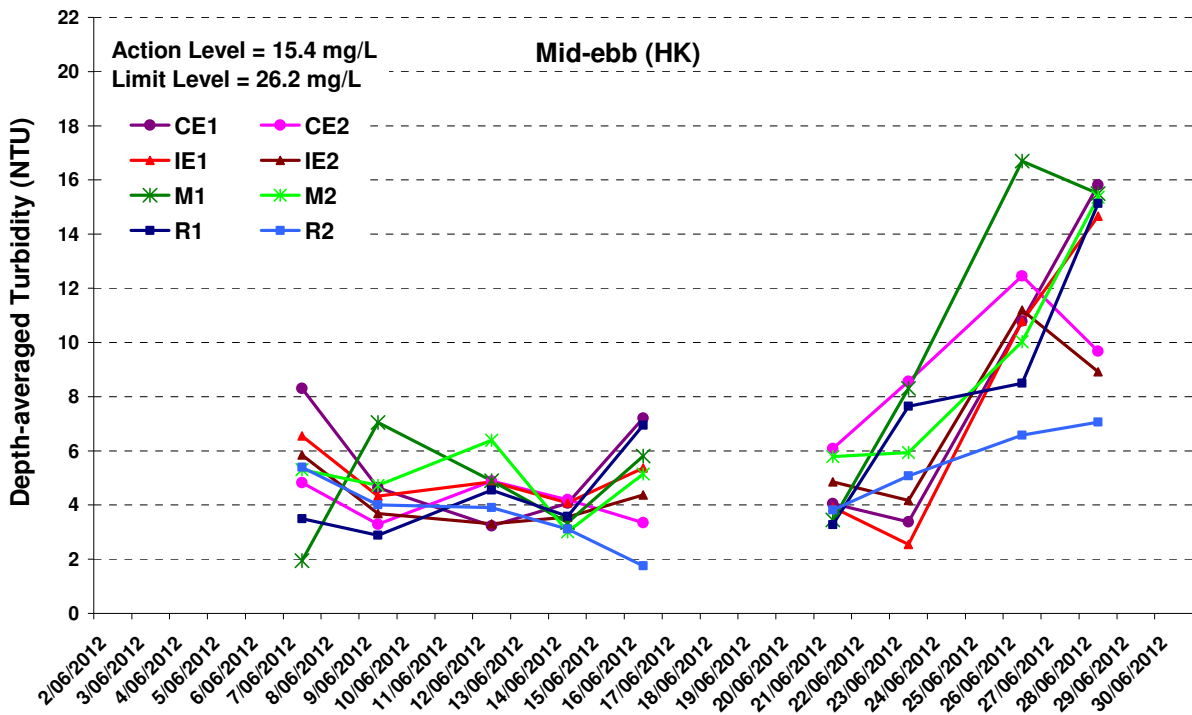


Figure D4 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 7 and 30 June 2012 at Monitoring Stations for Hong Kong Dredging Works. No monitoring was conducted on 19 and 30 June 2012 due to adverse weather condition. Note no dredging works was undertaken on 7, 16, 19, 21 and 30 June 2012.



Ref: 0124291\_Impact-WQ\_June2012graphs Rev b.xls

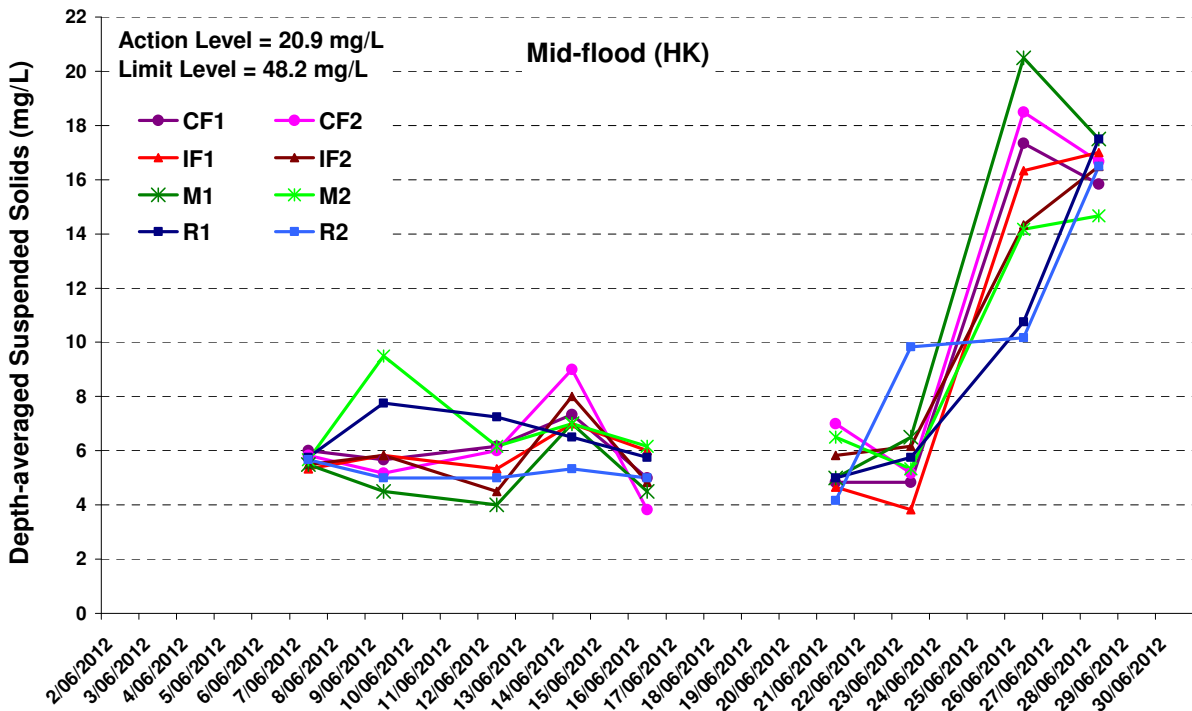
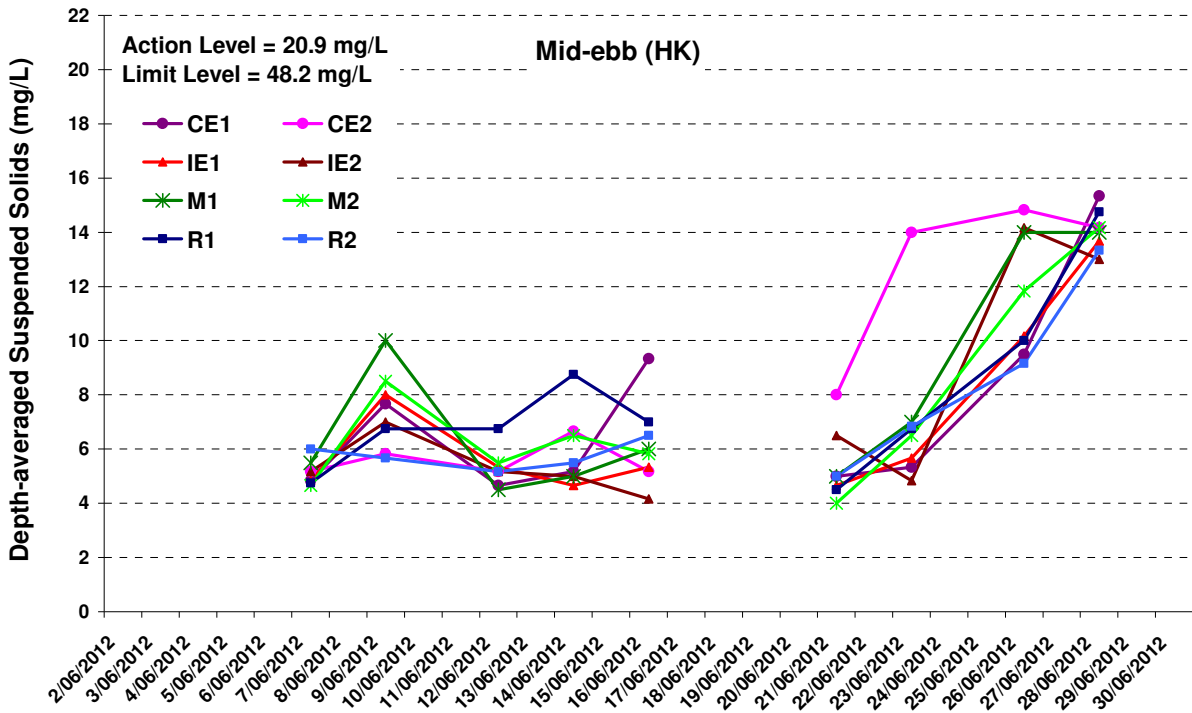


Figure D5 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 7 and 30 June 2012 at Monitoring Stations for Hong Kong Dredging Works. No monitoring was conducted on 19 and 30 June 2012 due to adverse weather condition. Note no dredging works was undertaken on 7, 16, 19, 21 and 30 June 2012.



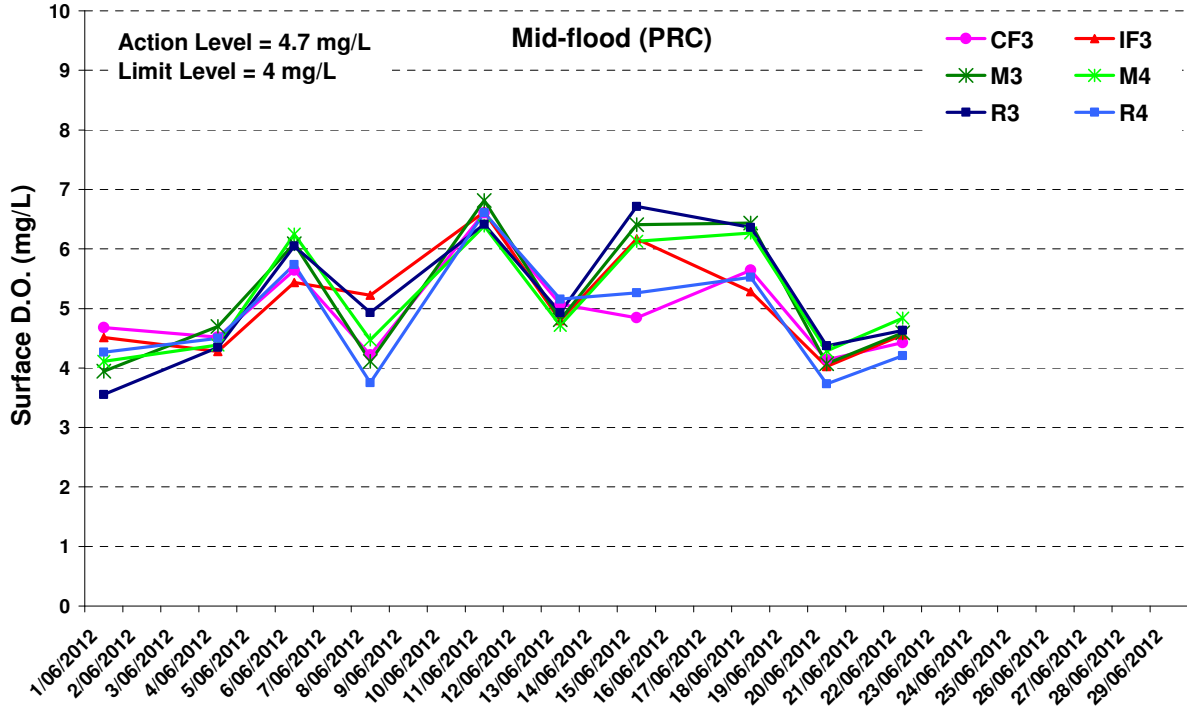
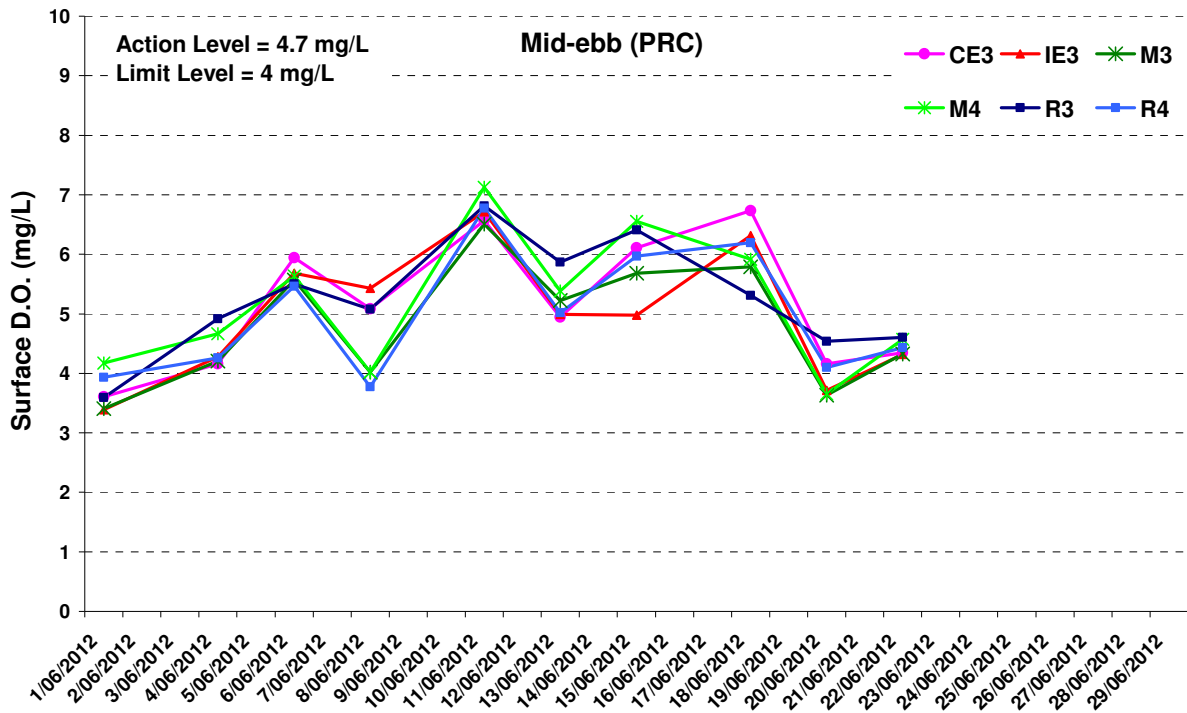
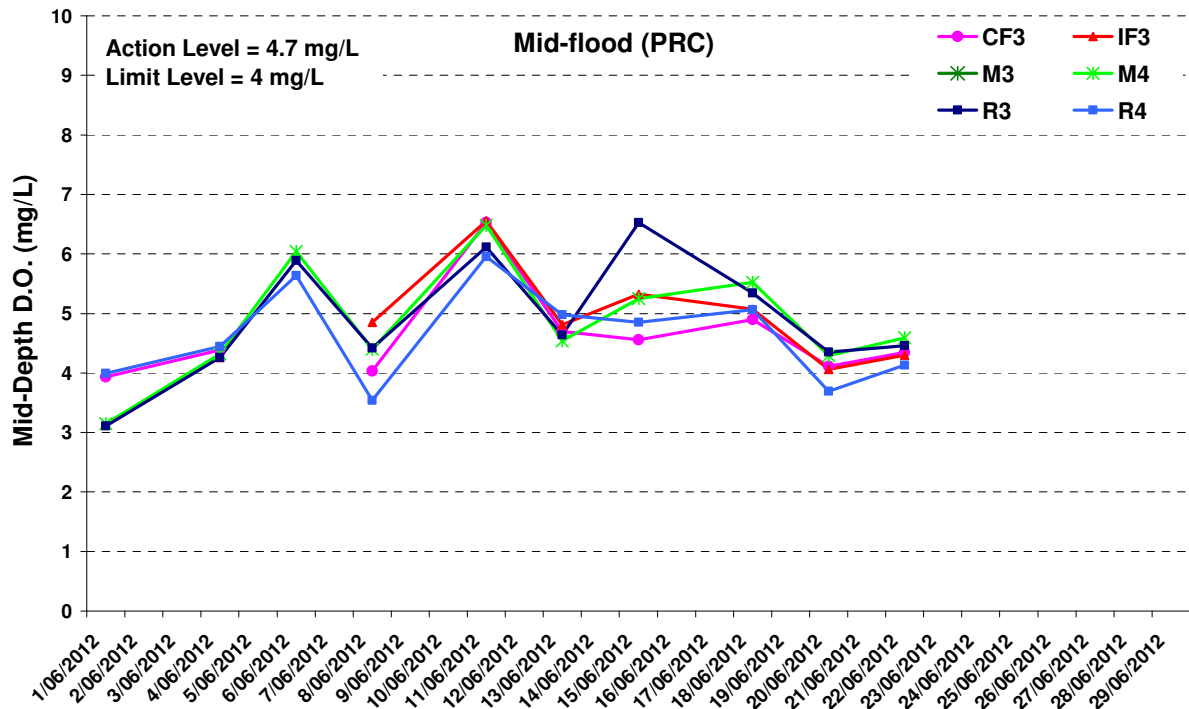
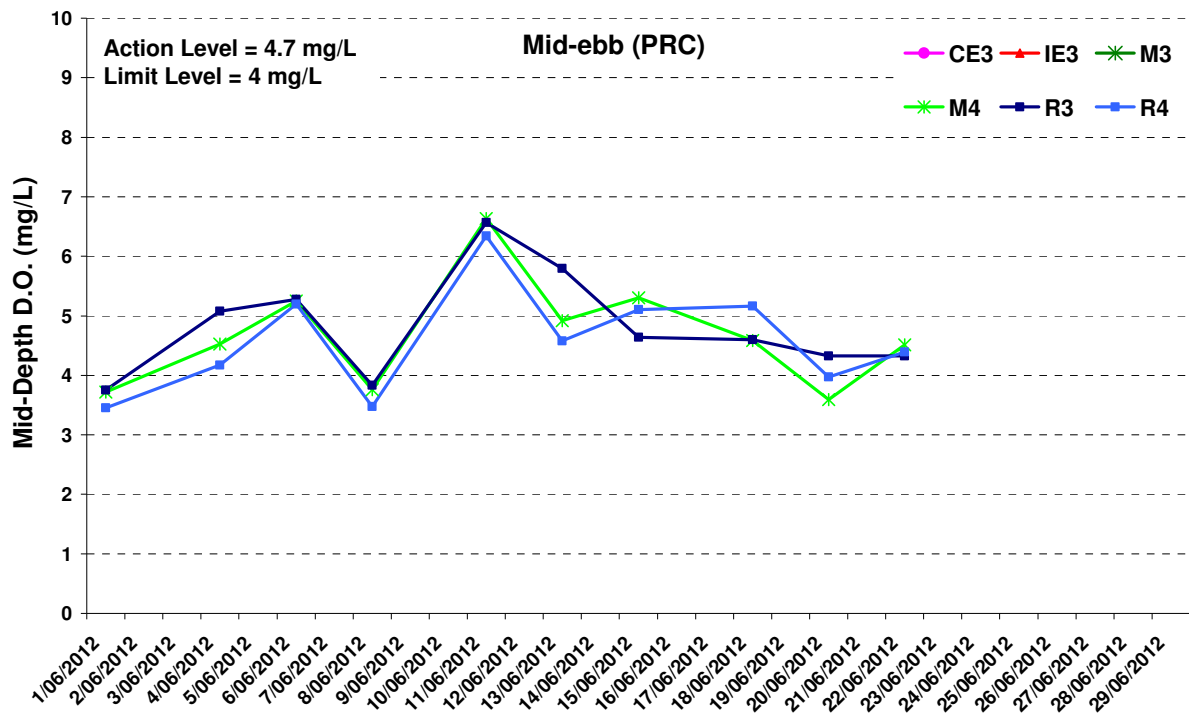


Figure D6 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters between 1 and 22 June 2012 at Monitoring Stations for PRC Dredging Works within 2.5 km from HKSAR Boundary. Note no dredging works was undertaken on 1 and 18 June 2012, and dredging works was completed on 24 June 2012.



Ref: 0124291\_Impact-WQ\_June2012graphs Rev b.xls



\* No data for Stations CE3, IE3 and M3 during mid-ebb tide due to shallow water depth (< 6m).

**Figure D7 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters between 1 and 22 June 2012 at Monitoring Stations for PRC Dredging Works within 2.5 km from HKSAR Boundary. Note no dredging works was undertaken on 1 and 18 June 2012, and dredging works was completed on 24 June 2012.**



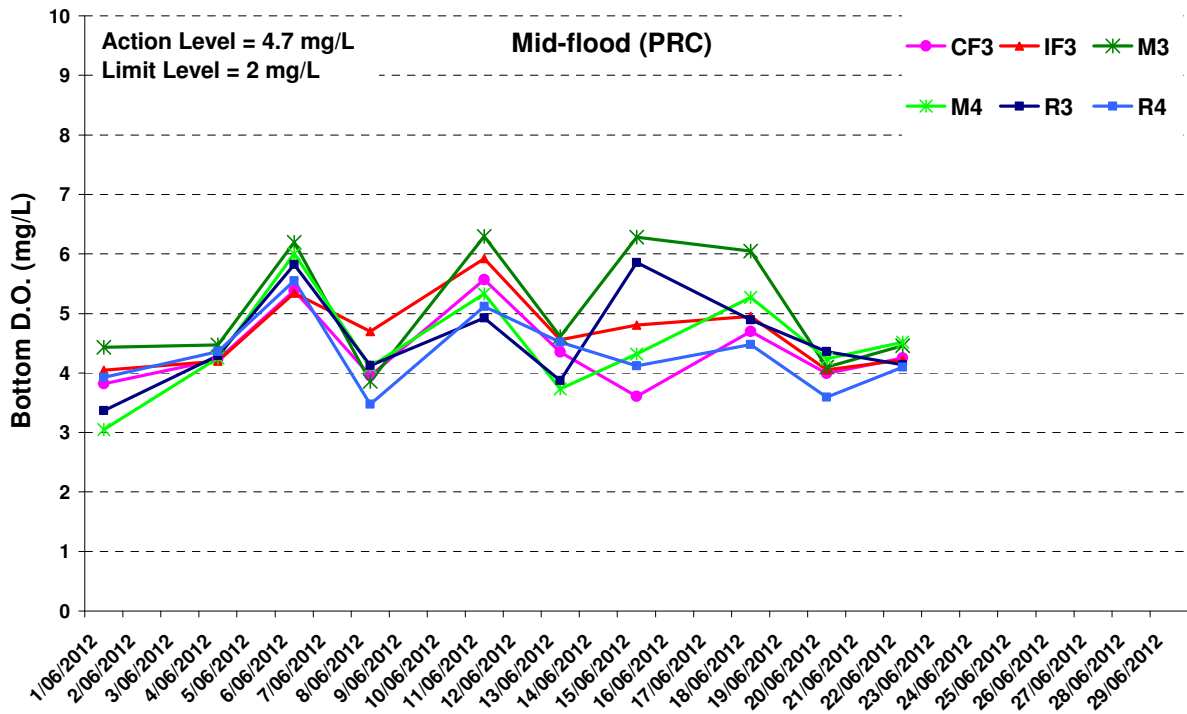
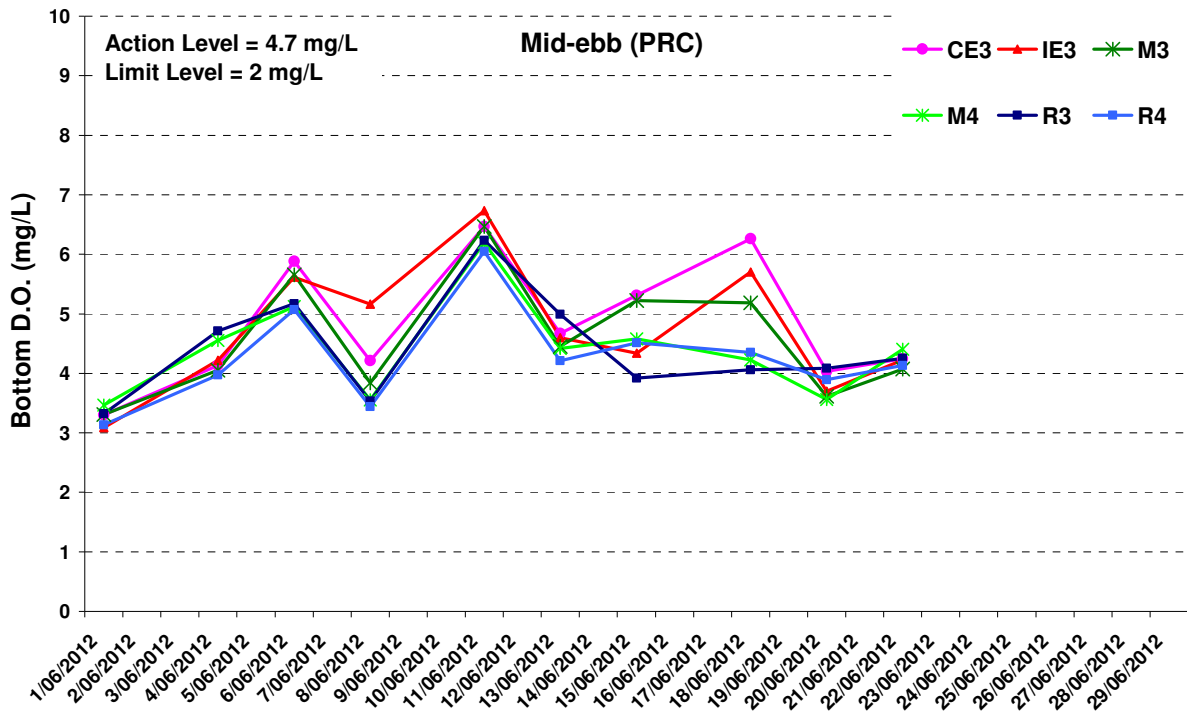


Figure D8 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom water between 1 and 22 June 2012 at Monitoring Stations for PRC Dredging Works within 2.5 km from HKSAR Boundary. Note no dredging works was undertaken on 1 and 18 June 2012, and dredging works was completed on 24 June 2012.



Ref: 0124291\_Impact-WQ\_June2012graphs Rev b.xls

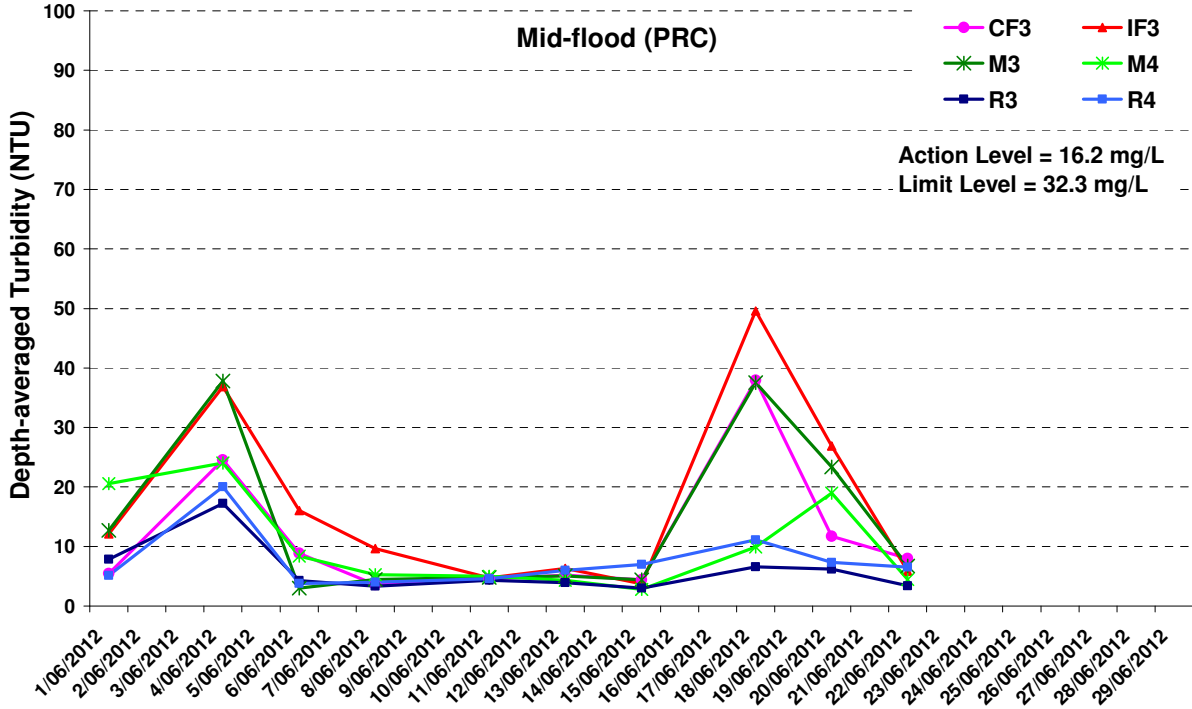
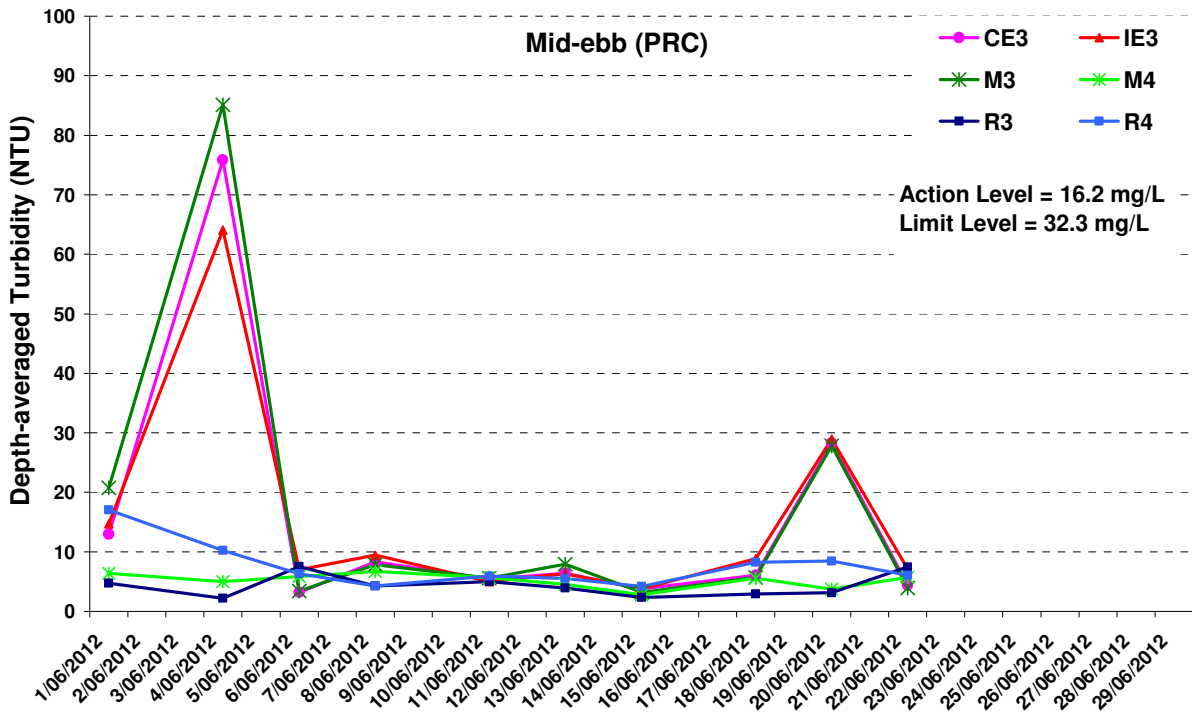


Figure D9 Impact Monitoring – Mean Depth-averaged Level of Turbidity (NTU) between 1 and 22 June 2012 at Monitoring Stations for PRC Dredging Works within 2.5 km from HKSAR Boundary. Note no dredging works was undertaken on 1 and 18 June 2012, and dredging works was completed on 24 June 2012.



Ref: 0124291\_Impact-WQ\_June2012graphs Rev b.xls

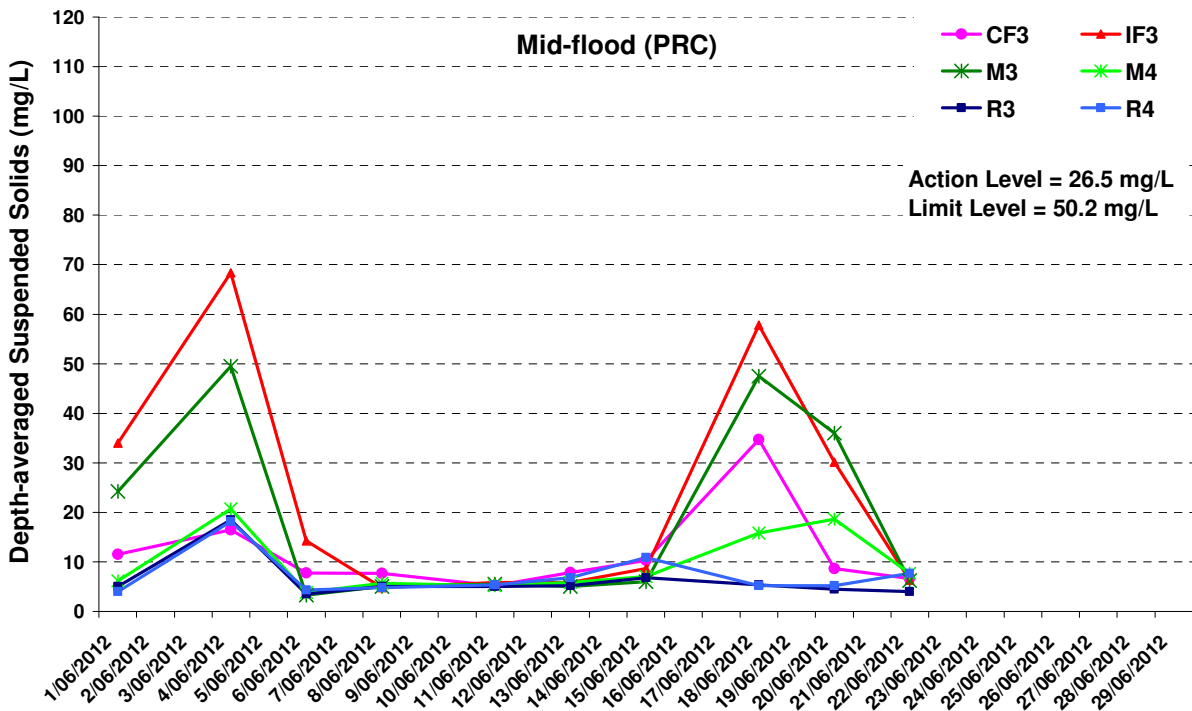
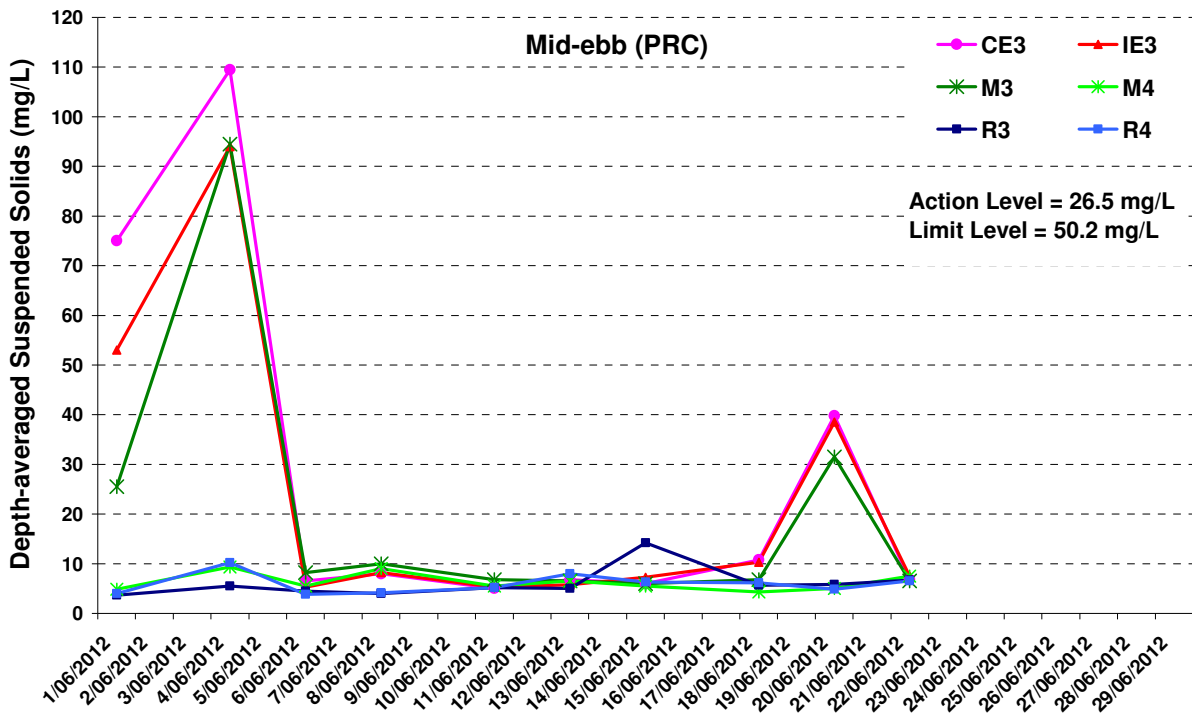


Figure D10 Impact Monitoring – Mean Depth-averaged Level of Suspended Solids (mg/L) between 1 and 22 June 2012 at Monitoring Stations for PRC Dredging Works within 2.5 km from HKSAR Boundary. Note no dredging works was undertaken on 1 and 18 June 2012, and dredging works was completed on 24 June 2012.



Ref: 0124291\_Impact-WQ\_June2012graphs Rev b.xls

Annex E

## Marine Mammal Sighting Record



## DOLPHIN / PORPOISE SIGHTING SHEET

### HIGH PRIORITY DATA (Record at Initial Sighting)

Date 20 June 2012 Time 11:31 Sighting No. 3  
 Sighting Distance (metres) -- Sighting Angle (°) --  
 Sighting Angle – Dolphins -- Sighting Angle – Bow of Boat --  
 Sighting Position (Initial) --  
 Sighting Position (dolphin) 22.4220 N, 113.8829 E (Trip: -- km)

### LOW PRIORITY DATA (Record During or After Sighting)

**Species**  Humpback Dolphin **Effort**  On  
 Finless Porpoise  Off  
 Other

**Seen By** Samuel Hung

**Group Size** Best Two animals High                      Low                     

**CWD\* Group Composition†** UC                      UJ                      SJ                       
 SS                      SA 2 UA                     

**FP‡ Group Composition** Claves                      Adults                     

**Beaufort**  0  1  2  3  4  5  6  7+

**Boat Assoc.**  None  Pair  Shrimp  Hang  
 Other

**Photos**  Yes  No

**Survey Area** Deep Bay

**Survey Type** EM&A – Construction transect survey

### BEHAVIOUR / COMMENTS

Feeding  Socializing  Travelling  Milling/Resulting  
 Breaching  Spy-hopping  Porpoising

**Other Behaviour** N/A  
**Identified Individual(s)** N/A  
**Other Comments** N/A

\* CWD = Chinese White Dolphin

† UC = Unspotted Calf, UJ = Unspotted Juvenile, SJ = Spotted Juvenile, SS = Spotted Sub-Adult, SA = Spotted Adult, UA = Unspotted Adult

‡ Finless Porpoise

## DOLPHIN / PORPOISE SIGHTING SHEET

### HIGH PRIORITY DATA (Record at Initial Sighting)

Date 20 June 2012 Time 13:02 Sighting No. 4

Sighting Distance (metres) -- Sighting Angle (°) --

Sighting Angle – Dolphins -- Sighting Angle – Bow of Boat --

Sighting Position (Initial) --

Sighting Position (dolphin) 22.4369 N, 113.8934 E (Trip: -- km)

### LOW PRIORITY DATA (Record During or After Sighting)

**Species**  Humpback Dolphin **Effort**  On  
 Finless Porpoise  Off  
 Other

**Seen By** Samuel Hung

**Group Size** Best One animals High Low

**CWD\* Group Composition†** UC UJ SJ SS SA 1 UA

**FP‡ Group Composition** Claves Adults

**Beaufort**  0  1  2  3  4  5  6  7+

**Boat Assoc.**  None  Pair  Shrimp  Hang  
 Other

**Photos**  Yes  No

**Survey Area** Deep Bay

**Survey Type** EM&A – Construction transect survey

### BEHAVIOUR / COMMENTS

Feeding  Socializing  Travelling  Milling/Resulting  
 Breaching  Spy-hopping  Porpoising

**Other Behaviour** N/A

**Identified Individual(s)** N/A

**Other Comments** N/A

\* CWD = Chinese White Dolphin

† UC = Unspotted Calf, UJ = Unspotted Juvenile, SJ = Spotted Juvenile, SS = Spotted Sub-Adult, SA = Spotted Adult, UA = Unspotted Adult

‡ Finless Porpoise

## DOLPHIN / PORPOISE SIGHTING SHEET

### HIGH PRIORITY DATA (Record at Initial Sighting)

Date 20 June 2012 Time 13:11 Sighting No. 5  
 Sighting Distance (metres) -- Sighting Angle (°) --  
 Sighting Angle – Dolphins -- Sighting Angle – Bow of Boat --  
 Sighting Position (Initial) --  
 Sighting Position (dolphin) 22.4265 N, 113.8859 E (Trip: -- km)

### LOW PRIORITY DATA (Record During or After Sighting)

**Species**  Humpback Dolphin **Effort**  On  
 Finless Porpoise  Off  
 Other

**Seen By** Samuel Hung

**Group Size** Best Two animals High                      Low                     

**CWD\* Group Composition†**  
 UC                      UJ                      SJ                       
 SS                      SA                      UA 2

**FP‡ Group Composition** Claves                      Adults                     

**Beaufort**  0  1  2  3  4  5  6  7+

**Boat Assoc.**  None  Pair  Shrimp  Hang  
 Other                     

**Photos**  Yes  No

**Survey Area** Deep Bay

**Survey Type** EM&A – Construction transect survey

### BEHAVIOUR / COMMENTS

Feeding  Socializing  Travelling  Milling/Resulting  
 Breaching  Spy-hopping  Porpoising

**Other Behaviour** N/A  
**Identified Individual(s)** N/A  
**Other Comments** N/A

\* CWD = Chinese White Dolphin  
 † UC = Unspotted Calf, UJ = Unspotted Juvenile, SJ = Spotted Juvenile, SS = Spotted Sub-Adult, SA = Spotted Adult, UA = Unspotted Adult  
 ‡ Finless Porpoise