

**Contract No. HY/2012/07
Tuen Mun – Chek Lap Kok Link –
Southern Connection Viaduct Section**

*Seventh Quarterly Environmental Monitoring &
Audit (EM&A) Report*

19 January 2016

Environmental Resources Management
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Contract No. HY/2012/07





Tuen Mun – Chek Lap Kok Link – Southern Connection Viaduct Section

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Seventh Quarterly Environmental Monitoring & Audit (EM&A) Report

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Client: Gammon		Project No: 0215660			
Summary: This document presents the Seventh Quarterly EM&A Report for Tuen Mun – Chek Lap Kok Link Southern Connection Viaduct Section.		Date: 19 January 2016			
		Approved by: 			
		Mr Craig Reid Partner			
		Certified by: 			
		Mr Jovy Tam ET Leader			
	7 th Quarterly EM&A Report	VAR	JT	CAR	19/01/16
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>Distribution</p> <p><input type="checkbox"/> Internal</p> <p><input checked="" type="checkbox"/> Public</p> <p><input type="checkbox"/> Confidential</p>			
		 			

Ref.: HYDHZMBEEM00_0_3792L.16

20 January 2016

AECOM
Supervising Officer's Representative's Office
780 Cheung Tung Road, Lantau, N.T.

By Fax (3691 2899) and By Post

Attention: Mr. Daniel Ip

Dear Mr. Ip,

**Re: Agreement No. CE 48/2011 (EP)
Environmental Project Office for the
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing
Facilities, and Tuen Mun-Chek Lap Kok Link – Investigation**

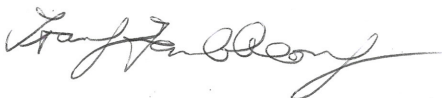
**Contract No. HY/2012/07 TM-CLKL Southern Connection Viaduct
Section
Quarterly EM&A Report for June to August 2015 (EP-354/2009/D)**

Reference is made to the Seventh Quarterly Environmental Monitoring and Audit (EM&A) Report (Jun. to Aug. 2015) (ET's ref.: "0215660_7th Qtr EM&A 20151224.doc" dated 19 Jan. 2016) certified by the ET Leader and provided to us via e-mail on 19 Jan. 2016.

Please be informed that we have no adverse comments on the captioned report.

Thank you for your attention. Please do not hesitate to contact the undersigned or the ENPO Leader Mr. Y. H. Hui should you have any queries.

Yours sincerely,



F. C. Tsang
Independent Environmental Checker
Tuen Mun – Chek Lap Kok Link

c.c. HyD – Mr. Stephen Chan (By Fax: 3188 6614)
HyD – Mr. Matthew Fung (By Fax: 3188 6614)
AECOM – Mr. Conrad Ng (By Fax: 3922 9797)
ERM – Mr. Jovy Tam (By Fax: 2723 5660)
Gammon – Mr. Roy Leung (By Fax: 3520 0486)

Internal: DY, YH, LP, CL, ENPO Site

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EXECUTIVE SUMMARY

Under *Contract No. HY/2012/07*, Gammon Construction Limited (GCL) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Southern Connection Viaduct Section of the Tuen Mun – Chek Lap Kok Link Project (TM-CLK Link Project) while AECOM Asia Company Limited was appointed by HyD as the Supervising Officer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, ERM-Hong Kong, Limited (ERM) has been appointed as the Environmental Team (ET). Ramboll Environ Hong Kong Ltd. was employed by the HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) in accordance with *Environmental Permit No. EP-354/2009/A*. Further applications for variation of environmental permit (VEP), *EP-354/2009/B*, *EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

The construction phase of the Contract commenced on 31 October 2013 and will be tentatively completed by 2018. The impact monitoring of the EM&A programme, including air quality, noise, water quality and marine ecological monitoring as well as environmental site inspections, commenced on 31 October 2013.

This is the seventh quarterly EM&A report presenting the EM&A works carried out during the period from 1 June to 31 August 2015 for the Southern Connection Viaduct Section in accordance with the Updated EM&A Manual of the TM-CLK Link Project. As informed by the Contractor, major activities in the reporting period included:

June 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;
- Marine piling and
- Installation of pier head segment

Land-based Works

- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Land piling;
- Pre-drilling works;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and

- Slope work of Slopes 9SE-B/C9 and 9SE-B/F85.

July 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;
- Marine piling; and,
- Installation of pier head segment.

Land-based Works

- Pre-drilling at Viaduct F;
- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Land piling;
- Pre-drilling works;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and,
- Slope work of Viaducts A & B.

August 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;
- Marine piling; and,
- Installation of pier head segment.

Land-based Works

- Pre-drilling at Viaduct F;
- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Land piling;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and,
- Slope work of Viaducts A & B.

A summary of monitoring and audit activities conducted in the reporting period is listed below:

24-hour TSP monitoring	18 sessions
1-hour TSP monitoring	18 sessions
Noise monitoring	18 sessions
Water quality monitoring	38 sessions
Dolphin monitoring	6 sessions
Joint Environmental site inspection	13 sessions

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Levels was recorded for air quality monitoring in the reporting period.

Breaches of Action and Limit Levels for Noise

No exceedance of Action and Limit Levels was recorded for construction noise monitoring in the reporting period.

Breaches of Action and Limit Levels for Water Quality

No exceedance of Action and Limit Levels was recorded for water quality monitoring in the reporting period.

Impact Dolphin Monitoring

One (1) Limit Level exceedance was observed for the quarterly dolphin monitoring data between June and August 2015, whilst no unacceptable impact from the construction activities of the TM-CLKL Southern Connection Viaduct Section on Chinese White Dolphins was noticeable from general observations during the dolphin monitoring in this reporting quarter.

Daily marine mammal exclusion zone monitoring was undertaken during the period of marine works under this Contract. No Passive Acoustic Monitoring (PAM) was implemented as the marine piling works were not carried out outside the daylight hours in this reporting period. No sighting of the Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese White Dolphin) was recorded in the monitoring period during the exclusion zone monitoring.

Environmental Complaints, Non-compliance & Summons

One (1) complaint with regard to dust emission from dump truck was received on 18 June 2015.

Reporting Change

There was no reporting change in this reporting period.

Upcoming Works for the Next Reporting Period

Works to be undertaken in the coming quarter include the following:

September 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;
- Marine piling; and,
- Installation of pier head segment.

Land-based Works

- Predrilling at Viaduct F;
- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Land piling;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and,
- Slope work of Viaduct A.

October 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;
- Installation of deck segment and pier head segment.

Land-based Works

- Predrilling at Viaduct F;
- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and,
- Slope work of Viaduct A.

November 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly; and
- Installation of deck segment and pier head segment.

Land-based Works

- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Installation of pier head segment; and
- Slope work of Viaduct A.

Future Key Issues

Potential environmental impacts arising from the above upcoming construction activities in the coming quarterly period are mainly associated with air quality, noise, marine water quality, marine ecology and waste management issue.

1.1

BACKGROUND

According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated increase in cross boundary traffic, developments in the Northwest New Territories (NWNT), and possible developments in North Lantau, including the Airport developments, the Lantau Logistics Park (LLP) and the Hong Kong – Zhuhai – Macao Bridge (HZMB). In order to cope with the anticipated traffic demand, two new road sections between NWNT and North Lantau – Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) are proposed.

An Environmental Impact Assessment (EIA) of TM-CLKL (the Project) was prepared in accordance with the EIA Study Brief (No. *ESB-175/2007*) and the *Technical Memorandum of the Environmental Impact Assessment Process (EIAO-TM)*. The EIA Report was submitted under the Environmental Impact Assessment Ordinance (EIAO) in August 2009. Subsequent to the approval of the EIA Report (EIAO Register Number: *AEIAR-146/2009*), an Environmental Permit (*EP-354/2009*) for TM-CLKL was granted by the Director of Environmental Protection (DEP) on 4 November 2009, and EP variation (*EP-354/2009A*) was issued on 8 December 2010. Further applications for variation of environmental permit (VEP), *EP-354/2009/B*, *EP-354/2009/C* and *EP-354/2009/D*, were granted on 28 January 2014, 10 December 2014 and 13 March 2015, respectively.

Under *Contract No. HY/2012/07*, Gammon Construction Limited (GCL) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Southern Connection Viaduct Section of TM-CLKL (“the Contract”) while AECOM Asia Company Limited was appointed by HyD as the Supervising Officer. For implementation of the environmental monitoring and audit (EM&A) programme under the Contract, ERM-Hong Kong, Limited (ERM) has been appointed as the Environmental Team (ET). Ramboll Environ Hong Kong Ltd. was employed by HyD as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) in accordance with *Environmental Permit No. EP-354/2009/A*.

The construction phase of the Contract commenced on 31 October 2013 and will be tentatively be completed by 2018. The impact monitoring phase of the EM&A programme, including air quality, noise, water quality and marine ecological monitoring as well environmental site inspections, commenced on 31 October 2013.

The general layout plan of the Contract components is presented in *Figures 1.1 & 1.2a to l*.

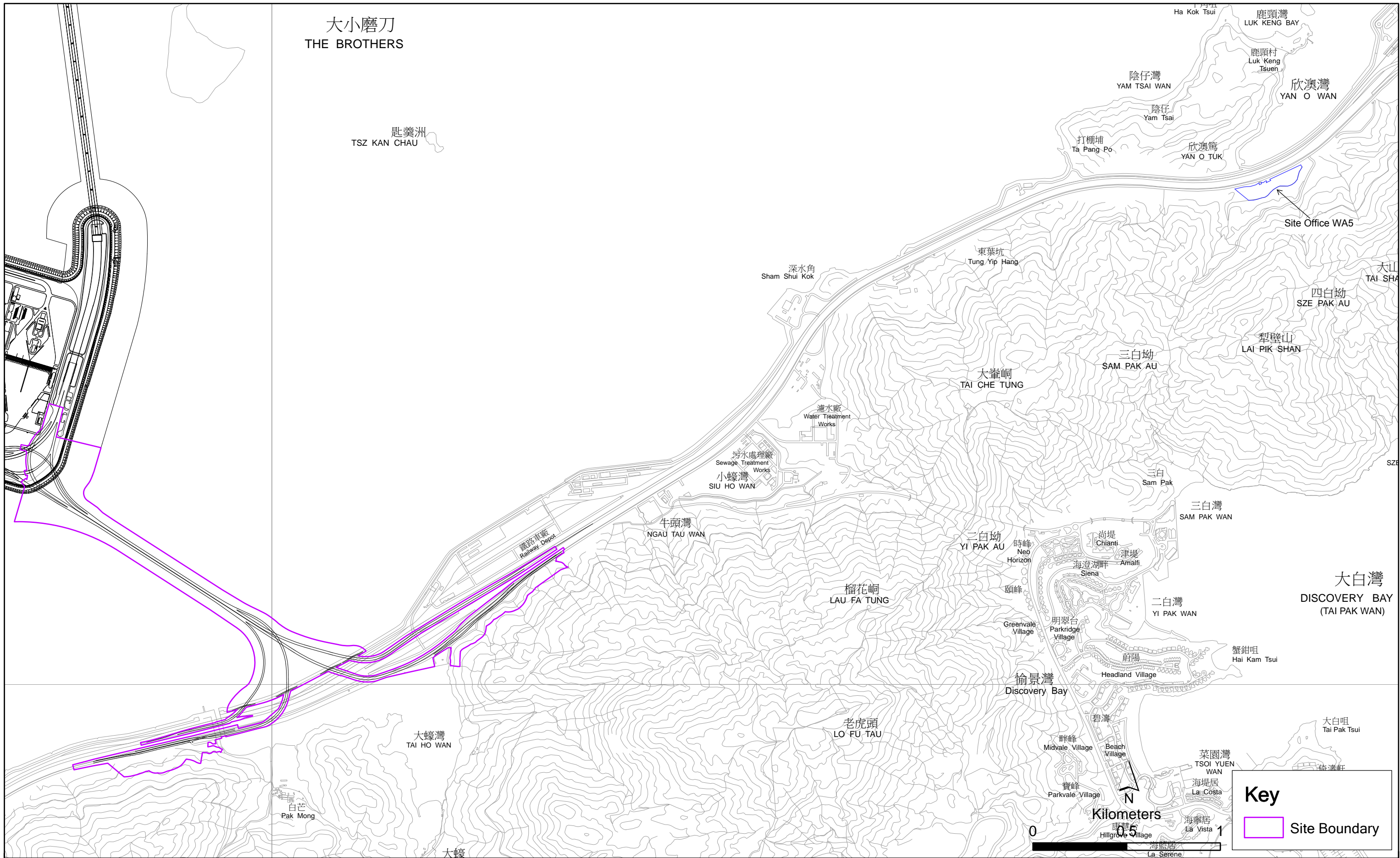


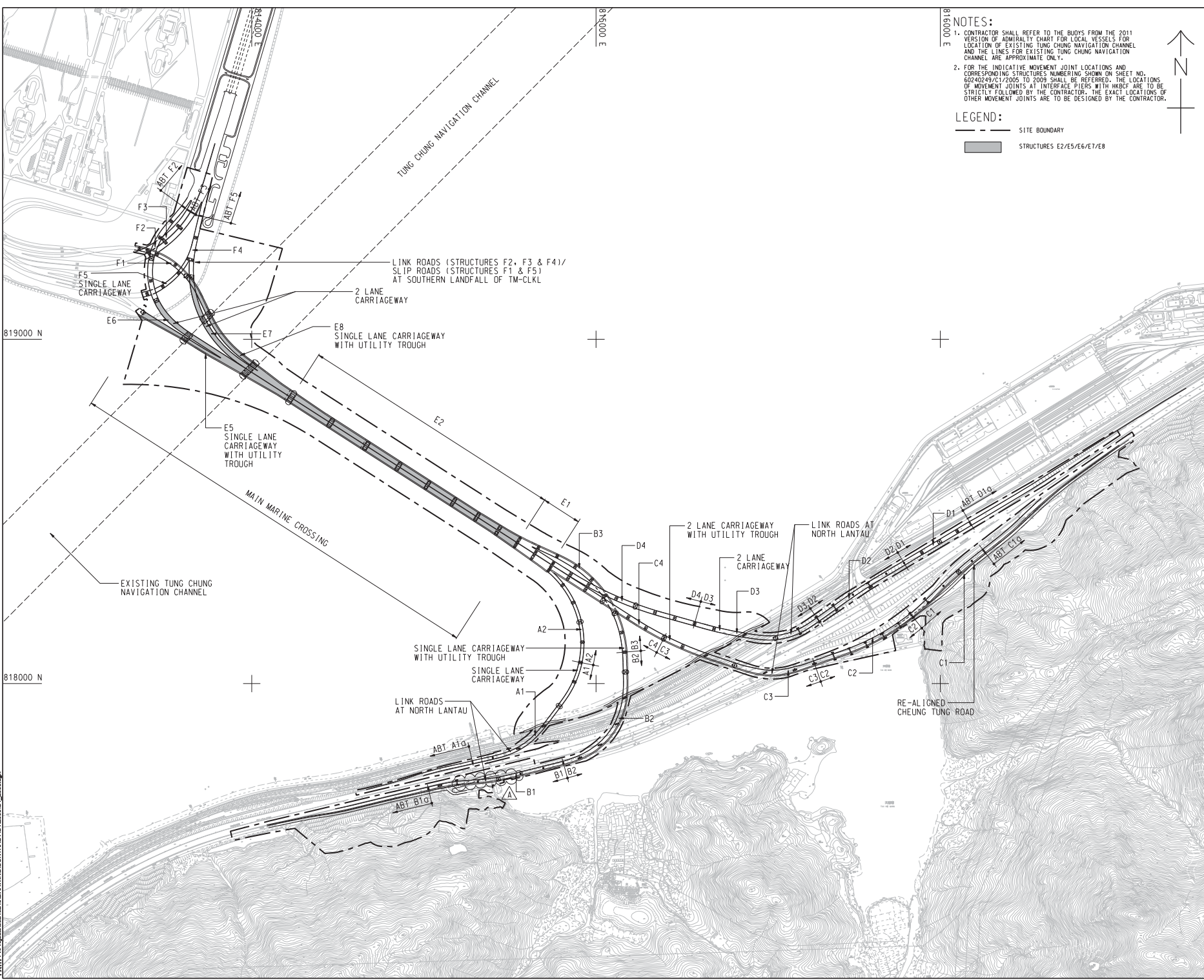
Figure 1.1

General Layout Plan of the Project

Environmental
Resources
Management



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 Designer: LHM/88 Checked: SLYT Approved: CWN
 Project Management Initials: ISO AT 50mm x 61mm
 Date: 12/11/2012



NOTES:

- CONTRACTOR SHALL REFER TO THE BUOYS FROM THE 2011 VERSION OF ADMIRALTY CHART FOR LOCAL VESSELS FOR LOCATION OF EXISTING TUNG CHUNG NAVIGATION CHANNEL AND THE LINES FOR EXISTING TUNG CHUNG NAVIGATION CHANNEL ARE APPROXIMATE ONLY.
- FOR THE INDICATIVE MOVEMENT JOINT LOCATIONS AND CORRESPONDING STRUCTURES NUMBERING SHOWN ON SHEET NO. 60240249/C1/2000 TO 2009 SHALL BE REFERRED. THE LOCATIONS OF MOVEMENT JOINTS AT INTERFACE PIERS WITH HKBCF ARE TO BE STRICTLY FOLLOWED BY THE CONTRACTOR. THE EXACT LOCATIONS OF OTHER MOVEMENT JOINTS ARE TO BE DESIGNED BY THE CONTRACTOR.

LEGEND:

— SITE BOUNDARY

▬ STRUCTURES E2/E5/E6/E7/E8



AECOM

PROJECT
TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - SOUTHERN CONNECTION VIADUCT SECTION

CLIENT
路政署
HIGHWAYS DEPARTMENT
港務局
HONG KONG PROJECT MANAGEMENT OFFICE

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

Figure 1.2a

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.

STATUS

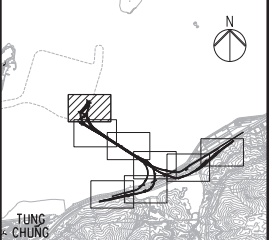
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KEY PLAN

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SHEET TITLE SOUTHERN CONNECTION GENERAL LAYOUT PLAN	
SHEET NUMBER 60240249/C1/2000A	

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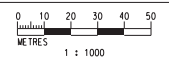


KEY PLAN

NOTES
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- LEGEND**
- SITE BOUNDARY
 - GF1 FAULT
 - EXISTING G.I.-STATIONS :
 - ⊕ BOREHOLE BY GIU DATA EXCLUDING VC
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2012/04
 - ⊕ BOREHOLE BY GCL CONTRACT NL8/97
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2009/23
 - ⊕ TRIAL PIT BY GCL CONTRACT HY/2012/04
 - SLOPE STRIPPING BY GCL CONTRACT HY/2012/04
 - PROPOSED G.I.-STATIONS :
 - ⊕ PBH01 PROPOSED BOREHOLE
 - ⊕ TP01 PROPOSED TRIAL PIT
 - ⊕ CH01 PROPOSED COREHOLE
 - SS01 SS02 PROPOSED SLOPE STRIPPING

MATCH LINE
 FOR CONTINUATION
 SEE DRG. J3518/P/OAP/04/01101



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B	SUBMISSION	RC	07/13				
C	SUBMISSION	RC	09/13				

Drawn	Date	Client
RL	07/13	HONG KONG GOVERNMENT HIGHWAYS DEPARTMENT 香港政府 路政處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office
Checked	Approved	Supervising Officer
DS	DOP	Contractor
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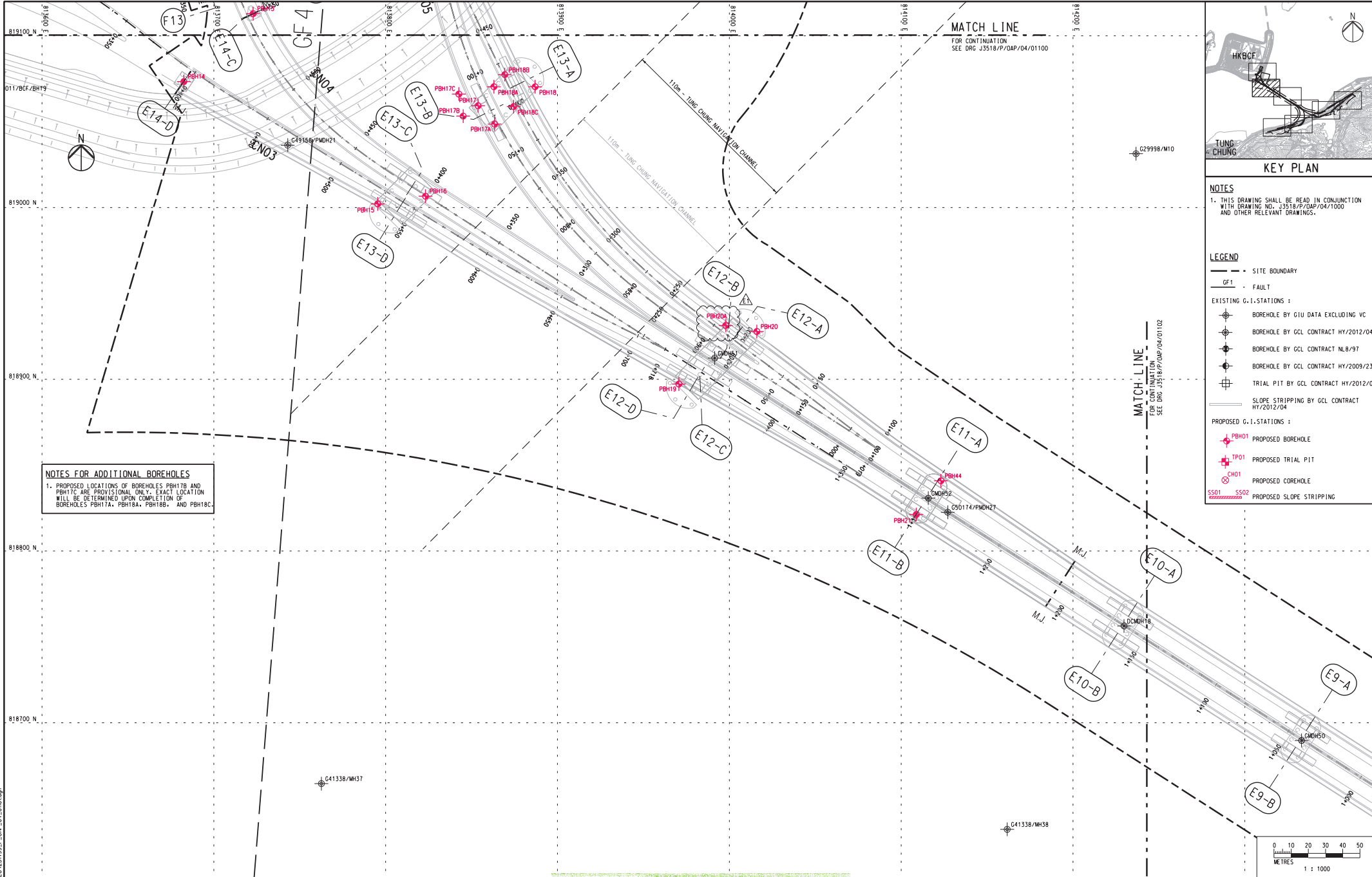
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Contract No. HY/2012/07
Tuen Mun - Chek Lap Kok Link
Southern Connection Viaduct Section

Drawing title
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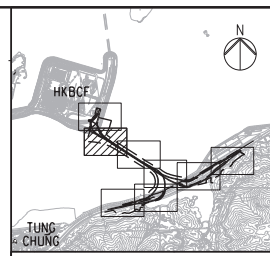
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AECOM **Gammon** **ARUP**

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FOR CONTINUATION
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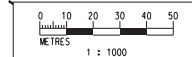


KEY PLAN

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- LEGEND
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 - GF1 - FAULT
- EXISTING G.I. STATIONS :
- ⊕ BOREHOLE BY GIU DATA EXCLUDING VC
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2012/04
 - ⊕ BOREHOLE BY GCL CONTRACT NL8/97
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2009/23
 - ⊕ TRIAL PIT BY GCL CONTRACT HY/2012/04
 - ▬ SLOPE STRIPPING BY GCL CONTRACT HY/2012/04
- PROPOSED G.I. STATIONS :
- ⊕ PBH01 PROPOSED BOREHOLE
 - ⊕ TP01 PROPOSED TRIAL PIT
 - ⊕ CH01 PROPOSED COREHOLE
 - ▬ SS01 ▬ SS02 PROPOSED SLOPE STRIPPING

NOTES FOR ADDITIONAL BOREHOLES
1. PROPOSED LOCATIONS OF BOREHOLES PBH17B AND PBH17C ARE PROVISIONAL ONLY. EXACT LOCATION WILL BE DETERMINED UPON COMPLETION OF BOREHOLES PBH17A, PBH18A, PBH18B, AND PBH18C.



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B	SUBMISSION	RC	07/13				
C	SUBMISSION	RC	09/13				
D	SUBMISSION	RC	10/13				
E1	FOR INTERNAL REVIEW	RC	11/13				

Drawn	Date	Client
RL	07/13	HIGHWAYS DEPARTMENT

Checked	Approved	Supervising Officer	Contractor
DS	DOP	AECOM	GAMMON

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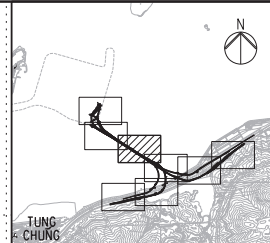
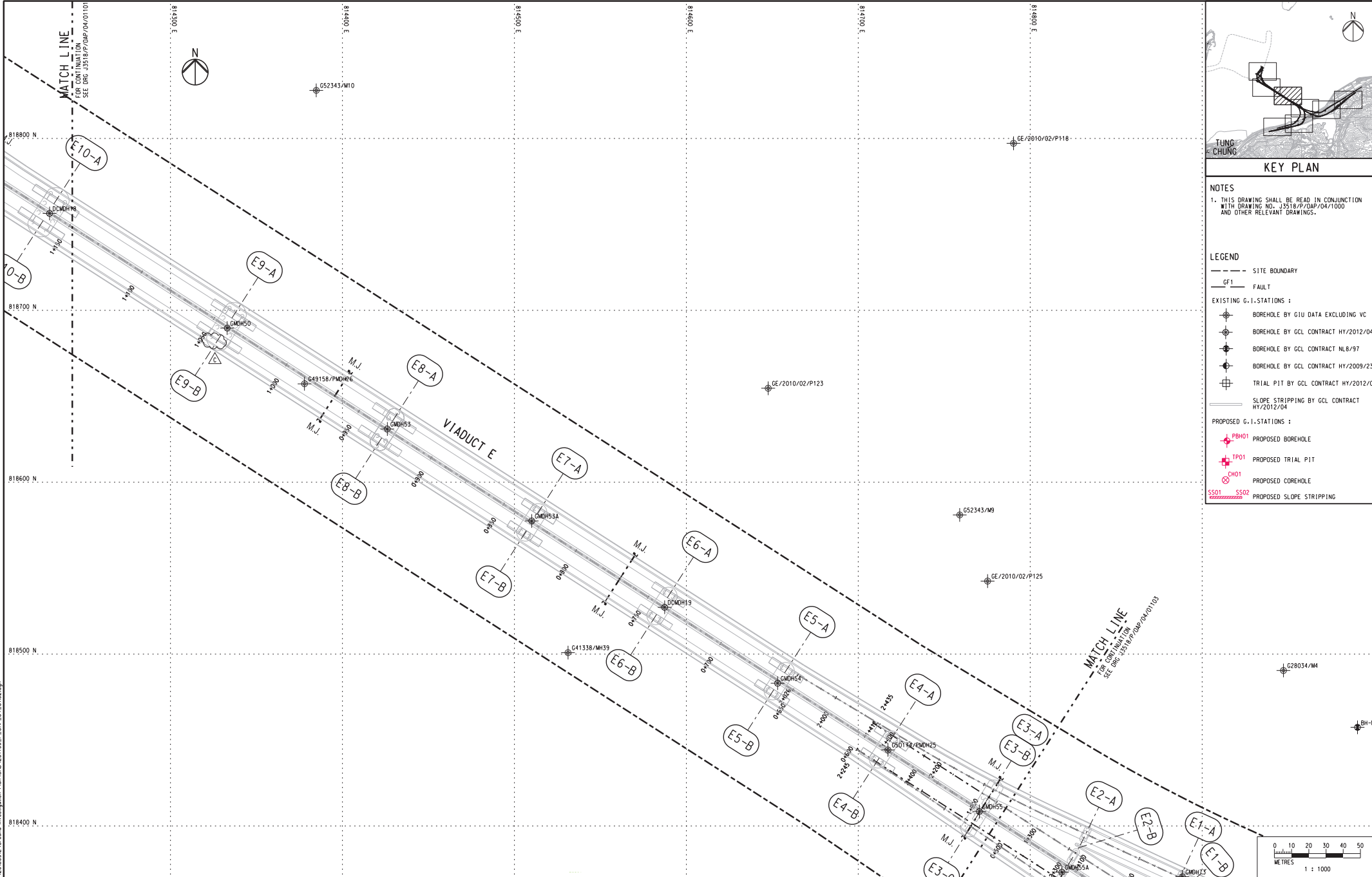
Client: 路政署
HIGHWAYS DEPARTMENT
香港渠務及港務工程處
Hong Kong - Zhuhai - Macao Bridge
Hong Kong Project Management Office

Project Title
Contract No. HY/2012/07
Tuen Mun - Chek Lap Kok Link
Southern Connection Viaduct Section

Drawing title
Figure 1.2c

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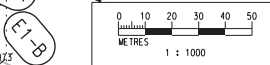
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- SITE BOUNDARY
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 - ⊕ BOREHOLE BY GCL CONTRACT HY/2009/23
 - ⊕ TRIAL PIT BY GCL CONTRACT HY/2012/04
 - SLOPE STRIPPING BY GCL CONTRACT HY/2012/04

PROPOSED G.I.-STATIONS :

 - ⊕ PBH01 PROPOSED BOREHOLE
 - ⊕ TP01 PROPOSED TRIAL PIT
 - ⊕ CH01 PROPOSED COREHOLE
 - SS01 SS02 PROPOSED SLOPE STRIPPING

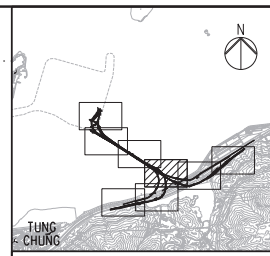
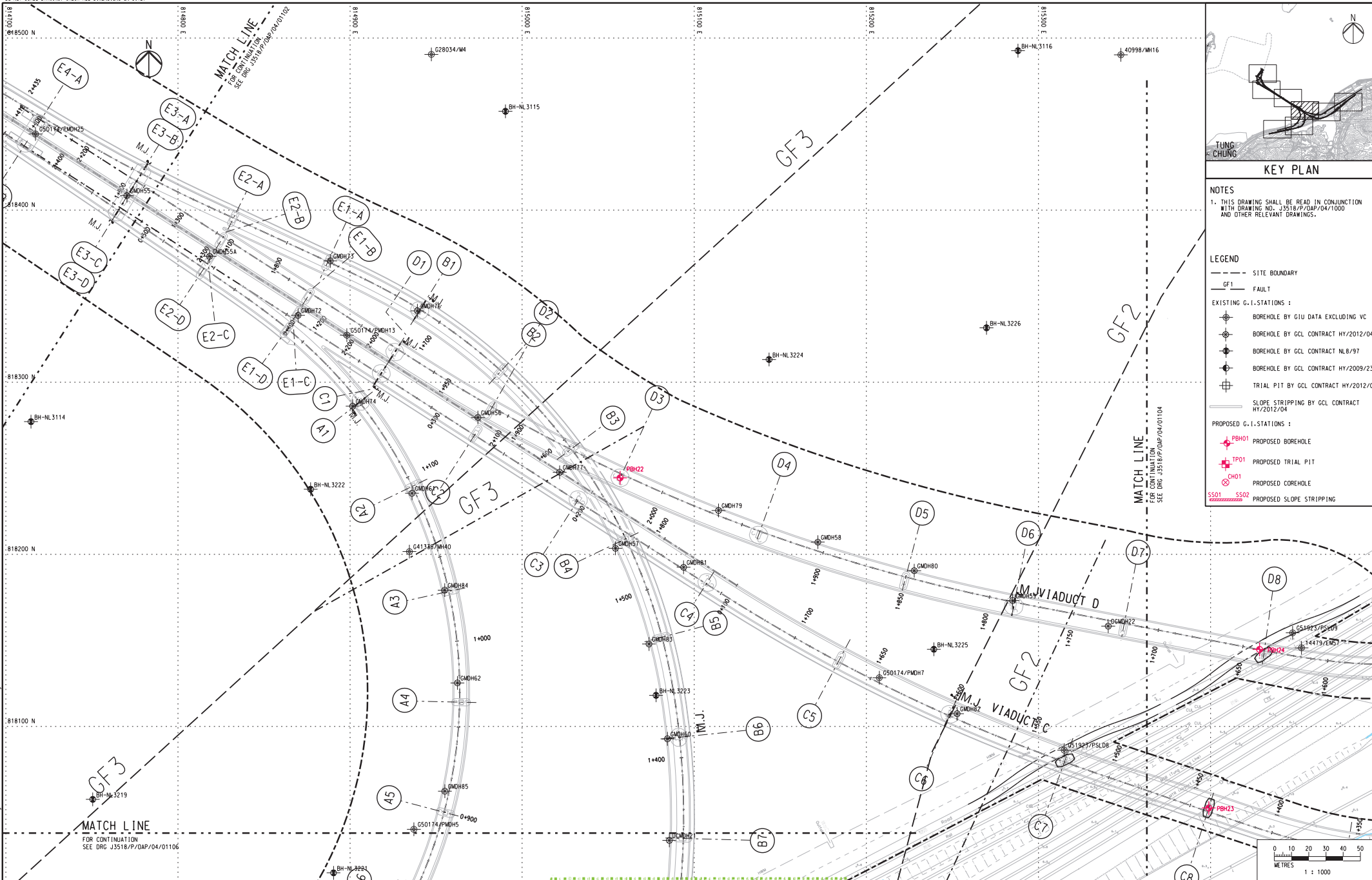


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B	SUBMISSION	RC	07/13				Checked	Approved					
C	SUBMISSION	RC	09/13				DS	DOP					
								Scale	1:1000 @ A1 / 1:2000 @ A3				

Supervising Officer	Contractor	Originator
AECOM	Gammon	ARUP
Drawing no. J3518/P/OAP/04/01102		Rev. C

DO NOT SCALE DRAWING. CHECK ALL DIMENSIONS ON SITE.



KEY PLAN

NOTES
 1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. J3518/P/OAP/04/1000 AND OTHER RELEVANT DRAWINGS.

LEGEND

	SITE BOUNDARY
	FAULT
EXISTING G.I.-STATIONS :	
	BOREHOLE BY GIU DATA EXCLUDING VC
	BOREHOLE BY GCL CONTRACT HY/2012/04
	BOREHOLE BY GCL CONTRACT NL8/97
	BOREHOLE BY GCL CONTRACT HY/2009/23
	TRIAL PIT BY GCL CONTRACT HY/2012/04
PROPOSED G.I.-STATIONS :	
	PROPOSED BOREHOLE
	PROPOSED TRIAL PIT
	PROPOSED COREHOLE
	PROPOSED SLOPE STRIPPING



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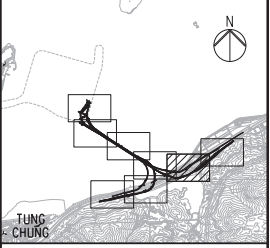
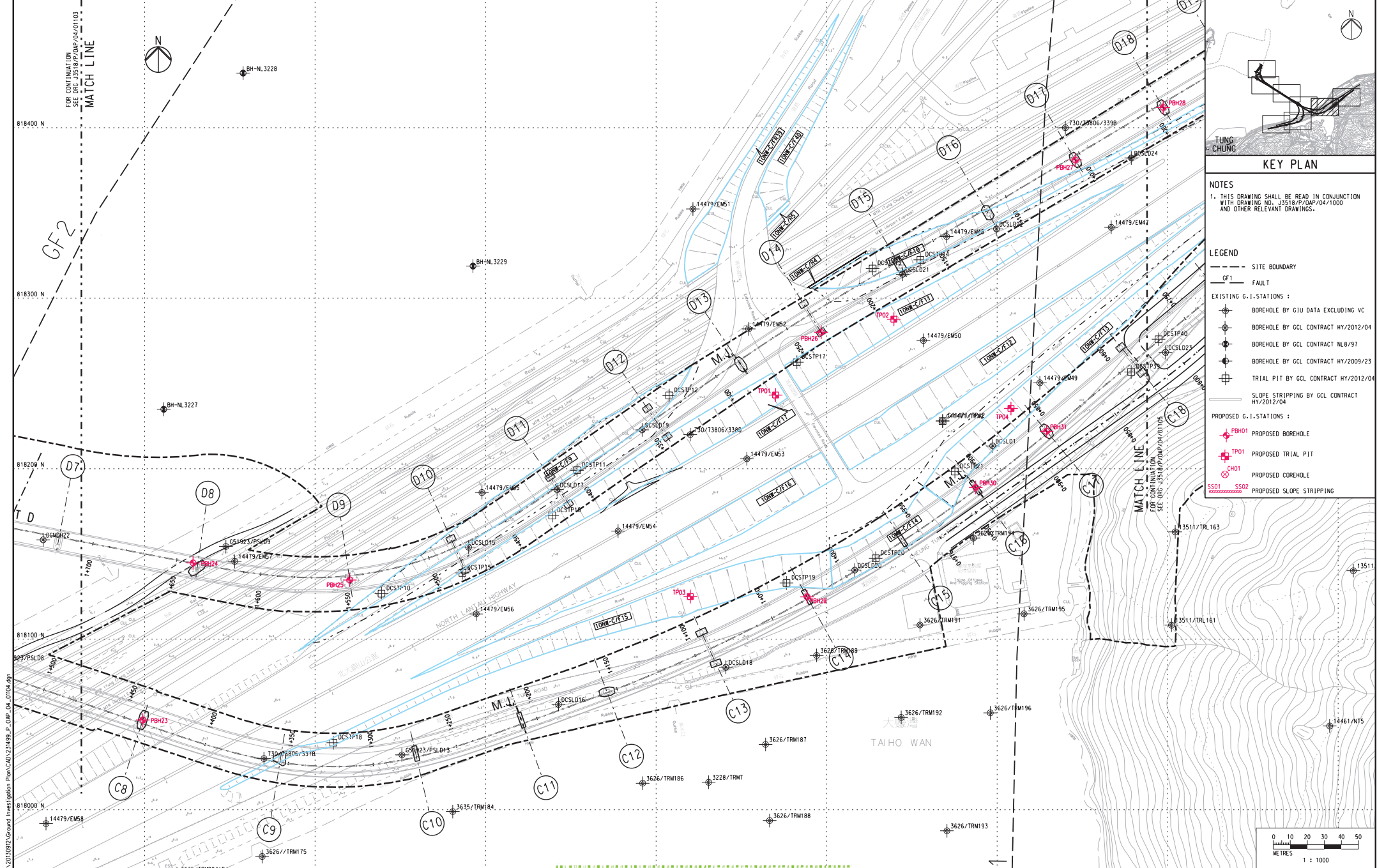
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A	SUBMISSION	RC	07/13				
B	SUBMISSION	RC	07/13				
C	SUBMISSION	RC	09/13				

Checked	Approved
DS	DOP

Scale
1:1000 @ A1 / 1:2000 @ A3

路政署 HIGHWAYS DEPARTMENT 港珠澳大桥香港工程管理局 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office	Project Title Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section	Drawing title Figure 1.2e
	Supervising Officer 	Contractor
Drawing no. J3518/P/OAP/04/01103		Rev. C

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NOTES
 1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. J3518/P/OAP/04/1000 AND OTHER RELEVANT DRAWINGS.

- LEGEND**
- SITE BOUNDARY
 - GF1- FAULT
 - EXISTING G.I. STATIONS :
 - ⊕ BOREHOLE BY GIU DATA EXCLUDING VC
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2012/04
 - ⊕ BOREHOLE BY GCL CONTRACT NL6/97
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2009/23
 - ⊕ TRIAL PIT BY GCL CONTRACT HY/2012/04
 - PROPOSED G.I. STATIONS :
 - ⊕ PBH01 PROPOSED BOREHOLE
 - ⊕ TP01 PROPOSED TRIAL PIT
 - ⊕ CH01 PROPOSED COREHOLE
 - SS01 SS02 PROPOSED SLOPE STRIPPING

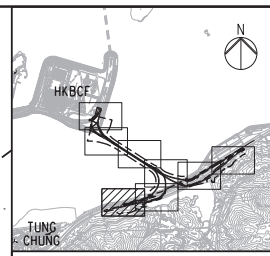
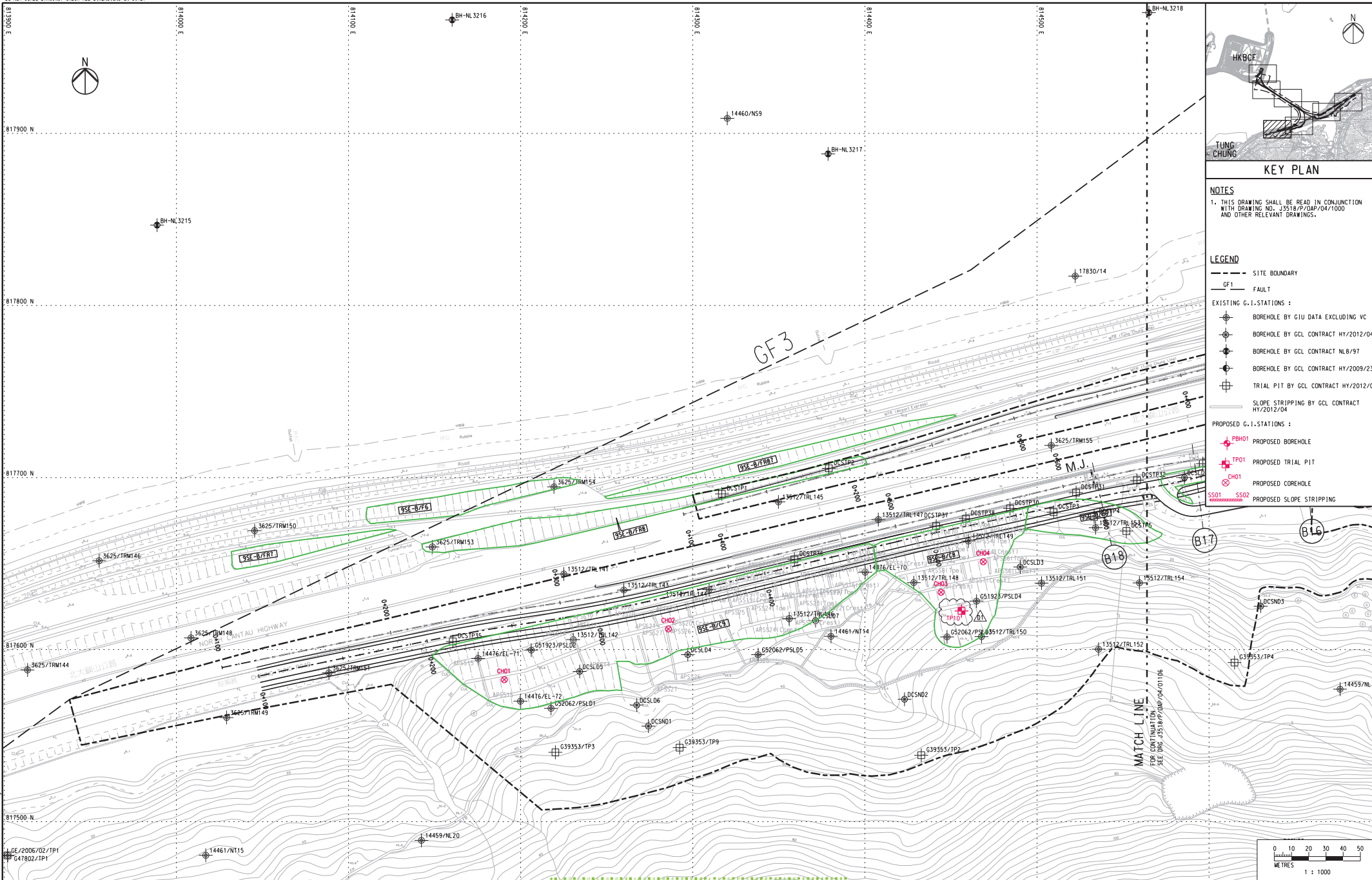
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B	SUBMISSION	RC	07/13					Checked	Approved
C	SUBMISSION	RC	09/13					DS	DOP
								Scale	
								1:1000 @ A1 / 1:2000 @ A3	

Client 路政署 HIGHWAYS DEPARTMENT 港珠澳大橋香港工程總處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office	Project Title Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section	Drawing title <h1>Figure 1.2f</h1>	
		Supervising Officer 	Contractor
		Originator 	Drawing no. J3518/P/OAP/04/01104 Rev. C



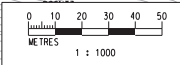
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KEY PLAN

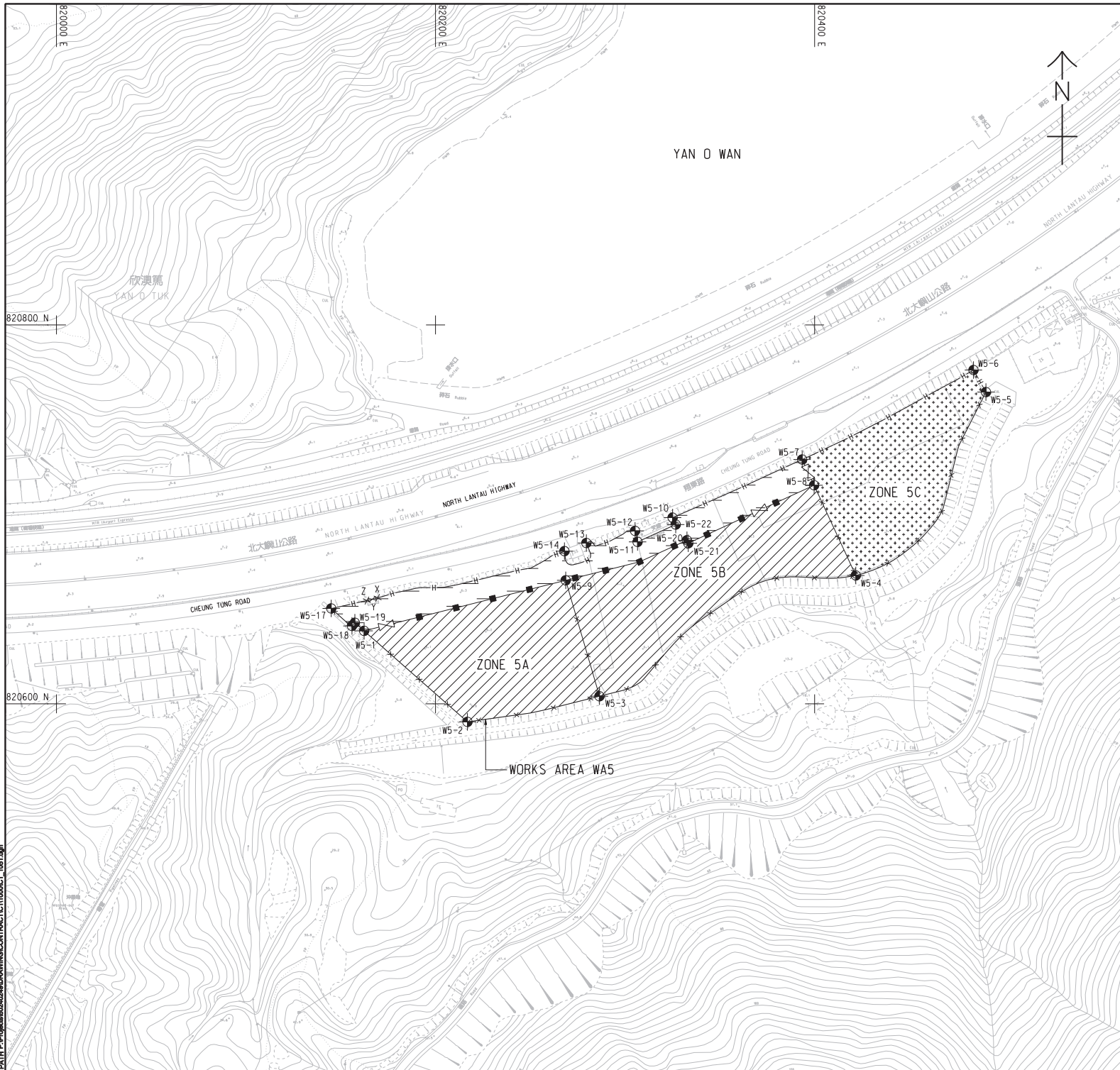
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- LEGEND**
- SITE BOUNDARY
 - GF1 FAULT
 - EXISTING G.I. STATIONS :
 - ⊕ BOREHOLE BY GIU DATA EXCLUDING VC
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2012/04
 - ⊕ BOREHOLE BY GCL CONTRACT NL6/97
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2009/23
 - ⊕ TRIAL PIT BY GCL CONTRACT HY/2012/04
 - SLOPE STRIPPING BY GCL CONTRACT HY/2012/04
 - PROPOSED G.I. STATIONS :
 - ⊕ PBH01 PROPOSED BOREHOLE
 - ⊕ TP01 PROPOSED TRIAL PIT
 - ⊕ CH01 PROPOSED COREHOLE
 - SS01 SS02 PROPOSED SLOPE STRIPPING



Printed by : 07/11/2013
 File name : J:\3518\p\oap\04\1000\01107.dgn

Rev	Description	By	Date	Rev	Description	By	Date	Drawn	Date	Client	Project Title	Drawing title
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B	SUBMISSION	RC	07/13				Checked	Approved				
C	SUBMISSION	RC	09/13				DS	DOP				
D1	FOR INTERNAL REVIEW	RC	11/13				Scale	1:1000 @ A1 / 1:2000 @ A3	Supervising Officer			
										AECOM	Gammon	ARUP
											Drawing no. J3518/P/OAP/04/01107	Rev. D1



NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE WORKS AREA KEY PLAN IN SHEET NO. 60240249/C1/1000.
2. THE SETTING OUT INFORMATION AND WORKS AREA CONDITIONS SHOWN IN THIS DRAWING ARE FOR REFERENCE ONLY. THE WORKS AREA BOUNDARY SHALL BE IN ACCORDANCE WITH THE ENGINEERING CONDITIONS FOR TEMPORARY GOVERNMENT LAND ALLOCATION NO. T15 619. IN CASE OF DISCREPANCY BETWEEN THE BOUNDARY SHOWN ON THIS DRAWING AND THE BOUNDARY INDICATED ON THE ENGINEERING CONDITIONS, THE LATTER SHALL PREVAIL.
3. DEMARCATION OF THE WORKS AREA SHALL BE DETERMINED ON SITE.
4. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6110 AND H6111 FOR DETAILS OF HOARDING.
5. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6121 AND H6122 FOR DETAILS OF CHAIN LINK FENCE.
6. REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H6121 FOR DETAILS OF GATE.
7. CHAIN LINK FENCE SHALL BE ERRECTED ALONG THE WORKS AREA BOUNDARY. THE ALIGNMENT AND EXTENT OF CHAIN LINK FENCE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPERVISING OFFICER.
8. THE LOCATION AND WIDTH OF GATE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPERVISING OFFICER.
9. NO STRUCTURES SHALL BE ERRECTED OTHER THAN SUCH STRUCTURES NOT EXCEEDING TWO STOREYS IN HEIGHT, WHICH ARE APPROVED BY THE DISTRICT LANDS OFFICER AS BEING APPROPRIATE FOR THE USE OF THE SITE AS A WORKS AREA.
10. THE TENTATIVE OCCUPATION PERIOD SHALL BE REFERRED TO EMPLOYER'S REQUIREMENTS PART 2 AND PART 14 SECTION 1 CLAUSE 1.45A.
11. THE WORKS AREAS SHOWN ON THIS DRAWING ARE TO BE SHARE-USED AMONG THE CONTRACTS OF TM-CLK RELATED CONTRACTS. THE AREAS HATCHED WITH [diagonal lines] ARE TENTATIVELY ALLOCATED FOR THE USE OF THIS CONTRACT.
12. THE COMMON AREA SHALL BE CONCRETE PAVED BY THE CONTRACTOR.

LEGEND:

- [diagonal lines] WORKS AREA UNDER THIS CONTRACT
- [dotted pattern] COMMON AREA (MAINTAINED UNDER THIS CONTRACT) TO BE SHARE-USED WITH OTHER CONTRACTS
- [stippled pattern] WORKS AREA FOR THIS CONTRACT TO BE EARLY HANDED OVER BY THE CONTRACTOR.
- [H symbol] HOARDING AND GATE (TO BE ERRECTED AND MAINTAINED UNDER THIS CONTRACT)
- [Chain Link Fence symbol] CHAIN LINK FENCE AND GATE (TO BE ERRECTED AND MAINTAINED BY OTHERS)
- [Chain Link Fence symbol with X] CHAIN LINK FENCE AND GATE (TO BE ERRECTED AND MAINTAINED UNDER THIS CONTRACT)

SETTING OUT COORDINATES OF WORKS AREA W5

POINT	COORDINATES	
	EASTING	NORTHING
W5-1	820162.308	820638.492
W5-2	820216.839	820590.455
W5-3	820286.496	820603.985
W5-4	820421.757	820667.742
W5-5	820490.425	820764.554
W5-6	820483.839	820776.180
W5-7	820393.451	820728.958
W5-8	820399.746	820715.343
W5-9	820268.674	820665.173
W5-10	820325.075	820698.276
W5-11	820306.587	820685.458
W5-12	820305.269	820691.287
W5-13	820279.580	820684.863
W5-14	820268.027	820680.572
X	820169.407	820655.859
Y	820166.601	820655.172
Z	820163.794	820654.484
W5-17	820144.957	820650.334
W5-18	820155.899	820641.093
W5-19	820157.432	820642.788
W5-20	820332.642	820686.314
W5-21	820333.350	820684.738
W5-22	820326.723	820694.608

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
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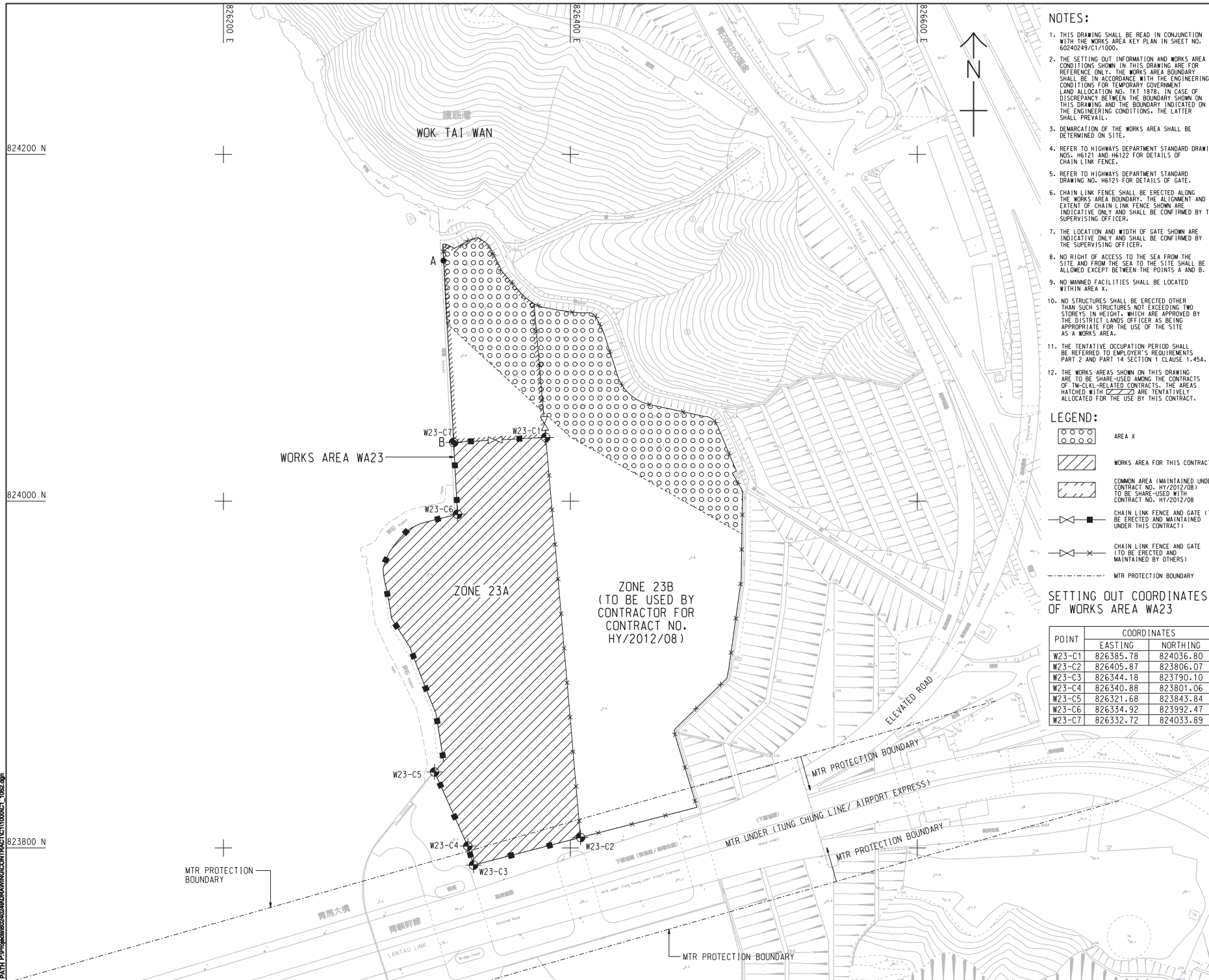
STATUS

SCALE	DIMENSION UNIT
A1:1000	METRES

KEY PLAN

Figure 1.2h

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 - THE SETTING OUT INFORMATION AND WORKS AREA CONDITIONS SHOWN IN THIS DRAWING ARE FOR REFERENCE ONLY. THE WORKS AREA BOUNDARY SHALL BE IN ACCORDANCE WITH THE ENGINEERING CONDITIONS FOR TEMPORARY GOVERNMENT LAND ALLOCATION NO. TKT 1879. IN CASE OF DISCREPANCY BETWEEN THE BOUNDARY SHOWN ON THIS DRAWING AND THE BOUNDARY INDICATED ON THE ENGINEERING CONDITIONS, THE LATTER SHALL PREVAIL.
 - DEMARICATION OF THE WORKS AREA SHALL BE DETERMINED ON SITE.
 - REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NOS. H6121 AND H6122 FOR DETAILS OF CHAIN LINK FENCE.
 - REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H6121 FOR DETAILS OF GATE.
 - CHAIN LINK FENCE SHALL BE ERECTED ALONG THE WORKS AREA BOUNDARY. THE ALIGNMENT AND EXTENT OF CHAIN LINK FENCE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPERVISING OFFICER.
 - THE LOCATION AND WIDTH OF GATE SHOWN ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE SUPERVISING OFFICER.
 - NO RIGHT OF ACCESS TO THE SEA FROM THE SITE AND FROM THE SEA TO THE SITE SHALL BE ALLOWED EXCEPT BETWEEN THE POINTS A AND B.
 - NO MANNED FACILITIES SHALL BE LOCATED WITHIN AREA X.
 - NO STRUCTURES SHALL BE ERECTED OTHER THAN SUCH STRUCTURES NOT EXCEEDING TWO STOREYS IN HEIGHT, WHICH ARE APPROVED BY THE DISTRICT LANDS OFFICER AS BEING APPROPRIATE FOR THE USE OF THE SITE AS A WORKS AREA.
 - THE TENTATIVE OCCUPATION PERIOD SHALL BE REFERRED TO EMPLOYER'S REQUIREMENTS PART 2 AND PART 14 SECTION 1 CLAUSE 1.45A.
 - THE WORKS AREAS SHOWN ON THIS DRAWING ARE TO BE SHARED AMONG THE CONTRACTS OF TM-CLKL-RELATED CONTRACTS. THE AREAS HATCHED WITH [diagonal lines] ARE TENTATIVELY ALLOCATED FOR THE USE BY THIS CONTRACT.

- LEGEND:**
- [Circle with dot symbol] AREA X
 - [Diagonal lines symbol] WORKS AREA FOR THIS CONTRACT
 - [Cross-hatch symbol] COMMON AREA (MAINTAINED UNDER CONTRACT NO. HY/2012/08) TO BE SHARED WITH CONTRACT NO. HY/2012/08
 - [Chain link symbol] CHAIN LINK FENCE AND GATE (TO BE ERECTED AND MAINTAINED UNDER THIS CONTRACT)
 - [Chain link with gate symbol] CHAIN LINK FENCE AND GATE (TO BE SHARED AND MAINTAINED BY OTHERS)
 - [Dashed line symbol] MTR PROTECTION BOUNDARY

SETTING OUT COORDINATES OF WORKS AREA WA23

POINT	COORDINATES	
	EASTING	NORTHING
W23-C1	826385.78	824036.80
W23-C2	826405.87	823806.07
W23-C3	826344.18	823790.10
W23-C4	826340.88	823801.06
W23-C5	826321.68	823843.84
W23-C6	826354.92	823992.47
W23-C7	826332.72	824033.89

AECOM

PROJECT NO.
60240249

CONTRACT NO.
HY/2012/07

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
TUEN MUN - CHEK LAP KOK LINK - SOUTHERN CONNECTION VIADUCT SECTION

CLIENT
路政署 HIGHWAYS DEPARTMENT
港務大樓管理工程處
Hong Kong - Zhuhai - Hainan Bridge
Hong Kong Project Management Office

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
2111111111

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.	APP.
1	OCT. 12	TENDER DRAWING	CWN	

STATUS
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SCALE
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DIMENSION UNIT
METRES

KEY PLAN

PROJECT NO.
60240249

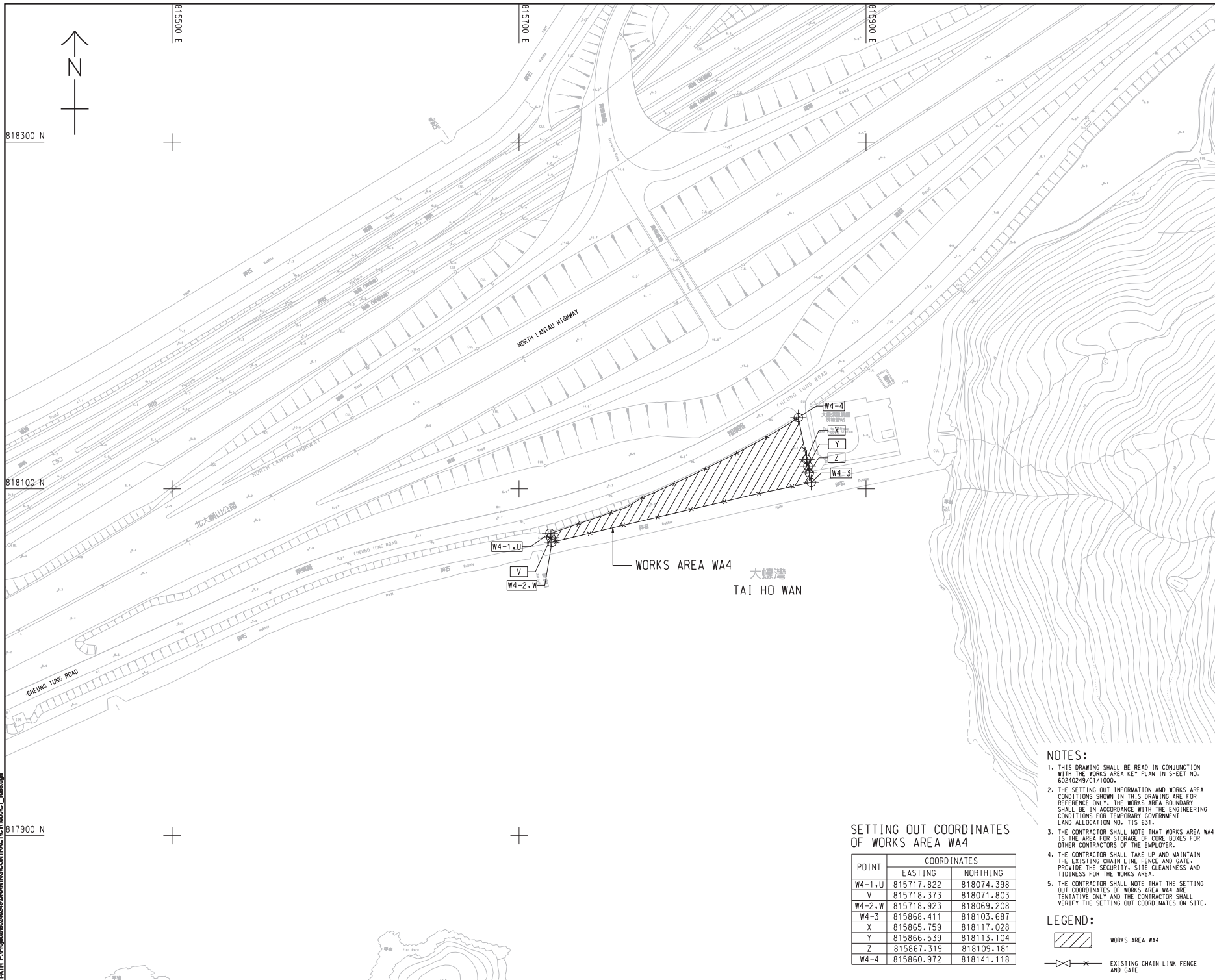
CONTRACT NO.
HY/2012/07

SHEET TITLE
WORKS AREA AND HOARDING PLAN

SHEET NUMBER
60240249/CT1/052

SHEET 2 OF 2

Figure 1.2i



SETTING OUT COORDINATES OF WORKS AREA WA4

POINT	COORDINATES	
	EASTING	NORTHING
W4-1,U	815717.822	818074.398
V	815718.373	818071.803
W4-2,W	815718.923	818069.208
W4-3	815868.411	818103.687
X	815865.759	818117.028
Y	815866.539	818113.104
Z	815867.319	818109.181
W4-4	815860.972	818141.118

- NOTES:**
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE WORKS AREA KEY PLAN IN SHEET NO. 60240249/C1/100.
 - THE SETTING OUT INFORMATION AND WORKS AREA CONDITIONS SHOWN IN THIS DRAWING ARE FOR REFERENCE ONLY. THE WORKS AREA BOUNDARY SHALL BE IN ACCORDANCE WITH THE ENGINEERING CONDITIONS FOR TEMPORARY GOVERNMENT LAND ALLOCATION NO. T15 631.
 - THE CONTRACTOR SHALL NOTE THAT WORKS AREA WA4 IS THE AREA FOR STORAGE OF CORE BOXES FOR OTHER CONTRACTORS OF THE EMPLOYER.
 - THE CONTRACTOR SHALL TAKE UP AND MAINTAIN THE EXISTING CHAIN LINK FENCE AND GATE. PROVIDE THE SECURITY, SITE CLEANLINESS AND TIDINESS FOR THE WORKS AREA.
 - THE CONTRACTOR SHALL NOTE THAT THE SETTING OUT COORDINATES OF WORKS AREA WA4 ARE TENTATIVE ONLY AND THE CONTRACTOR SHALL VERIFY THE SETTING OUT COORDINATES ON SITE.

LEGEND:

WORKS AREA WA4

EXISTING CHAIN LINK FENCE AND GATE

AECOM

PROJECT NO.
 60240249

TUEN MUN - CHEK LAP KOK LINK

CONTRACT TITLE
 TUEN MUN - CHEK LAP KOK LINK - SOUTHERN CONNECTION VIADUCT SECTION

CLIENT
 路政署 DEPARTMENT OF HIGHWAYS
 港務局 港務工程管理局
 Hong Kong + Zhuhai + Hainan Bridge
 Hong Kong Project Management Office

CONSULTANT
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 2/11/2012/16

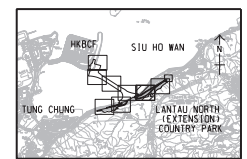
Figure 1.2j

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
1	NOV. 12	TENDER ADDENDUM NO. 1	C/W

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 METRES



PROJECT NO.
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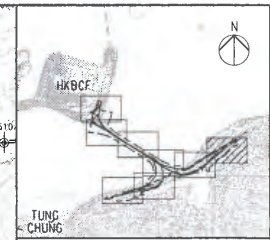
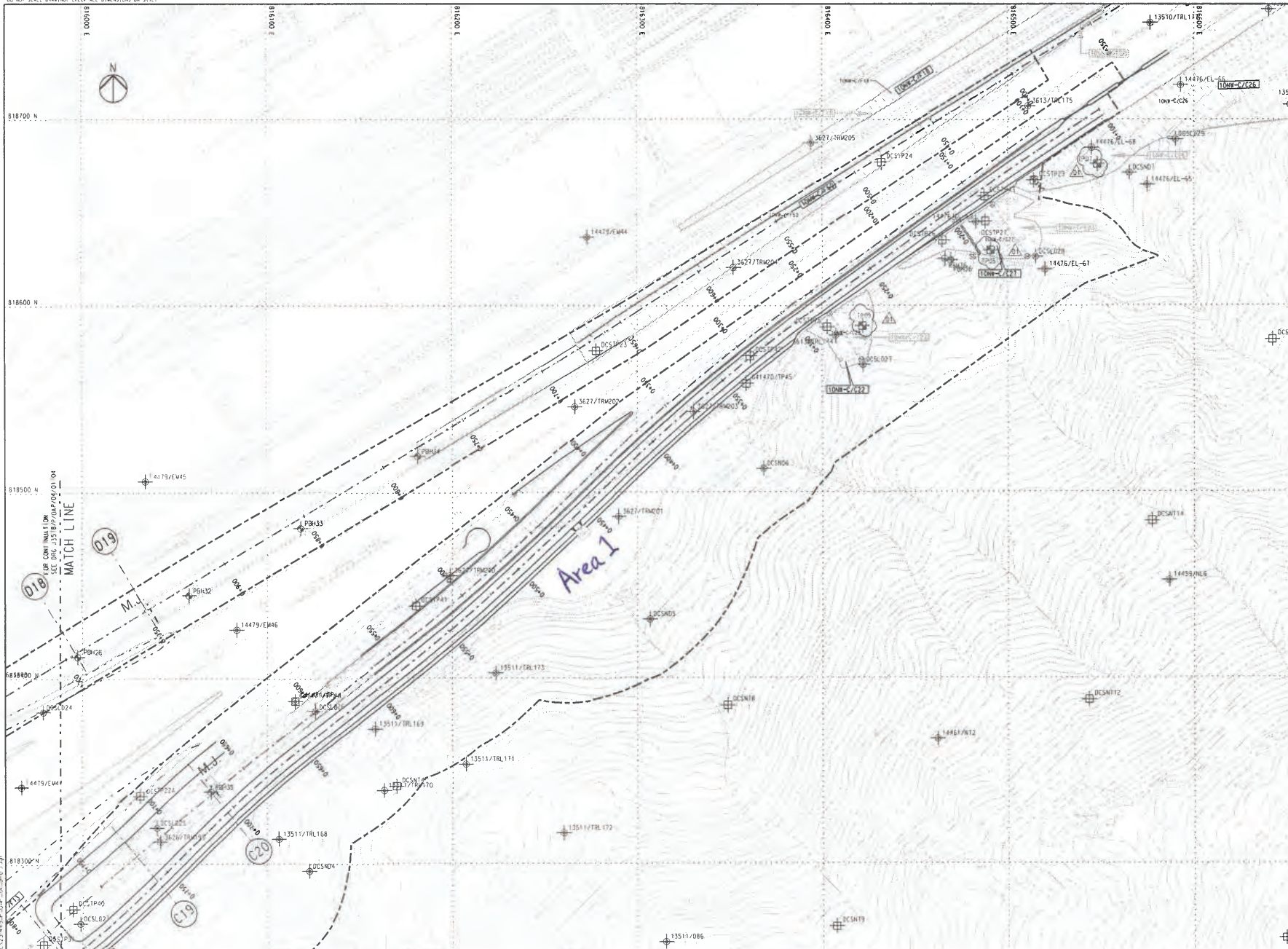
CONTRACT NO.
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SHEET TITLE
 WORKS AREA WA4

SHEET NUMBER
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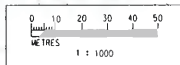
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NOTES
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- LEGEND**
- SITE BOUNDARY
 - GF1 FAULT
- EXISTING G.I. STATIONS :
- ⊕ BOREHOLE BY GIU DATA EXCLUDING VC
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2012/04
 - ⊕ BOREHOLE BY GCL CONTRACT N6.8/97
 - ⊕ BOREHOLE BY GCL CONTRACT HY/2009/23
 - ⊕ TRIAL PIT BY GCL CONTRACT HY/2012/04
 - ⊕ SLOPE STRIPPING BY GCL CONTRACT HY/2012/04
- PROPOSED G.I. STATIONS :
- ⊕ B-0 PROPOSED BOREHOLE
 - ⊕ T-0 PROPOSED TRIAL PIT
 - ⊕ C-01 PROPOSED COREHOLE
 - ⊕ S502 PROPOSED SLOPE STRIPPING



Rev	Description	By	Date	Rev	Description	By	Date
01	FOR CONSTRUCTION	RL	31/7/13				
02	FOR CONSTRUCTION	RL	27/7/13				
03	FOR CONSTRUCTION	RL	29/7/13				
04	FOR INTERNAL REVIEW	RL	19/7/12				

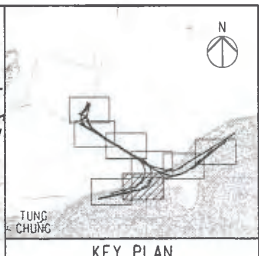
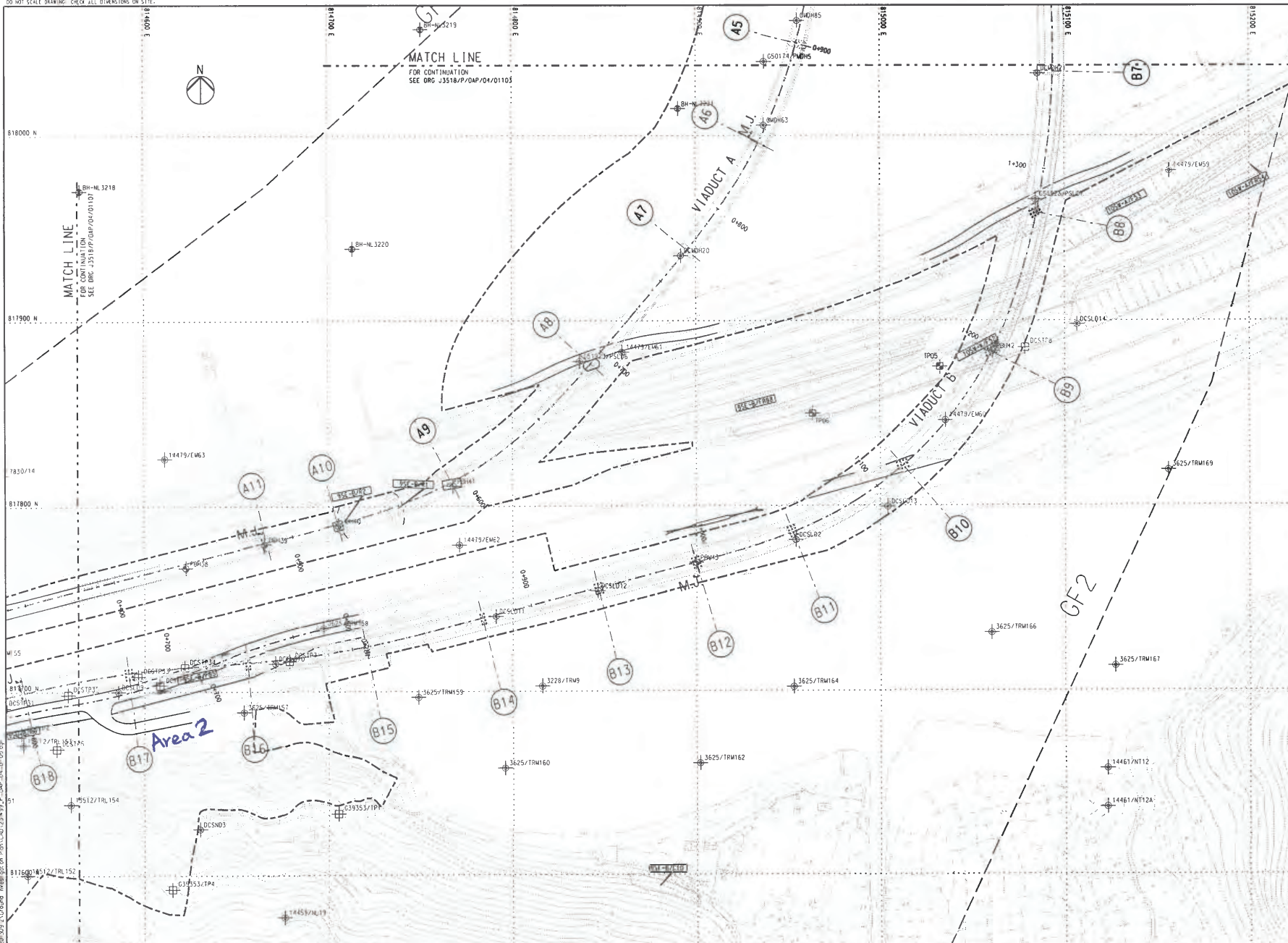
Drawn	Date	Client
RL	07/13	路政署 HIGHWAYS DEPARTMENT
Checked	Approved	港珠澳大桥香港工程指挥部 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office
DS	DOP	
Scale	1:1000 @ A1 / 1:2000 @ A3	

	Supervising Officer AECOM	Contractor Gammon	Originator ARUP
	Project Title Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section		

Drawing title
Figure 1.2k

Drawing no. J3518/P/OAP/04/01105 Rev. D1

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NOTES
 1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. J3518/P/OAP/04/1000 AND OTHER RELEVANT DRAWINGS.

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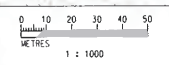
- SITE BOUNDARY
- GF1 FAULT

EXISTING G.I. STATIONS:

- ⊕ BOREHOLE BY GIU DATA EXCLUDING VC
- ⊕ BOREHOLE BY GCL CONTRACT HY/2012/04
- ⊕ BOREHOLE BY GCL CONTRACT NLB/97
- ⊕ BOREHOLE BY GCL CONTRACT HY/2009/23
- ⊕ TRIAL PIT BY GCL CONTRACT HY/2012/04
- ▭ SLOPE STRIPPING BY GCL CONTRACT HY/2012/04

PROPOSED G.I. STATIONS:

- ⊕ PROPOSED BOREHOLE
- ⊕ PROPOSED TRIAL PIT
- ⊕ PROPOSED COREHOLE
- ▭ PROPOSED SLOPE STRIPPING



Plotted by: [Name] P:\2012\3518\3518_P\OAP\04\1000.dwg
 Plot Date: 07/13
 Plot Scale: 1:1000

Rev	Description	By	Date	Rev	Description	By	Date
A	SUBMISSION	RL	07/13				
B	SUBMISSION	RL	07/13				
C	SUBMISSION	RL	07/13				

Drawn RL Date 07/13 Checked DS Approved DOP Scale 1:1000 @ A1 / 1:2000 @ A3	Client 路政署 HIGHWAYS DEPARTMENT 港珠澳大橋香港工程管理有限公司 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office	Project Title Contract No. HY/2012/07 Tuen Mun - Chek Lap Kok Link Southern Connection Viaduct Section	Drawing Title Figure 1.2I Drawing no. J3518/P/OAP/04/1106

1.2 SCOPE OF REPORT

This is the Seventh Quarterly EM&A Report under the *Contract No. HY/2012/07 Tuen Mun – Chek Lap Kok Link – Southern Connection Viaduct Section*. This report presents a summary of the environmental monitoring and audit works from 1 June to 31 August 2015.

1.3 ORGANIZATION STRUCTURE

The organization structure of the Contract is shown in *Appendix A*. The key personnel contact names and contact details are summarized in *Table 1.1* below.

Table 1.1 *Contact Information of Key Personnel*

Party	Position	Name	Telephone	Fax
SOR (AECOM Asia Company Limited)	Chief Resident Engineer	Daniel Ip	3553 3800	2492 2057
	Resident Engineer	Kingman Chan	3691 2950	3691 2899
ENPO / IEC (Ramboll Environ Hong Kong Ltd.)	ENPO Leader	Y.H. Hui	3547 2133	3465 2899
	IEC	Dr. F.C. Tsang	3547 2134	3465 2899
Contractor (Gammon Construction Limited)	Environmental Manager	Brian Kam	3520 0387	3520 0486
	Environmental Officer	Roy Leung	3520 0387	3520 0486
	24-hour Complaint Hotline		9738 4332	
ET (ERM-HK)	ET Leader	Jovy Tam	2271 3113	2723 5660

1.4 SUMMARY OF CONSTRUCTION WORKS

The construction phase of the Contract commenced on 31 October 2013. The rolling construction programme for the period of June to August 2015 is shown in *Appendix B*.

As informed by the Contractor, details of the major works carried out in this reporting period are listed below:

June 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;

- Marine piling and
- Installation of pier head segment

Land-based Works

- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Land piling;
- Pre-drilling works;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and
- Slope work of Slopes 9SE-B/C9 and 9SE-B/F85.

July 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;
- Marine piling; and,
- Installation of pier head segment.

Land-based Works

- Predrilling at Viaduct F;
- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Land piling;
- Pre-drilling works;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and,
- Slope work of Viaducts A & B.

August 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;
- Marine piling; and,
- Installation of pier head segment.

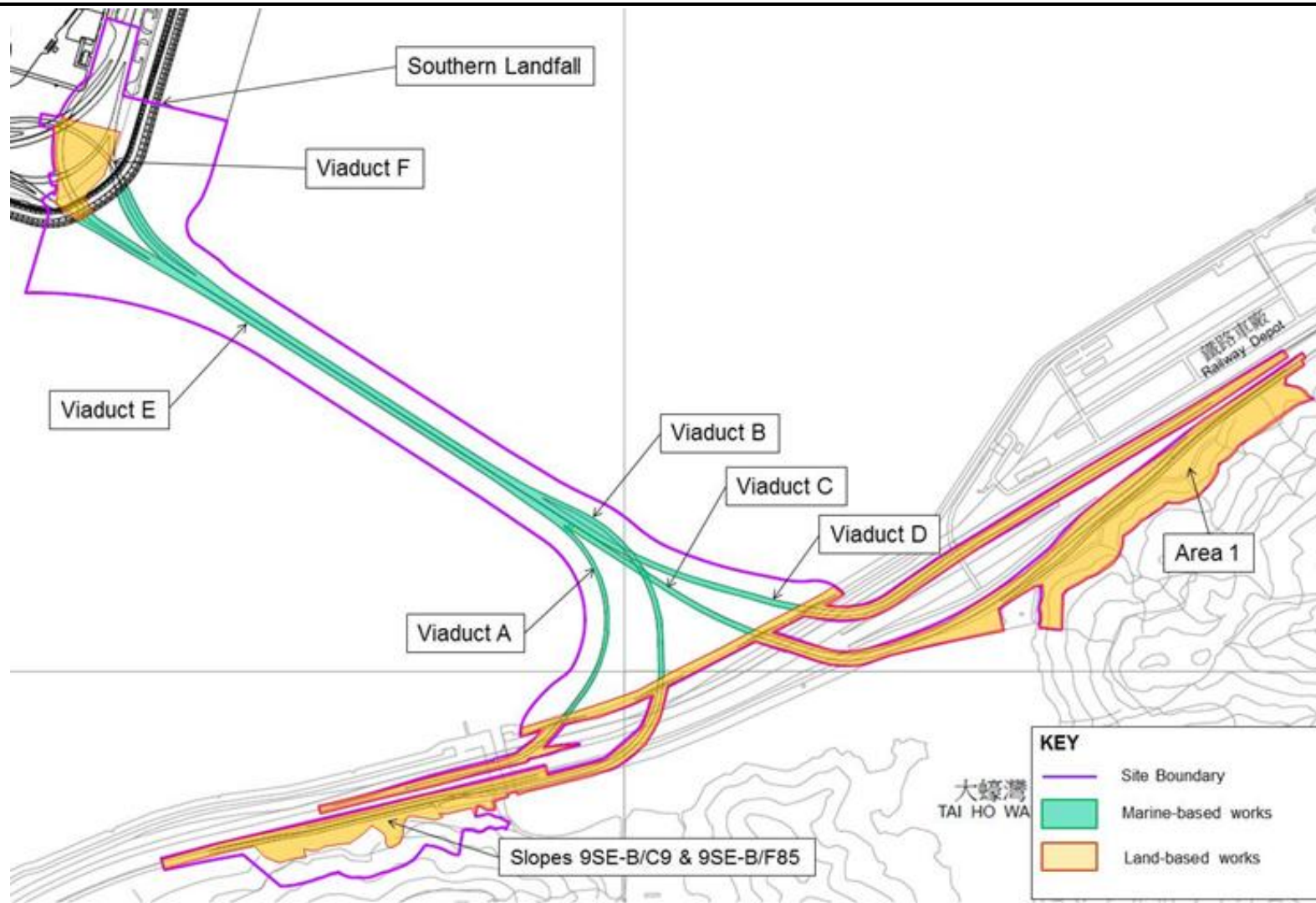
Land-based Works

- Predrilling at Viaduct F;

- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Land piling;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and,
- Slope work of Viaducts A & B.

The locations of the construction activities are shown in *Figure 1.3*. The Environmental Sensitive Receivers in the vicinity of the Project are shown in *Figure 1.4*.

Figure 1.3 Locations of Construction Activities in the Reporting Period



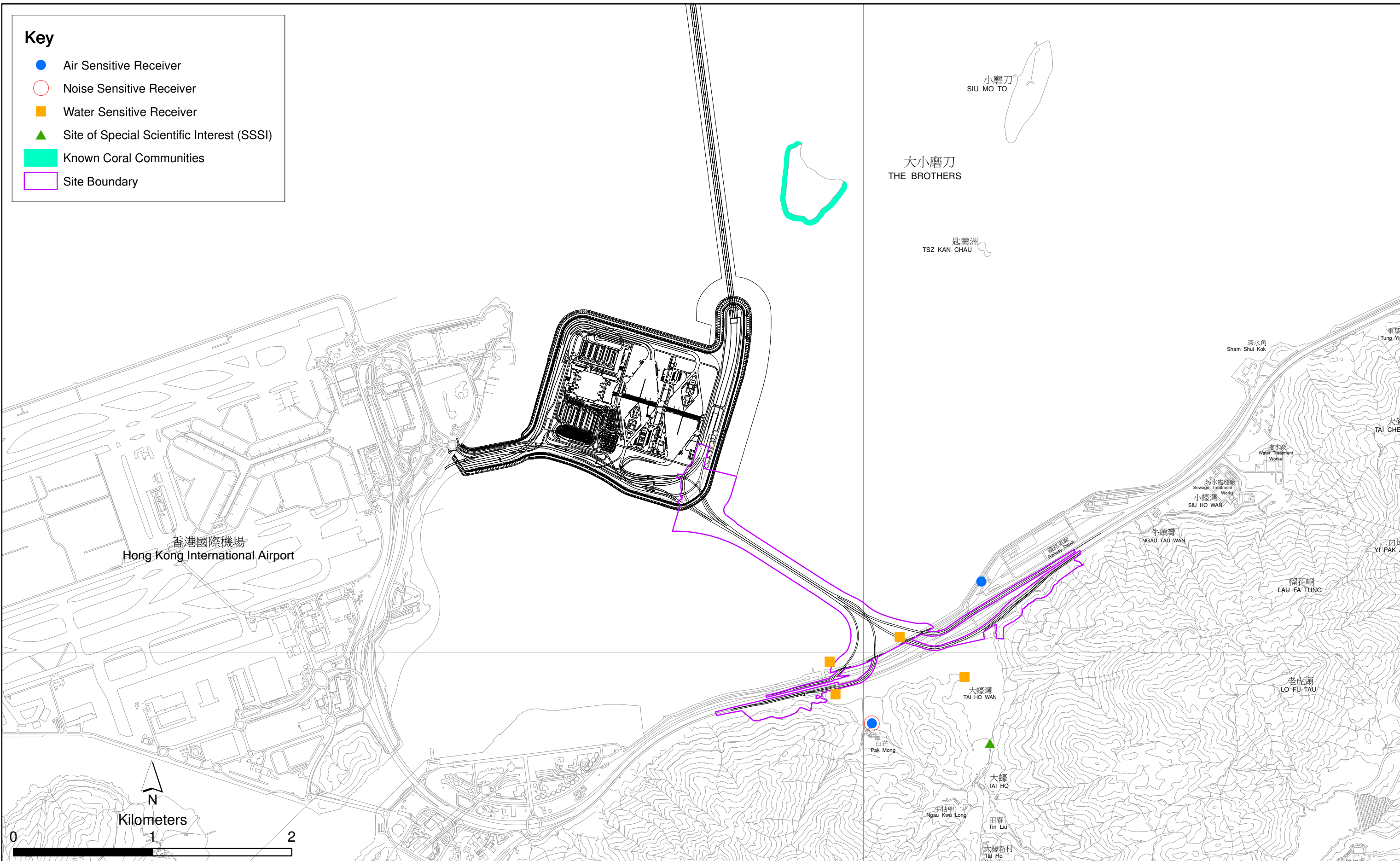


Figure 1.4

Environmental Sensitive Receivers in the Vicinity of Contract No. HY/2012/07
Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section

The environmental mitigation measures implementation schedule is presented in *Appendix C*.

1.5

SUMMARY OF EM&A PROGRAMME REQUIREMENTS

The EM&A programme required environmental monitoring for air quality, noise, water quality and marine ecology as well as environmental site inspections for air quality, noise, water quality, waste management, marine ecology and landscape and visual impacts. The EM&A requirements and related findings for each component are described in the following sections, which include:

- Monitoring parameters;
- Monitoring schedules for the reporting months and forthcoming months;
- Action and Limit levels for all environmental parameters;
- Event Action Plan;
- Results and observations;
- Environmental mitigation measures, as recommended in the approved EIA Report; and
- Environmental requirement in contract documents.

The EM&A programme required environmental monitoring for air quality, noise, water quality and marine ecology as well as environmental site inspections for air quality, noise, water quality, waste management, marine ecology and landscape and visual impacts. The EM&A requirements and related findings for each component are summarized in the following sections.

2.1 AIR QUALITY

The baseline air quality monitoring undertaken by the Hong Kong - Zhuhai - Macao Bridge Hong Kong Projects (HKZMB) during October 2011 has included the two monitoring stations ASR9A and ASR9C for this project. Thus, the baseline monitoring results and Action/ Limit Level presented in HKZMB Baseline Monitoring Report ⁽¹⁾ are adopted for this Project.

2.1.1 Monitoring Requirements and Equipment

In accordance with the Updated EM&A Manual, impact 1-hour TSP monitoring was conducted three (3) times every six (6) days while the highest dust impact was expected. Impact 24-hour TSP monitoring was carried out once every six (6) days. The Action and Limit Levels of the air quality monitoring is provided in *Appendix D*.

1-hour TSP and 24-hour TSP monitoring were conducted at 2 alternative air quality monitoring stations, ASR8A (Area 4) and ASR9 (Entrance of MTR Depot) during the reporting period in accordance with the requirement of the Updated EM&A Manual. The monitoring stations are indicated in *Figure 2.1* and details are presented in *Table 2.1*.

High Volume Samplers (HVSs) were used for carrying out 1-hour and 24-hour TSP monitoring during the reporting period. The HVSs meets all requirements of the Updated EM&A Manual. Brand and model of the equipment are given in *Table 2.2*.

Wind data monitoring equipment was installed at Area 4 during the reporting period for logging wind speed and wind direction. The wind sensor was setup such that it was clear of obstructions or turbulence caused by building. The wind data monitoring equipment is recalibrated at least once every six months.

⁽¹⁾ Agreement No. CE 35/2011 (EP) Baseline Environmental Monitoring for Hong Kong - Zhuhai - Macao Bridge Hong Kong Projects - Investigation. Baseline Environmental Monitoring Report (Version C). Submitted on 8 March 2012 and subsequently approved by EPD.

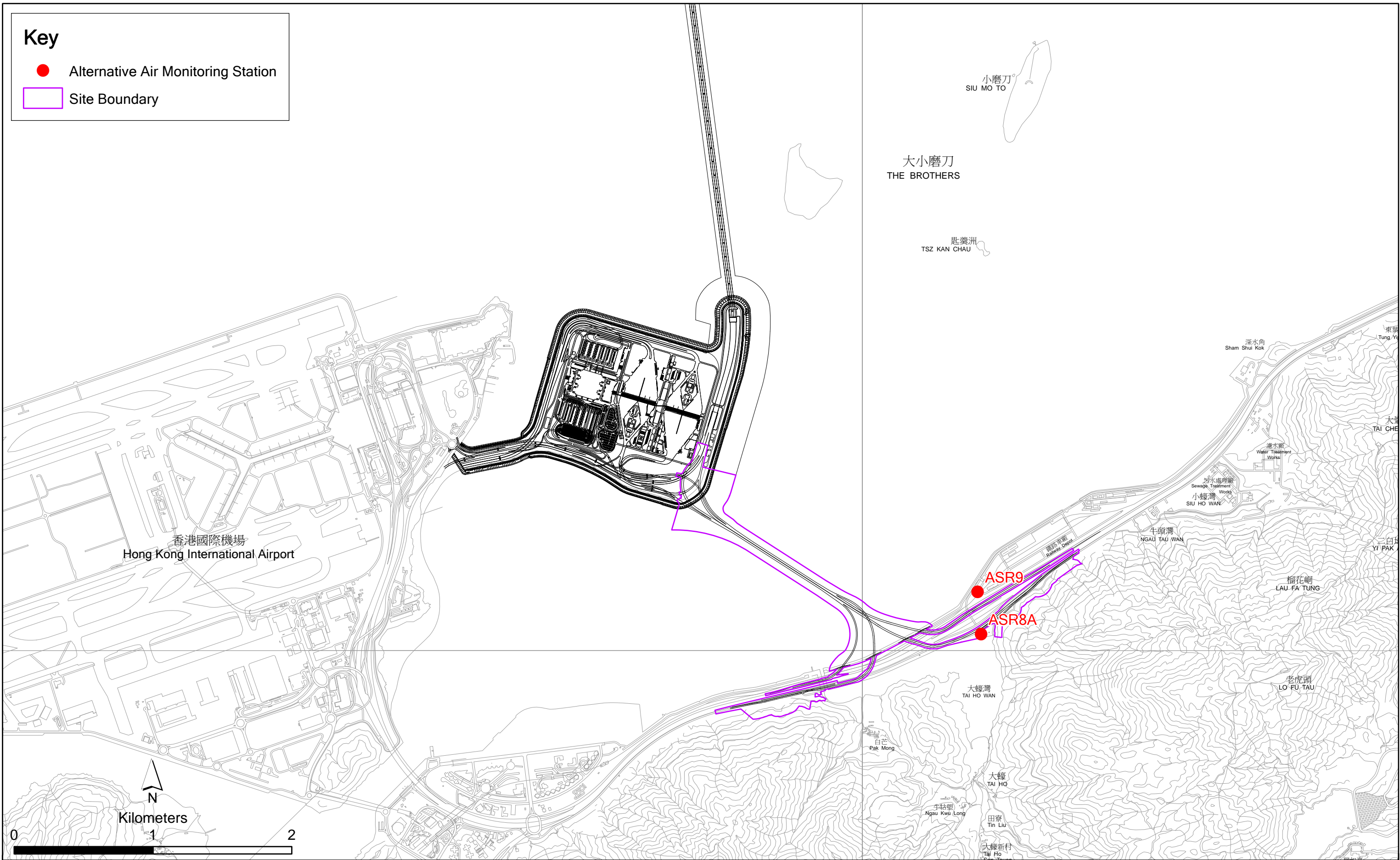


Figure 2.1

Locations of Air Quality Monitoring Stations

Table 2.1 *Locations of Impact Air Quality Monitoring Stations and Monitoring Dates in this Reporting Period*

Monitoring Station ⁽¹⁾	Monitoring Period	Location	Description	Parameters & Frequency
ASR8A	2, 8, 11, 17, 23 and 29 June 2015;	Area 4	On ground at the Area 4	<ul style="list-style-type: none"> 1-hour Total Suspended Particulates (1-hour TSP, $\mu\text{g}/\text{m}^3$), 3 times per day every 6 days 24-hour Total Suspended Particulates (24-hour TSP, $\mu\text{g}/\text{m}^3$), daily for 24-hour every 6 days
ASR9	2, 7, 13, 16, 22 and 28 July 2015; 3, 6, 12, 18, 24 and 27 August 2015	MTR Depot	On the ground nearby MTR Depot Entrance	

Note:

(1) Air Quality Monitoring Stations ASR9A and ASR9C at Siu Ho Wan MTRC Depot proposed in accordance with the Updated EM&A were relocated to ASR9 and ASR8A respectively.

Table 2.2 *Air Quality Monitoring Equipment*

Equipment	Brand and Model
High Volume Sampler (1-hour TSP and 24-hour TSP)	Tisch Environmental Mass Flow Controlled Total Suspended Particulate (TSP) High Volume Sampler (Model No. TE-5170)
Wind Sensor	Global Water (Wind Speed Sensor: WE550; Wind Direction Sensor: WE570)
Wind Anemometer for calibration	Lutron (Model No. AM-4201)

2.1.2 *Action & Limit Levels*

The Action and Limit Levels of the air quality monitoring are provided in *Appendix D*. The Event and Action plan is presented in *Appendix J*.

2.1.3 *Monitoring Schedule for the Reporting Quarter*

The schedules for air quality monitoring in the reporting quarter are provided in *Appendix E*.

2.1.4 *Results and Observations*

The monitoring results for 1-hour TSP and 24-hour TSP are summarized in *Tables 2.3* and *2.4*, respectively. Monitoring results are presented graphically in *Appendix F*. Detailed impact air quality monitoring results and meteorological information were reported in the *Twentieth to Twenty-second Monthly EM&A Report*.

Table 2.3 *Summary of 1-hour TSP Monitoring Results in this Reporting Period*

Month	Station	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
June 2015	ASR 8A	59	41 - 95	394	500
	ASR 9	71	48 - 119	393	500
July 2015	ASR 8A	63	41 - 139	394	500
	ASR 9	73	41 - 116	393	500

Month	Station	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
August 2015	ASR 8A	88	58 - 148	394	500
	ASR 9	104	60 - 165	393	500

Table 2.4 *Summary of 24-hour TSP Monitoring Results in this Reporting Period*

Month	Station	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
June 2015	ASR 8A	45	42 - 47	178	260
	ASR 9	47	45 - 49	178	260
July 2015	ASR 8A	51	44 - 75	178	260
	ASR 9	56	47 - 89	178	260
August 2015	ASR 8A	61	48 - 85	178	260
	ASR 9	68	51 - 101	178	260

The major dust sources in the reporting period include construction activities under the Contract as well as nearby traffic emissions.

In this reporting period, a total of eighteen (18) monitoring events were undertaken within the reporting period, in which no Action or Limit Level exceedance for 1-hour and 24-hour TSP for air quality was recorded during the reporting period.

2.2 NOISE MONITORING

The baseline noise monitoring undertaken by the Hong Kong - Zhuhai - Macao Bridge Hong Kong Projects (HKZMB) during the period of 18 October to 1 November 2011 has included the monitoring station NSR1 for this project. Thus, the baseline monitoring results and Action/ Limit Level presented in *HKZMB Baseline Monitoring Report* ⁽¹⁾ are adopted for this Project.

2.2.1 *Monitoring Requirements and Equipment*

In accordance with the Updated EM&A Manual, impact noise monitoring should be conducted once per week during the construction phase of the Contract.

Noise monitoring was conducted at the alternative noise monitoring station, NSR1A (Pak Mong Village Pavilion) during the reporting period in accordance with the requirement of Updated EM&A Manual. *Figure 2.2* shows the location of the monitoring station. *Table 2.5* describes the details of the monitoring station.

Noise monitoring was performed using sound level meter at the designated monitoring station in the reporting quarter. The deployed sound level meter complies with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meter at a known sound pressure level. Brand and model of the equipment is given in *Table 2.6*.

⁽¹⁾ Agreement No. CE 35/2011 (EP) Baseline Environmental Monitoring for Hong Kong - Zhuhai - Macao Bridge Hong Kong Projects - Investigation. Baseline Environmental Monitoring Report (Version C). Submitted on 8 March 2012 and subsequently approved by EPD.

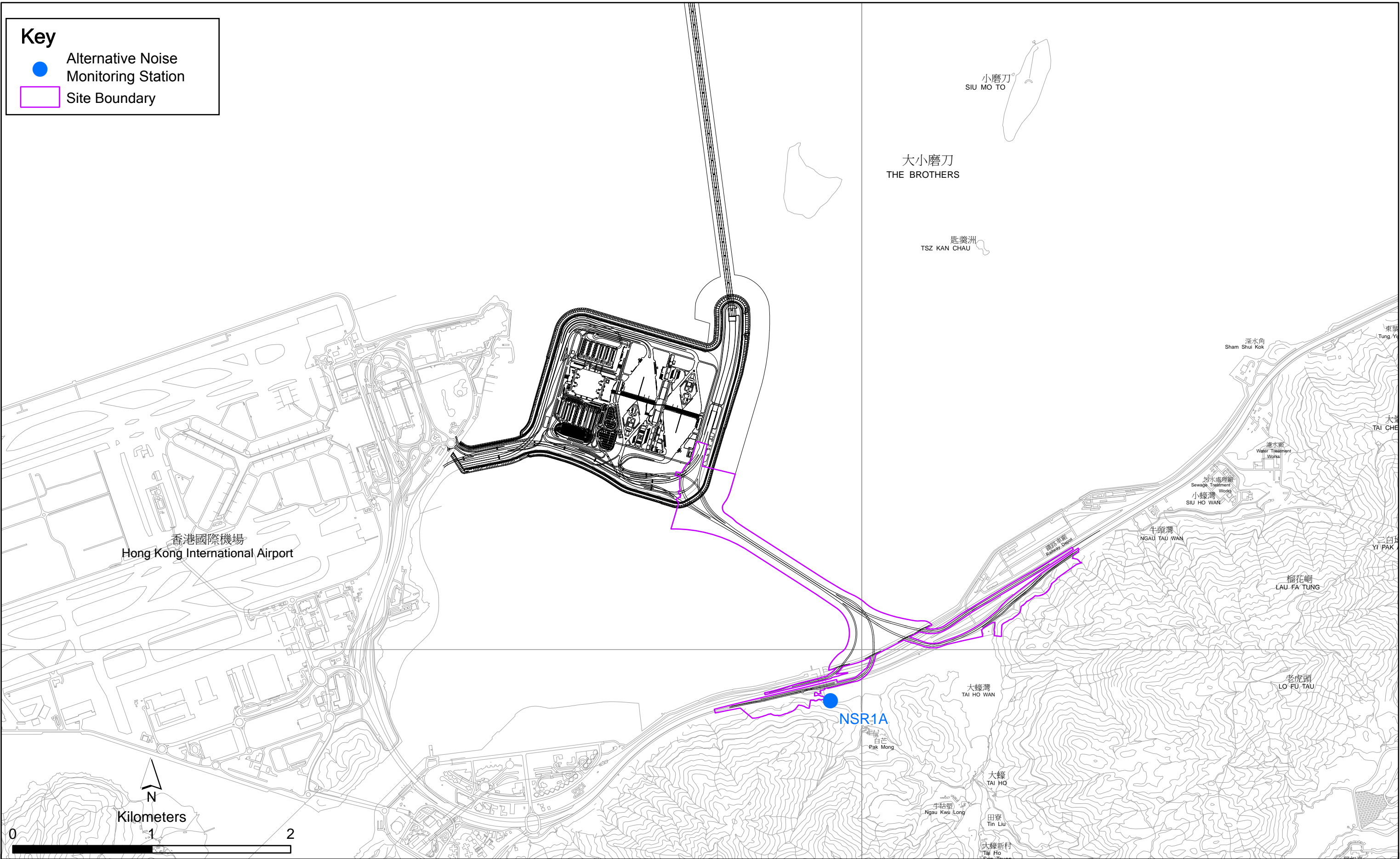


Figure 2.2

Location of Noise Monitoring Station

Table 2.5 *Location of Impact Noise Monitoring Station and Monitoring Dates in this Reporting Period*

Monitoring Station	Monitoring Period	Location	Parameters & Frequency
NSR1A	2, 8, 11, 17, 23 and 29 June 2015; 2, 7, 13, 16, 22 and 28 July 2015; 3, 6, 12, 18, 24 and 27 August 2015	Pak Mong Village Pavilion	<ul style="list-style-type: none"> 30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays (Monday to Saturday). L_{eq}, L_{10} and L_{90} would be recorded. At least once a week

Note:
(1) Noise Monitoring Station NSR1 at Pak Mong Village proposed in accordance with the Updated EM&A was relocated to NSR1A.

Table 2.6 *Noise Monitoring Equipment*

Equipment	Brand and Model
Integrated Sound Level Meter	Rion NL-31
Acoustic Calibrator	Rion NC-73

2.2.2 *Action and Limit Levels*

The Action and Limit levels of the noise monitoring are provided in *Appendix D*. The Event and Action plan is presented in *Appendix J*.

2.2.3 *Monitoring Schedule for the Reporting Quarter*

The schedules for noise monitoring in the reporting quarter are provided in *Appendix E*.

2.2.4 *Results and Observations*

The monitoring results for noise monitoring are summarized in *Table 2.7*. Monitoring results are presented graphically in *Appendix G* and detailed impact noise monitoring results are reported in the *Twentieth to Twenty-second Monthly EM&A Report*.

Table 2.7 *Summary of Construction Noise Monitoring Results at NSR1A in the Reporting Period*

Month	Average, dB(A), L_{eq} (30mins)	Range, dB(A), L_{eq} (30mins)	Limit Level, dB(A), L_{eq} (30mins)
June 2015	59	58 - 60	75
July 2015	60	53 - 61	75
August 2015	58	57 - 60	75

A total of eighteen (18) monitoring events were undertaken in the reporting period with no Action Level and Limit Level exceedance recorded at the monitoring station in the reporting period. No action is thus required to be undertaken in accordance with the Event Action Plan presented in *Appendix J*.

Major noise sources during the noise monitoring included construction activities, nearby traffic noise and aircraft noise.

2.3

WATER QUALITY MONITORING

The baseline water quality monitoring undertaken by the Hong Kong – Zhuhai – Macao Bridge Hong Kong Projects (HKZMB) between 6 and 31 October 2011 has included all monitoring stations except SR4a for the Project. Thus, the baseline monitoring results except for station SR4a and Action/Limit Level presented in HKZMB Baseline Monitoring Report ⁽¹⁾ are adopted for this Project. Baseline water quality monitoring was conducted at station SR4a from 29 August to 24 September 2013.

2.3.1

Monitoring Requirements and Equipment

Impact water quality monitoring was carried out to ensure that any deterioration of water quality was detected, and that timely action was taken to rectify the situation. Impact water quality monitoring was undertaken three days per week during the construction period at seven water quality monitoring stations in accordance with the Updated EM&A Manual (*Figure 2.3; Table 2.8*).

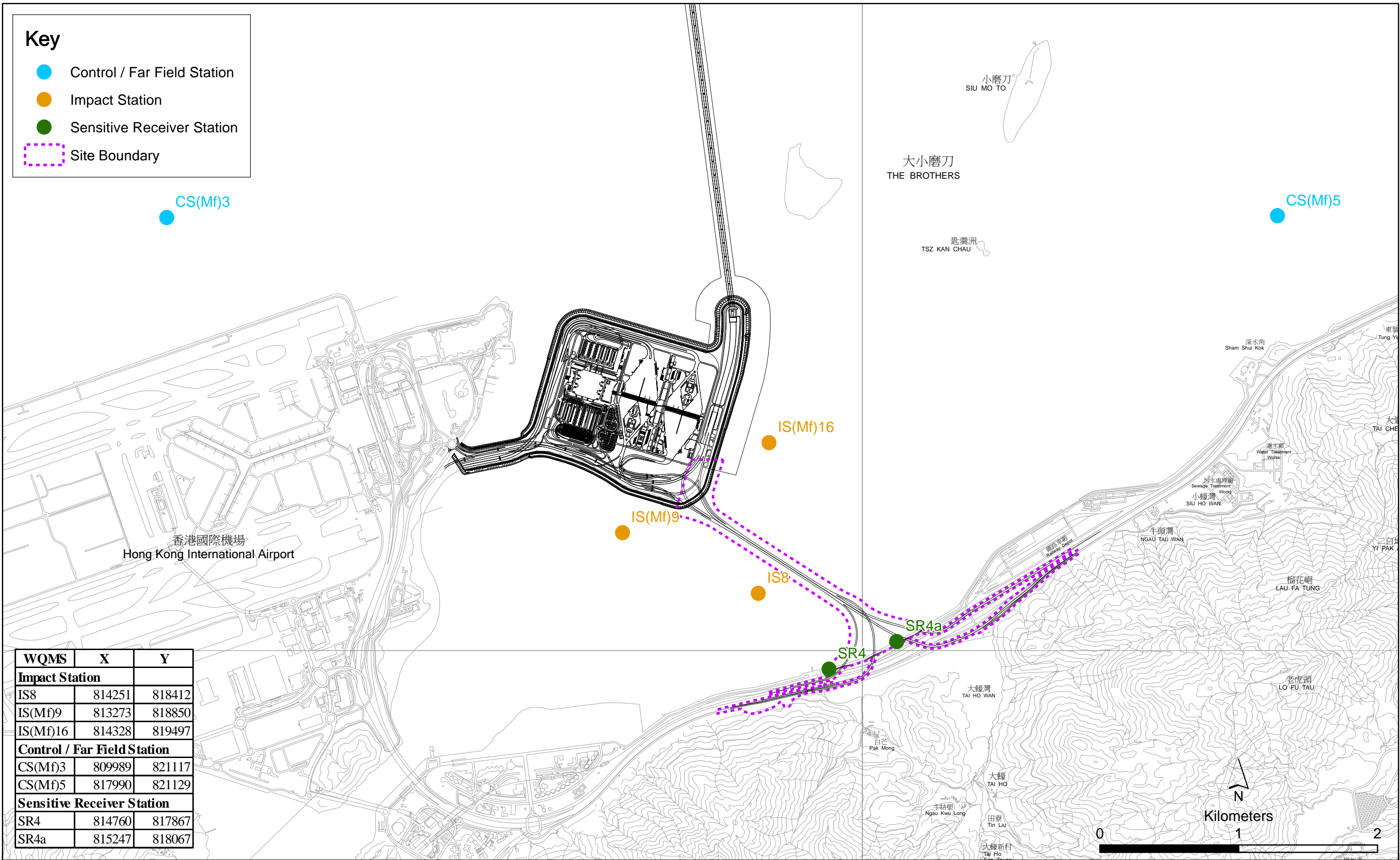
Table 2.8 *Locations of Water Quality Monitoring Stations and the Corresponding Monitoring Requirements*

Station ID	Type	Coordinates		*Parameters, unit	Depth	Frequency
		Easting	Northing			
IS(Mf)9	Impact Station (Close to HKBCF construction site)	813273	818850	<ul style="list-style-type: none"> • Temperature(°C) • pH(pH unit) • Turbidity (NTU) • Water depth (m) • Salinity (ppt) 	3 water depths: 1m below sea surface, mid-depth and 1m above sea bed. If the water depth is less than 3m, mid-depth sampling only. If water depth less than 6m, mid-depth may be omitted.	Impact monitoring: 3 days per week, at mid-flood and mid-ebb tides during the construction period of the Contract.
IS(Mf)16	Impact Station (Close to HKBCF construction site)	814328	819497	<ul style="list-style-type: none"> • DO (mg/L and % of saturation) • SS (mg/L) 		
IS8	Impact Station(Close to HKBCF construction site)	814251	818412			
SR4	Sensitive receiver (Tai Ho Inlet)	814760	817867			
SR4a	Sensitive receiver	815247	818067			
CS(Mf)3	Control Station	809989	821117			
CS(Mf)5	Control Station	817990	821129			

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Key

- Control / Far Field Station
- Impact Station
- Sensitive Receiver Station
- Site Boundary



WQMS	X	Y
Impact Station		
IS8	814251	818412
IS(Mf)9	813273	818850
IS(Mf)16	814328	819497
Control / Far Field Station		
CS(Mf)3	809989	821117
CS(Mf)5	817990	821129
Sensitive Receiver Station		
SR4	814760	817867
SR4a	815247	818067

Figure 2.3

Locations of Water Quality Monitoring Stations

Station ID	Type	Coordinates		*Parameters, unit	Depth	Frequency
		Easting	Northing			
Notes:						
In addition to the parameters presented monitoring location/position, time, water depth, sampling depth, tidal stages, weather conditions and any special phenomena or works underway nearby were also recorded.						

Table 2.9 summarizes the equipment used in the impact water quality monitoring programme.

Table 2.9 Water Quality Monitoring Equipment

Equipment	Brand and Model
DO, Temperature meter and Salinity	YSI Pro2030
Turbidimeter	HACH Model 2100Q
pH meter	HANNA HI8314 & Thermo Scientific Orion 2 Star
Positioning Equipment	Koden913MK2 with KBG-3 DGPS antenna
Water Depth Detector	Speedtech Instrument SM-5
Water Sampler	Kemmerer 1520 (1520-C25) 2.2L with messenger

2.3.2 Action & Limit Levels

The Action and Limit Levels of the water quality monitoring are provided in *Appendix D*.

2.3.3 Monitoring Schedule for the Reporting Quarter

The schedules for water quality monitoring in the reporting quarter are provided in *Appendix E*. The WQM on 7 July 2015 was cancelled due to adverse weather.

2.3.4 Results and Observations

Impact water quality monitoring was conducted at all designated monitoring stations in the reporting period. Monitoring results are presented graphically in *Appendix H* and detailed impact water quality monitoring results were reported in the *Twentieth to Twenty-second Monthly EM&A Reports*.

In this reporting period, a total of thirty-eight (38) monitoring events were undertaken with no Action Level and Limit Level exceedance recorded at the monitoring station in the reporting period. No action is thus required to be undertaken in accordance with the Event Action Plan presented in *Appendix J*.

The SS levels at IS8 on 25 July 2015 and IS(Mf)16 on 1 August 2015 during mid-ebb tide were higher than the corresponding Action Level but not higher than 120% of the upstream control station at the same tide on same day. Thus the results were not regarded as exceedances.

2.4 *DOLPHIN MONITORING*

2.4.1 *Monitoring Requirements*

Impact dolphin monitoring is required to be conducted by a qualified dolphin specialist team to evaluate whether there have been any effects on the dolphins. In order to fulfil the EM&A requirements and make good use of available resources, the on-going impact line transect dolphin monitoring data collected by HyD's *Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge. Hong Kong Link Road - Section between Scenic Hill and Hong Kong Boundary Crossing Facilities* on the monthly basis is adopted to avoid duplicates of survey effort.

2.4.2 *Monitoring Equipment*

Table 2.10 summarizes the equipment used for the impact dolphin monitoring.

Table 2.10 *Dolphin Monitoring Equipment*

Equipment	Model
Global Positioning System (GPS)	Garmin 18X-PC
Camera	Geo One Phottix
Laser Binoculars	Nikon D90 300m 2.8D fixed focus
Marine Binocular	Nikon D90 20-300m zoom lens
Vessel for Monitoring	Infinitor LRF 1000
	Bushell 7 x 50 marine binocular with compass and reticules
	65 foot single engine motor vessel with viewing platform 4.5m above water level

2.4.3 *Monitoring Parameter, Frequencies & Duration*

Dolphin monitoring should cover all transect lines in Northeast Lantau (NEL) and the Northwest Lantau (NWL) survey areas twice per month throughout the entire construction period. The monitoring data should be compatible with, and should be made available for, long-term studies of small cetacean ecology in Hong Kong. In order to provide a suitable long-term dataset for comparison, identical methodology and line transects employed in baseline dolphin monitoring was followed in the impact dolphin monitoring.

2.4.4 *Monitoring Location*

The impact dolphin monitoring was carried out in the NEL and NWL along the line transect as depicted in *Figure 2.4*. The co-ordinates of all transect lines are shown in *Table 2.11* below.

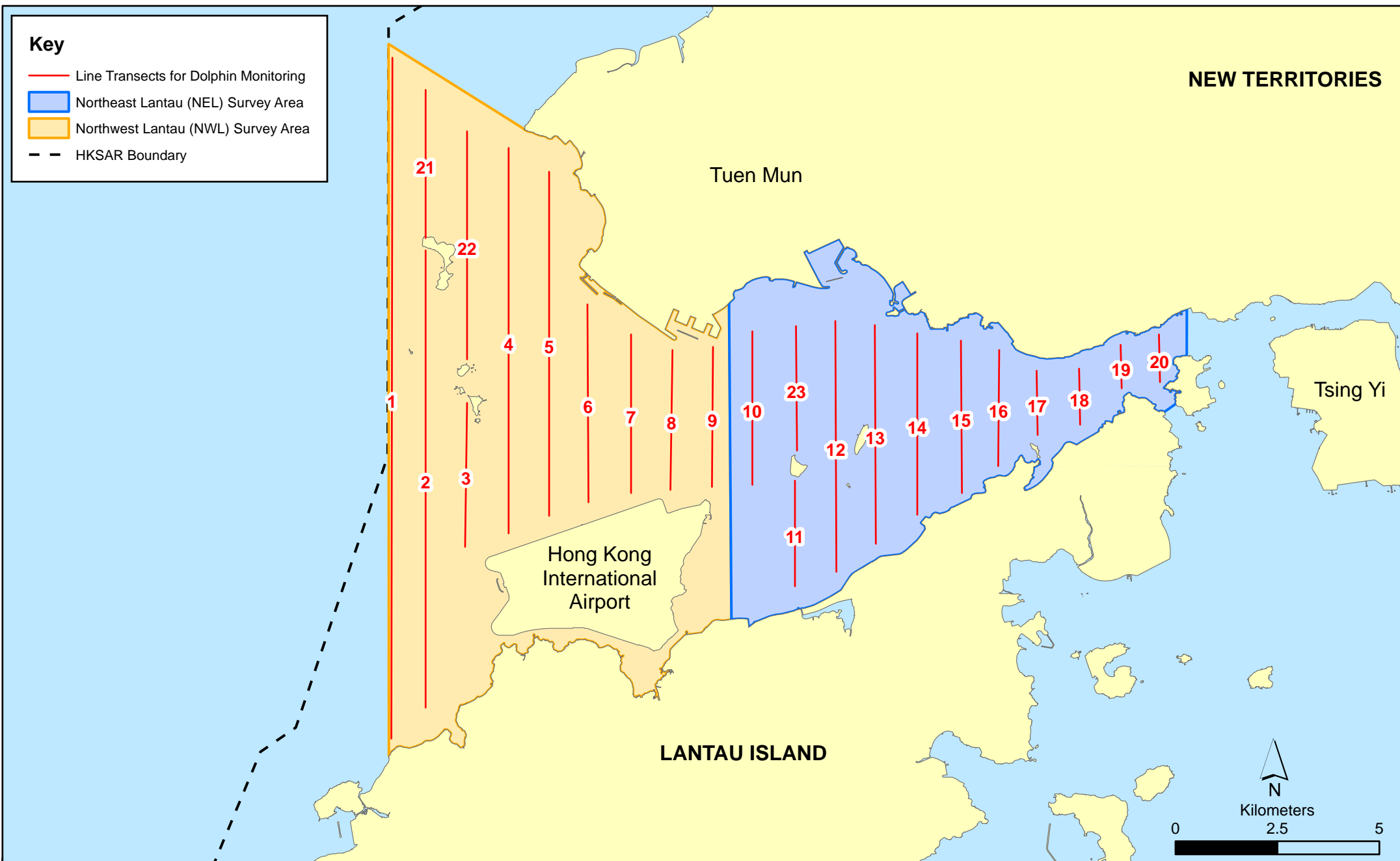


Figure 2.4

Layout of Transect Lines of Dolphin Monitoring in Northwest and Northeast Lantau Areas

Table 2.11 Impact Dolphin Monitoring Line Transect Co-ordinates

Line No.		Easting	Northing	Line No.		Easting	Northing
1	Start Point	804671	814577 (815456)	13	Start Point	816506	819480
1	End Point	804671	831404	13	End Point	816506	824859
2	Start Point	805475	815457 (815913)	14	Start Point	817537	820220
2	End Point	805477	826654	14	End Point	817537	824613
3	Start Point	806464	819435	15	Start Point	818568	820735
3	End Point	806464	822911	15	End Point	818568	824433
4	Start Point	807518	819771	16	Start Point	819532	821420
4	End Point	807518	829230	16	End Point	819532	824209
5	Start Point	808504	820220	17	Start Point	820451	822125
5	End Point	808504	828602	17	End Point	820451	823671
6	Start Point	809490	820466	18	Start Point	821504	822371
6	End Point	809490	825352	18	End Point	821504	823761
7	Start Point	810499	820690 (820880)	19	Start Point	822513	823268
7	End Point	810499	824613	19	End Point	822513	824321
8	Start Point	811508	820847 (821123)	20	Start Point	823477	823402
8	End Point	811508	824254	20	End Point	823477	824613
9	Start Point	812516	820892 (821303)	21	Start Point	805476	827081
9	End Point	812516	824254	21	End Point	805476	830562
10	Start Point	813525	820872	22	Start Point	806464	824033
10	End Point	813525	824657	22	End Point	806464	829598
11	Start Point	814556	818449 (818853)	23	Start Point	814559	821739
11	End Point	814556	820992	23	End Point	814559	824768
12	Start Point	815542	818807				
12	End Point	815542	824882				

Note:

Northing co-ordinates in bracket are the adjusted co-ordinates since August 2015 due to obstruction of permanent structures associated with construction works. Approval of the adjustments from EPD was received in July 2015.

2.4.5 Action & Limit Levels

The action and limit levels of dolphin impact monitoring are shown in *Appendix D*. The Event and Action plan is presented in *Appendix J*.

2.4.6 Monitoring Schedule for the Reporting Period

The dolphin monitoring schedules for the reporting period are shown in *Appendix E*.

2.4.7 Results & Observations

A total of 900.64 km of survey effort was collected, with 92.8% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). Among the two areas, 345.58 km and 555.06 km of survey effort were conducted in NEL and NWL survey areas respectively. The total survey effort conducted on primary lines was 655.74 km, while the effort on secondary lines was 244.90 km. Survey effort conducted on both primary and secondary lines were considered as on-effort survey data. The survey efforts are summarized in *Appendix I*.

During the six sets of monitoring surveys in June to August 2015, a total of twelve (12) groups of forty-two (42) Chinese White Dolphins were sighted. All dolphin sightings were made during on-effort search, and all of them were made on primary lines. In this quarterly period, all except one (1) dolphin groups were sighted in NWL, while one (1) group of a lone animal was sighted in NEL. Notably, this was the first dolphin sighted in NEL since monitoring surveys in July 2014. Summary table of the dolphin sightings is shown in *Appendix I*.

Encounter rates of Chinese White Dolphins deduced from the survey effort and on-effort sighting data from the primary transect lines under favourable conditions (Beaufort 3 or below) in the reporting period with the results presented in *Tables 2.12* and *2.13*.

Table 2.12 Individual Survey Event Encounter Rates

Survey Area	Survey period	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)
		Primary Lines Only	Primary Lines Only
NEL	Set 1: 2 nd & 10 th Jun 2015	0.00	0.00
	Set 2: 24 th & 26 th Jun 2015	2.64	2.64
	Set 3: 2 nd & 7 th Jul 2015	0.00	0.00
	Set 4: 22 nd & 27 th Jul 2015	0.00	0.00
	Set 5: 10 th & 14 th Aug 2015	0.00	0.00
	Set 6: 19 th & 28 th Aug 2015	0.00	0.00
NWL	Set 1: 2 nd & 10 th Jun 2015	1.51	15.15
	Set 2: 24 th & 26 th Jun 2015	0.00	0.00
	Set 3: 2 nd & 7 th Jul 2015	1.69	3.38
	Set 4: 22 nd & 27 th Jul 2015	3.46	6.92
	Set 5: 10 th & 14 th Aug 2015	0.00	0.00
	Set 6: 19 th & 28 th Aug 2015	8.53	29.84

Note: Dolphin Encounter Rates are deduced from the six sets of surveys (two surveys in each set) in the reporting period in Northeast (NEL) and Northwest Lantau (NWL)

Table 2.13 Quarterly Average Encounter Rates

Survey Area	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)		Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)	
	June - August 2015	September - November 2011	June - August 2015	September - November 2011
Northeast Lantau	0.44 ± 1.08	6.00 ± 5.05	0.44 ± 1.08	22.19 ± 26.81
Northwest Lantau	2.53 ± 3.20	9.85 ± 5.85	9.21 ± 11.57	44.66 ± 29.85

Note: encounter rates deduced from the baseline monitoring period (September - November 2011) have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions

Except one (1) group of ten (10) individuals was sighted, group size of Chinese White Dolphins ranged from one (1) to five (5) individuals per group in North Lantau region during June 2015 to August 2015. The average dolphin group sizes from these three months were compared with the ones deduced from the baseline period in September to November 2011, as shown in *Table 2.14*.

Table 2.14 Comparison of Quarterly Average Encounter Rates

	Average Dolphin Group Size	
	June - August 2015	September - November 2011
Overall	3.50 ± 2.65 (n = 12)	3.72 ± 3.13 (n = 66)
Northeast Lantau	1.00 (n = 1)	3.18 ± 2.16 (n = 17)
Northwest Lantau	3.73 ± 2.65 (n = 11)	3.92 ± 3.40 (n = 49)

One (1) Limit Level exceedance was observed for the quarterly dolphin monitoring data between June and August 2015. During this quarter of dolphin monitoring, no unacceptable impact from the activities of this Contract on Chinese White Dolphins was noticeable from the general observations.

Although the dolphins infrequently occurred along the alignment of TMCLKL Southern Connection Viaduct in the past and during the baseline monitoring period, it is apparent that dolphin usage has been significantly reduced in NEL, and many individuals have shifted away from the important habitat around the Brothers Islands.

It is critical to monitor the dolphin usage in North Lantau region in the upcoming quarters, to determine whether the dolphins are continuously affected by the various construction activities in relation to the HZMB-related works, and whether suitable mitigation measure can be applied to revert the situation.

2.4.8 Marine Mammal Exclusion Zone Monitoring

Daily marine mammal exclusion zone monitoring was undertaken during the period of marine works under this Contract. No Passive Acoustic Monitoring (PAM) was implemented as the marine piling works were not carried out outside the daylight hours in this reporting period. No sighting of the Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese White Dolphin) was recorded in the monitoring period during the exclusion zone monitoring.

2.5 EM&A SITE INSPECTION

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. Thirteen (13) site inspections were carried out in the reporting quarter on 2, 10, 17 and 25 June 2015; 2, 9, 14, 22 and 30 July 2015; 7, 12, 19 and 27 August 2015.

Key observations during the site inspections in this reporting period are summarized in *Table 2.15*.

Table 2.15 Specific Observations Identified during the Weekly Site Inspection in this Reporting Period

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks
2 June 2015	<p>Pier E11</p> <ul style="list-style-type: none"> Excessive soil was found in gutter. Stagnant water was accumulated in drip tray. <p>Pier E6</p> <ul style="list-style-type: none"> A label for sediment was missing on barge. <p>Barge G39</p> <ul style="list-style-type: none"> Some chemical containers were not placed in drip tray. 	<p>Pier E11</p> <ul style="list-style-type: none"> Gutter should be cleaned up regularly. Stagnant water should be removed to avoid runoff. <p>Pier E6</p> <ul style="list-style-type: none"> Type of sediment should be properly labelled.. <p>Barge G39</p> <ul style="list-style-type: none"> Chemical containers should be placed in drip tray.
10 June 2015	<p>Area 1</p> <ul style="list-style-type: none"> Refuse was found in drainage. Some chemical containers were not placed in drip tray 	<p>Area 1</p> <ul style="list-style-type: none"> Refuse in drainage should be cleaned up. Chemical containers should be placed in drip tray.
17 June 2015	<p>Pier E13</p> <ul style="list-style-type: none"> The updated dumping permit was not displayed. A generator was not placed on acoustic decoupling pad. A drip tray was not plugged. 	<p>Pier E13</p> <ul style="list-style-type: none"> The updated dumping permit should be displayed. Generator on marine platform should be placed on acoustic decoupling pad. Drip tray should be plugged.
25 June 2015	<p>Site Entrance 4A</p> <ul style="list-style-type: none"> Cover of a dump truck was damaged. Excessive soil was found in drainage. Chemical containers were not placed in drip tray. <p>Barge G39</p> <ul style="list-style-type: none"> Chemical containers were not placed in drip tray. 	<p>Site Entrance 4A</p> <ul style="list-style-type: none"> Cover of a dump truck should be able to effectively cover dusty material. Soil in drainage should be cleaned up. Bund or sandbag should be provided to avoid soil runoff into drainage. Chemical containers should be placed in drip tray. <p>Barge G39</p> <ul style="list-style-type: none"> Chemical containers should be placed in drip tray.
2 July 2015	<p>Area 1</p> <ul style="list-style-type: none"> Chemical containers were not placed in drip tray. Refuse was found in drainage. <p>Area 2</p> <ul style="list-style-type: none"> EP was not displayed. 	<p>Area 1</p> <ul style="list-style-type: none"> Chemical containers should be placed in drip tray. Refuse in drainage should be cleaned up regularly. <p>Area 2</p> <ul style="list-style-type: none"> EP should be displayed.
9 July 2015	<p>Pier A2</p> <ul style="list-style-type: none"> Gutter was not properly installed. <p>Seafront</p> <ul style="list-style-type: none"> A drip tray was not plugged. A power pack was not placed in drip tray. Checklist for a wet sep was not displayed. 	<p>Pier A2</p> <ul style="list-style-type: none"> Gutter should be properly installed. <p>Seafront</p> <ul style="list-style-type: none"> Drip tray should be plugged. Power pack should be placed in drip tray. Checklist for wet sep should be displayed.

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks
14 July 2015	<p>Area 1</p> <ul style="list-style-type: none"> The ground was partially dry. Some chemical containers were not placed in drip tray. The old EP was displayed. <p>Site Access 4A</p> <ul style="list-style-type: none"> A drip tray for air compressor contained stagnant water. <p>Pier D12 A</p> <ul style="list-style-type: none"> Stagnant water was accumulated in drip tray. <p>Pier D10</p> <ul style="list-style-type: none"> The ground was partially dry. Some chemical containers were not placed in drip tray. 	<p>Area 1</p> <ul style="list-style-type: none"> Unpaved area should be watered to avoid dust emission. Chemical containers should be placed in drip tray. The old EP was removed immediately. <p>Site Access 4A</p> <ul style="list-style-type: none"> Stagnant water in drip tray should be removed to avoid overflow. <p>Pier D12 A</p> <ul style="list-style-type: none"> Stagnant water in drip tray should be removed to avoid overflow. <p>Pier D10</p> <ul style="list-style-type: none"> Unpaved area should be watered to avoid dust emission. Chemical containers should be placed in drip tray.
22 July 2015	<p>Slope B/F8</p> <ul style="list-style-type: none"> Oil stain was found in drainage. Chemical containers were not placed in drip tray. <p>Slope B/C9</p> <ul style="list-style-type: none"> Chemical containers of Aqua Sed were not labelled. <p>Seafront</p> <ul style="list-style-type: none"> Chemical containers were not placed in drip tray. 	<p>Slope B/F8</p> <ul style="list-style-type: none"> Oil stain in drainage should be removed. Chemical containers should be placed in drip tray. <p>Slope B/C9</p> <ul style="list-style-type: none"> Chemical containers should be labelled. <p>Seafront</p> <ul style="list-style-type: none"> Chemical containers should be placed in drip tray.
30 July 2015	<p>Pier D5</p> <ul style="list-style-type: none"> A drip tray for generator was not plugged. A decoupling mat was damaged. A part of gutter was damaged. <p>Barge Kiu Lik (next to Pier A7)</p> <ul style="list-style-type: none"> A drip tray for generator was not plugged. Some chemical containers were not placed in drip tray. <p>Pier E12</p> <ul style="list-style-type: none"> A generator was not placed on acoustic decoupling mat. 	<p>Pier D5</p> <ul style="list-style-type: none"> Drip tray for generator should be plugged. Damaged decoupling mat should be replaced by new decoupling mat. Damaged gutter should be repaired to avoid runoff. <p>Barge Kiu Lik (next to Pier A7)</p> <ul style="list-style-type: none"> Drip tray for generator should be plugged. Chemical containers should be placed in drip tray. <p>Pier E12</p> <ul style="list-style-type: none"> Generator should be placed on acoustic decoupling mat.
7 August 2015	<p>Pier C3</p> <ul style="list-style-type: none"> Stagnant water was accumulated in drip tray <p>Pier E12</p> <ul style="list-style-type: none"> Gutter was not properly installed. 	<p>Pier C3</p> <ul style="list-style-type: none"> Stagnant water in drip tray should be cleaned up to avoid runoff. <p>Pier E12</p> <ul style="list-style-type: none"> Gutter should be properly installed to avoid runoff.

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks
12 August 2015	<p>Area 1</p> <ul style="list-style-type: none"> Chemical containers were placed too close to the natural habitat. Chemical containers were placed without drip tray. Soil stockpile next to drainage was not well covered. <p>Pier B14</p> <ul style="list-style-type: none"> Chemical containers were placed without drip tray. 	<p>Area 1</p> <ul style="list-style-type: none"> Chemical containers should be placed in drip tray and away from natural habitat. Tarpaulin sheet or hydroseeding should be provided to the soil stockpile next to drainage. <p>Pier B14</p> <ul style="list-style-type: none"> Chemical containers should be placed in drip tray.
19 August 2015	<p>Pier E6</p> <ul style="list-style-type: none"> Some chemical containers were not placed in drip tray. An expired dumping permit was displayed. <p>Pier E12</p> <ul style="list-style-type: none"> A drip tray was not plugged. <p>Pier B13</p> <ul style="list-style-type: none"> Refuse was found accumulated onsite. 	<p>Pier E6</p> <ul style="list-style-type: none"> Chemical containers should be placed in drip tray. Expired dumping permit should not be displayed. <p>Pier E12</p> <ul style="list-style-type: none"> Drip tray should be plugged. <p>Pier B13</p> <ul style="list-style-type: none"> Refuse should be regularly cleaned up
27 August 2015	<p>Abutment D</p> <ul style="list-style-type: none"> A label of chemical container was damaged. Checklist of wetsep was not displayed. Stagnant water was found in a drip tray for air compressor. <p>Pier E1</p> <ul style="list-style-type: none"> Excessive soil was found in gutter <p>Pier C4</p> <ul style="list-style-type: none"> A generator was not well placed on decoupling pad. 	<p>Abutment D</p> <ul style="list-style-type: none"> Chemical container should be properly labeled. Checklist of wetsep should be displayed. Stagnant water in drip tray should be removed to avoid runoff. <p>Pier E1</p> <ul style="list-style-type: none"> Excessive soil should be cleaned up regularly. <p>Pier C4</p> <ul style="list-style-type: none"> Stationary PME should be well placed on decoupling pad.

The Contractor has rectified all of the observations identified during environmental site inspections in the reporting *PERIOD*.

2.6 WASTE MANAGEMENT STATUS

The Contractor has submitted application form for registration as chemical waste producer under the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

Wastes generated during this reporting period include mainly construction wastes (inert and non-inert), imported fill, recyclable materials, chemical wastes and marine sediments (Categories L & M). Reference has been made to the waste flow table prepared by the Contractor (*Appendix K*). The quantities of different types of wastes are summarized in *Table 2.16*.

Table 2.16 Quantities of Different Waste Generated in the Reporting Period

Month/ Year	Inert Construction Waste ^(a) (m ³)	Imported Fill (m ³)	Inert Construction Waste Re- used (m ³)	Non-inert Construction Waste ^(b) (kg)	Recyclable Materials ^(c) (kg)	Chemical Wastes (kg)	Marine Sediment (m ³)	
							Category L	Category M
June 2015	7,166	0	1,351	89,930	119	17	324	287
July 2015	2,322	78	992	111,570	105	1,400	0	0
August 2015	1,265	0	105	87,760	133	1,200	0	0
Total	10,753	78	2,448	289,260	357	2,617	324	287

Notes:

- (a) Inert construction wastes include hard rock and large broken concrete, and materials disposed as public fill.
- (b) Non-inert construction wastes include general refuse disposed at landfill.
- (c) Recyclable materials include metals, paper, cardboard, plastics, timber and others.

The Contractor was advised to properly maintain on site C&D materials and waste collection, sorting and recording system, dispose of C&D materials and wastes at designated ground and maximize reuse/ recycle of C&D materials and wastes. The Contractor was also reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

For chemical waste containers, the Contractor was reminded to treat properly and store temporarily in designated chemical waste storage area on site in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*.

2.7 ENVIRONMENTAL LICENSES AND PERMITS

The status of environmental licensing and permit is summarized in *Table 2.17* below.

Table 2.17 Summary of Environmental Licensing and Permit Status

License/Permit	License or Permit No.	Date of Issue	Date of Expiry	License/Permit Holder	Remarks
Environmental Permit	EP-354/2009/D	13-Mar-15	N/A	HyD	Tuen Mun- Chek Lap Kok Link
Construction Dust Notification	361571	5-Jul-13	N/A	GCL	-
Construction Dust Notification	362093	17-Jul-13	N/A	GCL	For Area 23
Chemical Waste Registration	5213-961-G2380-13	10-Oct-13	N/A	GCL	Chemical waste produced in Contract HY/2012/07 (Area 1 adjacent to Cheng Tung Road, Siu Ho Wan)
Chemical Waste Registration	5213-961-G2380-14	10-Oct-13	N/A	GCL	Chemical waste produced in Contract HY/2012/07 (Area 2 adjacent to Cheung Tung Road, Pak Mong Village)
Chemical Waste Registration	5213-974-G2588-03	4-Nov-13	N/A	GCL	Chemical waste produced in Contract HY/2012/07 (WA5 adjacent to Cheung Tung Road, Yam O)
Chemical Waste Registration	5213-951-G2380-17	12-Jun-14	N/A	GCL	Viaducts A, B, C, D & E
Construction Waste Disposal Account	7017735	10-Jul-13	N/A	GCL	-
Construction Waste Disposal Account	7019470	3-Mar-14	N/A	GCL	Vessel CHIT Account
Waste Water Discharge License	WT00019017-2014	13-May-14	31-May-19	GCL	Discharge for marine portion
Waste Water Discharge License	WT00019018-2014	13-May-14	31-May-19	GCL	Discharge for land portion
Construction Noise Permit	Nil	N/A	N/A	GCL	For Piling Works
Construction Noise Permit for night works and works in general holidays	GW-RW0093-15	26-Feb-15	26-Aug-15	GCL	General works at WA5

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Construction Noise Permit for night works and works in general holidays	GW-RS0307-15	27-Mar-15	27-Sep-15	GCL	For Load unload at NLH near Viaduct D
Construction Noise Permit for night works and works in general holidays	GW-RS0691-15	23-Jun-15	22-Dec-15	GCL	For Broad Permit
Construction Noise Permit for night works and works in general holidays	GW-RS0078-15	28-Jan-15	29-Jul-15	GCL	For Plant mobilization using tractor with trailer
Construction Noise Permit for night works and works in general holidays	GW-RS0539-15	14-May-15	31-Jul-15	GCL	B9-B16 Pier Head Segments Erection
Construction Noise Permit for night works and works in general holidays	GW-RS0137-15	12-Feb-15	15-Aug-15	GCL	Pre-casted pile cap shell installation at E10-E13
Construction Noise Permit for night works and works in general holidays	GW-RW0695-15	30-Jun-15	30-Nov-15	GCL	Segment Erection between B6-B11 by LG1
Construction Noise Permit for night works and works in general holidays	GW-RS0491-15	8-May-15	30-Jun-15	GCL	TTA Case 009 Ch.2.1E-4.2E
Construction Noise Permit for night works and works in general holidays	GW-RS0489-15	8-May-15	7-Aug-15	GCL	B8 Pier Head Temp Works Lifting
Construction Noise Permit for night works and works in general holidays	GW-RS0539-15	14-May-15	31-Jul-15	GCL	B9-B16 Pier Head Segments Erection
Construction Noise Permit for night works and works in general holidays	GW-RS0769-15	15-Jul-15	30-Sep-15	GCL	TTA Case 009 Ch.2.1E-4.2E
Construction Noise Permit for night works and works in general holidays	GW-RW0422-15	21-Aug-15	25-Jan-16	GCL	General works at WA5
Construction Noise Permit for night works and works in general holidays	GW-RS0911-15	27-Aug-15	26-Feb-16	GCL	Broad Permit for Seg. Launching at Land Portion
Construction Noise Permit for night works and works in general holidays	GW-RS0855-15	12-Aug-15	11-Feb-16	GCL	Pier construction at C7, D8, D9
Construction Noise Permit for night works and works in general holidays	GW-RW0861-15	13-Aug-15	30-Sep-15	GCL	Portal beam installation at Pier D14
Marine Dumping Permit	EP/MD/16-020	22-May-15	26-Jun-15	GCL	For dumping Type I (Dedicated Site) and Type II sediment

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Marine Dumping Permit	EP/MD/15-257	2-Apr-15	7-Oct-15	GCL	For dumping Type I sediment

2.8 *IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES*

In response to the site audit findings, the Contractor has carried out corrective actions.

A summary of the Environmental Mitigation and Enhancement Measure Implementation Schedules (EMIS) is presented in *Appendix C*. The necessary mitigation measures were implemented properly for this Contract.

2.9 *SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT*

Results for 1-hour TSP, 24-hour TSP, construction noise and water quality complied with the Action/ Limit levels in the reporting period.

The construction impact on depth-averaged SS was assessed by comparing the quarterly mean values of depth-averaged SS with the relevant ambient mean values. Except CS(Mf)3, SR4, IS8 and IS(Mf)9 during mid-flood tide, results showed that the quarterly means of depth-averaged SS at all sampling stations during both mid-ebb and mid-flood tides were higher than the corresponding ambient means (*Table 2.18*). One-way ANOVA was conducted to examine whether there is significant difference of depth-averaged SS between ambient levels and results in this quarter. Statistical significant differences were only found at control stations CS(Mf)3 ($F_{1,68} = 11.6, p = 0.001$) and CS(Mf)5 ($F_{1,72} = 10.6, p = 0.002$) during mid-ebb tide between ambient level and impact monitoring of this quarter. No significant difference was detected at impact monitoring stations. The analytical results suggested that the increased SS levels are likely due to the natural fluctuation in the western waters of Hong Kong. The ET will monitor the trend of depth-averaged SS in the upcoming quarters to determine whether there is any change in water quality associated with this Project and further mitigation measures will be recommended if deemed necessary.

Table 2.18 Comparison between Quarterly Mean and Ambient Mean Values of Depth-averaged Suspended Solids

Station	Baseline Mean		Ambient Mean ^(a)		Quarterly Mean (June 2015 to August 2015)	
	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood
CS(Mf)3	9.2	12.8	12.0	16.6	15.8	14.5
CS(Mf)5	9.2	11.5	11.9	14.9	15.3	14.9
SR4	10.3	12.3	13.4	16.0	15.1	14.4
SR4a	9.1	9.8	11.9	12.7	15.1	14.3
IS8	11.3	13.5	14.6	17.6	14.9	14.5
IS(Mf)9	10.9	14.3	14.2	18.5	14.8	14.3
IS(Mf)16	11.4	10.3	14.8	13.4	15.5	14.4

Notes:

(a) Ambient mean value is defined as a 30% increase of the baseline mean value

One (1) Limit Level exceedance was recorded for impact dolphin monitoring in this reporting quarter. Following the review of the monitoring data and marine works details as per the procedure stipulated in the Event and Action Plan of the Updated EM&A Manual, there was no unacceptable impact on dolphin usage in the North Lantau region associated with construction works under this Contract. Investigation findings were detailed in *Appendix L*.

2.10 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

The Environmental Complaint Handling Procedure is provided in *Figure 2.5*.

One (1) environmental complaint with regard to dust emission from vehicles of this Project was received on 18 June 2015. An investigation was carried out by ET on 18 June 2015. Another investigation was conducted by EPD with SOR and Contractor on 19 June 2015. The complaint was followed-up in accordance with the Environmental Complaint Handling Procedure. Detailed investigation report for the complaint is presented in *Appendix L*.

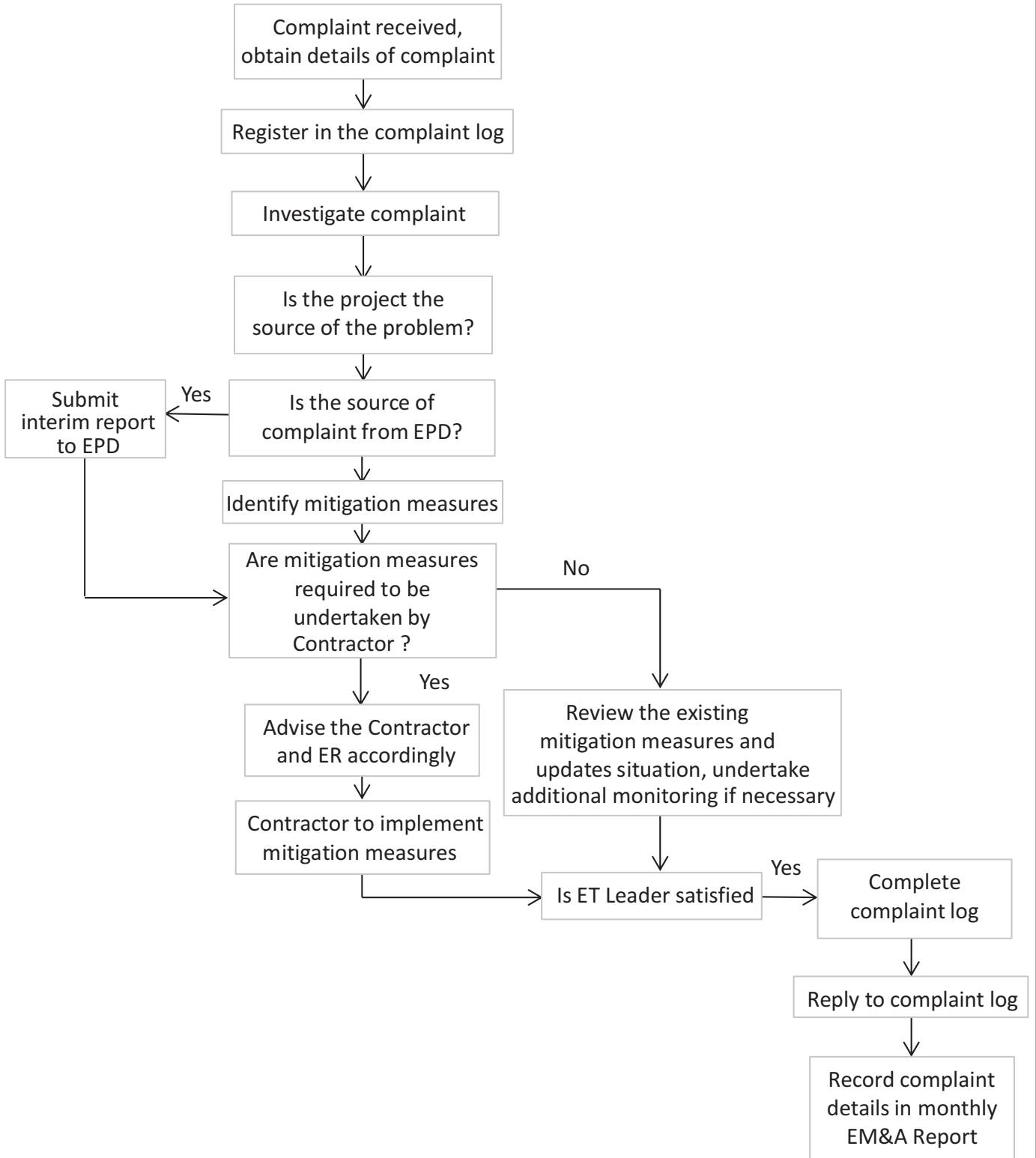


Figure 2.5

Environmental Complaint Handling Procedure

3.1 CONSTRUCTION ACTIVITIES FOR THE COMING QUARTER

As informed by the Contractor, the major works for the Contract in the coming quarter are summarized below:

September 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;
- Marine piling; and,
- Installation of pier head segment.

Land-based Works

- Predrilling at Viaduct F;
- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Land piling;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and,
- Slope work of Viaduct A.

October 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly;
- Installation of deck segment and pier head segment.

Land-based Works

- Predrilling at Viaduct F;
- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Relocation of MTRC fence; and,
- Slope work of Viaduct A.

November 2015

Marine Works

- Construction and installation of pile caps;
- Uninstallation of marine piling platform;
- Pier construction;
- Launching gantry assembly; and
- Installation of deck segment and pier head segment.

Land-based Works

- Construction and installation of pile caps;
- Pier construction;
- Re-alignment of Cheung Tung Road;
- Installation of pier head segment; and
- Slope work of Viaduct A.

3.2 *KEY ISSUES FOR THE COMING QUARTER*

Potential environmental impacts arising from the above upcoming construction activities are mainly associated with air quality, noise, marine water quality, marine ecology and waste management issues.

3.3 *MONITORING SCHEDULE FOR THE COMING QUARTER*

Impact monitoring for air quality, noise, marine water quality and dolphin monitoring are scheduled to continue for the next reporting period.

The monitoring programme has been reviewed and was considered as adequate to cater for the nature of works in progress.

4.1 CONCLUSIONS

This Seventh Quarterly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 June to 31 August 2015, in accordance with the Updated EM&A Manual and the requirements of the *Environmental Permit (EP-354/2009/D)*.

Neither Action Level nor Limit Level exceedances were observed for air quality, noise and water quality monitoring in this reporting period.

A total of twelve (12) groups of forty-two (42) Chinese White Dolphins were sighted during the six sets of survey from June to August 2015. Whilst one (1) Limit Level exceedance was recorded for the quarterly dolphin monitoring data between June and August 2015, no unacceptable impact from the activities of this Contract on Chinese White Dolphins was noticeable from the general observations. It is critical to monitor the dolphin usage in North Lantau region in the upcoming quarters, to determine whether the dolphins are continuously affected by the various construction activities in relation to the HZMB-related works, and whether suitable mitigation measure can be applied to revert the situation.

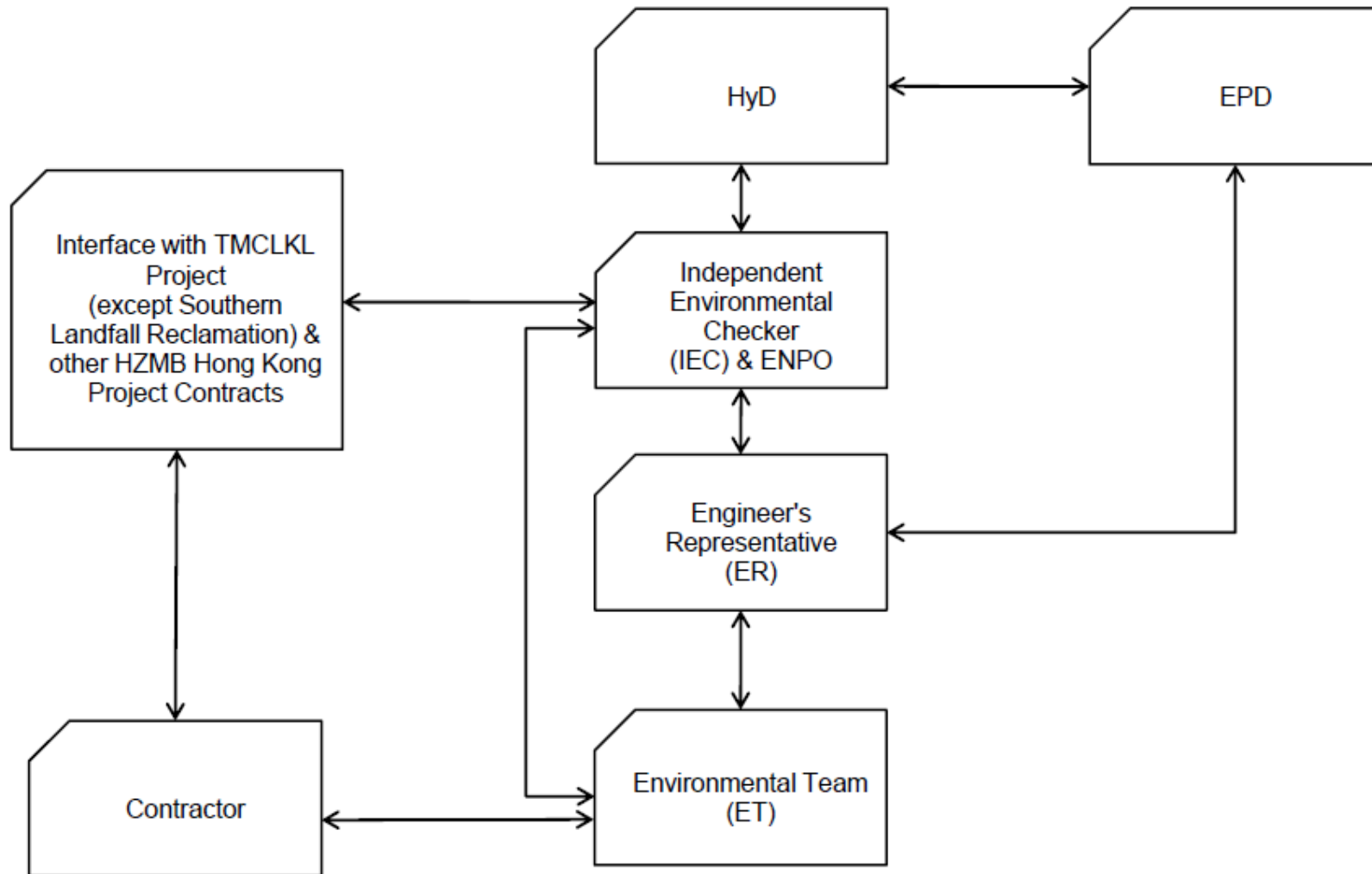
Environmental site inspection was carried out thirteen (13) times in the reporting period. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audits.

One (1) environmental complaint regarding dust emission from vehicles of this Project was received in the reporting period.

The monitoring programme has been reviewed and was considered as adequate to cater for the nature of works in progress. Change to the monitoring programme was thus not recommended at this stage. The monitoring programme will be evaluated as appropriate in the next 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.

Appendix A

Project Organization for Environmental Works



↔ Line of Communication

Appendix B

Construction Programme for the Reporting Quarter

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																											
												June							July							August							September						
HY/2012/07 - TM-CLK Link-SC [DWP rE1] - Status Update 21-06-2015												8	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21									
Contract Key Dates																																							
Possession Dates / Access Period																																							
POS02	Portion A (Commencement of Works+499 days)	0	21-Jun-15*	0%	0		03-Jun-15		-18	0	0%																												
POS03	Portion B (Commencement of Works+619 days)	0	21-Jun-15*	0%	0		03-Jun-15		-18	0	0%																												
Section Completion Dates																																							
Vacate Works Area																																							
VAC05	Vacate Works Area WA5 (Zone 5C) (Commencement of Works+758 days)	0		0%	0	19-Jul-15*		19-Jul-15	0	1245	0%																												
General Submissions																																							
General Requirements																																							
Temporary Works Design																																							
PR00130	Unloading Jetty at HKBCF - Working Platform design and approval	90	02-Jun-14 A	60%	36	03-Aug-15	14-May-15	26-Jun-15	-31	1002	10%																												
Land Works																																							
PR00160	Propose/submit a performance review for piled fnds in accordance w/ ETWB	101	26-May-14 A	80.2%	20	15-Jul-15	13-Jan-16	04-Feb-16	169	363	80%																												
Land GI Works																																							
PR02204	SQR Sampling & Testing and Approval	110	14-Aug-14 A	68.18%	35	01-Aug-15	24-Sep-14	05-Nov-14	-217	0	68%																												
PR03110	Trial Pits along Cheung Tung Road	20	21-Oct-13 A	85%	3	24-Jun-15	03-Nov-14	05-Nov-14	-185	34	85%																												
Design Submissions																																							
Detailed Design (v18.8 18-08-14)																																							
General Submissions																																							
ARDD0037-1	Preparation of Seismic Performance Report Viaduct A,B,C,D - AP12.01	20	22-Jun-15	0%	20	17-Jul-15	25-Sep-15	22-Oct-15	69	0	0%																												
ARDD0037-2	IC/SO Approval of Seismic Performance Report Viaduct A,B,C,D - AP12.01	75	20-Jul-15	0%	75	30-Oct-15	23-Oct-15	04-Feb-16	69	241	0%																												
ARDD0037-4	Preparation of Seismic Performance Report Viaduct E - AP12.02	20	22-Jun-15	0%	20	17-Jul-15	25-Sep-15	22-Oct-15	69	0	0%																												
ARDD0037-5	IC/SO Approval of Seismic Performance Report Viaduct E - AP12.02	75	20-Jul-15	0%	75	30-Oct-15	23-Oct-15	04-Feb-16	69	0	0%																												
ARDD0037-7	Preparation of Seismic Performance Report Viaduct F - AP12.03	20	22-Jun-15	0%	20	17-Jul-15	25-Sep-15	22-Oct-15	69	0	0%																												
ARDD0037-8	IC/SO Approval of Seismic Performance Report Viaduct F - AP12.03	75	20-Jul-15	0%	75	30-Oct-15	23-Oct-15	04-Feb-16	69	0	0%																												
ARDD0042-2	IC/SO Approval of O&M Facility Provisions DDA - BP11.01	75	14-Jan-15 A	40%	45	21-Aug-15	21-Aug-15	22-Oct-15	44	0	50%																												
ARDD0042-4	IC/SO Approval of O&M Facility Provisions DDA - BP11.01	0		0%	0	21-Aug-15		22-Oct-15	44	65	0%																												
Viaduct E5 and E6																																							
Viaduct Design																																							
Viaduct E5 E6 Superstructure Optimisation																																							
TGP0550	Viaduct E5 & E6 - Preparation of Optimised Movement Joint Schedule	15	03-Feb-15 A	45%	8	02-Jul-15	24-Nov-15	04-Dec-15	112	76	45%																												
Viaduct E7 & E8																																							
Viaduct Design																																							
Viaduct E7 E8 Superstructure Optimisation																																							
TGP0750	Viaduct E7 & E8 - Preparation of Optimised Movement Joint Schedule	15	03-Feb-15 A	40%	9	02-Jul-15	24-Nov-15	04-Dec-15	111	75	40%																												
Associated Construction Milestones																																							
ARDD0220	Viaduct E7 & E8 - DDA approval ready for Initial Segment Casting	0	21-Jun-15	0%	0		26-May-15		-26	106	0%																												
Viaduct D																																							
Viaduct Design																																							
ARDD0333	Viaduct D - IC/SO Consent of Supplemental Working Drawings Viaduct D	10	28-Apr-15 A	80%	2	23-Jun-15	13-Nov-14	14-Nov-14	-157	0	80%																												
ARDD0333	Viaduct D - IC/SO Consent of Supplemental Working Drawings Viaduct D	0		0%	0	23-Jun-15		14-Nov-14	-157	0	0%																												
Viaduct C																																							
Viaduct Design																																							
ARDD0384	Viaduct C - Coordination and Further Issue of Construction Method and Temp	60	02-Mar-15 A	25%	45	21-Aug-15	15-Oct-18	14-Dec-18	865	0	0%																												
ARDD0384	Viaduct C - GCL/FRE Final Coordinated Construction Method/Temporary Wo	0		0%	0	21-Aug-15		14-Dec-18	865	865	0%																												
ARDD0384	Viaduct C - Preparation and Coordination of Working Drawing Set	10	22-Apr-15 A	80%	2	23-Jun-15	26-Feb-15	27-Feb-15	-82	0	100%																												
ARDD0384	Viaduct C - Submission of Working DDA Drawings for Viaduct C DP13.03	0		0%	0	23-Jun-15		27-Mar-15	-62	38	0%																												
ARDD0384	Viaduct C - IC/SO Consent of Supplemental Working Drawings Viaduct C	10	17-Aug-15	0%	10	28-Aug-15	30-Mar-15	10-Apr-15	-100	0	0%																												
ARDD0384	Viaduct C - IC/SO Consent of Supplemental Working Drawings Viaduct C	0		0%	0	28-Aug-15		10-Apr-15	-100	0	0%																												
Associated Construction Milestones																																							
ARDD0413	Viaduct C - DDA approval ready for Commencement of Pilecaps C1-C17	0	21-Jun-15	0%	0		19-Dec-14		-184	1	0%																												
ARDD0414	Viaduct C - DDA approval ready for Initial Segment Casting	0	29-Aug-15	0%	0		10-Apr-15		-141	1	0%																												
Viaduct A																																							
Viaduct Design																																							
ARDD0433	Viaduct A - Review and Update of Draft DDA Rev A1 - DP11.03	15	19-Feb-15 A	80%	3	24-Jun-15	12-Dec-18	14-Dec-18	907	907	80%																												
ARDD0434	Viaduct A - Earliest IC Certificate for DDA DP11.02, DP11.03	0		0%	0	22-Jun-15		14-Jan-16	149	0	0%																												
ARDD0435	Viaduct A - IC/SO Approval of DDA DP11.03	75	23-Feb-15 A	60%	30	18-Aug-15	02-Feb-16	14-Mar-16	149	0	60%																												
ARDD0435	Viaduct A - IC/SO Approval of DDA DP11.03	0		0%	0	18-Aug-15		14-Mar-16	149	25	0%																												
ARDD0435	Viaduct A - GCL/FRE Issue of Construction Method/Temporary Work Data	0		0%	0	22-Jun-15		18-Nov-15	108	0	0%																												
ARDD0435	Viaduct A - Coordination and Further Issue of Construction Method and Temp	60	22-Jun-15	0%	60	11-Sep-15	19-Nov-15	10-Feb-16	108	0	0%																												

		Project ID: J3518DWP rE1-M25 Layout: J3518-DWP-3MRP Submission - M25 Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.	Tuen Mun - Chek Lap Kok Link - Southern Connection 3-Month Rolling Programme (Page 1 of 33 Pages) (Progress as of 21-June-15)	<table border="1"> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> <tr> <td>29-May-15</td> <td></td> <td>WY</td> <td></td> </tr> <tr> <td>02-Jul-15</td> <td></td> <td>HF</td> <td>KWY</td> </tr> </table>	Date	Revision	Checked	Approved	29-May-15		WY		02-Jul-15		HF	KWY	DWG. No.: J3518/GCL/PGM/3MRP-M25
Date	Revision	Checked	Approved														
29-May-15		WY															
02-Jul-15		HF	KWY														

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																											
												June						July						August						September									
												08	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21									
ARDD0435	Viaduct A - Preparation of Draft DDA Working Drawing Set	60	22-Jun-15	0%	60	11-Sep-15	19-Nov-15	10-Feb-16	108	0	0%																												
ARDD0435	Viaduct A - GCL/FRE Final Coordinated Construction Method/Temporary Wo	0		0%	0	11-Sep-15		10-Feb-16	108	0	0%																												
ARDD0435	Viaduct A - Preparation and Coordination of Working Drawing Set	10	14-Sep-15	0%	10	25-Sep-15	11-Feb-16	24-Feb-16	108	0	0%																												
Viaduct F1 & F3																																							
Viaduct Design																																							
ARDD0485	Viaduct F1 & F3 - IC/SO Approval of DDA - DP16.02, 16.03, 16.08, 16.09	75	25-Nov-14 A	40%	45	21-Aug-15	17-Dec-14	17-Feb-15	-133	25	40%																												
ARDD0486	Viaduct F1 & F3 - Coordination and Further Issue of Construction Method and	60	02-Mar-15 A	25%	45	21-Aug-15	03-Dec-14	03-Feb-15	-143	0	0%																												
ARDD0486	Viaduct F1 & F3 - Preparation of Draft Working Drawing Set	60	02-Mar-15 A	25%	45	21-Aug-15	03-Dec-14	03-Feb-15	-143	0	0%																												
ARDD0486	Viaduct F1 & F3 - GCL/FRE Final Coordinated Construction Method/Temporary	0		0%	0	21-Aug-15		03-Feb-15	-143	0	0%																												
ARDD0486	Viaduct F1 & F3 - Preparation and Coordination of DDA/Working Drawing Set	10	24-Aug-15	0%	10	04-Sep-15	04-Feb-15	17-Feb-15	-143	0	0%																												
ARDD0486	Viaduct F1 & F3 - Submission of Working DDA Drawings Viaduct F1,F3 DP1	0		0%	0	04-Sep-15		10-Jul-15	-40	0	0%																												
ARDD0486	Viaduct F1 & F3 - IC/SO Consent of Supplemental Working Drawings Viaduc	10	07-Sep-15	0%	10	18-Sep-15	13-Jul-15	24-Jul-15	-40	5	0%																												
Viaduct F2, F4 and F5																																							
Viaduct Design																																							
ARDD0529	Viaduct F2, F4 & F5 - IC/SO Approval of DDA - DP16.05, 06, 11, 12, 14, 15	75	25-Nov-14 A	20%	60	11-Sep-15	09-Feb-15	04-May-15	-95	10	20%																												
ARDD053C	Viaduct F2, F4 & F5 - GCL/FRE Issue of Construction Method/Temporary Work	0		0%	0	22-Jun-15		11-Nov-14	-158	0	0%																												
ARDD053C	Viaduct F2, F4 & F5 - Coordination and Further Issue of Construction Method	60	22-Jun-15	0%	60	11-Sep-15	12-Nov-14	03-Feb-15	-158	0	0%																												
ARDD053C	Viaduct F2, F4 & F5 - Preparation of Draft Working Drawing Set	60	22-Jun-15	0%	60	11-Sep-15	12-Nov-14	03-Feb-15	-158	0	0%																												
ARDD053C	Viaduct F2, F4 & F5 - GCL/FRE Final Coordination Construction Method/Temp	0		0%	0	11-Sep-15		03-Feb-15	-158	0	0%																												
ARDD053C	Viaduct F2, F4 & F5 - Preparation and Coordination of DDA/Working Drawings	10	14-Sep-15	0%	10	25-Sep-15	04-Feb-15	17-Feb-15	-158	0	0%																												
Parapet and Utility Trough																																							
ARDD0562-4	IC/SO Approval of DDA -DP30.01	75	31-Jul-14 A	90.67%	7	30-Jun-15	05-Feb-15	13-Feb-15	-97	0	90%																												
ARDD0562-5	IC/SO Approval of DDA -DP30.01	0		0%	0	30-Jun-15		13-Feb-15	-97	1	0%																												
ARDD0566	IC/SO Approval of DDA -DP31.01	75	24-Oct-14 A	80%	15	10-Jul-15	04-Sep-15	24-Sep-15	54	0	80%																												
ARDD0566-1	IC/SO Approval of DDA -DP31.01	0		0%	0	10-Jul-15		24-Sep-15	54	125	0%																												
Slopeworks for Viaduct B: 9SE- B/C8, B/C9, B/F9, B/F85+ 10SW-A/F52, A/F53																																							
ARDD0580-5	Preparation of Slope A/F52 Submission - CP12.03	20	10-Feb-15 A	90%	2	23-Jun-15	23-Apr-15	24-Apr-15	-42	0	90%																												
ARDD0580-6	IC/SO Approval of Slope - CP12.03	75	24-Jun-15	0%	75	06-Oct-15	27-Apr-15	07-Aug-15	-42	0	0%																												
Slopeworks for Viaduct C: 10NW -C/C22, C/C26, C/C27, C/F13, C/F14, C/F15																																							
ARDD0587	IC/SO Approval of Slope Combined AIP/DDA -CP13.01	190	19-Nov-13 A	100%	0	10-Jun-15 A					100%																												
ARDD0587-1	IC/SO Approval of Slope Combined AIP/DDA -CP13.01	0		100%	0	10-Jun-15 A					100%																												
ARDD0588-2	IC/SO Approval of Combined AIP/DDA -CP13.02	75	25-Feb-15 A	70%	23	22-Jul-15	17-Jun-16	19-Jul-16	260	0	70%																												
ARDD0588-3	IC/SO Approval of Combined AIP/DDA -CP13.02	0		0%	0	22-Jul-15		19-Jul-16	260	108	0%																												
Slopeworks for Viaduct A: 9SE-B/FR8, B/R1, B/R2																																							
ARDD0595	IC/SO Approval of Slope Combined AIP/DDA -CP11.01	75	31-Jul-14 A	100%	0	03-Jun-15 A					100%																												
ARDD0595-1	IC/SO Approval of Slope Combined AIP/DDA -CP11.01	0		100%	0	03-Jun-15 A					100%																												
Slopeworks for Viaduct D: 10NW -C/R4, C/F9, C/F10, C/F11, C/F17, C/F50																																							
ARDD0603	IC/SO Approval of Slope Combined AIP/DDA -CP14.01	75	16-Dec-14 A	90%	8	01-Jul-15	26-May-15	04-Jun-15	-19	0	90%																												
ARDD0603-1	IC/SO Approval of Slope Combined AIP/DDA -CP14.01	0		0%	0	01-Jul-15		04-Jun-15	-19	4	0%																												
ARDD0604-2	IC/SO Approval of Slope Combined AIP/DDA -CP14.02	75	18-May-15 A	50%	38	12-Aug-15	18-Aug-15	08-Oct-15	42	0	50%																												
ARDD0604-3	IC/SO Approval of Revised Slope Combined AIP/DDA -CP14.02	0		0%	0	12-Aug-15		08-Oct-15	42	64	0%																												
Waterworks, Drainage & Utility Diversions																																							
ARDD0629	IC/SO Approval of Waterworks, Drainage & Utility DDA - BP20.01	75	22-Jul-14 A	90%	8	01-Jul-15	16-Jun-15	25-Jun-15	-4	0	100%																												
ARDD0629-1	IC/SO Approval of Waterworks, Drainage & Utility DDA - BP20.01	0		0%	0	01-Jul-15		25-Jun-15	-4	0	0%																												
ARDD0629-2	Gov't Approval of Submissions for Waterworks, Drainage & Utility Diversions	75	02-Jan-14 A	90.67%	7	30-Jun-15	17-Jun-15	25-Jun-15	-3	1	90%																												
Viaduct Approach Ramp Retaining Walls																																							
Approach Ramp D																																							
ARDD0652	Approach D - IC/SO Approval of Approach Ramp D DDA - DP23.01	75	25-Sep-14 A	90%	8	01-Jul-15	15-Apr-15	24-Apr-15	-48	0	90%																												
ARDD0652	Approach D - IC/SO Approval of Approach Ramp D DDA - DP23.01	0		0%	0	01-Jul-15		24-Apr-15	-48	1	0%																												
Approach Ramp C																																							
ARDD0658	Approach C - IC/SO Approval of Approach Ramp C DDA -DP20.01	75	03-Oct-14 A	84%	12	07-Jul-15	26-Mar-15	10-Apr-15	-62	0	90%																												
ARDD0658	Approach C - IC/SO Approval of Approach Ramp C DDA -DP20.01	0		0%	0	07-Jul-15		10-Apr-15	-62	38	0%																												
Approach Ramp B																																							
ARDD0664	Approach B - IC/SO Approval of Approach Ramp B DDA -DP21.01	75	14-Oct-14 A	60%	30	31-Jul-15	30-Nov-15	08-Jan-16	115	0	60%																												
ARDD0664	Approach B - IC/SO Approval of Approach Ramp B DDA -DP21.01	0		0%	0	31-Jul-15		08-Jan-16	115	213	0%																												
Approach A																																							
ARDD0670	Approach A - IC/SO Approval of Approach Ramp A DDA - DP20.01	75	03-Oct-14 A	84%	12	07-Jul-15	31-Aug-15	15-Sep-15	50	0	90%																												
ARDD067C	Approach A - IC/SO Approval of Approach Ramp A DDA - DP20.01	0		0%	0	07-Jul-15		15-Sep-15	50	0	0%																												
Approach F																																							
ARDD0676	Approach F - IC/SO Approval of Approach Ramp F DDA -DP24.01	75	23-Dec-14 A	50%	38	12-Aug-15	18-Mar-15	08-May-15	-68	0	50%																												
ARDD0676	Approach F - IC/SO Approval of Approach Ramp F DDA -DP24.01	0		0%	0	12-Aug-15		26-Nov-15	77	203	0%																												

■ Actual Work
■ Planned Bar
■ Critical Bar
◆ Milestone

Project ID: J3518DWPPrE1-M25
Layout: J3518-DWP-3MRP Submission - M25
Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 2 of 33 Pages)
(Progress as of 21-June-15)

Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																												
												June				July				August				September																
													8	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21									
Landscape																																								
ARDD0701	Water Supply Application to WSD	0		0%	0	22-Jun-15		01-Jan-16	140	0	0%	◆																												
ARDD0702	Gov't Approval of LVIA	40	22-Jun-15	0%	40	14-Aug-15	04-Jan-16	26-Feb-16	140	180	0%	▬																												
Segment Target Geometry And Erection Engineering																																								
Viaduct A																																								
ARDD0716	Viaduct A - Confirmation of Erection Sequence from Freyssinet	0		0%	0	22-Jun-15		16-Dec-15	128	0	0%	◆																												
ARDD0717	Viaduct A - Erection Sequence Analysis	20	22-Jun-15	0%	20	17-Jul-15	17-Dec-15	13-Jan-16	128	0	0%	▬																												
ARDD0718	Viaduct A - Target Geometry Analysis	20	20-Jul-15	0%	20	14-Aug-15	14-Jan-16	10-Feb-16	128	0	0%	▬																												
ARDD0719	Viaduct A - Segment Geometry Schedules	10	17-Aug-15	0%	10	28-Aug-15	11-Feb-16	24-Feb-16	128	20	0%	▬																												
Viaduct C																																								
ARDD0721	Viaduct C - Confirmation of Erection Sequence from Freyssinet	0		0%	0	22-Jun-15		02-Jan-15	-120	0	0%	◆																												
ARDD0722	Viaduct C - Erection Sequence Analysis	20	22-Jun-15	0%	20	17-Jul-15	05-Jan-15	30-Jan-15	-120	0	0%	▬																												
ARDD0723	Viaduct C - Target Geometry Analysis	20	20-Jul-15	0%	20	14-Aug-15	02-Feb-15	27-Feb-15	-120	0	0%	▬																												
ARDD0724	Viaduct C - Segment Geometry Schedules	10	17-Aug-15	0%	10	28-Aug-15	02-Mar-15	13-Mar-15	-120	0	0%	▬																												
ARDD0724	Viaduct C - Issue of Pierhead Segments Bridge C1, C2, C3, C4	0		0%	0	28-Aug-15		10-Apr-15	-101	0	0%	◆																												
ARDD0724	Viaduct C - Issue of Casting Data and Segment Catalogue Bridge C4, C3 (Fi	0		0%	0	28-Aug-15		10-Apr-15	-101	0	0%	◆																												
ARDD0724	Viaduct C - Issue of Casting Data and Segment Catalogue Bridge C2, C1 (Fi	0		0%	0	28-Aug-15		13-Mar-15	-120	0	0%	◆																												
ARDD0724	Viaduct C - Issue Erection Manual	30	31-Aug-15	0%	30	09-Oct-15	16-Mar-15	24-Apr-15	-120	0	0%	▬																												
Viaduct D																																								
ARDD0725	Viaduct D - Issue Erection Manual	30	19-Jun-15 A	15%	26	27-Jul-15	17-Feb-15	24-Mar-15	-89	0	15%	▬																												
Viaduct E5 and E6																																								
ARDD0734	Viaduct E5 & E6 - Segment Geometry Schedules	10	05-May-14 A	20%	8	01-Jul-15	08-Oct-14	17-Oct-14	-183	0	20%	▬																												
TGP0560	Viaduct E5 & E6 - Issue of Optimised Casting Data and Segment Catalogue	20	30-Apr-15 A	5%	19	16-Jul-15	29-Apr-15	25-May-15	-38	56	5%	▬																												
TGP0570	Viaduct E5 & E6 - Issue of Optimised Casting Data and Segment Catalogue	40	30-Apr-15 A	5%	38	12-Aug-15	23-Dec-14	12-Feb-15	-129	0	5%	▬																												
TGP0590	Viaduct E5 & E6 - Issue Erection Manual	10	13-Aug-15	0%	10	26-Aug-15	07-May-15	20-May-15	-70	98	0%	▬																												
Viaduct E7 & E8																																								
ARDD0739	Viaduct E7 & E8 - Segment Geometry Schedules	10	05-May-14 A	20%	8	01-Jul-15	28-Apr-15	07-May-15	-39	90	20%	▬																												
TGP0760	Viaduct E7 & E8 - Issue of Optimised Casting Data and Segment Catalogue	40	13-Aug-15	0%	40	07-Oct-15	13-Feb-15	09-Apr-15	-129	0	0%	▬																												
Viaduct E2																																								
ARDD0749	Viaduct E2 - Segment Geometry Schedules	10	24-Mar-14 A	22%	8	01-Jul-15	15-Dec-14	24-Dec-14	-135	11	22%	▬																												
TGP0260	Viaduct E2 - Issue of Optimised Casting Data and Segment Catalogue Bridg	20	04-May-15 A	5%	19	16-Jul-15	28-Oct-14	21-Nov-14	-169	0	5%	▬																												
TGP0290	Viaduct E2 - Issue of Erection Manual	10	17-Jul-15	0%	10	30-Jul-15	25-Dec-14	07-Jan-15	-146	25	0%	▬																												
Viaduct F																																								
ARDD0751	Viaduct F - Confirmation of Erection Sequence from Freyssinet	0		0%	0	22-Jun-15		11-Nov-14	-158	0	0%	◆																												
ARDD0752	Viaduct F - Erection Sequence Analysis	30	22-Jun-15	0%	30	31-Jul-15	12-Nov-14	23-Dec-14	-158	0	0%	▬																												
ARDD0753	Viaduct F - Target Geometry Analysis	30	03-Aug-15	0%	30	11-Sep-15	24-Dec-14	03-Feb-15	-158	0	0%	▬																												
ARDD0754	Viaduct F - Segment Geometry Schedules	10	14-Sep-15	0%	10	25-Sep-15	04-Feb-15	17-Feb-15	-158	0	0%	▬																												
Major Procurement																																								
Marine Permanent Navigaion Aids																																								
PR65011	Design & Approvals for Marine Navigation Aids	150	23-Oct-13 A	70%	45	13-Aug-15	10-Jun-15	03-Aug-15	-9	0	55%	▬																												
PR65012	Procure & Deliver Marine Navigation Aids	240	14-Aug-15	0%	240	06-Jun-16	04-Aug-15	26-May-16	-9	0	0%	▬																												
Tower Cranes																																								
PR66011	Procure & Deliver Tower Cranes	236	03-Oct-14 A	21.61%	185	30-Jan-16	12-Jan-15	27-Aug-15	-128	853	0%	▬																												
PR66013	Erect & Commission Tower Crane @ E4	12	27-Jul-15	0%	12	10-Aug-15	12-Jan-15	24-Jan-15	-146	0	0%	▬																												
PR66014	Erect & Commission Tower Crane @ E5	12	01-Sep-15	0%	12	15-Sep-15	24-Jun-15	09-Jul-15	-53	8	0%	▬																												
PR66018	Erect & Commission Tower Crane @ E9	12	05-Aug-15	0%	12	19-Aug-15	28-Mar-15	16-Apr-15	-91	0	0%	▬																												
PR66019	Erect & Commission Tower Crane @ E10	12	17-Aug-15	0%	12	31-Aug-15	16-May-15	01-Jun-15	-66	0	0%	▬																												
PR66021	Erect & Commission Tower Crane @ E12A	12	26-Jun-15	0%	12	11-Jul-15	19-Aug-15	02-Sep-15	41	172	0%	▬																												
PR66022	Erect & Commission Tower Crane @ E12B	12	26-Jun-15	0%	12	11-Jul-15	04-Dec-15	17-Dec-15	125	172	0%	▬																												
PR66023	Erect & Commission Tower Crane @ E13-Sth	12	27-Aug-15	0%	12	11-Sep-15	07-May-15	22-May-15	-81	110	0%	▬																												
PR66024	Erect & Commission Tower Crane @ E13-Nth	12	11-Jul-15	0%	12	25-Jul-15	03-Dec-15	16-Dec-15	113	185	0%	▬																												
Equipment Platforms for Tower Cranes																																								
PR66026	Inst.Temp.Eqpt.Platform (piles & deck) @ E4	24	26-Jun-15	0%	24	25-Jul-15	11-Dec-14	10-Jan-15	-146	0	0%	▬																												
Deck Segment Installation Equipment																																								
Launching Gantry 2																																								
PR67043	Launching Gantry 2 Fabrication	142	16-Jun-14 A	98.59%	2	23-Jun-15	19-Sep-14	20-Sep-14	-221	0	100%	▬																												
PR67044	Launching Gantry 2 Delivery	12	24-Jun-15	0%	12	08-Jul-15	22-Sep-14	07-Oct-14	-221	0	0%	▬																												
Lifting Frames																																								
Lifting Frames 1 & 2																																								
PR68013	Lifting Frame 1&2 Fabrication	85	24-Jan-15 A	52.94%	40	07-Aug-15	08-Jan-15	26-Feb-15	-131	0	0%	▬																												
PR68014	Lifting Frame 1&2 Delivery	14	08-Aug-15	0%	14	24-Aug-15	27-Feb-15	14-Mar-15	-131	0	0%	▬																												

▬ Actual Work
▬ Planned Bar
▬ Critical Bar
◆ Milestone

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Tuen Mun - Chek Lap Kok Link - Southern Connection 3-Month Rolling Programme (Page 3 of 33 Pages) (Progress as of 21-June-15)

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02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dur.	Act. Start / FC Early Start	Duration % Complete	Rem. Dur.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																				
												June				July				August				September								
												8	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21		
Lifting Frames 3 & 4																																
PR68017	Lifting Frame 3&4 Fabrication	85	29-Sep-14 A	67.06%	28	24-Jul-15	11-Feb-15	18-Mar-15	-102	0	10%	[Gantt bar]																				
PR68018	Lifting Frame 3&4 Delivery	30	25-Jul-15	0%	30	28-Aug-15	19-Mar-15	27-Apr-15	-102	82	0%	[Gantt bar]																				
Lifting Frames 5 & 6																																
PR68019	Lifting Frame 5&6 Design	70	22-Jun-15	0%	70	11-Sep-15	15-Nov-14	07-Feb-15	-174	0	0%	[Gantt bar]																				
PR68020	Lifting Frame 5&6 Approval	60	12-Sep-15	0%	60	24-Nov-15	09-Feb-15	27-Apr-15	-174	0	0%	[Gantt bar]																				
Unloading Frames																																
Type 1 (at B6 and D6)																																
PR69110	Unloading Frame Type 1 Fabrication	80	23-Feb-15 A	28.75%	57	27-Aug-15	11-Apr-15	18-Jun-15	-58	0	0%	[Gantt bar]																				
PR69120	Unloading Frame Type 1 Delivery (UF-1A & UF-1B)	24	28-Aug-15	0%	24	24-Sep-15	19-Jun-15	18-Jul-15	-58	5	0%	[Gantt bar]																				
Type 2 (at Bridge E1)																																
PR69170	Unloading Frame Type 2 Design	50	22-Jun-15	0%	50	19-Aug-15	18-Aug-15	16-Oct-15	48	0	0%	[Gantt bar]																				
PR69180	Unloading Frame Type 2 Fabrication	80	28-Jul-15	0%	80	31-Oct-15	22-Sep-15	29-Dec-15	48	0	0%	[Gantt bar]																				
Deck Segments & Precast Pile Cap Shells																																
Preliminaries																																
MBBE0050	Precast Segment Mould Fabrication & Erection (Viaduct A)	52	24-Dec-14 A	98.08%	1	22-Jun-15	23-Dec-15	23-Dec-15	154	0	100%	[Gantt bar]																				
MBBE0054	Precast Segment Mould Design (Viaduct F1 to F5)	42	22-Jun-15	0%	42	10-Aug-15	19-Jun-15	08-Aug-15	-1	0	0%	[Gantt bar]																				
MBBE0056	Precast Segment Mould Fabrication & Erection (Viaduct F1 to F5)	52	04-Jul-15	0%	52	02-Sep-15	03-Jul-15	01-Sep-15	-1	62	0%	[Gantt bar]																				
Viaduct B																																
Precast Deck Segments																																
MBBE130-1	B: Progressive Match Cast Segment Manufacture & Delivery remaining segm	598	24-Oct-14 A	23.91%	455	29-Dec-16	22-Oct-14	06-May-16	-195	0	10.48%	[Gantt bar]																				
Viaduct E																																
Precast Pile Caps																																
Viaduct E2																																
PP7260	Production of Viaduct E2 Marine Precast Pile Cap Shells	80	12-Nov-14 A	0%	85	30-Sep-15	01-Apr-15	17-Jul-15	-63	953	33%	[Gantt bar]																				
Viaduct E5, E6, E7 & E8																																
PP7120	Production of Viaduct E5 & E6 Marine Precast Pile Cap Shells	151	13-Apr-15 A	59.6%	61	01-Sep-15	07-Jan-15	21-Mar-15	-132	977	0%	[Gantt bar]																				
PP7190	Production of Viaduct E7 & E8 Marine Precast Pile Cap Shells	151	13-Apr-15 A	45.7%	82	25-Sep-15	07-Jan-15	20-Apr-15	-132	956	0%	[Gantt bar]																				
Precast Deck Segments																																
MBE00014	Viaduct E2 - Pier Head Segment Casting	0	17-Jul-15	0%	0		22-Nov-14		-189	0	0%	[Gantt bar]																				
Viaduct E1																																
MBEE013	E1: Progressive Segment Manufacture & Delivery remaining segments (188 t	457	08-Apr-15 A	2.41%	446	16-Dec-16	25-Nov-14	01-Jun-16	-166	592	0%	[Gantt bar]																				
Viaduct E2																																
MBEE012	E2: Commence Segment Casting on Approval of DDA	0	17-Jul-15	0%	0		22-Nov-14		-189	0	0%	[Gantt bar]																				
MBEE013	E2: Progressive Segment Manufacture & Delivery remaining segments (414 t	376	29-Jul-15	0%	376	01-Nov-16	04-Dec-14	12-Mar-16	-189	47	0%	[Gantt bar]																				
Viaduct D																																
Precast Pile Caps																																
MBDC013C	D: Progressive Pile Cap Shell Manufacture & Delivery remaining shells	143	29-Sep-14 A	85.31%	21	16-Jul-15	22-Nov-18	15-Dec-18	1017	1017	42.8%	[Gantt bar]																				
Precast Deck Segments																																
MBDE0120	D: Commence Segment Casting on Approval of DDA	0	24-Jun-15	0%	0		17-Nov-14		-175	0	0%	[Gantt bar]																				
MBDE013C	D: Progressive Match Cast Segment Manufacture & Delivery (311 Nr	315	20-Aug-15	0%	315	09-Sep-16	15-Jan-15	05-Feb-16	-175	1	0%	[Gantt bar]																				
Viaduct C																																
Precast Pile Caps																																
MBCC013C	C: Progressive Pile Cap Shell Manufacture & Delivery remaining shells	117	01-Dec-14 A	96.58%	4	25-Jun-15	30-Dec-14	05-Jan-15	-138	1034	0%	[Gantt bar]																				
Precast Deck Segments																																
MBCE0120	C: Commence Segment Casting on Approval of DDA	0	31-Aug-15	0%	0		11-Apr-15		-117	0	0%	[Gantt bar]																				
MBCE013C	C: Progressive Segment Manufacture & Delivery remaining segments (388 N	265	31-Aug-15	0%	265	23-Jul-16	11-Apr-15	01-Mar-16	-117	0	0%	[Gantt bar]																				
Viaduct A																																
Precast Pile Caps																																
MBAC013C	A: Progressive Pile Cap Shell Manufacture & Delivery remaining shells	274	23-Jun-15	0%	274	25-May-16	24-Dec-15	26-Nov-16	154	11	0%	[Gantt bar]																				
Parapets																																
MBEE0090	Approval of DDA to start Precast Parapets/Barriers Casting	0	02-Jul-15	0%	0		14-Feb-15		-107	32	0%	[Gantt bar]																				
PP6010	Procure Sub-Contractor for Precast Parapets/Barriers	40	22-Jun-15	0%	40	07-Aug-15	29-Dec-14	13-Feb-15	-139	0	0%	[Gantt bar]																				
PP6011	Precast Parapets/Barriers Detail Design & Procure Moulds	120	08-Aug-15	0%	120	31-Dec-15	14-Feb-15	16-Jul-15	-139	0	0%	[Gantt bar]																				
Materials																																
PP7010	Procure Sub-contractor for Signs & Street Furniture	90	22-Jun-15	0%	90	07-Oct-15	15-Aug-15	01-Dec-15	46	0	0%	[Gantt bar]																				
In-Situ Formworks / Falseworks																																
PPPF02	Design & Fabrication of Falsework / Formwork & Delivery	120	20-Feb-14 A	75%	30	27-Jul-15	20-Jun-16	25-Jul-16	295	419	75%	[Gantt bar]																				
Bearings																																
Viaduct A																																
PPBRA1	Preliminary Design of Bearings - Viaduct A	50	11-Jul-15	0%	50	07-Sep-15	06-Oct-15	03-Dec-15	72	0	0%	[Gantt bar]																				
PPBRA2	Confirmation of bearing assumption - Viaduct A	0		0%	0	07-Sep-15		03-Dec-15	72	0	0%	[Gantt bar]																				

Actual Work	Project ID: J3518DWPrE1-M25 Layout: J3518-DWP-3MRP Submission - M25 Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.
Planned Bar	
Critical Bar	
Milestone	

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 4 of 33 Pages)
(Progress as of 21-June-15)

Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																																								
												June							July							August							September																			
												8	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	06	13	20	27	03	10	17	24	31	07	14	21
Pier Works																																																				
SA1E0100 A7 (A1e) - Marine Pile Cap M2b - Weld Fin plates/Plug Rebar & Concrete		9	11-Jul-15	0%	9	22-Jul-15	31-Dec-15	11-Jan-16	135	0	0%																																									
SA1E0120 A7 (A1e) - Marine Pile Cap M2b - Dewater precast shell / Remove Lifting Fra		2	23-Jul-15	0%	2	24-Jul-15	12-Jan-16	13-Jan-16	135	0	0%																																									
SA1E0130 A7 (A1e) - Marine Pile Cap M2b - Pile cut down		8	25-Jul-15	0%	8	04-Aug-15	14-Jan-16	22-Jan-16	135	0	0%																																									
SA1E0140 A7 (A1e) - Marine Pile Cap M2b - Rebar fixing, inst.inserts etc		12	05-Aug-15	0%	12	19-Aug-15	23-Jan-16	05-Feb-16	135	0	0%																																									
SA1E0150 A7 (A1e) - Marine Pile Cap M2b - Concreting		1	21-Aug-15	0%	1	21-Aug-15	06-Feb-16	06-Feb-16	135	0	0%																																									
SA1E0160 A7 (A1e) - Marine Pile Cap M2b - Curing incl. CJ Preparation		6	22-Aug-15	0%	6	28-Aug-15	11-Feb-16	17-Feb-16	135	0	0%																																									
Pier A8 (A1d)																																																				
Socketted H-Pile installation																																																				
GFXX298 A8 (A1d) - Install SH Pile (21 no.)		120	15-Apr-15 A	33%	80	24-Sep-15	06-Oct-15	12-Jan-16	89	0	33%																																									
Pier A9 (A1c)																																																				
Preliminary Works for Land Piling																																																				
PA090060 A9 (A1c) - Complete civil preparation works for piling to commence		0		0%	0	22-Jun-15		15-Dec-18	973	973	0%																																									
Socketted H-Pile installation																																																				
GFXX293 A9 (A1c) - Install SH Pile (21 no.)		90	08-May-15 A	10%	81	24-Sep-15	07-Oct-15	13-Jan-16	89	0	10%																																									
Pier A10 (A1b)																																																				
Pile Cap Works																																																				
SA1B0090 A10 (A1b) - Pile cap Excavation / ELS		45	22-Jun-15	0%	45	19-Aug-15	25-Nov-15	19-Jan-16	120	0	0%																																									
SA1B0092 A10 (A1b) - Pile Breakdown to cut-off etc.		4	21-Aug-15	0%	4	25-Aug-15	28-May-16	03-Jun-16	218	0	0%																																									
SA1B0100 A10 (A1b) - Pile cap Blinding		1	26-Aug-15	0%	1	26-Aug-15	03-Jun-16	04-Jun-16	218	0	0%																																									
SA1B0110 A10 (A1b) - Pile cap Formwork		3	01-Sep-15	0%	3	03-Sep-15	11-Jun-16	16-Jun-16	218	0	0%																																									
SA1B0120 A10 (A1b) - Pile cap Rebarwork		4	27-Aug-15	0%	4	31-Aug-15	04-Jun-16	11-Jun-16	218	0	0%																																									
SA1B0122 A10 (A1b) - Pile cap Kicker Formwork		2	05-Sep-15	0%	2	07-Sep-15	23-Jun-16	27-Jun-16	222	60	0%																																									
SA1B0130 A10 (A1b) - Pile cap Concreting		1	04-Sep-15	0%	1	04-Sep-15	16-Jun-16	18-Jun-16	218	0	0%																																									
SA1B0140 A10 (A1b) - Pile cap Curing & Striking of Forms incl. CJ prep		6	05-Sep-15	0%	6	12-Sep-15	18-Jun-16	27-Jun-16	218	56	0%																																									
Viaduct B																																																				
Bridge B3																																																				
Pier B6 (B3a)																																																				
Pier Head Segments																																																				
SB3A0371 B6 (B3a) - Pier Head Segment bearings		2	07-May-15 A	100%	0	22-May-15 A					100%																																									
SB3A0372 B6 (B3a) - Pier Head Segment Lift & Temp Support (2 seg)		7	22-Jun-15	0%	7	02-Jul-15	05-Feb-15	12-Feb-15	-99	0	0%																																									
Bridge B2																																																				
Pier B7 (B2f)																																																				
Pier Head Segments																																																				
SB2F0374 B7 (B2f) - Pier Head Segment Diaphragm - Rebar		12	04-May-15 A	75%	3	26-Jun-15	13-Dec-18	15-Dec-18	970	970	75%																																									
SB2F0376 B7 (B2f) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting		8	08-May-15 A	50%	4	27-Jun-15	12-Dec-18	15-Dec-18	969	969	50%																																									
SB2F0378 B7 (B2f) - Pier Head Segment Diaphragm - Concreting		2	12-May-15 A	0%	4	27-Jun-15	29-Dec-14	02-Jan-15	-131	0	50%																																									
SB2F0380 B7 (B2f) - Pier Head Segment Diaphragm - Curing & Striking of Forms		6	29-Jun-15	0%	6	06-Jul-15	03-Jan-15	09-Jan-15	-131	0	0%																																									
Pier B8 (B2e)																																																				
Pier Head Segments																																																				
SB2E0376 B8 (B2e) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting		8	19-May-15 A	100%	0	28-May-15 A					100%																																									
SB2E0378 B8 (B2e) - Pier Head Segment Diaphragm - Concreting		2	30-May-15 A	100%	0	30-May-15 A					100%																																									
SB2E0380 B8 (B2e) - Pier Head Segment Diaphragm - Curing & Striking of Forms		6	22-Jun-15	0%	6	30-Jun-15	14-Jan-15	21-Jan-15	-117	0	0%																																									
Pier B9 (B2d)																																																				
Pier Head Segments																																																				
SB2D037 B9 (B2d) - Pier Head Segment Lift & Fix (1 seg)		2	06-Jun-15 A	100%	0	06-Jun-15 A					100%																																									
SB2D037 B9 (B2d) - Pier Head Segment Diaphragm - Rebar		12	18-Jun-15 A	20%	10	06-Jul-15	26-Jan-15	05-Feb-15	-108	0	20%																																									
SB2D037 B9 (B2d) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting		8	06-Jul-15	0%	8	15-Jul-15	06-Feb-15	14-Feb-15	-108	0	0%																																									
SB2D037 B9 (B2d) - Pier Head Segment Diaphragm - Concreting		2	15-Jul-15	0%	2	18-Jul-15	16-Feb-15	17-Feb-15	-108	0	0%																																									
SB2D037 B9 (B2d) - Pier Head Segment Diaphragm - Curing & Striking of Forms		6	18-Jul-15	0%	6	25-Jul-15	18-Feb-15	27-Feb-15	-108	0	0%																																									
Pier B10 (B2c)																																																				
Pier Works																																																				
SB2C027 B10 (B2c) - Type 5B Pier Head Curing & Striking of Forms & Remove Scaffo		6	14-May-15 A	100%	0	23-May-15 A					100%																																									
SB2C027 B10 (B2c) - Type 5B Pier Backfilling Works		4	22-Jun-15	0%	4	27-Jun-15	03-Feb-15	06-Feb-15	-101	0	0%																																									
Pier Head Segments																																																				
SB2C037 B10 (B2c) - Pier Head Segment - Temporary Platform		6	29-Jun-15	0%	6	06-Jul-15	07-Feb-15	13-Feb-15	-101	29	0%																																									
SB2C037 B10 (B2c) - Pier Head Segment Lift & Fix (1 seg)		2	13-Aug-15	0%	2	14-Aug-15	14-Feb-15	16-Feb-15	-130	0	0%																																									
SB2C037 B10 (B2c) - Pier Head Segment Diaphragm - Rebar		12	15-Aug-15	0%	12	29-Aug-15	17-Feb-15	05-Mar-15	-130	0	0%																																									

<ul style="list-style-type: none"> ■ Actual Work ■ Planned Bar ■ Critical Bar ◆ Milestone 	Project ID: J3518DWPrE1-M25 Layout: J3518-DWP-3MRP Submission - M25 Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.	Tuen Mun - Chek Lap Kok Link - Southern Connection 3-Month Rolling Programme (Page 7 of 33 Pages) (Progress as of 21-June-15)	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> <tr> <td>29-May-15</td> <td></td> <td>WY</td> <td></td> </tr> <tr> <td>02-Jul-15</td> <td></td> <td>HF</td> <td>KWY</td> </tr> </table>	Date	Revision	Checked	Approved	29-May-15		WY		02-Jul-15		HF	KWY	DWG. No.: J3518/GCL/PGM/3MRP-M25
	Date	Revision	Checked	Approved												
	29-May-15		WY													
02-Jul-15		HF	KWY													

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																											
												June							July							August							September						
												8	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21									
SB2C037	B10 (B2c) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting	8	31-Aug-15	0%	8	08-Sep-15	06-Mar-15	14-Mar-15	-130	0	0%																												
SB2C037	B10 (B2c) - Pier Head Segment Diaphragm - Concreting	2	10-Sep-15	0%	2	11-Sep-15	16-Mar-15	17-Mar-15	-130	0	0%																												
SB2C037	B10 (B2c) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	12-Sep-15	0%	6	19-Sep-15	18-Mar-15	24-Mar-15	-130	0	0%																												
Pier B11 (B2b)																																							
Pier Head Segments																																							
SB2B0374	B11 (B2b) - Pier Head Segment Diaphragm - Rebar	12	22-Jun-15	0%	12	08-Jul-15	13-Mar-15	26-Mar-15	-71	0	0%																												
SB2B0376	B11 (B2b) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting	8	09-Jul-15	0%	8	18-Jul-15	27-Mar-15	09-Apr-15	-71	0	0%																												
SB2B0378	B11 (B2b) - Pier Head Segment Diaphragm - Concreting	2	20-Jul-15	0%	2	21-Jul-15	10-Apr-15	11-Apr-15	-71	0	0%																												
SB2B0380	B11 (B2b) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	22-Jul-15	0%	6	28-Jul-15	13-Apr-15	20-Apr-15	-71	0	0%																												
Pier B12 (B2a)																																							
Pier Works																																							
SB2A0360	B12 (B2a) - Type 5B-MJ Pier Backfilling Works	4	19-May-15 A	100%	0	21-May-15 A					100%																												
SB2A0380	B12 (B2a) - Type 5B-Bearing Plinth	4	22-May-15 A	100%	0	26-May-15 A					100%																												
Pier Head Segments																																							
SB2A0370	B12 (B2a) - Pier Head Segment - Temporary Platform	6	27-May-15 A	100%	0	02-Jun-15 A					100%																												
SB2A0371	B12 (B2a) - Pier Head Segment Bearings	2	08-Jun-15 A	100%	0	12-Jun-15 A					100%																												
SB2A0372	B12 (B2a) - Pier Head Segment Lift & Temp Support (2 seg)	7	16-Jun-15 A	90%	1	22-Jun-15	04-May-15	04-May-15	-34	0	90%																												
Bridge B1																																							
Pier B13 (B1g)																																							
Pier Head Segments																																							
SB1G037	B13 (B1g) - Pier Head Segment - Temporary Platform	6	19-May-15 A	100%	0	30-May-15 A					100%																												
SB1G037	B13 (B1g) - Pier Head Segment Lift & Fix (1 seg)	2	22-Jun-15	0%	2	24-Jun-15	01-Apr-15	02-Apr-15	-55	0	0%																												
SB1G037	B13 (B1g) - Pier Head Segment Diaphragm - Rebar	12	26-Jun-15	0%	12	10-Jul-15	08-Apr-15	22-Apr-15	-55	0	0%																												
SB1G037	B13 (B1g) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting	8	11-Jul-15	0%	8	21-Jul-15	24-Apr-15	04-May-15	-55	0	0%																												
SB1G037	B13 (B1g) - Pier Head Segment Diaphragm - Concreting	2	22-Jul-15	0%	2	23-Jul-15	05-May-15	06-May-15	-55	0	0%																												
SB1G037	B13 (B1g) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	24-Jul-15	0%	6	31-Jul-15	07-May-15	14-May-15	-55	0	0%																												
Pier B14 (B1f)																																							
Pier Works																																							
SB1F0280	B14 (B1f) - Type 5B Pier Backfilling Works	4	19-May-15 A	100%	0	26-May-15 A					100%																												
Pier Head Segments																																							
SB1F0370	B14 (B1f) - Pier Head Segment - Temporary Platform	6	17-Jun-15 A	90%	1	22-Jun-15	06-May-15	06-May-15	-32	0	90%																												
SB1F0372	B14 (B1f) - Pier Head Segment Lift & Fix (1 seg)	2	22-Jun-15	0%	2	26-Jun-15	07-May-15	08-May-15	-32	0	0%																												
SB1F0374	B14 (B1f) - Pier Head Segment Diaphragm - Rebar	12	26-Jun-15	0%	12	11-Jul-15	09-May-15	26-May-15	-32	0	0%																												
SB1F0376	B14 (B1f) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting	8	11-Jul-15	0%	8	22-Jul-15	27-May-15	05-Jun-15	-32	0	0%																												
SB1F0378	B14 (B1f) - Pier Head Segment Diaphragm - Concreting	2	22-Jul-15	0%	2	24-Jul-15	06-Jun-15	08-Jun-15	-32	0	0%																												
SB1F0380	B14 (B1f) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	24-Jul-15	0%	6	01-Aug-15	10-Jun-15	18-Jun-15	-32	0	0%																												
Pier B15 (B1e)																																							
Pier Works																																							
SB1E0280	B15 (B1e) - Type 5B Pier Backfilling Works	4	16-Mar-15 A	100%	0	22-May-15 A					100%																												
Pier Head Segments																																							
SB1E0370	B15 (B1e) - Pier Head Segment - Temporary Platform	6	15-Jun-15 A	0%	6	30-Jun-15	20-May-15	28-May-15	-21	9	0%																												
SB1E0372	B15 (B1e) - Pier Head Segment Lift & Fix (1 seg)	2	13-Jul-15	0%	2	14-Jul-15	29-May-15	30-May-15	-30	0	0%																												
SB1E0374	B15 (B1e) - Pier Head Segment Diaphragm - Rebar	12	15-Jul-15	0%	12	30-Jul-15	01-Jun-15	18-Jun-15	-30	0	0%																												
SB1E0376	B15 (B1e) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting	8	31-Jul-15	0%	8	08-Aug-15	19-Jun-15	02-Jul-15	-30	0	0%																												
SB1E0378	B15 (B1e) - Pier Head Segment Diaphragm - Concreting	2	10-Aug-15	0%	2	12-Aug-15	03-Jul-15	04-Jul-15	-30	0	0%																												
SB1E0380	B15 (B1e) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	13-Aug-15	0%	6	19-Aug-15	06-Jul-15	13-Jul-15	-29	0	0%																												
Pier B16 (B1d)																																							
Pier Head Segments																																							
SB1D037	B16 (B1d) - Pier Head Segment Diaphragm - Concreting	2	28-May-15 A	100%	0	28-May-15 A					100%																												
SB1D037	B16 (B1d) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	22-Jun-15	0%	6	30-Jun-15	10-Sep-16	17-Sep-16	340	0	0%																												
Viaduct C																																							
Milestones - Marine Foundation																																							
GFXX197-1	C6 (C3f) - Completion of piling works	0		0%	0	22-Jun-15		22-Jan-15	-118	9	0%																												
GFXX202-1	C5 (C4a) - Completion of piling works	0		0%	0	22-Jun-15		30-Dec-14	-138	9	0%																												
GFXX212-1	C3 (C4c) - Completion of piling works	0		0%	0	22-Jun-15		08-Jul-15	14	0	0%																												
Milestones - Land Foundation																																							
ZC00051	C17 (C2a) - Completion of piling works	0		0%	0	06-Jul-15		15-Dec-15	135	0	0%																												
ZC00061	C16 (C2b) - Completion of piling works	0		0%	0	17-Aug-15		04-Feb-16	141	0	0%																												
ZC00091-1	C12 (C2f) - Completion of piling works	0		0%	0	22-Jun-15		15-Dec-18	1038	1038	0%																												
ZC00092-1	C11 (C3a) - Completion of piling works	0		0%	0	22-Jun-15		15-Dec-18	1038	1038	0%																												
ZC00096-1	C7 (C3e) - Completion of piling works	0		0%	0	22-Jun-15		15-Dec-18	1038	1038	0%																												
Bridge C4																																							
Pier C1 (C4e)																																							
Pier Works																																							

- Actual Work
- Planned Bar
- Critical Bar
- ◆ Milestone

Project ID: J3518DWPPrE1-M25
 Layout: J3518-DWP-3MRP Submission - M25
 Filter: TASK filters: 3-Month Lookahead, No CC
 Milestones, No Level of Effort.

**Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 8 of 33 Pages)
(Progress as of 21-June-15)**

Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																													
												June				July				August				September																	
												08	15	22	29	05	12	19	26	02	09	16	23	30	06	13	20	27	03	10	17	24	31	07	14	21					
SC4E03C	C1 (C4e) - Type 4B-MJ Pier Head Scaffolding	4	22-May-15 A	100%	0	28-May-15 A					100%																														
SC4E031	C1 (C4e) - Type 4B-MJ Pier Head Rebarwork, Formwork & Prep	10	29-May-15 A	70%	3	26-Jun-15	20-Mar-15	23-Mar-15	-65	0	70%																														
SC4E03C	C1 (C4e) - Type 4B-MJ Pier Head Concreting	1	27-Jun-15	0%	1	27-Jun-15	24-Mar-15	24-Mar-15	-65	0	0%																														
SC4E034	C1 (C4e) - Type 4B-MJ Pier Head Curing/Striking of Forms/Remove Scaffolc	6	29-Jun-15	0%	6	06-Jul-15	25-Mar-15	31-Mar-15	-65	0	0%																														
SC4E03E	C1 (C4e) - Type 4B-Bearing Plinth	6	29-Jun-15	0%	6	06-Jul-15	25-Mar-15	31-Mar-15	-65	0	0%																														
Pier Head Segments																																									
SC4E037	C1 (C4e) - Pier Head Segment - Temporary Platform	6	07-Jul-15	0%	6	13-Jul-15	01-Apr-15	11-Apr-15	-65	154	0%																														
Pier C2 (C4d)																																									
Pile Cap Works																																									
SC4D01E	C2 (C4d) - Marine Pile Cap M2b - Concreting	1	22-Jun-15	0%	1	22-Jun-15	08-Dec-18	08-Dec-18	990	0	0%																														
SC4D01E	C2 (C4d) - Marine Pile Cap M2b - Curing incl. CJ Preparation	6	24-Jun-15	0%	6	02-Jul-15	10-Dec-18	15-Dec-18	990	990	0%																														
Pier Works																																									
SC4D017	C2 (C4d) - Type 4B Pier Temp. Support Platform & Scaffold (1st Lift)	7	18-May-15 A	100%	0	26-May-15 A					100%																														
SC4D01E	C2 (C4d) - Type 4B Pier Rebarwork, Formwork & Prep (1st Lift)	5	27-May-15 A	100%	0	30-May-15 A					100%																														
SC4D02C	C2 (C4d) - Type 4B Pier Concreting, Curing & Striking, CJ prep (1st Lift)	3	30-May-15 A	100%	0	02-Jun-15 A					100%																														
SC4D021	C2 (C4d) - Type 4B Pier Scaffolding (2nd Lift)	2	28-May-15 A	100%	0	04-Jun-15 A					100%																														
SC4D022	C2 (C4d) - Type 4B Pier Rebarwork, Formwork & Prep (2nd Lift)	6	05-Jun-15 A	100%	0	16-Jun-15 A					100%																														
SC4D024	C2 (C4d) - Type 4B Pier Concreting, Curing & Striking, CJ prep (2nd Lift)	3	17-Jun-15 A	80%	1	22-Jun-15	15-Dec-18	15-Dec-18	996	996	80%																														
SC4D03C	C2 (C4d) - Type 4B Pier Head Scaffolding	4	19-Jun-15 A	30%	3	26-Jun-15	15-Sep-15	18-Sep-15	65	0	0%																														
SC4D031	C2 (C4d) - Type 4B Pier Head Rebarwork, Formwork & Prep	10	26-Jun-15	0%	10	09-Jul-15	19-Sep-15	02-Oct-15	65	0	0%																														
SC4D03C	C2 (C4d) - Type 4B Pier Head Concreting	1	09-Jul-15	0%	1	10-Jul-15	03-Oct-15	03-Oct-15	65	0	0%																														
SC4D034	C2 (C4d) - Type 4B Pier Head Curing/Striking of Forms/Remove Scaffolding	6	10-Jul-15	0%	6	18-Jul-15	05-Oct-15	10-Oct-15	65	0	0%																														
Pier Head Segments																																									
SC4D037	C2 (C4d) - Pier Head Segment - Temporary Platform	6	18-Jul-15	0%	6	25-Jul-15	12-Oct-15	19-Oct-15	65	27	0%																														
SC4D037	C2 (C4d) - Pier Head Segment Lift & Fix (1 seg)	2	31-Aug-15	0%	2	01-Sep-15	20-Oct-15	22-Oct-15	38	0	0%																														
SC4D037	C2 (C4d) - Pier Head Segment Diaphragm - Rebar	12	02-Sep-15	0%	12	16-Sep-15	23-Oct-15	06-Nov-15	38	0	0%																														
SC4D037	C2 (C4d) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting	8	18-Sep-15	0%	8	26-Sep-15	07-Nov-15	16-Nov-15	38	0	0%																														
Pier C3 (C4c)																																									
Pile Cap Works																																									
SC4C00E	C3 (C4c) - Marine Pile Cap M2b - Install precast shell in position	1	22-Jun-15	0%	1	22-Jun-15	09-Jul-15	09-Jul-15	12	0	0%																														
SC4C00E	C3 (C4c) - Marine Pile Cap M2b - Inst.Access & make Watertight	3	24-Jun-15	0%	3	27-Jun-15	10-Jul-15	13-Jul-15	12	0	0%																														
SC4C01C	C3 (C4c) - Marine Pile Cap M2b - Weld Fin plates/Plug Rebar & Concrete	8	29-Jun-15	0%	8	08-Jul-15	14-Jul-15	23-Jul-15	12	0	0%																														
SC4C012	C3 (C4c) - Marine Pile Cap M2b - Dewater precast shell / Remove Lifting Fra	2	09-Jul-15	0%	2	10-Jul-15	24-Jul-15	25-Jul-15	12	0	0%																														
SC4C01C	C3 (C4c) - Marine Pile Cap M2b - Pile cut down	10	11-Jul-15	0%	10	23-Jul-15	27-Jul-15	07-Aug-15	12	0	0%																														
SC4C014	C3 (C4c) - Marine Pile Cap M2b - Rebar fixing, inst.inserts etc	10	24-Jul-15	0%	10	05-Aug-15	08-Aug-15	21-Aug-15	12	0	0%																														
SC4C01E	C3 (C4c) - Marine Pile Cap M2b - Concreting	1	06-Aug-15	0%	1	06-Aug-15	22-Aug-15	22-Aug-15	12	0	0%																														
SC4C01E	C3 (C4c) - Marine Pile Cap M2b - Curing incl. CJ Preparation	6	07-Aug-15	0%	6	14-Aug-15	24-Aug-15	29-Aug-15	12	0	0%																														
Pier Works																																									
SC4C017	C3 (C4c) - Type 4B Pier Temp. Support Platform & Scaffold (1st Lift)	6	07-Aug-15	0%	6	14-Aug-15	24-Aug-15	29-Aug-15	12	0	0%																														
SC4C01E	C3 (C4c) - Type 4B Pier Rebarwork, Formwork & Prep (1st Lift)	5	15-Aug-15	0%	5	21-Aug-15	31-Aug-15	04-Sep-15	12	0	0%																														
SC4C02C	C3 (C4c) - Type 4B Pier Concreting, Curing & Striking, CJ prep (1st Lift)	3	22-Aug-15	0%	3	25-Aug-15	05-Sep-15	08-Sep-15	12	0	0%																														
SC4C021	C3 (C4c) - Type 4B Pier Scaffolding (2nd Lift)	2	26-Aug-15	0%	2	27-Aug-15	10-Sep-15	11-Sep-15	12	0	0%																														
SC4C022	C3 (C4c) - Type 4B Pier Rebarwork, Formwork & Prep (2nd Lift)	6	28-Aug-15	0%	6	03-Sep-15	12-Sep-15	19-Sep-15	12	0	0%																														
SC4C024	C3 (C4c) - Type 4B Pier Concreting, Curing & Striking, CJ prep (2nd Lift)	3	04-Sep-15	0%	3	07-Sep-15	21-Sep-15	23-Sep-15	12	0	0%																														
SC4C03C	C3 (C4c) - Type 4B Pier Head Scaffolding	4	08-Sep-15	0%	4	12-Sep-15	24-Sep-15	29-Sep-15	12	0	0%																														
SC4C031	C3 (C4c) - Type 4B Pier Head Rebarwork, Formwork & Prep	10	14-Sep-15	0%	10	25-Sep-15	30-Sep-15	12-Oct-15	12	0	0%																														
Pier C4 (C4b)																																									
Pile Cap Works																																									
SC4B00E	C4 (C4b) - Marine Pile Cap M2b - Install precast shell in position	1	22-Jun-15	0%	1	22-Jun-15	09-Jan-15	09-Jan-15	-122	0	0%																														
SC4B00E	C4 (C4b) - Marine Pile Cap M2b - Inst.Access & make Watertight	3	24-Jun-15	0%	3	27-Jun-15	10-Jan-15	13-Jan-15	-122	0	0%																														
SC4B01C	C4 (C4b) - Marine Pile Cap M2b - Weld Fin plates/Plug Rebar & Concrete	6	29-Jun-15	0%	6	06-Jul-15	14-Jan-15	20-Jan-15	-122	0	0%																														
SC4B012	C4 (C4b) - Marine Pile Cap M2b - Dewater precast shell / Remove Lifting Fra	2	07-Jul-15	0%	2	08-Jul-15	21-Jan-15	22-Jan-15	-122	0	0%																														
SC4B013	C4 (C4b) - Marine Pile Cap M2b - Pile cut down	6	09-Jul-15	0%	6	15-Jul-15	23-Jan-15	29-Jan-15	-122	0	0%																														
SC4B014	C4 (C4b) - Marine Pile Cap M2b - Rebar fixing, inst.inserts etc	8	17-Jul-15	0%	8	25-Jul-15	30-Jan-15	07-Feb-15	-122	0	0%																														
SC4B01E	C4 (C4b) - Marine Pile Cap M2b - Concreting	1	27-Jul-15	0%	1	27-Jul-15	09-Feb-15	09-Feb-15	-122	0	0%																														
SC4B01E	C4 (C4b) - Marine Pile Cap M2b - Curing incl. CJ Preparation	6	28-Jul-15	0%	6	04-Aug-15	10-Feb-15	16-Feb-15	-122	0	0%																														
Pier Works																																									
SC4B017	C4 (C4b) - Type 4B Pier Temp. Support Platform & Scaffold (1st Lift)	6	28-Jul-15	0%	6	04-Aug-15	10-Feb-15	16-Feb-15	-122	0	0%																														
SC4B01E	C4 (C4b) - Type 4B Pier Rebarwork, Formwork & Prep (1st Lift)	5	05-Aug-15	0%	5	10-Aug-15	17-Feb-15	25-Feb-15	-122	0	0%																														
SC4B02C	C4 (C4b) - Type 4B Pier Concreting, Curing & Striking, CJ prep (1st Lift)	3	12-Aug-15	0%	3	14-Aug-1																																			

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																											
												June						July						August						September									
												28	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21									
SC2EL16	C13A (C2e-L) - Pier Rebarwork (1st Lift)	3	13-Aug-15	0%	3	15-Aug-15	28-Dec-15	30-Dec-15	107	0	0%																												
SC2EL17	C13A (C2e-L) - Pier Formwork & Prep for Concreting (1st Lift)	2	17-Aug-15	0%	2	18-Aug-15	31-Dec-15	02-Jan-16	107	0	0%																												
SC2EL18	C13A (C2e-L) - Pier Concreting (1st Lift)	1	19-Aug-15	0%	1	19-Aug-15	04-Jan-16	04-Jan-16	107	0	0%																												
SC2EL19	C13A (C2e-L) - Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	21-Aug-15	0%	2	22-Aug-15	05-Jan-16	06-Jan-16	107	0	0%																												
SC2EL19	C13A (C2e-L) - Pier Scaffolding (2nd Lift)	2	24-Aug-15	0%	2	25-Aug-15	07-Jan-16	08-Jan-16	107	0	0%																												
SC2EL20	C13A (C2e-L) - Pier Rebarwork (2nd Lift)	3	26-Aug-15	0%	3	28-Aug-15	09-Jan-16	12-Jan-16	107	0	0%																												
SC2EL21	C13A (C2e-L) - Pier Formwork & Prep for Concreting (2nd Lift)	3	29-Aug-15	0%	3	01-Sep-15	13-Jan-16	15-Jan-16	107	0	0%																												
SC2EL22	C13A (C2e-L) - Pier Concreting (2nd Lift)	1	02-Sep-15	0%	1	02-Sep-15	16-Jan-16	16-Jan-16	107	0	0%																												
SC2EL22	C13A (C2e-L) - Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	03-Sep-15	0%	2	04-Sep-15	18-Jan-16	19-Jan-16	107	0	0%																												
SC2EL23	C13A (C2e-L) - Pier Scaffolding (3rd Lift)	2	05-Sep-15	0%	2	07-Sep-15	20-Jan-16	21-Jan-16	107	0	0%																												
SC2EL24	C13A (C2e-L) - Pier Rebarwork (3rd Lift)	3	08-Sep-15	0%	3	11-Sep-15	22-Jan-16	25-Jan-16	107	0	0%																												
SC2EL25	C13A (C2e-L) - Pier Formwork & Prep for Concreting (3rd Lift)	3	12-Sep-15	0%	3	15-Sep-15	26-Jan-16	28-Jan-16	107	0	0%																												
SC2EL26	C13A (C2e-L) - Pier Concreting (3rd Lift)	1	16-Sep-15	0%	1	16-Sep-15	29-Jan-16	29-Jan-16	107	0	0%																												
SC2EL26	C13A (C2e-L) - Pier Curing & Striking of Forms incl. CJ prep (3rd Lift)	2	18-Sep-15	0%	2	19-Sep-15	30-Jan-16	01-Feb-16	107	0	0%																												
SC2ER11	C13B (C2e-R)- Pier Scaffolding (1st Lift)	2	28-May-15 A	100%	0	30-May-15 A					100%																												
SC2ER11	C13B (C2e-R)- Pier Rebarwork (1st Lift)	3	30-May-15 A	100%	0	02-Jun-15 A					100%																												
SC2ER11	C13B (C2e-R)- Pier Formwork & Prep for Concreting (1st Lift)	2	04-Jun-15 A	100%	0	05-Jun-15 A					100%																												
SC2ER11	C13B (C2e-R)- Pier Concreting (1st Lift)	1	05-Jun-15 A	100%	0	05-Jun-15 A					100%																												
SC2ER11	C13B (C2e-R)- Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	06-Jun-15 A	100%	0	08-Jun-15 A					100%																												
SC2ER11	C13B (C2e-R)- Pier Scaffolding (2nd Lift)	2	09-Jun-15 A	100%	0	10-Jun-15 A					100%																												
SC2ER21	C13B (C2e-R) - Pier Rebarwork (2nd Lift)	3	15-Jun-15 A	100%	0	19-Jun-15 A					100%																												
SC2ER2	C13B (C2e-R)- Pier Formwork & Prep for Concreting (2nd Lift)	3	20-Jun-15 A	100%	0	24-Jun-15 A					100%																												
SC2ER2	C13B (C2e-R)- Pier Concreting (2nd Lift)	1	26-Jun-15 A	100%	0	26-Jun-15 A					100%																												
SC2ER2	C13B (C2e-R)- Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	22-Jun-15	0%	2	24-Jun-15	18-Jan-16	19-Jan-16	163	0	0%																												
SC2ER2	C13B (C2e-R)- Pier Scaffolding (3rd Lift)	2	26-Jun-15	0%	2	27-Jun-15	20-Jan-16	21-Jan-16	163	0	0%																												
SC2ER2	C13B (C2e-R)- Pier Rebarwork (3rd Lift)	3	29-Jun-15	0%	3	02-Jul-15	22-Jan-16	25-Jan-16	163	0	0%																												
SC2ER2	C13B (C2e-R)- Pier Formwork & Prep for Concreting (3rd Lift)	3	03-Jul-15	0%	3	06-Jul-15	26-Jan-16	28-Jan-16	163	0	0%																												
SC2ER21	C13B (C2e-R)- Pier Concreting (3rd Lift)	1	07-Jul-15	0%	1	07-Jul-15	29-Jan-16	29-Jan-16	163	0	0%																												
SC2ER21	C13B (C2e-R)- Pier Curing & Striking of Forms incl. CJ prep (3rd Lift)	2	08-Jul-15	0%	2	09-Jul-15	30-Jan-16	01-Feb-16	163	56	0%																												
Pier C14 (C2d)																																							
Pile Cap Works																																							
SC2D005	C14 (C2d) - Pile cap Pile breakdown to cut-off etc.	4	19-May-15 A	100%	0	22-May-15 A					100%																												
SC2D011	C14 (C2d) - Pile cap Formwork	3	29-May-15 A	100%	0	05-Jun-15 A					100%																												
SC2D012	C14 (C2d) - Pile cap Rebarwork	4	23-May-15 A	100%	0	28-May-15 A					100%																												
SC2D012	C14 (C2d) - Pile cap Kicker Formwork	2	15-Jun-15 A	100%	0	16-Jun-15 A					100%																												
SC2D013	C14 (C2d) - Pile cap Concreting	1	13-Jun-15 A	100%	0	13-Jun-15 A					100%																												
SC2D014	C14 (C2d) - Pile cap Curing & Striking of Forms incl. CJ prep	6	15-Jun-15 A	100%	0	20-Jun-15 A					100%																												
Pier Works																																							
SC2D015	C14 (C2d) - Type 5B Pier Scaffolding (1st Lift)	2	22-Jun-15	0%	2	24-Jun-15	01-Feb-16	02-Feb-16	175	0	0%																												
SC2D016	C14 (C2d) - Type 5B Pier Rebarwork (1st Lift)	3	26-Jun-15	0%	3	29-Jun-15	03-Feb-16	05-Feb-16	175	0	0%																												
SC2D017	C14 (C2d) - Type 5B Pier Formwork & Prep for Concreting (1st Lift)	2	30-Jun-15	0%	2	02-Jul-15	06-Feb-16	11-Feb-16	175	0	0%																												
SC2D018	C14 (C2d) - Type 5B Pier Concreting (1st Lift)	1	03-Jul-15	0%	1	03-Jul-15	12-Feb-16	12-Feb-16	175	0	0%																												
SC2D018	C14 (C2d) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	04-Jul-15	0%	2	06-Jul-15	13-Feb-16	15-Feb-16	175	0	0%																												
SC2D019	C14 (C2d) - Type 5B Pier Scaffolding (2nd Lift)	2	07-Jul-15	0%	2	08-Jul-15	16-Feb-16	17-Feb-16	175	0	0%																												
SC2D020	C14 (C2d) - Type 5B Pier Rebarwork (2nd Lift)	3	09-Jul-15	0%	3	11-Jul-15	18-Feb-16	20-Feb-16	175	0	0%																												
SC2D021	C14 (C2d) - Type 5B Pier Formwork & Prep for Concreting (2nd Lift)	3	13-Jul-15	0%	3	15-Jul-15	22-Feb-16	24-Feb-16	175	0	0%																												
SC2D022	C14 (C2d) - Type 5B Pier Concreting (2nd Lift)	1	17-Jul-15	0%	1	17-Jul-15	25-Feb-16	25-Feb-16	175	0	0%																												
SC2D022	C14 (C2d) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	18-Jul-15	0%	2	20-Jul-15	26-Feb-16	27-Feb-16	175	0	0%																												
SC2D023	C14 (C2d) - Type 5B Pier Head Scaffolding	3	21-Jul-15	0%	3	23-Jul-15	29-Feb-16	02-Mar-16	175	0	0%																												
SC2D024	C14 (C2d) - Type 5B Pier Head Rebarwork	4	24-Jul-15	0%	4	28-Jul-15	03-Mar-16	07-Mar-16	175	0	0%																												
SC2D025	C14 (C2d) - Type 5B Pier Head Formwork & Prep for Concreting	4	30-Jul-15	0%	4	03-Aug-15	08-Mar-16	11-Mar-16	175	0	0%																												
SC2D026	C14 (C2d) - Type 5B Pier Head Concreting	1	04-Aug-15	0%	1	04-Aug-15	12-Mar-16	12-Mar-16	175	0	0%																												
SC2D027	C14 (C2d) - Type 5B Pier Head Curing & Striking of Forms & Remove Scaffo	6	05-Aug-15	0%	6	12-Aug-15	14-Mar-16	19-Mar-16	175	0	0%																												
SC2D028	C14 (C2d) - Type 5B Pier Backfilling Works	4	13-Aug-15	0%	4	17-Aug-15	21-Mar-16	24-Mar-16	175	0	0%																												
Pier Head Segments																																							
SC2D037	C14 (C2d) - Pier Head Segment - Temporary Platform	6	18-Aug-15	0%	6	25-Aug-15	29-Mar-16	05-Apr-16	175	4	0%																												
SC2D037	C14 (C2d) - Pier Head Segment Lift & Fix (1 seg)	2	31-Aug-15	0%	2	01-Sep-15	06-Apr-16	07-Apr-16	171	0	0%																												
SC2D037	C14 (C2d) - Pier Head Segment Diaphragm - Rebar	12	02-Sep-15	0%	12	16-Sep-15	08-Apr-16	23-Apr-16	171	0	0%																												
SC2D037	C14 (C2d) - Pier Head Segment Diaphragm - Formwork & Prep for Concretin	8	18-Sep-15	0%	8	26-Sep-15	25-Apr-16	04-May-16	171	0	0%																												
Pier C15 (C2c)																																							
Pile Cap Works																																							
SC2C012	C15 (C2c) - Pile cap Kicker Formwork	2	22-Jun-15 A	100%	0	24-Jun-15 A					100%																												

■ Actual Work
■ Planned Bar
■ Critical Bar
◆ Milestone

Project ID: J3518DWPRe1-M25
 Layout: J3518-DWP-3MRP Submission - M25
 Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 14 of 33 Pages)
 (Progress as of 21-June-15)

Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																												
												June							July							August							September							
												01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21												
SC1D015	C19 (C1d) - Type 5B-B Pier/Pier Head Scaffolding	4	22-May-15 A	100%	0	30-May-15 A					100%																													
SC1D016	C19 (C1d) - Type 5B-B Pier/Pier Head Rebarwork	4	01-Jun-15 A	100%	0	06-Jun-15 A					100%																													
SC1D017	C19 (C1d) - Type 5B-B Pier/Pier Head Formwork & Prep for Concreting	4	09-Jun-15 A	100%	0	13-Jun-15 A					100%																													
SC1D018	C19 (C1d) - Type 5B-B Pier/Pier Head Concreting	1	19-Jun-15 A	100%	0	19-Jun-15 A					100%																													
SC1D019	C19 (C1d) - Type 5B-B Pier/Pier Head Curing/Striking of Forms/Remove Sca	6	22-Jun-15	0%	6	30-Jun-15	22-Dec-15	30-Dec-15	143	0	0%																													
SC1D019	C19 (C1d) - Type 5B-B Pier/Pier Head Backfilling Works	4	02-Jul-15	0%	4	06-Jul-15	31-Dec-15	05-Jan-16	143	0	0%																													
Pier Head Segments																																								
SC1D037	C19 (C1d) - Pier Head Segment - Temporary Platform	6	07-Jul-15	0%	6	13-Jul-15	06-Jan-16	12-Jan-16	143	0	0%																													
SC1D037	C19 (C1d) - Pier Head Segment Lift & Fix (1 seg)	2	14-Jul-15	0%	2	15-Jul-15	13-Jan-16	15-Jan-16	144	0	0%																													
SC1D037	C19 (C1d) - Pier Head Segment Diaphragm - Rebar	13	17-Jul-15	0%	13	01-Aug-15	16-Jan-16	30-Jan-16	144	0	0%																													
SC1D037	C19 (C1d) - Pier Head Segment Diaphragm - Formwork	8	03-Aug-15	0%	8	12-Aug-15	01-Feb-16	13-Feb-16	145	0	0%																													
SC1D037	C19 (C1d) - Pier Head Segment Diaphragm - Concreting	2	13-Aug-15	0%	2	14-Aug-15	15-Feb-16	16-Feb-16	145	0	0%																													
SC1D038	C19 (C1d) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	15-Aug-15	0%	6	22-Aug-15	17-Feb-16	23-Feb-16	145	72	0%																													
Pier C20 (C1c) & Abutment C																																								
Pier Head Segments																																								
SC1C037	C20 (C1c) - Pier Head Segment - Temporary Platform	6	22-Jun-15	0%	6	30-Jun-15	07-Mar-16	12-Mar-16	202	158	0%																													
Abutment & Approach Ramp C																																								
SC1C0200	Abutment C - Walls & Staircase	48	22-Jun-15	0%	48	24-Aug-15	20-Jan-16	18-Mar-16	165	18	0%																													
SC1C0250	AR-C - RE Walls - Erect fencing, Excavation/formation/ drainage filter & bott	12	22-Apr-15 A	90%	1	24-Jun-15	18-Dec-15	19-Dec-15	140	0	90%																													
SC1C0251	AR-C - RE Walls - Upper layers with backfill in stages	48	24-Jun-15	0%	48	26-Aug-15	19-Dec-15	20-Feb-16	140	0	0%																													
SC1C0252	AR-C - RC Walls - Base Slabs	50	08-Apr-15 A	50%	25	26-Aug-15	19-Jan-16	20-Feb-16	140	0	50%																													
SC1C0253	AR-C - RC Walls - Side Walls	48	17-Jul-15	0%	48	16-Sep-15	19-Jan-16	18-Mar-16	147	0	0%																													
SC1C0254	AR-C - RC Walls - Backfill	12	16-Sep-15	0%	12	03-Oct-15	19-Mar-16	06-Apr-16	147	0	0%																													
Viaduct D																																								
Milestones - Land Foundation																																								
GFXX454/	D13 (D2d) - Completion of piling works	0		0%	0	22-Jun-15		15-Dec-18	1038	1038	0%																													
GFXX461/	D10 (D3b) - Completion of piling works	0		0%	0	03-Jul-15		21-Mar-15	-81	0	0%																													
GFXX461E	D11 (D3a) - Completion of piling works	0		0%	0	03-Sep-15		11-Apr-15	-121	0	0%																													
GFXX461C	D12 (D2e) - Completion of piling works	0		0%	0	22-Jun-15		15-Dec-18	1038	1038	0%																													
Bridge D3																																								
Pier D1 (D4f)																																								
Pier Works																																								
SD4F0310	D1 (D4f) - Type 4B-MJ Pier Head Rebarwork, Formwork & Prep	10	04-May-15 A	80%	2	24-Jun-15	11-Apr-15	13-Apr-15	-50	0	80%																													
SD4F0330	D1 (D4f) - Type 4B-MJ Pier Head Concreting	1	26-Jun-15	0%	1	26-Jun-15	14-Apr-15	14-Apr-15	-50	0	0%																													
SD4F0340	D1 (D4f) - Type 4B-MJ Pier Head Curing/Striking of Forms/Remove Scaffold	6	27-Jun-15	0%	6	04-Jul-15	16-Apr-15	22-Apr-15	-50	0	0%																													
SD4F372	D1 (D4f) - Type 4B-Bearing Plinth	6	27-Jun-15	0%	6	04-Jul-15	16-Apr-15	22-Apr-15	-50	0	0%																													
Pier Head Segments																																								
SD4F0370	D1 (D4f) - Pier Head Segment - Temporary Platform	6	27-Jul-15	0%	6	04-Aug-15	24-Apr-15	30-Apr-15	-68	103	0%																													
Pier D2 (D4e)																																								
Pier Works																																								
SD4E017	D2 (D4e) - Type 4B Pier Temp. Support Platform & Scaffold (1st Lift)	6	19-May-15 A	100%	0	23-May-15 A					100%																													
SD4E018	D2 (D4e) - Type 4B Pier Rebarwork, Formwork & Prep (1st Lift)	5	01-Jun-15 A	100%	0	10-Jul-15 A					100%																													
SD4E020	D2 (D4e) - Type 4B Pier Concreting, Curing & Striking, CJ prep (1st Lift)	3	10-Jun-15 A	100%	0	16-Jun-15 A					100%																													
SD4E021	D2 (D4e) - Type 4B Pier Scaffolding (2nd Lift)	2	17-Jun-15 A	90%	0	22-Jun-15	22-Oct-15	22-Oct-15	93	0	90%																													
SD4E022	D2 (D4e) - Type 4B Pier Rebarwork, Formwork & Prep (2nd Lift)	6	22-Jun-15	0%	6	02-Jul-15	23-Oct-15	30-Oct-15	93	0	0%																													
SD4E024	D2 (D4e) - Type 4B Pier Concreting, Curing & Striking, CJ prep (2nd Lift)	3	02-Jul-15	0%	3	06-Jul-15	31-Oct-15	03-Nov-15	93	0	0%																													
SD4E030	D2 (D4e) - Type 4B Pier Head Scaffolding	4	06-Jul-15	0%	4	10-Jul-15	04-Nov-15	07-Nov-15	93	0	0%																													
SD4E031	D2 (D4e) - Type 4B Pier Head Rebarwork, Formwork & Prep	10	10-Jul-15	0%	10	23-Jul-15	09-Nov-15	19-Nov-15	93	0	0%																													
SD4E033	D2 (D4e) - Type 4B Pier Head Concreting	1	23-Jul-15	0%	1	24-Jul-15	20-Nov-15	20-Nov-15	93	0	0%																													
SD4E034	D2 (D4e) - Type 4B Pier Head Curing/Striking of Forms/Remove Scaffold	6	24-Jul-15	0%	6	01-Aug-15	21-Nov-15	27-Nov-15	93	0	0%																													
Pier D3 (D4d)																																								
Pier Works																																								
SD4D022	D3 (D4d) - Type 4B Pier Rebarwork, Formwork & Prep (2nd Lift)	5	26-May-15 A	100%	0	06-Jun-15 A					100%																													
SD4D024	D3 (D4d) - Type 4B Pier Concreting, Curing & Striking, CJ prep (2nd Lift)	3	06-Jun-15 A	100%	0	11-Jun-15 A					100%																													
SD4D025	D3 (D4d) - Type 4B Pier Scaffolding (3rd Lift)	2	12-Jun-15 A	100%	0	17-Jun-15 A					100%																													
SD4D026	D3 (D4d) - Type 4B Pier Rebarwork, Formwork & Prep (3rd Lift)	5	18-Jun-15 A	50%	3	26-Jun-15	09-Oct-15	13-Oct-15	84	0	50%																													
SD4D028	D3 (D4d) - Type 4B Pier Concreting, Curing & Striking, CJ prep (3rd Lift)	3	26-Jun-15	0%	3	30-Jun-15	13-Oct-15	17-Oct-15	84	0	0%																													
SD4D030	D3 (D4d) - Type 4B Pier Head Scaffolding	4	30-Jun-15	0%	4	06-Jul-15	17-Oct-15	23-Oct-15	84	0	0%																													
SD4D031	D3 (D4d) - Type 4B Pier Head Rebarwork, Formwork & Prep	9	06-Jul-15	0%	9	17-Jul-15	23-Oct-15	04-Nov-15	84	0	0%																													
SD4D033	D3 (D4d) - Type 4B Pier Head Concreting	1	17-Jul-15	0%	1	18-Jul-15	04-Nov-15	05-Nov-15	84	0	0%																													
SD4D034	D3 (D4d) - Type 4B Pier Head Curing/Striking of Forms/Remove Scaffold	6	18-Jul-15	0%	6	25-Jul-15	05-Nov-15	12-Nov-15	84	0	0%																													
Pier Head Segments																																								
SD4D037	D3 (D4d) - Pier Head Segment - Temporary Platform	6	27-Jul-15	0%	6	04-Aug-15	12-Nov-15	19-Nov-15	83	13	0%																													

■ Actual Work
■ Planned Bar
■ Critical Bar
◆ Milestone

Project ID: J3518DWPPrE1-M25
 Layout: J3518-DWP-3MRP Submission - M25
 Filter: TASK filters: 3-Month Lookahead, No CC
 Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 16 of 33 Pages)
(Progress as of 21-June-15)

Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:

J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																		
												June			July			August			September									
												08	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21
Bridge D2																														
Pier D7 (D3e)																														
Pile Cap Works																														
SD3E012	D7 (D3e) - Marine Pile Cap M2b - Dewater precast shell / Remove Lifting Fra	2	04-May-15 A	0%	2	24-Jun-15	22-Jan-15	23-Jan-15	-111	0	90%																			
SD3E013	D7 (D3e) - Marine Pile Cap M2b - Pile cut down	8	26-Jun-15	0%	8	06-Jul-15	24-Jan-15	02-Feb-15	-111	0	0%																			
SD3E014	D7 (D3e) - Marine Pile Cap M2b - Rebar fixing, inst.inserts etc	12	07-Jul-15	0%	12	21-Jul-15	03-Feb-15	16-Feb-15	-111	0	0%																			
SD3E015	D7 (D3e) - Marine Pile Cap M2b - Concreting	1	22-Jul-15	0%	1	22-Jul-15	17-Feb-15	17-Feb-15	-111	0	0%																			
SD3E016	D7 (D3e) - Marine Pile Cap M2b - Curing incl. CJ Preparation	6	23-Jul-15	0%	6	30-Jul-15	18-Feb-15	27-Feb-15	-111	0	0%																			
Pier Works																														
SD3E017	D7 (D3e) - Type 4B Pier Temp. Support Platform & Scaffold (1st Lift)	6	23-Jul-15	0%	6	30-Jul-15	18-Feb-15	27-Feb-15	-111	0	0%																			
SD3E018	D7 (D3e) - Type 4B Pier Rebarwork, Formwork & Prep (1st Lift)	5	31-Jul-15	0%	5	05-Aug-15	28-Feb-15	05-Mar-15	-111	0	0%																			
SD3E020	D7 (D3e) - Type 4B Pier Concreting, Curing & Striking, CJ prep (1st Lift)	3	06-Aug-15	0%	3	08-Aug-15	06-Mar-15	09-Mar-15	-111	0	0%																			
SD3E021	D7 (D3e) - Type 4B Pier Scaffolding (2nd Lift)	1	10-Aug-15	0%	1	10-Aug-15	10-Mar-15	10-Mar-15	-111	0	0%																			
SD3E022	D7 (D3e) - Type 4B Pier Rebarwork, Formwork & Prep (2nd Lift)	5	12-Aug-15	0%	5	17-Aug-15	11-Mar-15	16-Mar-15	-111	0	0%																			
SD3E024	D7 (D3e) - Type 4B Pier Concreting, Curing & Striking, CJ prep (2nd Lift)	3	18-Aug-15	0%	3	21-Aug-15	17-Mar-15	19-Mar-15	-111	0	0%																			
SD3E025	D7 (D3e) - Type 4B Pier Scaffolding (3rd Lift)	2	22-Aug-15	0%	2	24-Aug-15	20-Mar-15	21-Mar-15	-111	0	0%																			
SD3E026	D7 (D3e) - Type 4B Pier Rebarwork, Formwork & Prep (3rd Lift)	5	25-Aug-15	0%	5	29-Aug-15	23-Mar-15	27-Mar-15	-111	0	0%																			
SD3E028	D7 (D3e) - Type 4B Pier Concreting, Curing & Striking, CJ prep (3rd Lift)	3	31-Aug-15	0%	3	02-Sep-15	28-Mar-15	31-Mar-15	-111	0	0%																			
SD3E030	D7 (D3e) - Type 4B Pier Head Scaffolding	4	03-Sep-15	0%	4	07-Sep-15	01-Apr-15	09-Apr-15	-111	0	0%																			
SD3E031	D7 (D3e) - Type 4B Pier Head Rebarwork, Formwork & Prep	9	08-Sep-15	0%	9	19-Sep-15	10-Apr-15	21-Apr-15	-111	0	0%																			
Pier D8 (D3d)																														
Pile Cap Works																														
SD3D012	D8 (D3d) - Pile cap Rebarwork	4	25-May-15 A	100%	0	01-Jun-15 A					100%																			
SD3D013	D8 (D3d) - Pile cap Kicker Formwork	2	09-Jun-15 A	100%	0	09-Jun-15 A					100%																			
SD3D013	D8 (D3d) - Pile cap Concreting	1	05-Jun-15 A	100%	0	05-Jun-15 A					100%																			
SD3D014	D8 (D3d) - Pile cap Curing & Striking of Forms incl. CJ prep	7	06-Jun-15 A	100%	0	08-Jun-15 A					100%																			
Pier Works																														
SD3D015	D8 (D3d) - Type 5B Pier Scaffolding (1st Lift)	2	08-Jun-15 A	100%	0	09-Jun-15 A					100%																			
SD3D016	D8 (D3d) - Type 5B Pier Rebarwork (1st Lift)	2	10-Jun-15 A	100%	0	11-Jun-15 A					100%																			
SD3D017	D8 (D3d) - Type 5B Pier Formwork & Prep for Concreting (1st Lift)	2	12-Jun-15 A	100%	0	12-Jun-15 A					100%																			
SD3D018	D8 (D3d) - Type 5B Pier Concreting (1st Lift)	1	13-Jun-15 A	100%	0	13-Jun-15 A					100%																			
SD3D018	D8 (D3d) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	14-Jun-15 A	100%	0	15-Jun-15 A					100%																			
SD3D019	D8 (D3d) - Type 5B Pier Scaffolding (2nd Lift)	2	22-Jun-15	0%	2	24-Jun-15	25-Mar-15	26-Mar-15	-61	0	0%																			
SD3D020	D8 (D3d) - Type 5B Pier Rebarwork (2nd Lift)	2	26-Jun-15	0%	2	27-Jun-15	27-Mar-15	28-Mar-15	-61	0	0%																			
SD3D021	D8 (D3d) - Type 5B Pier Formwork & Prep for Concreting (2nd Lift)	2	29-Jun-15	0%	2	30-Jun-15	30-Mar-15	31-Mar-15	-61	0	0%																			
SD3D022	D8 (D3d) - Type 5B Pier Concreting (2nd Lift)	1	02-Jul-15	0%	1	02-Jul-15	01-Apr-15	01-Apr-15	-61	0	0%																			
SD3D022	D8 (D3d) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	03-Jul-15	0%	2	04-Jul-15	02-Apr-15	08-Apr-15	-61	0	0%																			
SD3D023	D8 (D3d) - Type 5B Pier Scaffolding (3rd Lift)	2	06-Jul-15	0%	2	07-Jul-15	09-Apr-15	10-Apr-15	-61	0	0%																			
SD3D024	D8 (D3d) - Type 5B Pier Rebarwork (3rd Lift)	3	08-Jul-15	0%	3	10-Jul-15	11-Apr-15	14-Apr-15	-61	0	0%																			
SD3D025	D8 (D3d) - Type 5B Pier Formwork & Prep for Concreting (3rd Lift)	3	11-Jul-15	0%	3	14-Jul-15	16-Apr-15	18-Apr-15	-61	0	0%																			
SD3D026	D8 (D3d) - Type 5B Pier Concreting (3rd Lift)	1	15-Jul-15	0%	1	15-Jul-15	20-Apr-15	20-Apr-15	-61	0	0%																			
SD3D026	D8 (D3d) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (3rd Lift)	2	17-Jul-15	0%	2	18-Jul-15	21-Apr-15	22-Apr-15	-61	0	0%																			
SD3D027	D8 (D3d) - Type 5B Pier Head Scaffolding	3	20-Jul-15	0%	3	22-Jul-15	24-Apr-15	27-Apr-15	-61	0	0%																			
SD3D028	D8 (D3d) - Type 5B Pier Head Rebarwork	4	23-Jul-15	0%	4	27-Jul-15	28-Apr-15	02-May-15	-61	0	0%																			
SD3D028	D8 (D3d) - Type 5B Pier Head Formwork & Prep for Concreting	4	28-Jul-15	0%	4	01-Aug-15	04-May-15	07-May-15	-61	0	0%																			
SD3D030	D8 (D3d) - Type 5B Pier Head Concreting	1	03-Aug-15	0%	1	03-Aug-15	08-May-15	08-May-15	-61	0	0%																			
SD3D031	D8 (D3d) - Type 5B Pier Head Curing/Striking of Forms/Remove Scaffolding	6	04-Aug-15	0%	6	10-Aug-15	09-May-15	16-May-15	-61	0	0%																			
SD3D032	D8 (D3d) - Type 5B Pier Backfilling Works	4	16-Jun-15 A	60%	2	24-Jun-15	15-May-15	16-May-15	-25	36	0%																			
Pier Head Segments																														
SD3D037	D8 (D3d) - Pier Head Segment - Temporary Platform	6	12-Aug-15	0%	6	18-Aug-15	18-May-15	26-May-15	-61	1	0%																			
SD3D037	D8 (D3d) - Pier Head Segment Lift & Fix (1 seg)	2	21-Aug-15	0%	2	22-Aug-15	27-May-15	28-May-15	-62	0	0%																			
SD3D037	D8 (D3d) - Pier Head Segment Diaphragm - Rebar	13	24-Aug-15	0%	13	07-Sep-15	29-May-15	16-Jun-15	-62	0	0%																			
SD3D037	D8 (D3d) - Pier Head Segment Diaphragm - Formwork	8	08-Sep-15	0%	8	18-Sep-15	18-Jun-15	30-Jun-15	-62	0	0%																			
SD3D037	D8 (D3d) - Pier Head Segment Diaphragm - Concreting	2	19-Sep-15	0%	2	21-Sep-15	02-Jul-15	03-Jul-15	-62	0	0%																			
Pier D9 (D3c)																														
Pile Cap Works																														
SD3C012	D9 (D3c) - Pile cap Rebarwork	4	15-May-15 A	100%	0	26-May-15 A					100%																			
SD3C012	D9 (D3c) - Pile cap Kicker Formwork	2	22-Jun-15	0%	2	24-Jun-15	14-Dec-18	15-Dec-18	995	995	0%																			
SD3C013	D9 (D3c) - Pile cap Concreting	1	01-Jun-15 A	100%	0	01-Jun-15 A					100%																			
SD3C014	D9 (D3c) - Pile cap Curing & Striking of Forms incl. CJ prep	6	22-Jun-15	0%	6	30-Jun-15	10-Dec-18	15-Dec-18	991	991	0%																			
Pier Works																														
SD3C015	D9 (D3c) - Type 5B Pier Scaffolding (1st Lift)	2	10-Jun-15 A	100%	0	13-Jun-15 A					100%																			

Actual Work
Planned Bar
Critical Bar
Milestone

Project ID: J3518DWPPrE1-M25
 Layout: J3518-DWP-3MRP Submission - M25
 Filter: TASK filters: 3-Month Lookahead, No CC
 Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 18 of 33 Pages)
(Progress as of 21-June-15)





Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																					
												June					July				August				September								
												01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21					
Pile Cap Works																																	
SD3AL12	D11A (D3a-L) - Pile cap Kicker Formwork	2	22-Jun-15	0%	2	24-Jun-15	14-Dec-18	15-Dec-18	995	995	0%																						
SD3AL14	D11A (D3a-L) - Pile cap Curing & Striking of Forms incl. CJ prep	6	22-Jun-15	0%	6	30-Jun-15	28-Apr-15	06-May-15	-38	69	0%																						
SD3AR01	D11B (D3a-R) - Pile cap Excavation / ELS (incl. sheet piling)	18	04-Sep-15	0%	18	26-Sep-15	11-Apr-15	06-May-15	-107	0	0%																						
Pier Works																																	
SD3AL15	D11A (D3a-L) - Pier Scaffolding (2nd Lift)	2	23-May-15 A	100%	0	27-May-15 A					100%																						
SD3AL20	D11A (D3a-L) - Pier Rebarwork (2nd Lift)	3	30-May-15 A	100%	0	03-Jun-15 A					100%																						
SD3AL21	D11A (D3a-L) - Pier Formwork & Prep for Concreting (2nd Lift)	3	06-Jun-15 A	100%	0	09-Jun-15 A					100%																						
SD3AL22	D11A (D3a-L) - Pier Concreting (2nd Lift)	1	10-Jun-15 A	100%	0	10-Jun-15 A					100%																						
SD3AL23	D11A (D3a-L) - Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	11-Jun-15 A	100%	0	17-Jun-15 A					100%																						
Pier D12 (D2e)																																	
Socketted H-Pile Installation - D12 (D2e)																																	
GFX46	D12A (D2e) - Installation of SH Pile (8 nr)	80	15-Apr-15 A	100%	0	22-May-15 A					100%																						
Pile Cap Works																																	
SD2EL05	D12A (D2e-L) - Pile cap Excavation / ELS	30	12-Jun-15 A	80%	6	30-Jun-15	18-May-15	26-May-15	-23	0	0%																						
SD2EL06	D12A (D2e-L) - Pile cap Pile breakdown to cut-off etc	3	02-Jul-15	0%	3	04-Jul-15	27-May-15	29-May-15	-23	0	0%																						
SD2EL10	D12A (D2e-L) - Pile cap Blinding	1	06-Jul-15	0%	1	06-Jul-15	30-May-15	30-May-15	-23	0	0%																						
SD2EL11	D12A (D2e-L) - Pile cap Formwork	3	10-Jul-15	0%	3	13-Jul-15	05-Jun-15	08-Jun-15	-23	0	0%																						
SD2EL12	D12A (D2e-L) - Pile cap Rebarwork	3	07-Jul-15	0%	3	09-Jul-15	01-Jun-15	04-Jun-15	-23	0	0%																						
SD2EL13	D12A (D2e-L) - Pile cap Kicker Formwork	2	15-Jul-15	0%	2	17-Jul-15	18-Jun-15	19-Jun-15	-19	4	0%																						
SD2EL13	D12A (D2e-L) - Pile cap Concreting	1	14-Jul-15	0%	1	14-Jul-15	10-Jun-15	10-Jun-15	-23	0	0%																						
SD2EL14	D12A (D2e-L) - Pile cap Curing & Striking of Forms incl. CJ prep	6	15-Jul-15	0%	6	22-Jul-15	12-Jun-15	19-Jun-15	-23	0	0%																						
SD2ER01	D12B (D2e-R) - Pile cap Excavation / ELS	60	03-Nov-14 A	100%	0	16-Jun-15 A					100%																						
SD2ER01	D12B (D2e-R) - Pile cap Pile breakdown to cut-off etc	4	17-Jun-15 A	40%	2	26-Jun-15	13-Dec-18	15-Dec-18	995	995	40%																						
SD2ER10	D12B (D2e-R) - Pile cap Blinding	1	16-Jun-15 A	100%	0	16-Jun-15 A					100%																						
SD2ER11	D12B (D2e-R) - Pile cap Formwork	3	29-Jun-15	0%	3	02-Jul-15	04-Jun-15	06-Jun-15	-15	0	0%																						
SD2ER11	D12B (D2e-R) - Pile cap Rebarwork	4	22-Jun-15	0%	4	27-Jun-15	29-May-15	02-Jun-15	-15	0	0%																						
SD2ER11	D12B (D2e-R) - Pile cap Kicker Formwork	2	04-Jul-15	0%	2	06-Jul-15	18-Jun-15	19-Jun-15	-10	4	0%																						
SD2ER11	D12B (D2e-R) - Pile cap Concreting	1	03-Jul-15	0%	1	03-Jul-15	08-Jun-15	08-Jun-15	-15	0	0%																						
SD2ER11	D12B (D2e-R) - Pile cap Curing & Striking of Forms incl. CJ prep	6	04-Jul-15	0%	6	10-Jul-15	10-Jun-15	19-Jun-15	-14	0	0%																						
Pier Works																																	
SD2EL15	D12A (D2e-L) - Pier Scaffolding (1st Lift)	2	23-Jul-15	0%	2	24-Jul-15	22-Jun-15	24-Jun-15	-23	0	0%																						
SD2EL16	D12A (D2e-L) - Pier Rebarwork (1st Lift)	3	25-Jul-15	0%	3	28-Jul-15	26-Jun-15	29-Jun-15	-23	0	0%																						
SD2EL17	D12A (D2e-L) - Pier Formwork & Prep for Concreting (1st Lift)	2	30-Jul-15	0%	2	31-Jul-15	30-Jun-15	02-Jul-15	-23	0	0%																						
SD2EL18	D12A (D2e-L) - Pier Concreting (1st Lift)	1	01-Aug-15	0%	1	01-Aug-15	03-Jul-15	03-Jul-15	-23	0	0%																						
SD2EL18	D12A (D2e-L) - Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	03-Aug-15	0%	2	04-Aug-15	04-Jul-15	06-Jul-15	-23	0	0%																						
SD2EL19	D12A (D2e-L) - Pier Scaffolding (2nd Lift)	3	05-Aug-15	0%	3	07-Aug-15	07-Jul-15	09-Jul-15	-23	0	0%																						
SD2EL20	D12A (D2e-L) - Pier Rebarwork (2nd Lift)	3	08-Aug-15	0%	3	12-Aug-15	10-Jul-15	13-Jul-15	-23	0	0%																						
SD2EL21	D12A (D2e-L) - Pier Formwork & Prep for Concreting (2nd Lift)	3	13-Aug-15	0%	3	15-Aug-15	14-Jul-15	17-Jul-15	-23	0	0%																						
SD2EL22	D12A (D2e-L) - Pier Concreting (2nd Lift)	1	17-Aug-15	0%	1	17-Aug-15	18-Jul-15	18-Jul-15	-23	0	0%																						
SD2EL22	D12A (D2e-L) - Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	18-Aug-15	0%	2	19-Aug-15	20-Jul-15	21-Jul-15	-23	0	0%																						
SD2ER11	D12B (D2e-R) - Pier Scaffolding (1st Lift)	2	11-Jul-15	0%	2	13-Jul-15	22-Jun-15	24-Jun-15	-14	0	0%																						
SD2ER11	D12B (D2e-R) - Pier Rebarwork (1st Lift)	3	14-Jul-15	0%	3	17-Jul-15	26-Jun-15	29-Jun-15	-14	0	0%																						
SD2ER11	D12B (D2e-R) - Pier Formwork & Prep for Concreting (1st Lift)	2	18-Jul-15	0%	2	20-Jul-15	30-Jun-15	02-Jul-15	-14	0	0%																						
SD2ER11	D12B (D2e-R) - Pier Concreting (1st Lift)	1	21-Jul-15	0%	1	21-Jul-15	03-Jul-15	03-Jul-15	-14	0	0%																						
SD2ER11	D12B (D2e-R) - Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	22-Jul-15	0%	2	23-Jul-15	04-Jul-15	06-Jul-15	-14	0	0%																						
SD2ER11	D12B (D2e-R) - Pier Scaffolding (2nd Lift)	3	24-Jul-15	0%	3	27-Jul-15	07-Jul-15	09-Jul-15	-14	0	0%																						
SD2ER21	D12B (D2e-R) - Pier Rebarwork (2nd Lift)	3	28-Jul-15	0%	3	31-Jul-15	10-Jul-15	13-Jul-15	-14	0	0%																						
SD2ER21	D12B (D2e-R) - Pier Formwork & Prep for	3	01-Aug-15	0%	3	04-Aug-15	14-Jul-15	17-Jul-15	-14	0	0%																						
SD2ER21	D12B (D2e-R) - Pier Concreting (2nd Lift)	1	05-Aug-15	0%	1	05-Aug-15	18-Jul-15	18-Jul-15	-14	0	0%																						
SD2ER21	D12B (D2e-R) - Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	06-Aug-15	0%	2	07-Aug-15	20-Jul-15	21-Jul-15	-14	9	0%																						
Portal																																	
SD2ER21	D12 (D2e) - Portal Beam Scaffolding	12	21-Aug-15	0%	12	03-Sep-15	22-Jul-15	05-Aug-15	-23	0	0%																						
SD2ER21	D12 (D2e) - Portal Beam Soffit Formwork	12	04-Sep-15	0%	12	19-Sep-15	06-Aug-15	21-Aug-15	-23	0	0%																						
Pier D13 (D2d)																																	
Socketted H-Pile Installation - D13 (D2d)																																	
GFX454	D13 (D2d) - Installation of SH Pile (10 nos)	104	09-Feb-15 A	100%	0	21-May-15 A					100%																						
GFX47	D13 (D2d) - Selection of pile for Loading Test (N/A)	6	22-May-15 A	100%	0	23-May-15 A					100%																						
GFX47	D13 (D2d) - Loading Test for pre-bored H-pile (N/A)	36	25-May-15 A	100%	0	25-May-15 A					100%																						
Pile Cap Works																																	
SD2D005	D13 (D2d) - Pile cap Excavation / ELS (incl. sheet piling)	30	12-Jun-15 A	60%	12	08-Jul-15	28-Jul-15	12-Aug-15	27	0	60%																						
SD2D005	D13 (D2d) - Pile cap Pile breakdown to cut-off etc.	4	09-Jul-15	0%	4	13-Jul-15	13-Aug-15	17-Aug-15	27	0	0%																						

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																											
												June							July							August							September						
												08	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21									
SD2D01C	D13 (D2d) - Pile cap Blinding	1	14-Jul-15	0%	1	14-Jul-15	18-Aug-15	18-Aug-15	27	0	0%																												
SD2D011	D13 (D2d) - Pile cap Formwork	3	21-Jul-15	0%	3	23-Jul-15	25-Aug-15	27-Aug-15	27	0	0%																												
SD2D012	D13 (D2d) - Pile cap Rebarwork	4	15-Jul-15	0%	4	20-Jul-15	19-Aug-15	24-Aug-15	27	0	0%																												
SD2D012	D13 (D2d) - Pile cap Kicker Formwork	2	25-Jul-15	0%	2	27-Jul-15	03-Sep-15	04-Sep-15	31	4	0%																												
SD2D013	D13 (D2d) - Pile cap Concreting	1	24-Jul-15	0%	1	24-Jul-15	28-Aug-15	28-Aug-15	27	0	0%																												
SD2D014	D13 (D2d) - Pile cap Curing & Striking of Forms incl. CJ prep	6	25-Jul-15	0%	6	01-Aug-15	29-Aug-15	04-Sep-15	27	0	0%																												
Pier Works																																							
SD2D015	D13 (D2d) - Type 5B-MJ Pier Scaffolding (1st Lift)	2	03-Aug-15	0%	2	04-Aug-15	05-Sep-15	07-Sep-15	27	0	0%																												
SD2D016	D13 (D2d) - Type 5B-MJ Pier Rebarwork (1st Lift)	3	05-Aug-15	0%	3	07-Aug-15	08-Sep-15	11-Sep-15	27	0	0%																												
SD2D017	D13 (D2d) - Type 5B-MJ Pier Formwork & Prep for Concreting (1st Lift)	2	08-Aug-15	0%	2	10-Aug-15	12-Sep-15	14-Sep-15	27	0	0%																												
SD2D018	D13 (D2d) - Type 5B-MJ Pier Concreting (1st Lift)	1	12-Aug-15	0%	1	12-Aug-15	15-Sep-15	15-Sep-15	27	0	0%																												
SD2D018	D13 (D2d) - Type 5B-MJ Pier Curing & Striking of Forms incl. CJ prep (1st Lif	2	13-Aug-15	0%	2	14-Aug-15	16-Sep-15	18-Sep-15	27	0	0%																												
SD2D03C	D13 (D2d) - Type 5B-MJ Pier Head Scaffolding	3	15-Aug-15	0%	3	18-Aug-15	19-Sep-15	22-Sep-15	27	0	0%																												
SD2D031	D13 (D2d) - Type 5B-MJ Pier Head Rebarwork	5	19-Aug-15	0%	5	25-Aug-15	23-Sep-15	29-Sep-15	27	0	0%																												
SD2D032	D13 (D2d) - Type 5B-MJ Pier Head Formwork & Prep for Concreting	5	26-Aug-15	0%	5	31-Aug-15	30-Sep-15	06-Oct-15	27	0	0%																												
SD2D032	D13 (D2d) - Type 5B-MJ Pier Head Concreting	1	01-Sep-15	0%	1	01-Sep-15	07-Oct-15	07-Oct-15	27	0	0%																												
SD2D034	D13 (D2d) - Type 5B-MJ Pier Head Curing/Striking of Forms/Remove Scaffold	6	02-Sep-15	0%	6	08-Sep-15	08-Oct-15	15-Oct-15	27	0	0%																												
SD2D036	D13 (D2d) - Type 5B-MJ Pier Backfilling Works	4	10-Sep-15	0%	4	14-Sep-15	16-Oct-15	20-Oct-15	27	0	0%																												
SD2D036	D13 (D2d) - Type 5B-Bearing Plinth	6	02-Sep-15	0%	6	08-Sep-15	08-Oct-15	15-Oct-15	27	0	0%																												
Pier Head Segments																																							
SD2D037	D13 (D2d) - Pier Head Segment - Temporary Platform	6	15-Sep-15	0%	6	22-Sep-15	22-Oct-15	28-Oct-15	27	64	0%																												
Bridge D1																																							
Pier D14 (D2c)																																							
Pier Works																																							
SD2CL22	D14A (D2c-L) - Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	22-Jun-15	0%	2	24-Jun-15	13-Aug-15	14-Aug-15	39	25	0%																												
Portal																																							
SD2CR21	D14 (D2c) - Portal Beam Scaffolding	12	27-Jul-15	0%	12	12-Aug-15	15-Aug-15	29-Aug-15	15	0	0%																												
SD2CR21	D14 (D2c) - Portal Beam Soffit Formwork	12	12-Aug-15	0%	12	27-Aug-15	31-Aug-15	14-Sep-15	15	0	0%																												
SD2CR31	D14 (D2c) - Portal Beam Rebarwork & Inserts	16	27-Aug-15	0%	16	16-Sep-15	15-Sep-15	06-Oct-15	15	0	0%																												
SD2CR31	D14 (D2c) - Portal Beam Side Formwork & Prep for Concreting	16	16-Sep-15	0%	16	08-Oct-15	07-Oct-15	27-Oct-15	15	0	0%																												
Pier D15 (D2b)																																							
Pile Cap Works																																							
SD2B005	D15 (D2b) - Pile cap Pile breakdown to cut-off etc.	4	20-May-15 A	100%	0	08-Jun-15 A					100%																												
SD2B011	D15 (D2b) - Pile cap Formwork	3	11-Jun-15 A	100%	0	14-Jun-15 A					100%																												
SD2B012	D15 (D2b) - Pile cap Rebarwork	4	09-Jun-15 A	100%	0	13-Jun-15 A					100%																												
SD2B012	D15 (D2b) - Pile cap Kicker Formwork	2	22-Jun-15	0%	2	24-Jun-15	17-Aug-15	18-Aug-15	42	1	0%																												
SD2B013	D15 (D2b) - Pile cap Concreting	1	16-Jun-15 A	100%	0	16-Jun-15 A					100%																												
SD2B014	D15 (D2b) - Pile cap Curing & Striking of Forms incl. CJ prep	7	17-Jun-15 A	60%	3	26-Jun-15	15-Aug-15	18-Aug-15	41	0	60%																												
Pier Works																																							
SD2B015	D15 (D2b) - Type 5B Pier Scaffolding (1st Lift)	1	26-Jun-15	0%	1	27-Jun-15	19-Aug-15	19-Aug-15	41	0	0%																												
SD2B016	D15 (D2b) - Type 5B Pier Rebarwork (1st Lift)	2	27-Jun-15	0%	2	30-Jun-15	21-Aug-15	22-Aug-15	41	0	0%																												
SD2B017	D15 (D2b) - Type 5B Pier Formwork & Prep for Concreting (1st Lift)	1	30-Jun-15	0%	1	02-Jul-15	24-Aug-15	24-Aug-15	41	0	0%																												
SD2B018	D15 (D2b) - Type 5B Pier Concreting (1st Lift)	1	02-Jul-15	0%	1	03-Jul-15	25-Aug-15	25-Aug-15	41	0	0%																												
SD2B018	D15 (D2b) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	03-Jul-15	0%	2	06-Jul-15	26-Aug-15	27-Aug-15	41	0	0%																												
SD2B019	D15 (D2b) - Type 5B Pier Scaffolding (2nd Lift)	2	06-Jul-15	0%	2	08-Jul-15	28-Aug-15	29-Aug-15	41	0	0%																												
SD2B02C	D15 (D2b) - Type 5B Pier Rebarwork (2nd Lift)	3	08-Jul-15	0%	3	11-Jul-15	31-Aug-15	02-Sep-15	41	0	0%																												
SD2B021	D15 (D2b) - Type 5B Pier Formwork & Prep for Concreting (2nd Lift)	3	11-Jul-15	0%	3	15-Jul-15	03-Sep-15	05-Sep-15	41	0	0%																												
SD2B022	D15 (D2b) - Type 5B Pier Concreting (2nd Lift)	1	15-Jul-15	0%	1	17-Jul-15	07-Sep-15	07-Sep-15	41	0	0%																												
SD2B031	D15 (D2b) - Type 5B Pier Curing/Striking of Forms/Remove Scaffolding (2nd	2	17-Jul-15	0%	2	20-Jul-15	08-Sep-15	10-Sep-15	41	0	0%																												
SD2B031	D15 (D2b) - Type 5B Pier Head Scaffolding	3	20-Jul-15	0%	3	23-Jul-15	11-Sep-15	14-Sep-15	41	0	0%																												
SD2B031	D15 (D2b) - Type 5B Pier Head Rebarwork	4	23-Jul-15	0%	4	28-Jul-15	15-Sep-15	19-Sep-15	41	0	0%																												
SD2B031	D15 (D2b) - Type 5B Pier Head Formwork & Prep for Concreting	3	28-Jul-15	0%	3	01-Aug-15	21-Sep-15	23-Sep-15	41	0	0%																												
SD2B031	D15 (D2b) - Type 5B Pier Head Concreting	1	01-Aug-15	0%	1	03-Aug-15	24-Sep-15	24-Sep-15	41	0	0%																												
SD2B032	D15 (D2b) - Type 5B Pier Head Curing & Striking of Forms incl. CJ prep	6	03-Aug-15	0%	6	10-Aug-15	25-Sep-15	03-Oct-15	41	0	0%																												
SD2B032	D15 (D2b) - Type 5B Pier Backfilling Works	4	10-Aug-15	0%	4	15-Aug-15	05-Oct-15	08-Oct-15	41	0	0%																												
Pier Head Segments																																							
SD2B037	D15 (D2b) - Pier Head Segment - Temporary Platform	6	15-Aug-15	0%	6	24-Aug-15	22-Oct-15	28-Oct-15	50	0	0%																												
SD2B037	D15 (D2b) - Pier Head Segment Lift & Fix (1 seg)	2	24-Aug-15	0%	2	26-Aug-15	30-Oct-15	31-Oct-15	50	0	0%																												
SD2B037	D15 (D2b) - Pier Head Segment Diaphragm - Rebar	12	26-Aug-15	0%	12	10-Sep-15	02-Nov-15	14-Nov-15	50	0	0%																												
SD2B037	D15 (D2b) - Pier Head Segment Diaphragm - Formwork	8	10-Sep-15	0%	8	21-Sep-15	16-Nov-15	24-Nov-15	50	0	0%																												
Pier D16 (D2a)																																							
Pile Cap Works																																							
SD2A005																																							

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																												
												June							July							August							September							
													8	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21									
Bridge E1 - Piling & Substructure																																								
E1A, E1B, E1C & E1D (E1a1-2-3-4)																																								
Pile Cap Works - E1A, E1B, E1C & E1D																																								
Pile Cap Works - E1C/D (E1a2/E1a1)																																								
SE1A2	E1C/D (E1a2/E1a1) - Marine Pile Cap M1 - Inst. Access & make Watertight	3	22-Jun-15	0%	3	26-Jun-15	20-Nov-14	24-Nov-14	-162	0	0%																													
SE1A2	E1C/D (E1a2/E1a1) - Marine Pile Cap M1 - Weld Fin Plates/Plug Rebar & C	9	27-Jun-15	0%	9	08-Jul-15	24-Nov-14	04-Dec-14	-162	0	0%																													
SE1A2	E1C/D (E1a2/E1a1) - Marine Pile Cap M1 - Dewater precast shell / Remove	2	09-Jul-15	0%	2	10-Jul-15	04-Dec-14	06-Dec-14	-162	0	0%																													
SE1A2	E1C/D (E1a2/E1a1) - Marine Pile Cap M1 - Pile cut down	8	11-Jul-15	0%	8	21-Jul-15	06-Dec-14	16-Dec-14	-162	0	0%																													
SE1A2	E1C/D (E1a2/E1a1) - Marine Pile Cap M1 - Rebar fixing, inst.inserts etc	14	22-Jul-15	0%	14	07-Aug-15	16-Dec-14	05-Jan-15	-162	0	0%																													
SE1A2	E1C/D (E1a2/E1a1) - Marine Pile Cap M1 - Concreting	1	08-Aug-15	0%	1	08-Aug-15	05-Jan-15	06-Jan-15	-162	0	0%																													
SE1A2	E1C/D (E1a2/E1a1) - Marine Pile Cap M1 - Curing incl. CJ Preparation	6	10-Aug-15	0%	6	17-Aug-15	06-Jan-15	13-Jan-15	-162	0	0%																													
Pier Works - E1A, E1B, E1C & E1D																																								
Pier Works - E1A (E1a4)																																								
SE1A4	E1A (E1a4) - Type 4B Pier Head Rebarwork, Formwork & Prep	10	13-Apr-15 A	100%	0	22-May-15 A					100%																													
SE1A4	E1A (E1a4) - Type 4B Pier Head Concreting	1	23-May-15 A	100%	0	23-Jun-15 A					100%																													
SE1A4	E1A (E1a4) - Type 4B Pier Head Curing/Striking of Forms/Remove Scaffoldir	6	24-May-15 A	100%	0	28-May-15 A					100%																													
Pier Works - E1B (E1a3)																																								
SE1A3	E1B (E1a3) - Type 4B Pier Head Rebarwork, Formwork & Prep	10	26-May-15 A	100%	0	17-Jun-15 A					100%																													
SE1A3	E1B (E1a3) - Type 4B Pier Head Concreting	1	22-Jun-15	0%	1	22-Jun-15	11-Mar-15	12-Mar-15	-73	0	0%																													
SE1A3	E1B (E1a3) - Type 4B Pier Head Curing/Striking of Forms/Remove Scaffoldir	6	24-Jun-15	0%	6	02-Jul-15	12-Mar-15	19-Mar-15	-73	0	0%																													
Pier Works - E1C (E1a2)																																								
SE1A2	E1C (E1a2) - Type 4B Pier Temp. Support Platform & Scaffold (1st Lift)	6	10-Aug-15	0%	6	17-Aug-15	06-Jan-15	13-Jan-15	-162	0	0%																													
SE1A2	E1C (E1a2) - Type 4B Pier Rebarwork, Formwork & Prep (1st Lift)	4	18-Aug-15	0%	4	22-Aug-15	13-Jan-15	17-Jan-15	-162	0	0%																													
SE1A2	E1C (E1a2) - Type 4B Pier Concreting, Curing & Striking, CJ prep (1st Lift)	3	24-Aug-15	0%	3	26-Aug-15	17-Jan-15	21-Jan-15	-162	0	0%																													
SE1A2	E1C (E1a2) - Type 4B Pier Scaffolding (2nd Lift)	2	27-Aug-15	0%	2	28-Aug-15	21-Jan-15	23-Jan-15	-162	0	0%																													
SE1A2	E1C (E1a2) - Type 4B Pier Rebarwork, Formwork & Prep (2nd Lift)	5	29-Aug-15	0%	5	03-Sep-15	23-Jan-15	29-Jan-15	-162	0	0%																													
SE1A2	E1C (E1a2) - Type 4B Pier Concreting, Curing & Striking, CJ prep (2nd Lift)	3	04-Sep-15	0%	3	07-Sep-15	29-Jan-15	02-Feb-15	-162	0	0%																													
SE1A2	E1C (E1a2) - Type 4B Pier Head Scaffolding	4	08-Sep-15	0%	4	12-Sep-15	02-Feb-15	06-Feb-15	-162	0	0%																													
SE1A2	E1C (E1a2) - Type 4B Pier Head Rebarwork, Formwork & Prep	10	14-Sep-15	0%	10	25-Sep-15	06-Feb-15	18-Feb-15	-162	0	0%																													
Pier Works - E1D (E1a1)																																								
SE1A1	E1D (E1a1) - Type 4B Pier Temp. Support Platform & Scaffold (1st Lift)	6	10-Aug-15	0%	6	17-Aug-15	19-Jan-16	26-Jan-16	127	0	0%																													
SE1A1	E1D (E1a1) - Type 4B Pier Rebarwork, Formwork & Prep (1st Lift)	3	18-Aug-15	0%	3	21-Aug-15	26-Jan-16	29-Jan-16	127	0	0%																													
SE1A1	E1D (E1a1) - Type 4B Pier Concreting, Curing & Striking, CJ prep (1st Lift)	3	22-Aug-15	0%	3	25-Aug-15	29-Jan-16	02-Feb-16	127	0	0%																													
SE1A1	E1D (E1a1) - Type 4B Pier Scaffolding (2nd Lift)	2	26-Aug-15	0%	2	27-Aug-15	02-Feb-16	04-Feb-16	127	0	0%																													
SE1A1	E1D (E1a1) - Type 4B Pier Rebarwork, Formwork & Prep (2nd Lift)	5	28-Aug-15	0%	5	02-Sep-15	04-Feb-16	13-Feb-16	127	0	0%																													
SE1A1	E1D (E1a1) - Type 4B Pier Concreting, Curing & Striking, CJ prep (2nd Lift)	3	03-Sep-15	0%	3	05-Sep-15	13-Feb-16	17-Feb-16	127	0	0%																													
SE1A1	E1D (E1a1) - Type 4B Pier Head Scaffolding	4	07-Sep-15	0%	4	11-Sep-15	17-Feb-16	22-Feb-16	127	0	0%																													
SE1A1	E1D (E1a1) - Type 4B Pier Head Rebarwork, Formwork & Prep	10	12-Sep-15	0%	10	24-Sep-15	22-Feb-16	04-Mar-16	127	0	0%																													
Pier Head Segments - E1A, E1B, E1C & E1D																																								
Pier Head Segments - E1A (E1a4)																																								
SE1A4	E1A (E1a4) - Pier Head Segment - Temporary Platform	2	01-Jun-15 A	100%	0	05-Jun-15 A					100%																													
SE1A4	E1A (E1a4) - Pier Head Segment Lift & Fix (1 seg)	2	22-Jun-15	0%	2	24-Jun-15	25-Nov-14	27-Nov-14	-158	0	0%																													
SE1A4	E1A (E1a4) - Pier Head Segment Diaphragm - Rebar	13	26-Jun-15	0%	13	11-Jul-15	27-Nov-14	11-Dec-14	-158	0	0%																													
SE1A4	E1A (E1a4) - Pier Head Segment Diaphragm - Formwork & Prep for Concreti	8	11-Jul-15	0%	8	22-Jul-15	12-Dec-14	20-Dec-14	-158	0	0%																													
SE1A4	E1A (E1a4) - Pier Head Segment Diaphragm - Concreting	2	22-Jul-15	0%	2	24-Jul-15	22-Dec-14	23-Dec-14	-158	0	0%																													
SE1A4	E1A (E1a4) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	24-Jul-15	0%	6	01-Aug-15	24-Dec-14	02-Jan-15	-158	0	0%																													
Pier Head Segments - E1B (E1a3)																																								
SE1A3	E1B (E1a3) - Pier Head Segment - Temporary Platform	2	03-Jul-15	0%	2	04-Jul-15	19-Mar-15	21-Mar-15	-73	0	0%																													
SE1A3	E1B (E1a3) - Pier Head Segment Lift & Fix (1 seg)	2	06-Jul-15	0%	2	07-Jul-15	21-Mar-15	24-Mar-15	-73	0	0%																													
SE1A3	E1B (E1a3) - Pier Head Segment Diaphragm - Rebar	12	08-Jul-15	0%	12	22-Jul-15	24-Mar-15	11-Apr-15	-73	0	0%																													
SE1A3	E1B (E1a3) - Pier Head Segment Diaphragm - Formwork & Prep for Concreti	8	23-Jul-15	0%	8	01-Aug-15	11-Apr-15	22-Apr-15	-73	0	0%																													
SE1A3	E1B (E1a3) - Pier Head Segment Diaphragm - Concreting	3	03-Aug-15	0%	3	05-Aug-15	22-Apr-15	25-Apr-15	-73	0	0%																													
SE1A3	E1B (E1a3) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	05-Aug-15	0%	6	13-Aug-15	27-Apr-15	04-May-15	-73	0	0%																													
E2A, E2B, E2C & E2D (E1b1-2-3-4)																																								
Pile Cap Works - E2A, E2B, E2C & E2D																																								
Pile Cap Works - E2B (E1b3)																																								
SE1B3	E2B (E1b3) - Marine Pile Cap M1 - Pile cut down	8	18-May-15 A	25%	6	30-Jun-15	21-Oct-14	28-Oct-14	-187	0	20%																													
SE1B3	E2B (E1b3) - Marine Pile Cap M1 - Rebar fixing, inst.inserts etc	18	02-Jul-15	0%	18	23-Jul-15	28-Oct-14	19-Nov-14	-187	0	0%																													
SE1B3	E2B (E1b3) - Marine Pile Cap M1 - Concreting	1	24-Jul-15	0%	1	24-Jul-15	19-Nov-14	20-Nov-14	-187	0	0%																													
SE1B3	E2B (E1b3) - Marine Pile Cap M1 - Curing incl. CJ Preparation	6	25-Jul-15	0%	6	01-Aug-15	20-Nov-14	27-Nov-14	-187	0	0%																													
Pier Works - E2A, E2B, E2C & E2D																																								
Pier Works - E2A (E1b4)																																								
SE1B4	E2A (E1b4) - Type 4B Pier Rebarwork, Formwork & Prep (1st Lift)	4	18-Apr-15 A	100%	0	26-May-15 A					100%																													
SE1B4	E2A (E1b4) - Type 4B Pier Concreting, Curing & Striking, CJ prep (1st Lift)	3	27-May-15 A	100%	0	03-Jun-15 A					100%																													

	Actual Work
	Planned Bar
	Critical Bar
	Milestone

Project ID: J3518DWPPrE1-M25
Layout: J3518-DWP-3MRP Submission - M25
Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 23 of 33 Pages)
(Progress as of 21-June-15)

Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																																							
												June					July					August					September																								
												25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21																						
Pile Cap Works																																																			
SE2A1	E3 (E2a1/2/3/4)- Marine Pile Cap - Pile cut down 6nr	9	11-May-15 A	55.56%	4	27-Jun-15	30-Oct-14	03-Nov-14	-180	0	95%																																								
SE2A1	E3 (E2a1/2/3/4)- Marine Pile Cap - Rebar fixing (1st pour)	8	29-Jun-15	0%	8	08-Jul-15	04-Nov-14	12-Nov-14	-180	0	0%																																								
SE2A1	E3 (E2a1/2/3/4)- Marine Pile Cap - Concreting (First pour)	1	09-Jul-15	0%	1	09-Jul-15	13-Nov-14	13-Nov-14	-180	0	0%																																								
SE2A1	E3 (E2a1/2/3/4)- Marine Pile Cap - CJ preparation	3	10-Jul-15	0%	3	13-Jul-15	14-Nov-14	17-Nov-14	-180	0	0%																																								
SE2A1	E3 (E2a1/2/3/4)- Marine Pile Cap - Rebar fixing (Final pour)	6	14-Jul-15	0%	6	21-Jul-15	18-Nov-14	24-Nov-14	-180	0	0%																																								
SE2A1	E3 (E2a1/2/3/4)- Marine Pile Cap - Concreting (Final pour)	1	22-Jul-15	0%	1	22-Jul-15	25-Nov-14	25-Nov-14	-180	0	0%																																								
SE2A1	E3 (E2a1/2/3/4)- Marine Pile Cap - Curing incl. CJ preparation	6	23-Jul-15	0%	6	30-Jul-15	26-Nov-14	02-Dec-14	-180	0	0%																																								
Pier Works - E3A,E3B, E3C & E3D																																																			
Pier Works - E3A (E2a4)																																																			
SE2A4	E3A (E2a4) - Type 4B-MJ Pier Temp. Support Platform & Scaffold (1st Lift)	5	24-Jul-15	0%	5	30-Jul-15	27-Nov-14	02-Dec-14	-180	0	0%																																								
SE2A4	E3A (E2a4) - Type 4B-MJ Pier Rebarwork, Formwork & Prep (1st Lift)	4	31-Jul-15	0%	4	04-Aug-15	03-Dec-14	06-Dec-14	-180	0	0%																																								
SE2A4	E3A (E2a4) - Type 4B-MJ Pier Concreting, Curing & Striking, CJ prep (1st Lif	3	05-Aug-15	0%	3	07-Aug-15	08-Dec-14	10-Dec-14	-180	0	0%																																								
SE2A4	E3A (E2a4) - Type 4B-MJ Pier Head Scaffolding	4	08-Aug-15	0%	4	13-Aug-15	11-Dec-14	15-Dec-14	-180	0	0%																																								
SE2A4	E3A (E2a4) - Type 4B-MJ Pier Head Rebarwork, Formwork & Prep	10	14-Aug-15	0%	10	26-Aug-15	16-Dec-14	29-Dec-14	-180	0	0%																																								
SE2A4	E3A (E2a4) - Type 4B-MJ Pier Head Concreting	1	27-Aug-15	0%	1	27-Aug-15	30-Dec-14	30-Dec-14	-180	0	0%																																								
SE2A4	E3A (E2a4) - Type 4B-MJ Pier Head Curing/Striking of Forms/Remove Scaffr	6	28-Aug-15	0%	6	03-Sep-15	31-Dec-14	07-Jan-15	-180	0	0%																																								
Pier Works - E3B (E2a3)																																																			
SE2A3	E3B (E2a3) - Type 4B-MJ Pier Temp. Support Platform & Scaffold (1st Lift)	5	24-Jul-15	0%	5	30-Jul-15	20-Dec-14	27-Dec-14	-160	0	0%																																								
SE2A3	E3B (E2a3) - Type 4B-MJ Pier Rebarwork, Formwork & Prep (1st Lift)	4	31-Jul-15	0%	4	04-Aug-15	29-Dec-14	02-Jan-15	-160	0	0%																																								
SE2A3	E3B (E2a3) - Type 4B-MJ Pier Concreting, Curing & Striking, CJ prep (1st Lif	3	05-Aug-15	0%	3	07-Aug-15	03-Jan-15	06-Jan-15	-160	0	0%																																								
SE2A3	E3B (E2a3) - Type 4B-MJ Pier Head Scaffolding	4	08-Aug-15	0%	4	13-Aug-15	07-Jan-15	10-Jan-15	-160	0	0%																																								
SE2A3	E3B (E2a3) - Type 4B-MJ Pier Head Rebarwork, Formwork & Prep	10	14-Aug-15	0%	10	26-Aug-15	12-Jan-15	22-Jan-15	-160	0	0%																																								
SE2A3	E3B (E2a3) - Type 4B-MJ Pier Head Concreting	1	27-Aug-15	0%	1	27-Aug-15	23-Jan-15	23-Jan-15	-160	0	0%																																								
SE2A3	E3B (E2a3) - Type 4B-MJ Pier Head Curing/Striking of Forms/Remove Scaffr	6	28-Aug-15	0%	6	03-Sep-15	24-Jan-15	30-Jan-15	-160	0	0%																																								
Pier Works - E3C (E2a2)																																																			
SE2A2	E3C (E2a2) - Type 4B-MJ Pier Temp. Support Platform & Scaffold (1st Lift)	6	31-Jul-15	0%	6	06-Aug-15	10-Jan-15	16-Jan-15	-150	0	0%																																								
SE2A2	E3C (E2a2) - Type 4B-MJ Pier Rebarwork, Formwork & Prep (1st Lift)	6	07-Aug-15	0%	6	14-Aug-15	17-Jan-15	23-Jan-15	-150	0	0%																																								
SE2A2	E3C (E2a2) - Type 4B-MJ Pier Concreting, Curing & Striking, CJ prep (1st Lif	3	15-Aug-15	0%	3	18-Aug-15	24-Jan-15	27-Jan-15	-150	0	0%																																								
SE2A2	E3C (E2a2) - Type 4B-MJ Pier Head Scaffolding	4	19-Aug-15	0%	4	24-Aug-15	28-Jan-15	31-Jan-15	-150	0	0%																																								
SE2A2	E3C (E2a2) - Type 4B-MJ Pier Head Rebarwork, Formwork & Prep	10	25-Aug-15	0%	10	04-Sep-15	02-Feb-15	12-Feb-15	-150	0	0%																																								
SE2A2	E3C (E2a2) - Type 4B-MJ Pier Head Concreting	1	05-Sep-15	0%	1	05-Sep-15	13-Feb-15	13-Feb-15	-150	0	0%																																								
SE2A2	E3C (E2a2) - Type 4B-MJ Pier Head Curing/Striking of Forms/Remove Scaffr	6	07-Sep-15	0%	6	14-Sep-15	14-Feb-15	24-Feb-15	-150	0	0%																																								
Pier Works - E3D (E2a1)																																																			
SE2A1	E3D (E2a1) - Type 4B-MJ Pier Temp. Support Platform & Scaffold (1st Lift)	6	31-Jul-15	0%	6	06-Aug-15	14-Jan-16	20-Jan-16	131	0	0%																																								
SE2A1	E3D (E2a1) - Type 4B-MJ Pier Rebarwork, Formwork & Prep (1st Lift)	6	07-Aug-15	0%	6	14-Aug-15	21-Jan-16	27-Jan-16	131	0	0%																																								
SE2A1	E3D (E2a1) - Type 4B-MJ Pier Concreting, Curing & Striking, CJ prep (1st Lif	3	15-Aug-15	0%	3	18-Aug-15	28-Jan-16	30-Jan-16	131	0	0%																																								
SE2A1	E3D (E2a1) - Type 4B-MJ Pier Head Scaffolding	4	19-Aug-15	0%	4	24-Aug-15	01-Feb-16	04-Feb-16	131	0	0%																																								
SE2A1	E3D (E2a1) - Type 4B-MJ Pier Head Rebarwork, Formwork & Prep	10	25-Aug-15	0%	10	04-Sep-15	05-Feb-16	19-Feb-16	131	0	0%																																								
SE2A1	E3D (E2a1) - Type 4B-MJ Pier Head Concreting	1	05-Sep-15	0%	1	05-Sep-15	20-Feb-16	20-Feb-16	131	0	0%																																								
SE2A1	E3D (E2a1) - Type 4B-MJ Pier Head Curing/Striking of Forms/Remove Scaffr	6	07-Sep-15	0%	6	14-Sep-15	22-Feb-16	27-Feb-16	131	0	0%																																								
Pier Head Segements - E3A,E3B, E3C & E3D																																																			
Pier Head Segment - E3A (E2a4)																																																			
SE2A4	E3A (E2a4) - Pier Head Segment - Temporary Platform	2	04-Sep-15	0%	2	05-Sep-15	08-Jan-15	09-Jan-15	-180	45	0%																																								
E4A & E4B (E2b - 1/2)																																																			
Pile Cap Works - E4A & E4B																																																			
Pier Works - E4A & E4B																																																			
Pier Works - E4A (E2b2)																																																			
SE2B2	E4A (E2b2) - Seagull Pier Falsework & Scaffolding (1st wall pour)	2	27-Jul-15	0%	2	28-Jul-15	12-Dec-14	13-Dec-14	-169	0	0%																																								
SE2B2	E4A (E2b2) - Seagull Pier Rebar Fixing, Formwork & Prep (1st wall pour)	6	30-Jul-15	0%	6	05-Aug-15	15-Dec-14	20-Dec-14	-169	0	0%																																								
SE2B2	E4A (E2b2) - Seagull Pier Concreting, Curing & Striking, CJ Prep (1st wall pc	3	06-Aug-15	0%	3	08-Aug-15	22-Dec-14	24-Dec-14	-169																																										

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																												
												June				July				August				September																
												25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21											
SE2B2	E4A (E2b2) - Seagull Pier Falsework & Scaffolding (3rd wall pour)	2	24-Aug-15	0%	2	25-Aug-15	09-Jan-15	10-Jan-15	-169	0	0%																													
SE2B2	E4A (E2b2) - Seagull Pier Rebar Fixing, Formwork & Prep (3rd wall pour)	6	26-Aug-15	0%	6	01-Sep-15	12-Jan-15	17-Jan-15	-169	0	0%																													
SE2B2	E4A (E2b2) - Seagull Pier Concreting, Curing & Striking, CJ Prep (3rd wall pc)	3	02-Sep-15	0%	3	04-Sep-15	19-Jan-15	21-Jan-15	-169	0	0%																													
SE2B2	E4A (E2b2) - Seagull Pier Falsework & Scaffolding (top slab, 4th pour)	2	03-Sep-15	0%	2	04-Sep-15	20-Jan-15	21-Jan-15	-169	0	0%																													
SE2B2	E4A (E2b2) - Seagull Pier Rebar Fixing, Formwork & Prep (top slab, 4th pour)	6	05-Sep-15	0%	6	12-Sep-15	22-Jan-15	28-Jan-15	-169	0	0%																													
SE2B2	E4A (E2b2) - Seagull Pier Concreting, Curing & Striking, CJ Prep (top slab, 4	4	14-Sep-15	0%	4	18-Sep-15	29-Jan-15	02-Feb-15	-169	0	0%																													
Pier Works - E4B (E2b1)																																								
SE2B1	E4B (E2b1) - Seagull Pier Falsework & Scaffolding (1st wall pour)	3	12-Aug-15	0%	3	14-Aug-15	26-Jan-15	28-Jan-15	-146	0	0%																													
SE2B1	E4B (E2b1) - Seagull Pier Rebar Fixing, Formwork & Prep (1st wall pour)	6	15-Aug-15	0%	6	22-Aug-15	29-Jan-15	04-Feb-15	-146	0	0%																													
SE2B1	E4B (E2b1) - Seagull Pier Concreting, Curing & Striking, CJ Prep (1st wall pc)	3	24-Aug-15	0%	3	26-Aug-15	05-Feb-15	07-Feb-15	-146	0	0%																													
SE2B1	E4B (E2b1) - Seagull Pier Falsework & Scaffolding (diaphragm slab, 2nd pou	2	27-Aug-15	0%	2	28-Aug-15	09-Feb-15	10-Feb-15	-146	0	0%																													
SE2B1	E4B (E2b1) - Seagull Pier Rebar Fixing, Formwork & Prep (diaphragm slab, :	6	29-Aug-15	0%	6	04-Sep-15	11-Feb-15	17-Feb-15	-146	0	0%																													
SE2B1	E4B (E2b1) - Seagull Pier Concreting, Curing & Striking, CJ Prep (diaphragm	3	05-Sep-15	0%	3	08-Sep-15	18-Feb-15	24-Feb-15	-146	0	0%																													
SE2B1	E4B (E2b1) - Seagull Pier Falsework & Scaffolding (3rd wall pour)	2	10-Sep-15	0%	2	11-Sep-15	25-Feb-15	26-Feb-15	-146	0	0%																													
SE2B1	E4B (E2b1) - Seagull Pier Rebar Fixing, Formwork & Prep (3rd wall pour)	6	12-Sep-15	0%	6	19-Sep-15	27-Feb-15	05-Mar-15	-146	0	0%																													
Pier Head Segements - E4A & E4B																																								
Pier head Segment - E4A (E2b2)																																								
SE2B2	E4A (E2b2) - Pier Head Segment - Temporary Platform	2	19-Sep-15	0%	2	21-Sep-15	03-Feb-15	04-Feb-15	-169	0	0%																													
E5A & E5B (E2c - 1/2)																																								
Pile Cap Works - E5A & E5B																																								
Pile Cap Works																																								
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Inst.Floating Seal & Casing Head Steelwork	6	22-Jun-15	0%	6	30-Jun-15	25-Mar-15	31-Mar-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Install precast shell in position (3 units)	4	02-Jul-15	0%	4	06-Jul-15	01-Apr-15	09-Apr-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Inst.Access & make Watertight	6	07-Jul-15	0%	6	13-Jul-15	10-Apr-15	17-Apr-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Weld Fin Plates / Plug Rebar & Concrete	2	14-Jul-15	0%	2	15-Jul-15	18-Apr-15	20-Apr-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Dewater precast shell / Remove Lifting Frame	2	17-Jul-15	0%	2	18-Jul-15	21-Apr-15	22-Apr-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Pile cut down 4nr	9	20-Jul-15	0%	9	30-Jul-15	24-Apr-15	05-May-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Rebar fixing (1st pour)	8	31-Jul-15	0%	8	08-Aug-15	06-May-15	15-May-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Concreting (First pour)	1	10-Aug-15	0%	1	10-Aug-15	16-May-15	16-May-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - CJ preparation	3	12-Aug-15	0%	3	14-Aug-15	18-May-15	20-May-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Rebar fixing (Final pour)	6	15-Aug-15	0%	6	22-Aug-15	22-May-15	29-May-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Concreting (Final pour)	1	24-Aug-15	0%	1	24-Aug-15	30-May-15	30-May-15	-61	0	0%																													
SE2C0	E5 (E2c1/2) - Marine Pile Cap - Curing incl. CJ preparation	6	25-Aug-15	0%	6	31-Aug-15	01-Jun-15	08-Jun-15	-61	0	0%																													
Pier Works - E5A & E5B																																								
Pier Works - E5A (E2c2)																																								
SE2C2	E5A (E2c2) - Seagull Pier Falsework & Scaffolding (1st wall pour)	3	28-Aug-15	0%	3	31-Aug-15	05-Jun-15	08-Jun-15	-61	0	0%																													
SE2C2	E5A (E2c2) - Seagull Pier Rebar Fixing, Formwork & Prep (1st wall pour)	7	01-Sep-15	0%	7	08-Sep-15	10-Jun-15	19-Jun-15	-61	0	0%																													
SE2C2	E5A (E2c2) - Seagull Pier Concreting, Curing & Striking, CJ Prep (1st wall pc)	3	10-Sep-15	0%	3	12-Sep-15	26-Jun-15	29-Jun-15	-59	0	0%																													
SE2C2	E5A (E2c2) - Seagull Pier Falsework & Scaffolding (diaphragm slab, 2nd pou	2	14-Sep-15	0%	2	15-Sep-15	30-Jun-15	02-Jul-15	-59	0	0%																													
SE2C2	E5A (E2c2) - Seagull Pier Rebar Fixing, Formwork & Prep (diaphragm slab, 2	7	16-Sep-15	0%	7	24-Sep-15	03-Jul-15	10-Jul-15	-59	0	0%																													
Pier Works - E5B (E2c1)																																								
SE2C1	E5B (E2c1) - Seagull Pier Falsework & Scaffolding (1st wall pour)	3	10-Sep-15	0%	3	12-Sep-15	22-Jun-15	26-Jun-15	-61	0	0%																													
SE2C1	E5B (E2c1) - Seagull Pier Rebar Fixing, Formwork & Prep (1st wall pour)	7	14-Sep-15	0%	7	22-Sep-15	27-Jun-15	06-Jul-15	-61	0	0%																													
E6A & E6B (E2d - 1/2)																																								
Foundation Works - E6A & E6B																																								
Foundation Works																																								
GFXX0	E6 (E2d) - Bored Piles (2.50m dia. x 4 nr)	72	10-Feb-15 A	75%	18	13-Jul-15	08-Apr-15	28-Apr-15	-61	0	75%																													
GFXX0	E6 (E2d) - Sonic & Interface Coring	19	14-Jul-15	0%	19	04-Aug-15	29-Apr-15	21-May-15	-61	0	0%																													
GFXX0	E6 (E2d) - Selection of bored pile for Full Depth Coring	6	29-Jul-15	0%	6	04-Aug-15	15-May-15	21-May-15	-61	0	0%																													
GFXX0	E6 (E2d) - Bored Pile Full Depth Coring & Testing	24	05-Aug-15	0%	24	01-Sep-15	22-May-15	19-Jun-15	-61	0	0%																													
GFXX0	E6 (E2d) - Dismantle Temporary Removable Piling Platform	6	02-Sep-15	0%	6	08-Sep-15	22-Jun-15	27-Jun-15	-61	0	0%																													
Pile Cap Works - E6A & E6B																																								
Pile Cap Works																																								
SE2D0	E6 (E2d1/2) - Marine Pile Cap - Inst.Floating Seal & Casing Head Steelwork	6	10-Sep-15	0%	6	16-Sep-15	29-Jun-15	06-Jul-15	-57	0	0%																													
SE2D0	E6 (E2d1/2) - Marine Pile Cap - Install precast shell in position (3 units)	4	18-Sep-15	0%	4	22-Sep-15	07-Jul-15	10-Jul-15	-57	0	0%																													
E7A & E7B (E2e - 1/2)																																								
Foundation Works - E7A & E7B																																								
Foundation Works																																								
GFXX0	E7 (E2e) - Bored Piles (2.50m dia. x 4 nr)	78	10-Feb-15 A	60%	31	29-Jul-15	05-Mar-15	15-Apr-15	-85	0	60%																													
GFXX0	E7 (E2e) - Sonic & Interface Coring	12	29-Jul-15	0%	12	12-Aug-15	16-Apr-15	29-Apr-15	-85	0	0%																													
GFXX0	E7 (E2e) - Selection of bored pile for Full Depth Coring	4	07-Aug-15	0%	4	12-Aug-15	25-Apr-15	29-Apr-15	-85	0	0%																													
GFXX0	E7 (E2e) - Bored Pile Full Depth Coring & Testing	22	12-Aug-15	0%	22	07-Sep-15	30-Apr-15	27-May-15	-85	0	0%																													
GFXX0	E7 (E2e) - Dismantle Temporary Removable Piling Platform	6	07-Sep-15	0%	6	14-Sep-15	28-May-15	03-Jun-15	-85	0	0%																													
Pile Cap Works - E7A & E7B																																								
Pile Cap Works																																								

	Actual Work
	Planned Bar
	Critical Bar
	Milestone

Project ID: J3518DWPPrE1-M25
Layout: J3518-DWP-3MRP Submission - M25
Filter: TASK filters: 3-Month Lookahead, No CC
Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 26 of 33 Pages)
(Progress as of 21-June-15)

Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																											
												June							July							August							September						
												8	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21									
Viaduct F																																							
Viaduct F1																																							
General F1																																							
Milestones																																							
GFXX55:	F2 (F1c) - Start date for piling	0	05-Aug-15	0%	0		04-Feb-15		-145	74	0%																												
GFXX55:	F3 (F1d) - Start date for piling	0	03-Aug-15	0%	0		26-Jun-15		-31	84	0%																												
F1 (F1b)																																							
Foundation Works																																							
GFXX55:	F1 (F1b) - Pre-drilling for Piles (3 nos)	24	27-Jul-15	0%	24	22-Aug-15	29-Jan-15	28-Feb-15	-142	0	0%																												
GFXX55:	F1 (F1b) - Confirm Rockhead Levels	8	24-Aug-15	0%	8	01-Sep-15	02-May-15	11-May-15	-94	58	0%																												
F2 (F1c)																																							
Foundation Works																																							
GFXX55:	F2 (F1c) - Pre-drilling for Piles (3 nos)	24	27-Jun-15	0%	24	25-Jul-15	27-Sep-14	27-Oct-14	-219	0	0%																												
GFXX55:	F2 (F1c) - Confirm Rockhead Levels	8	27-Jul-15	0%	8	04-Aug-15	28-Oct-14	05-Nov-14	-219	0	0%																												
GFXX556	F2 (F1c) - Bored Piles (1.80m dia. x 3 nos)	74	05-Aug-15	0%	74	02-Nov-15	06-Nov-14	03-Feb-15	-219	0	0%																												
F3 (F1d)																																							
Foundation Works																																							
GFXX55:	F3 (F1d) - Pre-drilling for Piles (3 nos)	24	02-Mar-15 A	45.83%	13	07-Jul-15	16-Dec-14	02-Jan-15	-148	0	0%																												
GFXX55:	F3 (F1d) - Confirm Rockhead Levels	8	08-Jul-15	0%	8	16-Jul-15	15-Jan-15	23-Jan-15	-138	14	0%																												
GFXX557	F3 (F1d) - Bored Piles (1.80m dia. x 3 nos)	84	03-Aug-15	0%	84	11-Nov-15	24-Jan-15	11-May-15	-152	0	0%																												
Viaduct F2																																							
General F2																																							
Milestones																																							
GFXX56:	F6 (F2d) - Start date for piling	0	03-Aug-15	0%	0		18-Apr-15		-87	72	0%																												
GFXX56:	F5 (F2c) - Start date for piling	0	03-Aug-15	0%	0		06-Jul-15		-24	72	0%																												
F4 (F2b)																																							
Foundation Works																																							
GFXX56:	F4 (F2b) - Pre-drilling for piles (3 nos)	24	08-Jul-15	0%	24	04-Aug-15	03-Jan-15	30-Jan-15	-148	0	0%																												
GFXX56:	F4 (F2b) - Confirm Rockhead Levels	8	05-Aug-15	0%	8	13-Aug-15	01-Apr-15	14-Apr-15	-100	62	0%																												
F5 (F2c)																																							
Foundation Works																																							
GFXX56:	F5 (F2c) - Pre-drilling for Piles (3 nos)	24	31-Mar-15 A	83.33%	4	25-Jun-15	29-Dec-14	02-Jan-15	-139	0	0%																												
GFXX56:	F5 (F2c) - Confirm Rockhead Levels	8	26-Jun-15	0%	8	06-Jul-15	03-Jan-15	12-Jan-15	-139	23	0%																												
GFXX564	F5 (F2c) - Bored Piles (1.80m dia. x 3 nos)	72	03-Aug-15	0%	72	28-Oct-15	13-Jan-15	14-Apr-15	-162	0	0%																												
F6 (F2d)																																							
Foundation Works																																							
GFXX56:	F6 (F2d) - Confirm Rockhead Levels	8	15-Apr-15 A	62.5%	3	24-Jun-15	13-Jan-15	16-Jan-15	-127	32	0%																												
GFXX565	F6 (F2d) - Bored Piles (1.80m dia. x 3 nos)	72	03-Aug-15	0%	72	28-Oct-15	16-Jan-15	18-Apr-15	-159	0	0%																												
Viaduct F3																																							
General F3																																							
Milestones																																							
GFXX57:	F9 (F3d) - Start date for piling	0	03-Aug-15	0%	0		15-Jun-15		-40	84	0%																												
GFXX57:	F10 (F3c) - Start date for piling	0	04-Aug-15	0%	0		18-Aug-15		12	72	0%																												
F9 (F3d-1/F3d-2)																																							
Foundation Works - F9 (F3d-1/F3d-2)																																							
Foundation Works																																							
GFXX57:	F9 (F3d) - Pre-drilling for Piles (4 nos)	24	09-Mar-15 A	83.33%	4	25-Jun-15	14-Nov-14	18-Nov-14	-175	0	0%																												
GFXX57:	F9 (F3d) - Confirm Rockhead Levels	8	26-Jun-15	0%	8	06-Jul-15	19-Nov-14	27-Nov-14	-175	23	0%																												
GFXX575	F9 (F3d) - Bored Piles (1.80m dia. x 4 nos)	84	03-Aug-15	0%	84	11-Nov-15	28-Nov-14	12-Mar-15	-198	0	0%																												
F10 (F3c-1/F3c-2)																																							
Foundation Works - Pier F10																																							
Foundation Works																																							
GFXX57:	F10 (F3c) - Pre-drilling for Piles (4 nos)	24	26-Jun-15	0%	24	24-Jul-15	03-Feb-15	05-Mar-15	-113	0	0%																												
GFXX57:	F10 (F3c) - Confirm Rockhead Levels	8	25-Jul-15	0%	8	03-Aug-15	13-May-15	22-May-15	-60	0	0%																												
GFXX574	F10 (F3c) - Bored Piles (1.80m dia. x 4 nos)	72	04-Aug-15	0%	72	29-Oct-15	22-May-15	18-Aug-15	-60	0	0%																												
Viaduct F5																																							
General F5																																							
Milestones																																							
GFXX58:	F13 (F5d) - Start date for piling	0	05-Aug-15	0%	0		11-Nov-15		81	84	0%																												
F13 (F5d)																																							
Foundation Works																																							
GFXX58:	F13 (F5d) - Pre-drilling for Piles (3 nos)	24	27-Jun-15	0%	24	25-Jul-15	05-Jan-15	31-Jan-15	-139	0	0%																												
GFXX58:	F13 (F5d) - Confirm Rockhead Levels	8	27-Jul-15	0%	8	04-Aug-15	02-Feb-15	10-Feb-15	-139	0	0%																												
GFXX589	F13 (F5d) - Bored Piles (1.80m dia. x 3 nos)	84	05-Aug-15	0%	84	13-Nov-15	11-Feb-15	29-May-15	-139	0	0%																												
F14 (F5c)																																							
Foundation Works																																							
GFXX58:	F14 (F5c) - Pre-drilling for Piles (3 nos)	24	25-Jun-15	0%	24	23-Jul-15	19-Mar-15	20-Apr-15	-77	0	0%																												

■ Actual Work
■ Planned Bar
■ Critical Bar
◆ ◆ Milestone

Project ID: J3518DWPPrE1-M25
 Layout: J3518-DWP-3MRP Submission - M25
 Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.

Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 29 of 33 Pages)
(Progress as of 21-June-15)

Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																				
												June					July				August				September							
												8	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21					
Bridge E1 Superstructure																																
Milestones																																
Milestones Ready for PH Segment Erection																																
E100020	Pier C1 (C4e) ready for Viaduct E1 PH segment erection	0		0%	0	06-Jul-15		31-Mar-15	-65	0	0%																					
E100030	Pier D1 (D4f) ready for Viaduct E1 PH segment erection	0		0%	0	04-Jul-15		22-Apr-15	-50	18	0%																					
E100050	Pier E1D (E1a1) ready for Viaduct E1 PH segment erection	0		0%	0	05-Sep-15		17-Feb-16	127	0	0%																					
E100070	Pier E1B (E1a3) ready for Viaduct E1 PH segment erection	0		0%	0	02-Jul-15		19-Mar-15	-73	0	0%																					
E100080	Pier E1A (E1a4) ready for Viaduct E1 PH segment erection	0		0%	0	22-Jun-15		15-Dec-18	973	973	0%																					
E100090	Pier E2D (E1b1) ready for Viaduct E1 PH segment erection	0		0%	0	05-Sep-15		22-Feb-16	132	0	0%																					
E100100	Pier E2C (E1b2) ready for Viaduct E1 PH segment erection	0		0%	0	05-Sep-15		16-Mar-15	-127	96	0%																					
E100110	Pier E2B (E1b3) ready for Viaduct E1 PH segment erection	0		0%	0	12-Sep-15		08-Jan-15	-187	0	0%																					
E100120	Pier E2A (E1b4) ready for Viaduct E1 PH segment erection	0		0%	0	06-Jul-15		13-Dec-14	-151	0	0%																					
E100130	Pier E3D (E2a1) ready for Viaduct E1 PH segment erection	0		0%	0	14-Sep-15		27-Feb-16	131	70	0%																					
E100140	Pier E3C (E2a2) ready for Viaduct E1 PH segment erection	0		0%	0	14-Sep-15		24-Feb-15	-150	59	0%																					
E100150	Pier E3B (E2a3) ready for Viaduct E1 PH segment erection	0		0%	0	03-Sep-15		30-Jan-15	-160	56	0%																					
E100160	Pier E3A (E2a4) ready for Viaduct E1 PH segment erection	0		0%	0	03-Sep-15		07-Jan-15	-180	0	0%																					
Milestones Ready for Deck Segment Erection																																
E100070	Pier E1B (E1a3) ready for Viaduct E1 deck segment erection	0		0%	0	13-Aug-15		04-May-15	-73	150	0%																					
E100080	Pier E1A (E1a4) ready for Viaduct E1 deck segment erection	0		0%	0	01-Aug-15		02-Jan-15	-158	54	0%																					
E100120	Pier E2A (E1b4) ready for Viaduct E1 deck segment erection	0		0%	0	15-Aug-15		23-Jan-15	-151	61	0%																					
Bridge E2 Superstructure																																
Milestones																																
Milestones Ready for PH Segment Erection																																
E200010	Pier E3D (E2a1) ready for Viaduct E2 PH segment erection	0		0%	0	14-Sep-15		27-Feb-16	131	70	0%																					
E200020	Pier E3C (E2a2) ready for Viaduct E2 PH segment erection	0		0%	0	14-Sep-15		24-Feb-15	-150	59	0%																					
E200030	Pier E3B (E2a3) ready for Viaduct E2 PH segment erection	0		0%	0	03-Sep-15		30-Jan-15	-160	56	0%																					
E200040	Pier E3A (E2a4) ready for Viaduct E2 PH segment erection	0		0%	0	03-Sep-15		07-Jan-15	-180	0	0%																					
E200060	Pier E4A (E2b2) ready for Viaduct E2 PH segment erection	0		0%	0	18-Sep-15		04-Feb-15	-167	2	0%																					
At-Grade Roadworks & Other Works along NLH																																
Viaduct A Slope Works																																
Slope 9SE-B/FR8																																
GFXX485	9SE-B/FR8 - Protective Fencing	46	22-Jun-15	0%	46	21-Aug-15	10-Sep-15	09-Nov-15	61	0	0%																					
GFXX490	9SE-B/FR8 - Mobilization for Mini Pile	3	22-Aug-15	0%	3	25-Aug-15	10-Nov-15	12-Nov-15	61	0	0%																					
GFXX491	9SE-B/FR8 - Installation of Mini Pile (118 No.)	148	26-Aug-15	0%	148	29-Feb-16	13-Nov-15	20-May-16	61	0	0%																					
At-Grade Roadworks along NLH Westbound																																
RW10003	NLH W/B (Viaduct C) - Gantry Footing (GT326, GT327, GT328) - Verge (KD:	54	05-May-15 A	40%	32	04-Aug-15	29-Jun-15	08-Aug-15	5	0	0%																					
RW10005	NLH W/B (Viaduct C) - Implement TTM - Verge for Gantry Footings (GT324,	2	04-Aug-15*	0%	2	06-Aug-15	10-Aug-15	12-Aug-15	5	0	0%																					
RW10007	NLH W/B (Viaduct C) - Gantry Footing (GT324, GT325) - Verge (KD3)	36	06-Aug-15	0%	36	22-Sep-15	13-Aug-15	26-Sep-15	5	0	0%																					
At-Grade Roadworks along NLH Eastbound																																
RW21000	NLH E/B (Viaduct A) - Implement TTM - Verge for Slope Works & Gantry Fo	2	22-Aug-15	0%	2	24-Aug-15	12-Mar-16	14-Mar-16	161	0	0%																					
RW21001	NLH E/B (Viaduct A) - Gantry Footing (GT319, GT320) - Verge (KD5)	36	25-Aug-15	0%	36	09-Oct-15	15-Mar-16	03-May-16	161	0	0%																					
At-Grade Roadworks and Other Works along Cheung Tung Road																																
Re-alignment of Cheung Tung Road adjacent to Viaduct B																																
RP00040	Remove equipment in existing ESS	10	22-Jun-15	0%	10	06-Jul-15	28-Apr-15	09-May-15	-38	0	0%																					
RP00050	Demolish existing ESS	6	07-Jul-15	0%	6	13-Jul-15	11-May-15	18-May-15	-38	84	0%																					
RW50020	CTR Re-alignment adj. to Via.B - Diversion of utilities (Gas, DN1000, power	177	12-Jan-15 A	43.5%	100	31-Oct-15	09-Jan-15	18-May-15	-122	0	0%																					
Viaduct B Slope Works																																
Slope 9SE-B/C9																																
Zone A & B																																
SWVB11	9SE-B/C9 Zone A1 - Form 375UC @ +5.5	12	16-Mar-15 A	80%	2	26-Jun-15	13-Dec-18	15-Dec-18	971	971	80%																					
SWVB13	9SE-B/C9 Zone A2 & B - Form 375UC @ +5.5	12	16-Mar-15 A	80%	2	26-Jun-15	13-Dec-18	15-Dec-18	971	971	80%																					
Zone C & D																																
SWVB15	9SE-B/C9 Zone C & D - Form 375UC @ +5.5	18	16-Mar-15 A	80%	4	27-Jun-15	12-Dec-18	15-Dec-18	969	969	80%																					
SWVB16	9SE-B/C9 Zone C & D - Install Geo. Instru. & Baseline Monitoring	30	22-Jun-15	0%	30	31-Jul-15	12-Nov-18	15-Dec-18	943	943	0%																					
Slope 9SE-B/F85																																
SWVB4030	9SE-B/F85 - Form UC	12	22-Jun-15	0%	12	08-Jul-15	26-Sep-15	12-Oct-15	74	0	0%																					
SWVB4035	9SE-B/F85 - Install Geo. Instru. & Baseline Monitoring	30	09-Jul-15	0%	30	15-Aug-15	13-Oct-15	19-Nov-15	74	0	0%																					
SWVB4040	9SE-B/F85 - Hydroseeding	12	17-Aug-15	0%	12	31-Aug-15	20-Nov-15	03-Dec-15	74	196	0%																					
Re-alignment of Cheung Tung Road adjacent to Viaduct C																																
West Portion																																
RW61000	Realign CTR (West of Abut. C) - Site Clearance	42	03-Sep-14 A	76.19%	10	06-Jul-15	13-Apr-15	25-Apr-15	-49	9	100%																					
RW61010	Realign CTR (West of Abut. C) - Road drainage works	60	15-Jan-15 A	80%	12	17-Aug-15	28-Aug-15	11-Sep-15	20	0	80%																					
RW61020	Realign CTR (West of Abut. C) - Utility diversion	90	24-Mar-15 A	30%	63	19-Oct-15	02-Sep-15	21-Nov-15	27	918	30%																					

<ul style="list-style-type: none"> ■ Actual Work ■ Planned Bar ■ Critical Bar ◆ Milestone 	Project ID: J3518DWPPrE1-M25 Layout: J3518-DWP-3MRP Submission - M25 Filter: TASK filters: 3-Month Lookahead, No CC Milestones, No Level of Effort.	Tuen Mun - Chek Lap Kok Link - Southern Connection 3-Month Rolling Programme (Page 32 of 33 Pages) (Progress as of 21-June-15)			Date	Revision	Checked	Approved	DWG. No.: J3518/GCL/PGM/3MRP-M25
					29-May-15		WY		
					02-Jul-15		HF	KWY	

Activity ID	Activity Name	Orig. Dum.	Act. Start / FC Early Start	Duration % Complete	Rem. Dum.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	Physical % Complete	2015																																
												June							July							August							September											
												B	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21														
RW61030	Realign CTR (West of Abut. C) - Sub-base work	48	18-Aug-15	0%	48	19-Oct-15	12-Sep-15	13-Nov-15	20	0	0%																																	
RW61082	Realign CTR (West of Abut. C) - Road formation	48	20-Nov-14 A	60.42%	19	17-Jul-15	28-Mar-15	25-Apr-15	-58	0	30%																																	
East Portion																																												
RW60000	Realign CTR (East of Abut. C) - Site Clearance	48	23-Feb-15 A	91.67%	4	27-Jun-15	21-Apr-15	25-Apr-15	-43	15	0%																																	
RW60005	Realign CTR (East of Abut. C) - Road formation	66	18-Jul-15	0%	66	10-Oct-15	27-Apr-15	27-Jul-15	-58	0	0%																																	
RW60010	Realign CTR (East of Abut. C) - Road drainage works	60	26-Aug-15	0%	60	11-Nov-15	06-Jun-15	27-Aug-15	-58	0	0%																																	
ESS Sub-Station																																												
RP10030	Inst.Eqpt. & Testing / commissioning of new ESS	42	05-Mar-15 A	100%	0	21-May-15 A					100%																																	
RP10040	Removal of equipment in existing ESS	10	29-May-15 A	100%	0	19-Jun-15 A					100%																																	
RP10050	Demolish the existing ESS	6	22-Jun-15	0%	6	30-Jun-15	21-Jul-15	27-Jul-15	21	79	0%																																	
Natural Terrain Hazard Mitigation Works																																												
NTHM Works - West Portion																																												
Check Dam no. 1 (CD1)																																												
GFX501	CD1 - Mobilization of rig for Tie Back	6	22-Jun-15	0%	6	30-Jun-15	01-Sep-15	07-Sep-15	54	0	0%																																	
GFX502	CD1 - Installation of Tie Back (20nos.)	44	02-Jul-15	0%	44	26-Aug-15	08-Sep-15	05-Nov-15	54	0	0%																																	
GFX503	CD1 - Selection of load test	12	27-Aug-15	0%	12	10-Sep-15	09-Dec-15	22-Dec-15	82	0	0%																																	
GFX504	CD1 - Loading Test	12	11-Sep-15	0%	12	25-Sep-15	23-Dec-15	08-Jan-16	82	28	0%																																	
Check Dam no. 2 (CD2)																																												
GFX506	CD2 - Mobilization of rig for MiniPile	6	22-Jun-15	0%	6	30-Jun-15	21-Aug-15	27-Aug-15	45	0	0%																																	
GFX507	CD2 - Installation of MiniPile (10nos.)	35	02-Jul-15	0%	35	14-Aug-15	28-Aug-15	12-Oct-15	45	0	0%																																	
GFX508	CD2 - Mobilization of rig for Tie Back	6	27-Aug-15	0%	6	02-Sep-15	06-Nov-15	12-Nov-15	54	0	0%																																	
GFX509	CD2 - Installation of Tie Back (14nos.)	22	03-Sep-15	0%	22	02-Oct-15	13-Nov-15	08-Dec-15	54	0	0%																																	
Check Dam no. 3 (CD3)																																												
GFX513	CD3 - Mobilization of rig for MiniPile	6	15-Aug-15	0%	6	22-Aug-15	13-Oct-15	20-Oct-15	45	0	0%																																	
GFX514	CD3 - Installation of MiniPile (15nos.)	59	24-Aug-15	0%	59	07-Nov-15	22-Oct-15	02-Jan-16	45	0	0%																																	
At grade Roadworks and Other Works at Southern Landfall																																												
RW30005	South Landfall - Initial record survey	12	22-Jun-15	0%	12	08-Jul-15	23-Jul-15	06-Aug-15	23	27	0%																																	
RW30010	South Landfall - Mobilisation for Portion B Works	24	12-Aug-15	0%	24	11-Sep-15	07-Aug-15	05-Sep-15	-4	0	0%																																	
RW30014	South Landfall - DN300 Fresh water main works installation & connection (Pc	60	11-Sep-15	0%	60	27-Nov-15	28-Jan-16	15-Apr-16	110	0	0%																																	
Watermains & All Assoc Works from Tung Chung to Southern Landfall																																												
WM00120	Lay DN450 Fresh Water Main along re-aligned CTR (app. 500 m at 12m/day)	48	22-Apr-15 A	19%	39	12-Aug-15	11-Mar-15	02-May-15	-73	0	19%																																	
WM00150	Lay DN450 watermain from Tung Chung to realigned CTR (1st 500m - 2 work	50	12-Aug-15	0%	50	16-Oct-15	18-May-16	27-Jul-16	216	0	0%																																	
Pressure Testing																																												
TC00010	Pressure Test DN450 Fresh Water Main along re-aligned CTR (app. 520 m)	12	12-Aug-15	0%	12	27-Aug-15	04-May-15	18-May-15	-73	49	0%																																	

	Actual Work
	Planned Bar
	Critical Bar
	Milestone

Project ID: J3518DWPrE1-M25
Layout: J3518-DWP-3MRP Submission - M25
Filter: TASK filters: 3-Month Lookahead, No CC
Milestones, No Level of Effort.

**Tuen Mun - Chek Lap Kok Link - Southern Connection
3-Month Rolling Programme (Page 33 of 33 Pages)
(Progress as of 21-June-15)**

Date	Revision	Checked	Approved
29-May-15		WY	
02-Jul-15		HF	KWY

DWG. No.:
J3518/GCL/PGM/3MRP-M25

Appendix C

Environmental Mitigation and Enhancement Measure Implementation Schedules

(Adopted from: CINOTECH (2011) Agreement No.
CE35/2011 EP Baseline Environmental Monitoring for
Hong Kong-Zhuhai-Macao Bridge Tuen Mun-Chek Lap
Kok Link - Investigation. Updated EM&A Manual for
Tuen Mun-Chek Lap Kok Link)

*Contract No. HY/2012/07
Tuen Mun – Chek Lap Kok Link
Southern Connection Viaduct Section
Environmental Mitigation and Enhancement Measure Implementation Schedule*

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
AIR QUALITY									
4.8.1	3.8	An effective watering programme of eight daily watering with complete coverage, is estimated to reduce by 50%. This is recommended for all areas in order to reduce dust levels to a minimum;	All areas / throughout construction period	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		✓
4.8.1	3.8	The Contractor shall, to the satisfaction of the Engineer, install effective dust suppression measures and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver, dust levels are kept to acceptable levels.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	The Contractor shall not burn debris or other materials on the works areas.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	In hot, dry or windy weather, the watering programme shall maintain all exposed road surfaces and dust sources wet.	All unpaved haul roads / throughout construction period in hot, dry or windy weather	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		<>
4.8.1	3.8	Where breaking of oversize rock/concrete is required, watering shall be implemented to control dust. Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<>
4.8.1	3.8	During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
4.8.1	3.8	Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	No earth, mud, debris, dust and the like shall be deposited on public roads. Wheel washing facility shall be usable prior to any earthworks excavation activity on the site.	All site exits / throughout construction period	Contractor	TMEIA Avoid dust		Y		↔
4.8.1	3.8	Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable.	All exposed surfaces / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		✓
4.8.1	3.8	All stockpiles of aggregate or spoil shall be enclosed or covered and water applied in dry or windy condition.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		↔
4.11	Section 3	EM&A in the form of 1 hour and 24 hour dust monitoring and site audit	All representative existing ASRs / throughout construction period	Contractor	EM&A Manual		Y		✓
NOISE									
5.11	Section 4	Noise monitoring	All existing representative sensitive receivers / during North Lantau Viaduct construction	Contractor	EM&A Manual		Y		✓
WATER QUALITY									
<i>General Marine Works</i>									
6.10	-	Bored piling to be undertaken within a metal casing.	Marine viaducts of TM-CLKL and HKLR/ bored piling	Contractor	TM-EIAO		Y		✓
6.10	-	Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		<>
6.10	-	Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	-	Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		<>
6.10	-	Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	-	All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		✓
6.10	-	The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.	All areas/ throughout construction period	Contractor	Marine Fill Committee Guidelines. DASO permit conditions.		Y		<>
<i>Temporary Staging work</i>									
	5.2	Regular inspection for the accumulation of floating refuse and collection of floating refuse if required	During temporary staging works	Contractor			Y		✓
	5.2	Provision of temporary drainage system on the temporary staging for collection of construction site runoff to allow appropriate treatment before discharge into the sea	During temporary staging works	Contractor			Y		✓
	5.2	Wastewater generated from construction works such as bored / drilling water will be collected, treated, neutralized and de-silted through silt trap or sedimentation tank before disposal	During temporary staging works	Contractor			Y		✓
	5.2	One additional water quality monitoring station is	During temporary	Contractor			Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		proposed at station SR4a In case elevated SS or turbidity is identified during the water quality monitoring, the source of pollution will be tracked down and be removed as soon as possible. In case depletion of dissolved oxygen is identified, artificial aeration will be arranged at the monitoring station SR4a,	staging works						
<i>Land Works</i>									
6.10	-	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Sewage effluent and discharges from on- site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Temporary access roads should be surfaced with crushed stone or gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	5.8	Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	The Contractor shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	All areas/ throughout construction period	Contractor	TM-EIAO Waste Disposal Ordinance		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
6.10	-	All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		✓
6.10	-	Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10	-	Roadside gullies to trap silt and grit shall be provided prior to discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals.	Roadside/design and operation	Design Consultant/ Contractor	TM-EIAO	Y		Y	✓
6.10	Section 5	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Y		✓
<i>Water Quality Monitoring</i>									
6.10	Section 5	Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen. Nutrients and metal parameters shall also be measured for Mf sediment operations (only HKBCF and HKLR required handling of Mf sediment) during baseline, backfilling and post construction period. One year operation phase water quality monitoring at designated stations	Designated monitoring stations as defined in EM&A Manual, Section 5/ Before, through-out marine construction period, post construction and monthly operational phase water quality monitoring for a year.	Contractor	EM&A Manual		Y	Y	✓
ECOLOGY									
8.14	6.3	Specification for and implement pre, during and post construction dolphin abundance monitoring.	All Areas/Detailed Design/ during construction works/post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	✓
8.14	6.3	Specification for bored piling monitoring	Detailed Design	Design Consultant	TMEIA	Y			✓
8.14	6.3	Implement any recommendations of the bored piling monitoring	Southern marine viaduct/Throughout	Contractor	TMEIA		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
			construction during bored piling						
8.14	6.3,6.5	Avoidance of peak CWD calving season in May and June for driving of metal caissons during bored piling works	Southern marine viaduct/ May and June during bored piling	Contractor	TMEIA		Y		n/a
8.14	6.3,6.5	Specification and implementation of 250m dolphin exclusion zone.	All marine bored piling and temporary staging works areas/Detailed Design/ during all marine bored piling and temporary staging works	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.15	6.3, 6.5	Specification and deployment of an artificial reef of an area of 3,600m2 in an area where fishing activities are prohibited.	Area of prohibited fishing activities/Detailed Design/ towards end of construction period	TM-CLKL/ HKBCF Design Consultant/ TM-CLKL/ HKBCF Contractor	TMEIA	Y		Y	AFCD
8.14	6.3, 6.5	Specification and implementation of marine vessel control specifications	All areas/Detailed Design/ during construction works	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.14	6.3, 6.5	Design and implementation of acoustic decoupling methods for marine bored piling and the whole lifespan of temporary staging works.	All areas/ Detailed Design/ during marine bored piling and temporary staging works	Design Consultant/ Contractor	TMEIA	Y	Y		<>
8.15	6.3, 6.4	Pre-construction phase survey and coral translocation	Tai Ho Wan (donar site) and Yam Tsui Wan (receptor site) /Detailed Design/Prior to construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
8.15	6.5	Audit coral translocation success	Yam Tsui Wan (receptor site)/Post translocation	Contractor	TMEIA		Y		✓
7.13	6.5	Undertaken gabion wall works in Stream NL1 in the dry season	North Lantau slope works/ dry	Contractor	TMEIA		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
			season/construction phase						
7.13	6.5	The loss of habitat shall be supplemented by enhancement planting in accordance with the landscape mitigation schedule.	All areas / As soon as accessible	Contractor	TMEIA		Y		AFCD/LCSD
7.13	6.5	Spoil heaps shall be covered at all times.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Avoid damage and disturbance to the remaining and surrounding natural habitat	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Placement of equipment in designated areas within the existing disturbed land	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Disturbed areas to be reinstated immediately after completion of the works.	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
7.13	6.5	Construction activities should be restricted to the proposed works boundary	All areas / Throughout construction period	Contractor	TMEIA		Y		✓
LANDSCAPE AND VISUAL									
10.9	7.6	Round angle, patterned finishes, and oval shaped pier were considered in the viaduct design, and further details will be developed under ACABAS submission (DM3)	All areas/detailed design	Design Consultant	TMEIA	Y			n/a
10.9	7.6	Details of the street furniture will be developed in the detailed design stage (DM4)	All areas/detailed design	Design Consultant	TMEIA	Y			n/a
10.9	7.6	Aesthetic design of the viaduct, retaining wall and other structures will be developed under ACABAS submission (DM5)	All areas/detailed design	Design Consultant	TMEIA	Y			n/a
10.9	7.6	Existing trees on boundary of the Project Area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		protection measures will be detailed at Tree Removal Application stage) (CM1)							
10.9	7.6	Trees unavoidably affected by the works shall be transplanted where practical. Trees will be transplanted straight to their final receptor site and not held in a temporary nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme (CM2)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Hillside and roadside screen planting to proposed roads, associated structures and slope works (CM3).	All areas/ detailed design/ during construction/post construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone) (CM4)	All areas/ detailed design/ during construction/post construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Screening of construction works by hoardings around works area in visually unobtrusive colours, to screen works (CM5)	All areas/ detailed design/ during construction/post construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Control night-time lighting and glare by hooding all lights (CM6)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		n/a
10.9	7.6	Ensure no run-off into water body adjacent to the Project Area (CM7)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		<>
10.9	7.6	Avoidance of excessive height and bulk of buildings and structures (CM8)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Recycle/Reuse all felled trees and vegetation, e.g. mulching (CM9)	All areas/ detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
10.9	7.6	Compensatory tree planting shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006 (CM10).	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y		✓
10.9	7.6	Re-vegetation of affected woodland/shrubland with native species (OM1)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	AFCD/HyD/LCSD
10.9	7.6	Tall buffer screen tree / shrub / climber planting should be incorporated to soften hard engineering structures and facilities (OM2)	All areas/detailed design/ during construction/ during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	HyD/LCSD
10.9	7.6	Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimise unnecessary light spill (OM3)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	HyD/LCSD
10.9	7.6	Structure, ornamental tree / shrub / climber planting should be provided along roadside amenity strips, central dividers and newly formed slopes to enhance the townscape quality and further greenery enhancement (OM4)	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	HyD/LCSD
10.9	7.6	Aesthetically pleasing design (visually unobtrusive and non-reflective) as regard to the form, material and finishes	All areas/detailed design/ during construction / during operation	Design Consultant/ Contractor	TMEIA	Y	Y	Y	HyD
WASTE									
12.6		The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		✓
12.6		The Contractor shall prepare and implement a Waste	Contract mobilisation	Contractor	TMEIA, Works		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. A recording system for the amount of waste generated, recycled and disposed (locations) should be established.			Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material				
12.6		The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures including waste reduction, reuse and recycling.	Contract Mobilisation	Contractor	TMEIA		Y		✓
12.6	8.1	The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Rock armour from the existing seawall should be reused on the new sloping seawall as far as possible	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	No waste shall be burnt on site.	All areas / throughout construction period	Contractor	TMEIA		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
12.6	8.1	Provisions to be made in contract documents to allow and promote the use of recycled aggregates where appropriate.	Detailed Design	Design Consultant	TMEIA	Y			✓
12.6	8.1	The Contractor shall be prohibited from disposing of C&D materials at any sensitive locations. The Contractor should propose the final disposal sites in the EMP and WMP for approval before implementation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Stockpiled material shall be covered by tarpaulin and /or watered as appropriate to prevent windblown dust/ surface run off.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Excavated material in trucks shall be covered by tarpaulins to reduce the potential for spillage and dust generation.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Standard formwork or pre-fabrication should be used as far as practicable so as to minimise the C&D materials arising. The use of more durable formwork/plastic facing for construction works should be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should avoid over-ordering and wastage.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	The Contractor should recycle as many C&D materials (this is a waste section) as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by	All areas / throughout construction period	Contractor	TMEIA		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.							
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	<p>Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows:</p> <ul style="list-style-type: none"> - suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; - Having a capacity of <450L unless the specifications have been approved by the EPD; and - Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations. Clearly labelled and used solely for the storage of chemical wastes; - Enclosed with at least 3 sides; - Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; - Adequate ventilation; - Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and - Incompatible materials are adequately separated. 	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	Waste oils, chemicals or solvents shall not be disposed of to drain,	All areas / throughout	Contractor	TMEIA		Y		✓

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
			construction period						
12.6	8.1	Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Night soil should be regularly collected by licensed collectors.	All areas / throughout construction period	Contractor	TMEIA		Y		n/a
12.6	8.1	General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins shall be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws. In addition, general refuse shall be cleared daily and shall be disposed of to the nearest licensed landfill or refuse transfer station. Burning of refuse on construction sites is prohibited.	All areas / throughout construction period	Contractor	TMEIA		Y		<>
12.6	8.1	All waste containers shall be in a secure area on hardstanding;	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	All areas / throughout construction period	Contractor	TMEIA		Y		✓
12.6	8.1	Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc should be provided on-site.	Site Offices/ throughout construction period	Contractor	TMEIA		Y		<>
12.6	Section 8	EM&A of waste handling, storage, transportation, disposal procedures and documentation through	All areas / throughout	Contractor	EM&A Manual		Y		<>

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
		the site audit programme shall be undertaken.	construction period						
CULTURAL HERITAGE									
11.8	Section 9	EM&A in the form of audit of the mitigation measures	All areas / throughout construction period	Highways Department	EIAO-TM		Y		n/a

Notes:

Legend: D=Design, C=Construction, O=Operation

Note: Funding Agent for all mitigation measures will be the Highways Department of the Hong Kong SAR Government

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

Appendix D

Summary of Action and Limit Levels

Table D1 *Action and Limit Levels for 1-hour and 24-hour TSP*

Parameters	Action	Limit
24 Hour TSP Level in $\mu\text{g}/\text{m}^3$	ASR9A/ASR8A = 178 ASR9C/ASR8/ASR9 = 178	260
1 Hour TSP Level in $\mu\text{g}/\text{m}^3$	ASR9A/ASR8A = 394 ASR9C/ASR8/ASR9 = 393	500

Table D2 *Action and Limit Levels for Construction Noise (0700-1900 hrs of normal weekdays)*

Time Period	Action	Limit
0700-1900 hrs on normal weekdays	When one documented complaint is received	75* dB(A)

Table D3 *Action and Limit Levels for Water Quality*

Parameter	Action Level#	Limit Level#
DO in mg/L (a)	<u>Surface and Middle</u> 5.0 mg/L	<u>Surface and Middle</u> 4.2 mg/L
	<u>Bottom</u> 4.7 mg/L	<u>Bottom</u> 3.6 mg/L
Turbidity in NTU (Depth-averaged (b),(c))	120% of upstream control station at the same tide of the same day and 95%-ile of baseline data, i.e., 27.5 NTU	130% of upstream control station at the same tide of the same day and 99%-ile of baseline data, i.e., 47.0 NTU
SS in mg/L (Depth-averaged (b),(c))	120% of upstream control station at the same tide of the same day and 95%-ile of baseline data, i.e., 23.5 mg/L	130% of upstream control station at the same tide of the same day and 10mg/L for WSD Seawater Intakes at Tuen Mun and 99%-ile of baseline data, i.e., 34.4 mg/L

Notes:

Baseline data: data from HKZMB Baseline Water Quality Monitoring between 6 and 31 October 2011.

- (a) For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
- (b) "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths
- (c) For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
- (d) All figures given in the table are used for reference only, and EPD may amend the figures whenever it is considered as necessary

Parameter	Action Level#	Limit Level#
(e)	The 1%-ile of baseline data for surface and middle DO is 4.2 mg/L, whilst for bottom DO is 3.6 mg/L.	

Table D4 *Action and Limit Levels for Impact Dolphin Monitoring*

	North Lantau Social Cluster	
	NEL	NWL
Action Level	STG < 70% of baseline & ANI < 70% of baseline	STG < 70% of baseline & ANI < 70% of baseline
Limit Level	[STG < 40% of baseline & ANI < 40% of baseline] and STG < 40% of baseline & ANI < 40% of baseline	
Notes:		
1.	STG means quarterly encounter rate of number of dolphin sightings, which is 6.00 in NEL and 9.85 in NWL during the baseline monitoring period	
2.	ANI means quarterly encounter rate of total number of dolphins, which is 22.19 in NEL and 44.66 in NWL during the baseline monitoring period	
3.	For North Lantau Social Cluster, AL will be trigger if NEL or NWL fall below the criteria; LL will be triggered if both NEL and NWL fall below the criteria.	

Table D5 *Derived Value of Action Level (AL) and Limit Level (LL)*

	North Lantau Social Cluster	
	NEL	NWL
Action Level	STG < 4.2 & ANI < 15.5	STG < 6.9 & ANI < 31.3
Limit Level	[STG < 2.4 & ANI < 8.9] and [STG < 3.9 & ANI < 17.9]	

Appendix E

EM&A Monitoring Schedules

**HY/2012/07 - Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Marine Water Quality Monitoring (WQM) Schedule (Jun 15)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun
		WQM Mid-Ebb 12:51 (11:06 - 14:36) Mid-Flood 19:46 (18:01 - 21:31)		WQM Mid-Ebb 7:15 (05:30 - 09:00) Mid-Flood 14:05 (12:20 - 15:50)		WQM Mid-Flood 8:39 (06:54 - 10:24) Mid-Ebb 15:30 (13:45 - 17:15)
07-Jun	08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun
		WQM Mid-Flood 11:35 (09:50 - 13:20) Mid-Ebb 18:08 (16:23 - 19:53)		WQM Mid-Ebb 8:53 (07:08 - 10:38) Mid-Flood 14:32 (12:47 - 16:17)		WQM Mid-Ebb 10:41 (08:56 - 12:26) Mid-Flood 17:00 (15:15 - 18:45)
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
		WQM Mid-Ebb 12:52 (11:07 - 14:37) Mid-Flood 19:52 (18:07 - 21:37)		WQM Mid-Flood 7:13 (05:28 - 08:58) Mid-Ebb 14:14 (12:29 - 16:01)		WQM Mid-Flood 8:31 (06:46 - 10:16) Mid-Ebb 15:31 (13:46 - 17:16)
21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
		WQM Mid-Flood 10:41 (08:56 - 12:26) Mid-Ebb 17:24 (15:39 - 19:09)		WQM Mid-Ebb 7:48 (06:03 - 09:33) Mid-Flood 13:13 (11:28 - 14:58)		WQM Mid-Ebb 9:54 (08:09 - 11:39) Mid-Flood 16:23 (14:38 - 18:08)
28-Jun	29-Jun	30-Jun				
		WQM Mid-Ebb 11:52 (10:07 - 13:37) Mid-Flood 18:53 (17:08 - 20:38)				

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Marine Water Quality Monitoring (WQM) Schedule (July 15)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jul	2-Jul	3-Jul	4-Jul
				WQM Mid-Ebb 13:12 (11:27 - 14:57) Mid-Flood 20:19 (18:34 - 22:04)		WQM Mid-Ebb 7:46 (06:01 - 09:31) Mid-Flood 14:35 (12:50 - 16:20)
5-Jul	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
		WQM Mid-Ebb 10:20 (08:35 - 12:05) Mid-Flood 16:53 (15:08 - 18:38)		(Cancelled due to adverse weather)		WQM Mid-Ebb 9:26 (07:41 - 11:11) Mid-Flood 15:51 (14:06 - 17:36)
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
		WQM Mid-Ebb 11:57 (10:12 - 13:42) Mid-Flood 19:00 (17:15 - 20:45)		WQM Mid-Ebb 13:19 (11:34 - 15:04) Mid-Flood 20:18 (18:33 - 22:03)		WQM Mid-Ebb 7:38 (05:53 - 09:23) Mid-Flood 14:33 (12:48 - 16:18)
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
		WQM Mid-Ebb 9:34 (07:49 - 11:19) Mid-Flood 16:10 (14:25 - 17:55)		WQM Mid-Ebb 11:12 (09:27 - 12:57) Mid-Flood 17:23 (15:38 - 19:08)		WQM Mid-Ebb 14:00 (12:15 - 15:45) Mid-Flood 19:35 (17:50 - 16:37)
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
		WQM Mid-Ebb 10:43 (08:58 - 12:28) Mid-Flood 17:55 (16:10 - 19:40)		WQM Mid-Ebb 12:11 (10:26 - 13:56) Mid-Flood 19:18 (17:33 - 21:03)		

**HY/2012/07 - Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Marine Water Quality Monitoring (WQM) Schedule (Aug 15)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Aug
						WQM Mid-Ebb 13:37 (11:52 - 15:22) Mid-Flood 20:13 (18:28 - 21:58)
02-Aug	03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug
		WQM Mid-Flood 9:20 (07:35 - 11:05) Mid-Ebb 15:46 (14:01 - 17:31)		WQM Mid-Flood 11:26 (09:41 - 13:11) Mid-Ebb 17:24 (15:39 - 19:09)		WQM Mid-Ebb 7:48 (06:03 - 09:33) Mid-Flood 14:19 (12:34 - 16:04)
09-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
		WQM Mid-Ebb 10:59 (09:14 - 12:44) Mid-Flood 18:08 (16:23 - 19:53)		WQM Mid-Ebb 12:24 (10:39 - 14:09) Mid-Flood 19:19 (17:34 - 21:04)		WQM Mid-Ebb 13:36 (11:51 - 15:21) Mid-Flood 20:14 (18:29 - 21:59)
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
		WQM Mid-Flood 8:41 (06:56 - 10:26) Mid-Ebb 15:08 (13:23 - 16:53)		WQM Mid-Flood 10:00 (08:15 - 11:45) Mid-Ebb 16:10 (14:25 - 17:56)		WQM Mid-Flood 12:00 (10:15 - 13:45) Mid-Ebb 17:41 (15:56 - 19:26)
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
		WQM Mid-Ebb 9:14 (07:29 - 10:59) Mid-Flood 16:46 (15:01 - 18:31)		WQM Mid-Ebb 11:00 (09:25 - 12:45) Mid-Flood 18:12 (17:27 - 20:57)		WQM Mid-Ebb 12:32 (10:47 - 14:17) Mid-Flood 19:23 (17:38 - 21:08)
30-Aug	31-Aug	01-Sep	02-Sep	03-Sep	04-Sep	05-Sep

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Noise Monitoring Schedule (1 to 30 June 2015)**

Alternative Noise Monitoring at Pak Mong Village Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun
		Noise Impact Monitoring				
07-Jun	08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun
	Noise Impact Monitoring			Noise Impact Monitoring		
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
			Noise Impact Monitoring			
21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
		Noise Impact Monitoring				
28-Jun	29-Jun	30-Jun				
	Noise Impact Monitoring					

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Air Quality Monitoring Schedule (1 to 30 June 2015)**

Alternative Air Quality Monitoring at WA4 and MTRC Depot Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun
		1-hr TSP Monitoring 24-hr TSP Monitoring				
07-Jun	08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun
	1-hr TSP Monitoring 24-hr TSP Monitoring			1-hr TSP Monitoring 24-hr TSP Monitoring		
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
			1-hr TSP Monitoring 24-hr TSP Monitoring			
21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
		1-hr TSP Monitoring 24-hr TSP Monitoring				
28-Jun	29-Jun	30-Jun				
	1-hr TSP Monitoring 24-hr TSP Monitoring					

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Noise Monitoring Schedule (1 to 31 July 2015)**

Alternative Noise Monitoring at Pak Mong Village Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			P Holiday 01-Jul	02-Jul	03-Jul	04-Jul
				Noise Impact Monitoring		
05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul
		Noise Impact Monitoring				
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
	Noise Impact Monitoring			Noise Impact Monitoring		
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
			Noise Impact Monitoring			
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
		Noise Impact Monitoring				

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Air Quality Monitoring Schedule (1 to 31 July 2015)**

Alternative Air Quality Monitoring at WA4 and MTRC Depot Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			P Holiday 01-Jul	02-Jul	03-Jul	04-Jul
				1-hr TSP Monitoring 24-hr TSP Monitoring		
05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul
		1-hr TSP Monitoring 24-hr TSP Monitoring				
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
	1-hr TSP Monitoring 24-hr TSP Monitoring			1-hr TSP Monitoring 24-hr TSP Monitoring		
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
			1-hr TSP Monitoring 24-hr TSP Monitoring			
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
		1-hr TSP Monitoring 24-hr TSP Monitoring				

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Noise Monitoring Schedule (1 to 31 August 2015)**

Alternative Noise Monitoring at Pak Mong Village Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Aug
02-Aug	03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug
	Noise Impact Monitoring			Noise Impact Monitoring		
09-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
			Noise Impact Monitoring			
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
		Noise Impact Monitoring				
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
	Noise Impact Monitoring			Noise Impact Monitoring		
30-Aug	31-Aug					

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Air Quality Monitoring Schedule (1 to 31 August 2015)**

Alternative Air Quality Monitoring at WA4 and MTRC Depot Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Aug
02-Aug	03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug
	1-hr TSP Monitoring 24-hr TSP Monitoring			1-hr TSP Monitoring 24-hr TSP Monitoring		
09-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
			1-hr TSP Monitoring 24-hr TSP Monitoring			
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
		1-hr TSP Monitoring 24-hr TSP Monitoring				
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
	1-hr TSP Monitoring 24-hr TSP Monitoring			1-hr TSP Monitoring 24-hr TSP Monitoring		
30-Aug	31-Aug					

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Dolphin Monitoring Survey Schedule (1 to 30 June 2015)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun
		Impact Dolphin Monitoring				
07-Jun	08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun
			Impact Dolphin Monitoring			
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
			Impact Dolphin Monitoring		Impact Dolphin Monitoring	
28-Jun	29-Jun	30-Jun				

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Dolphin Monitoring Survey Schedule (1 to 31 July 2015)**

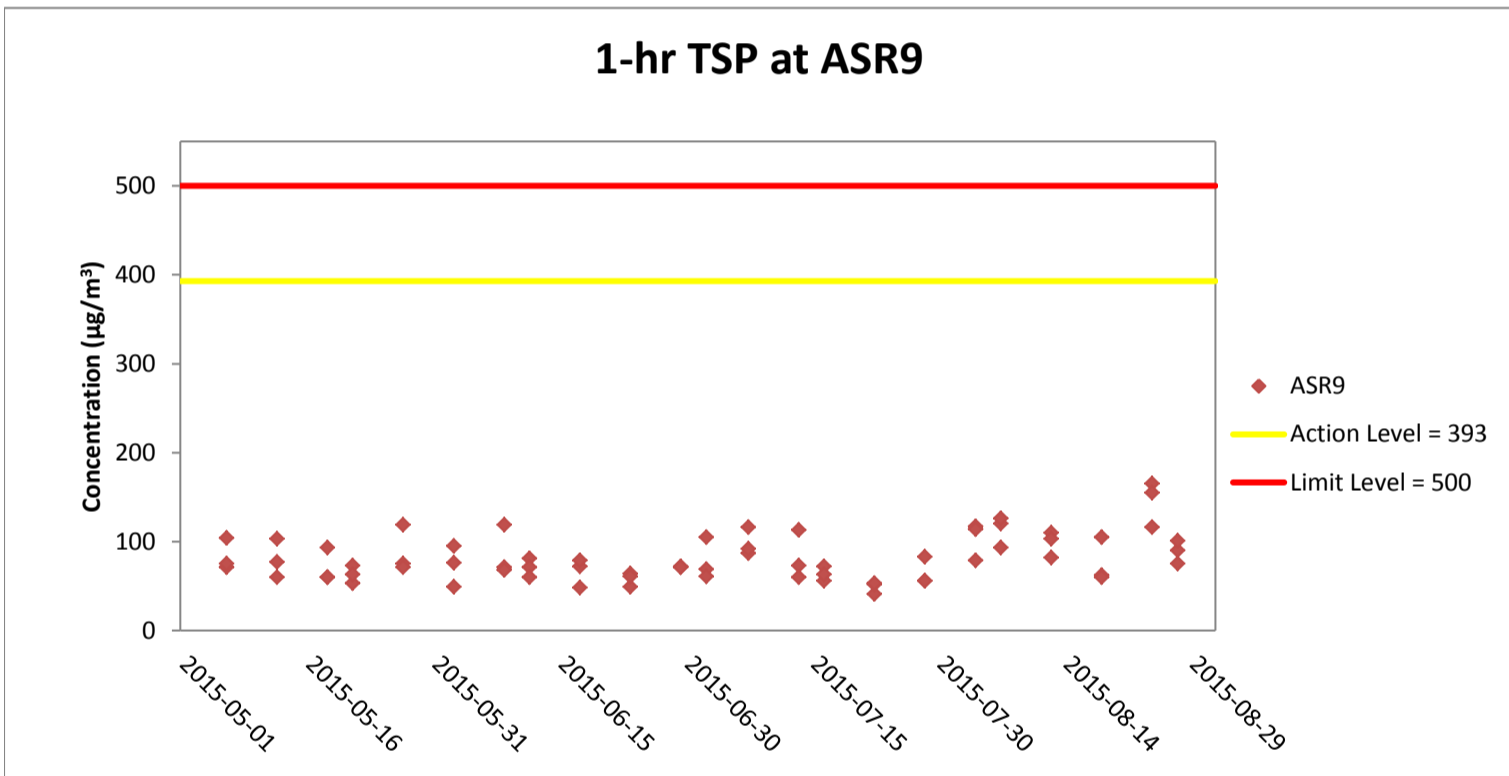
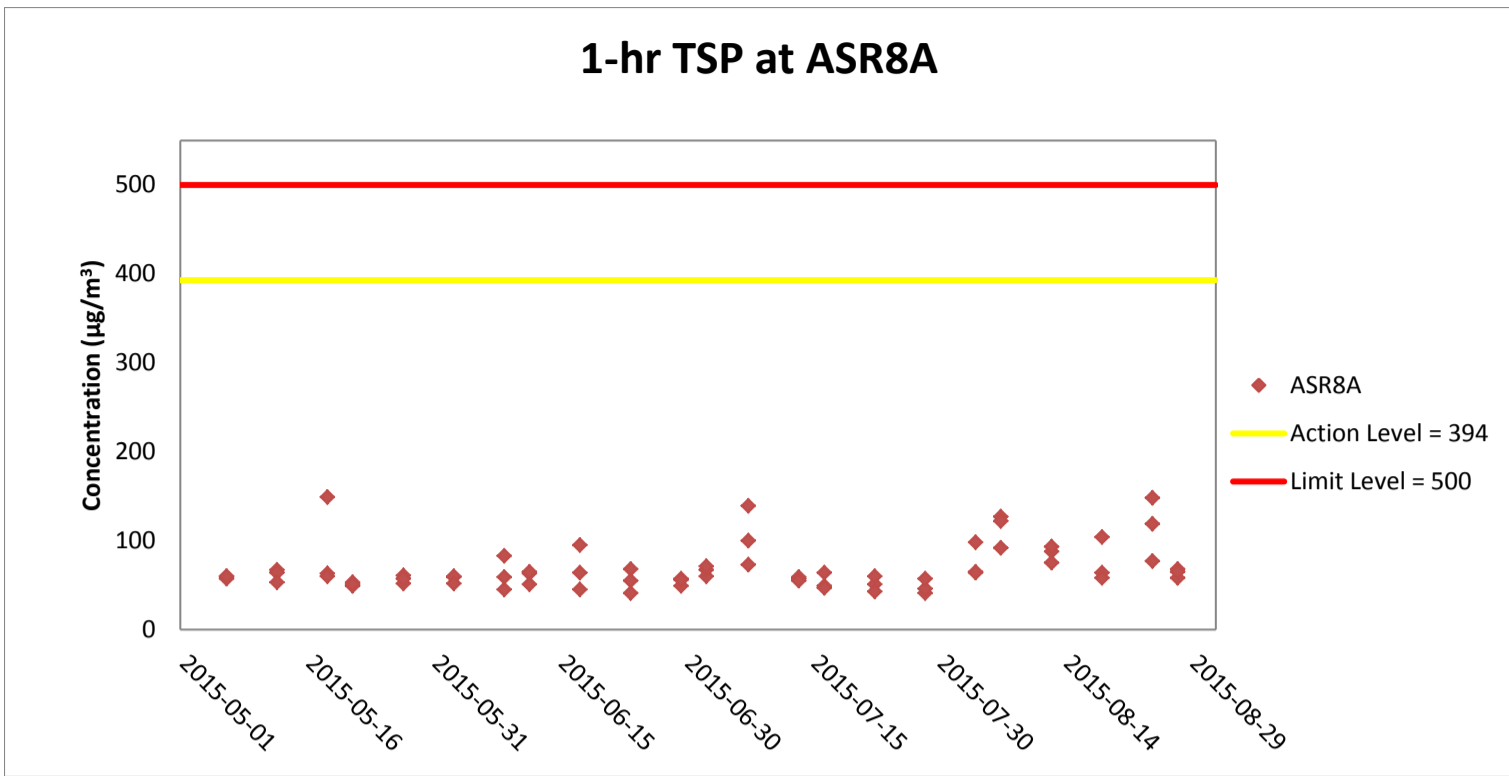
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			01-Jul	02-Jul	03-Jul	04-Jul
				Impact Dolphin Monitoring		
05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul
		Impact Dolphin Monitoring				
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
			Impact Dolphin Monitoring			
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
	Impact Dolphin Monitoring					

**HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section
Impact Dolphin Monitoring Survey Schedule (1 to 31 August 2015)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Aug
02-Aug	03-Aug	04-Aug	05-Aug	06-Aug	07-Aug	08-Aug
09-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
	Impact Dolphin Monitoring				Impact Dolphin Monitoring	
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
			Impact Dolphin Monitoring			
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
					Impact Dolphin Monitoring	
30-Aug	31-Aug					

Appendix F

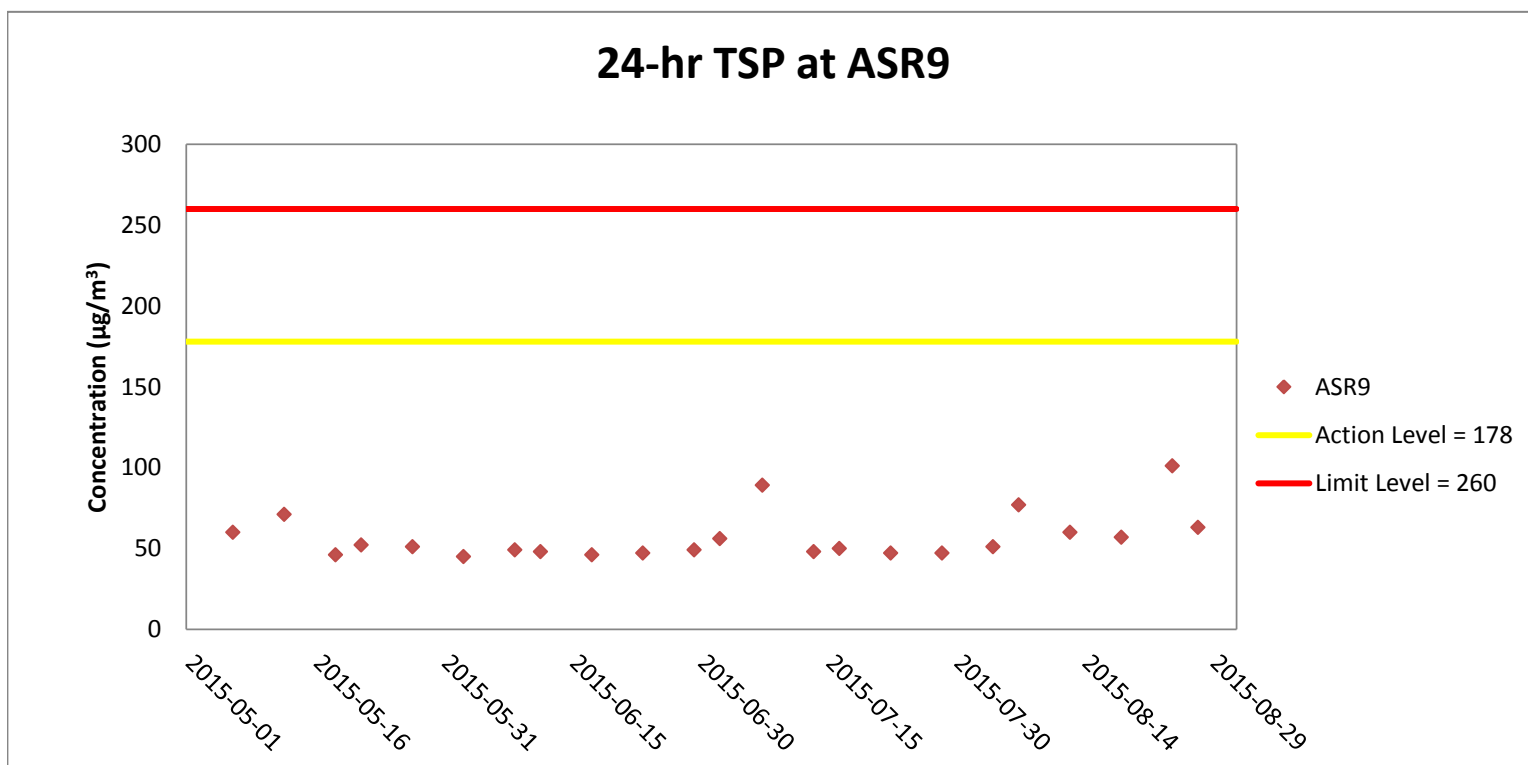
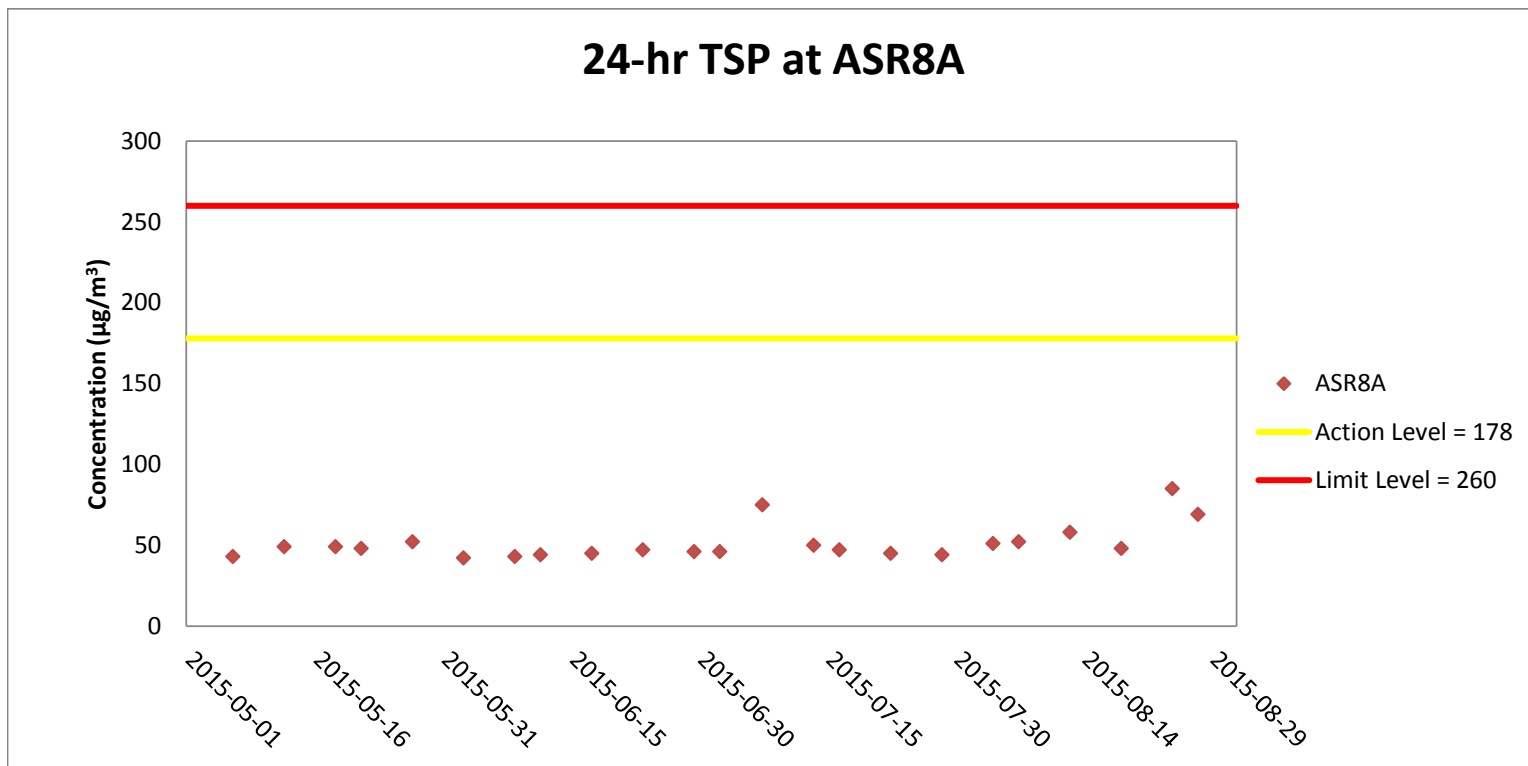
Impact Air Quality
Monitoring Graphical
Presentation



Weather condition within the reporting period varied between sunny to rainy.

Major construction works undertaken within the reporting period include Predrilling at Viaduct F; Construction and installation of pile caps; Pier construction; Re-alignment of Cheung Tung Road; Land piling; Installation of pier head segment; Additional land GI, trial pits & lab testing; Relocation of MTRC fence; and Slope work of Viaducts A & B.

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier construction; Launching gantry assembly; Marine piling and Installation of pier head segment.



Weather condition within the reporting period varied between sunny to rainy.

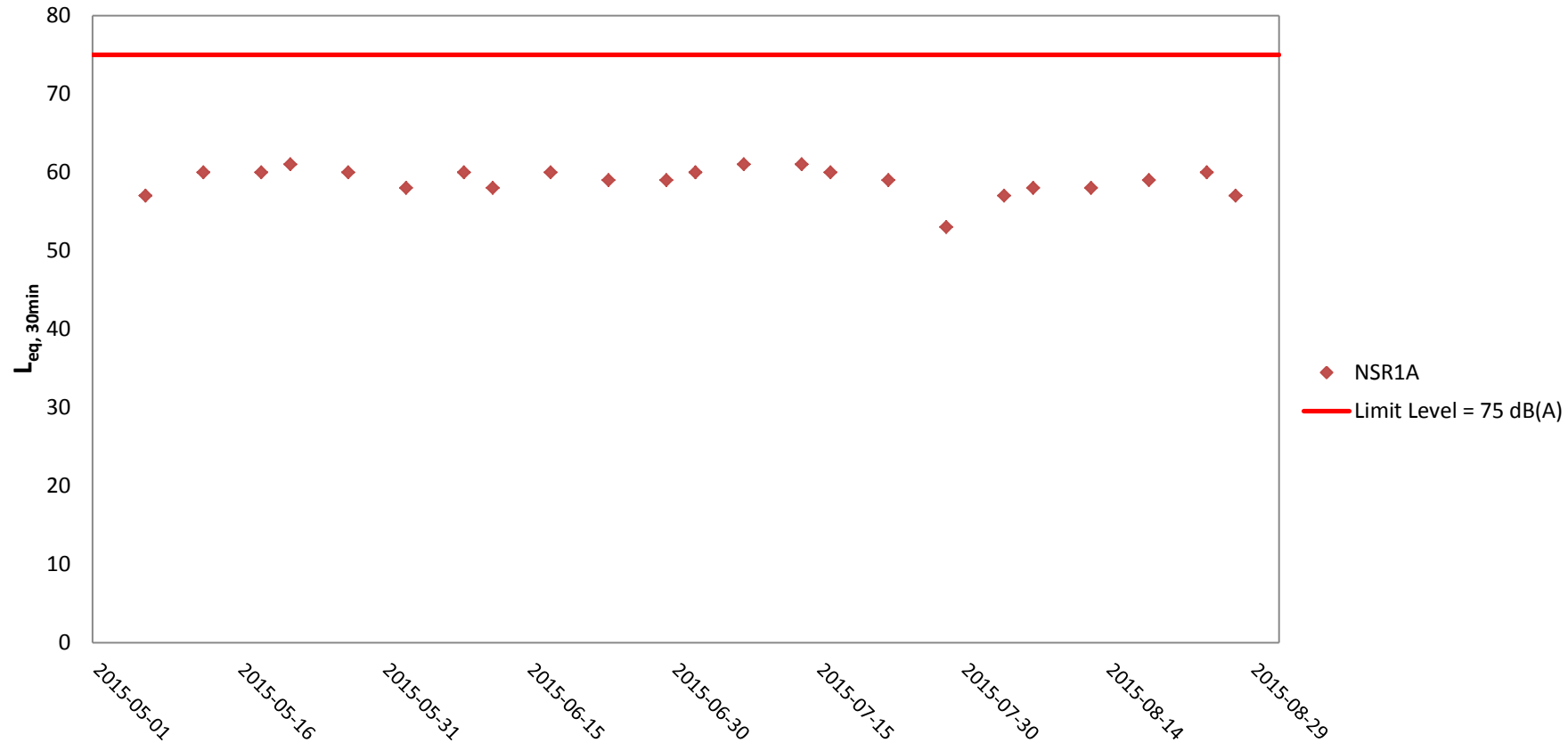
Major construction works undertaken within the reporting period include Predrilling at Viaduct F; Construction and installation of pile caps; Pier construction; Re-alignment of Cheung Tung Road; Land piling; Installation of pier head segment; Additional land GI, trial pits & lab testing; Relocation of MTRC fence; and Slope work of Viaducts A & B.

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier construction; Launching gantry assembly; Marine piling and Installation of pier head segment.

Appendix G

Impact Noise Monitoring Graphical Presentation

Noise Monitoring Results at NSR 1A ($L_{eq, 30min}$)



Weather condition within the reporting period varied between sunny to rainy.

Major construction works undertaken within the reporting period include Predrilling at Viaduct F; Construction and installation of pile caps; Pier construction; Re-alignment of Cheung Tung Road; Land piling; Installation of pier head segment; Additional land GI, trial pits & lab testing; Relocation of MTRC fence; and Slope work of Viaducts A & B.

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier construction; Launching gantry assembly; Marine piling; and Installation of pier head segment.

Appendix H

Impact Water Quality Monitoring Graphical Presentation

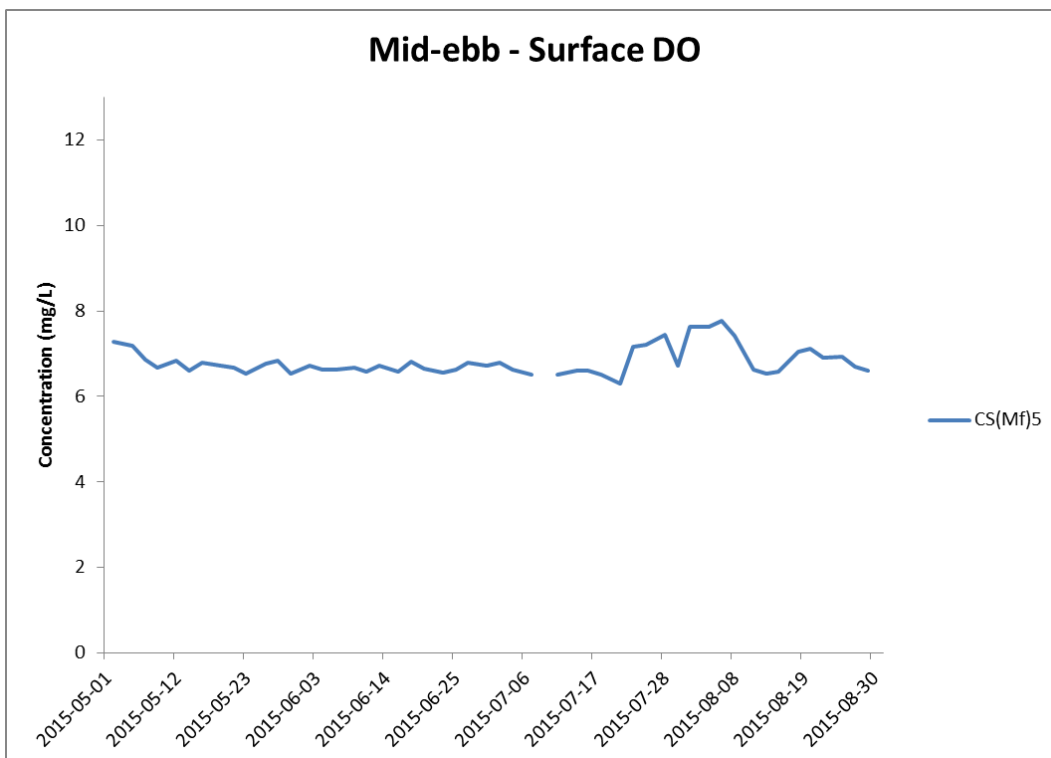
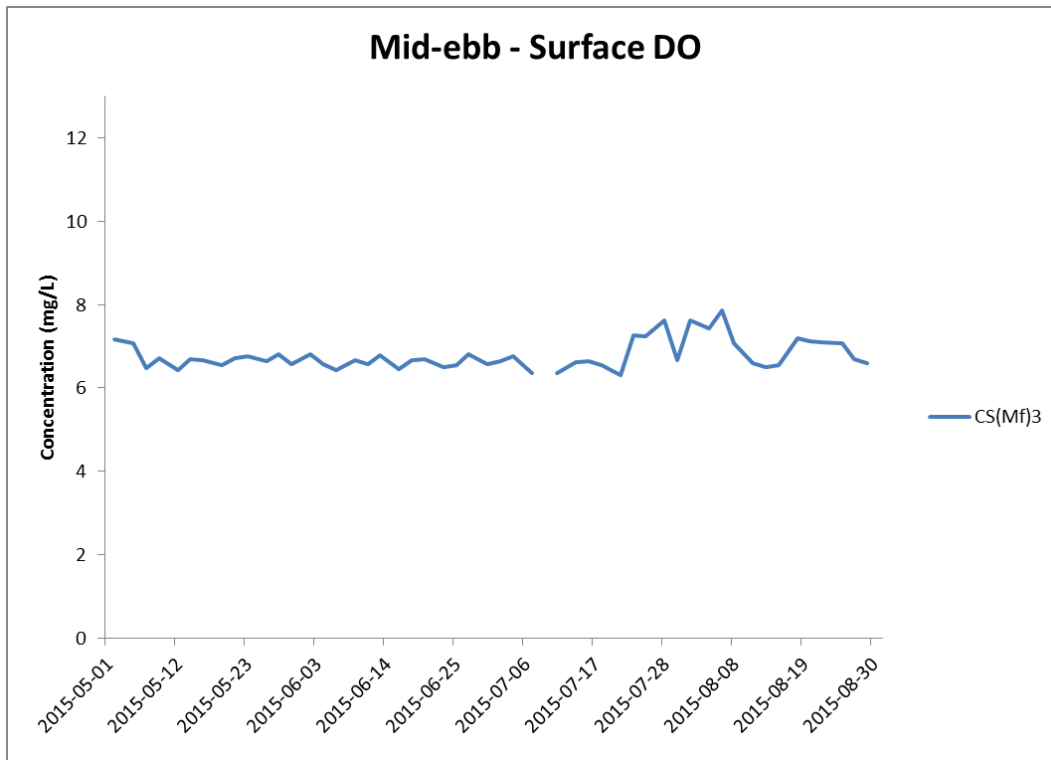


Figure H1 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(Mf)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



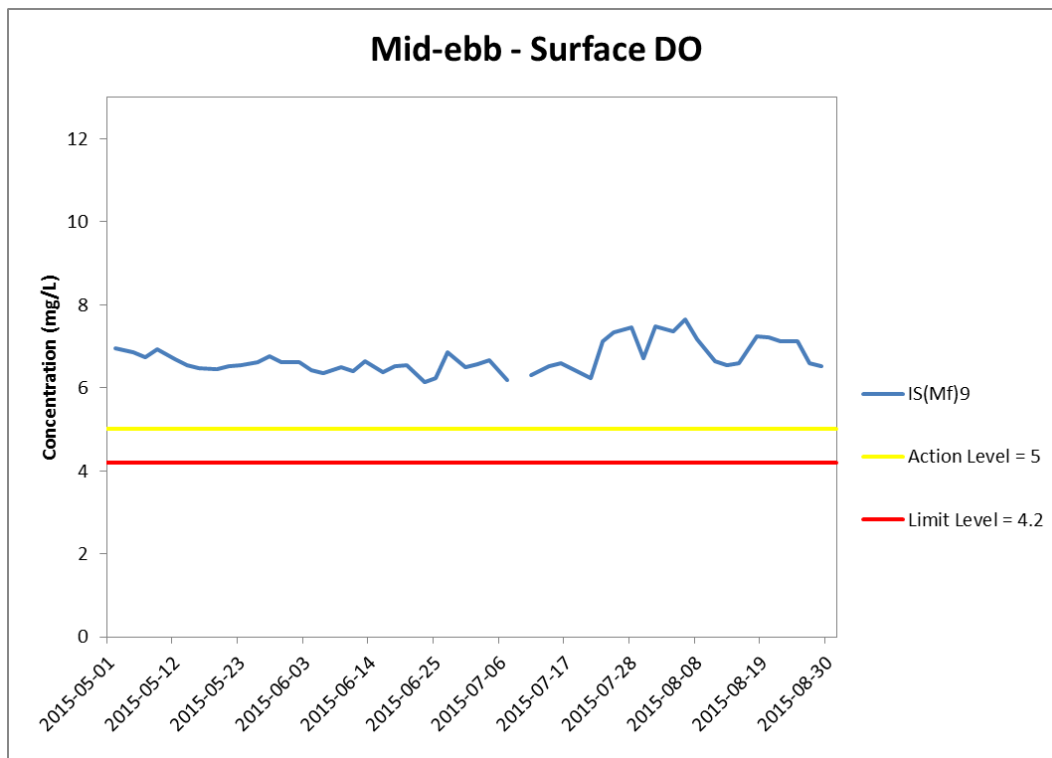
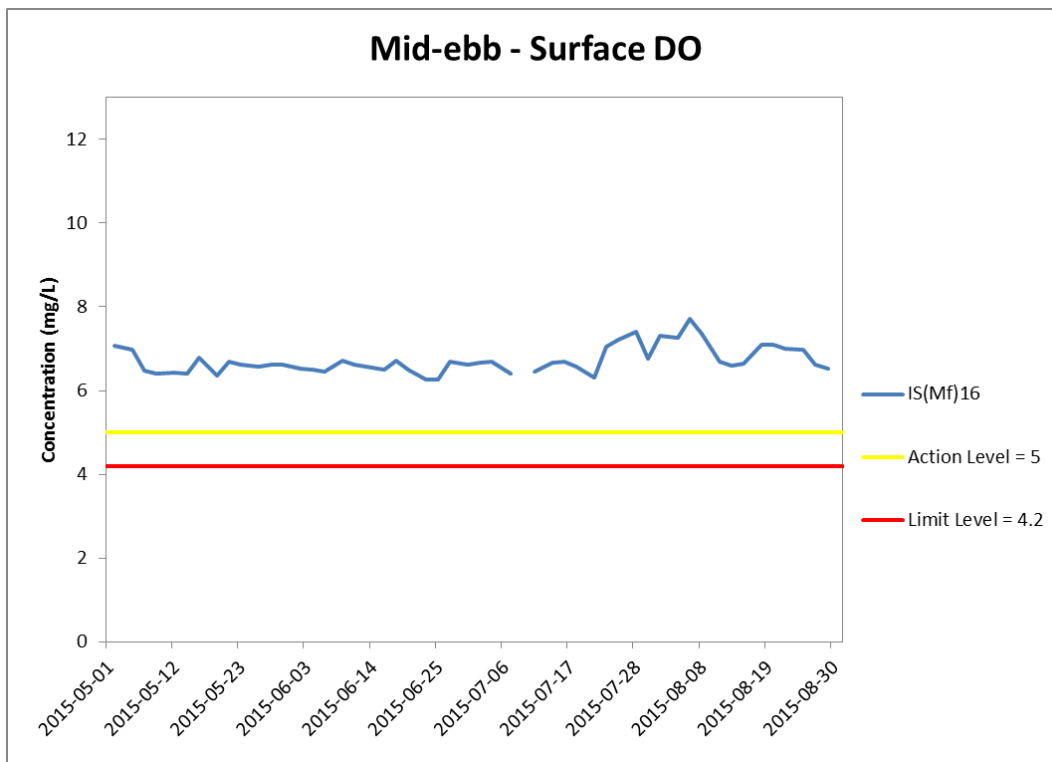


Figure H2 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 May and 31 August 2015 at IS(Mf)16 and IS(Mf)9.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



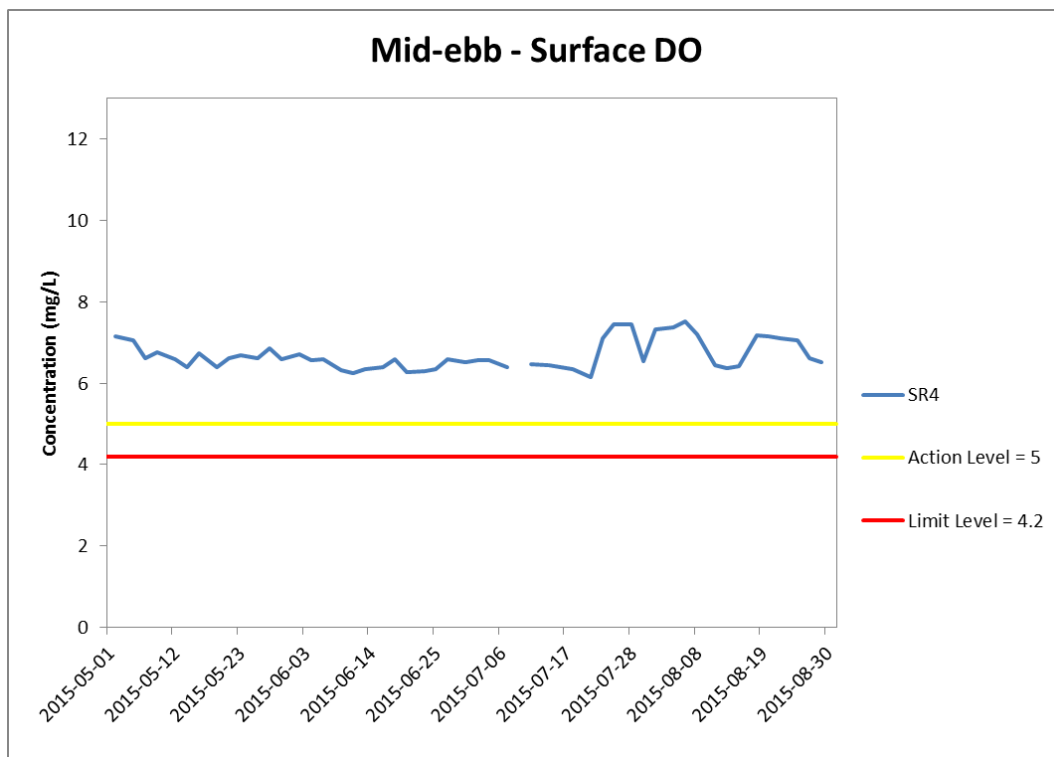
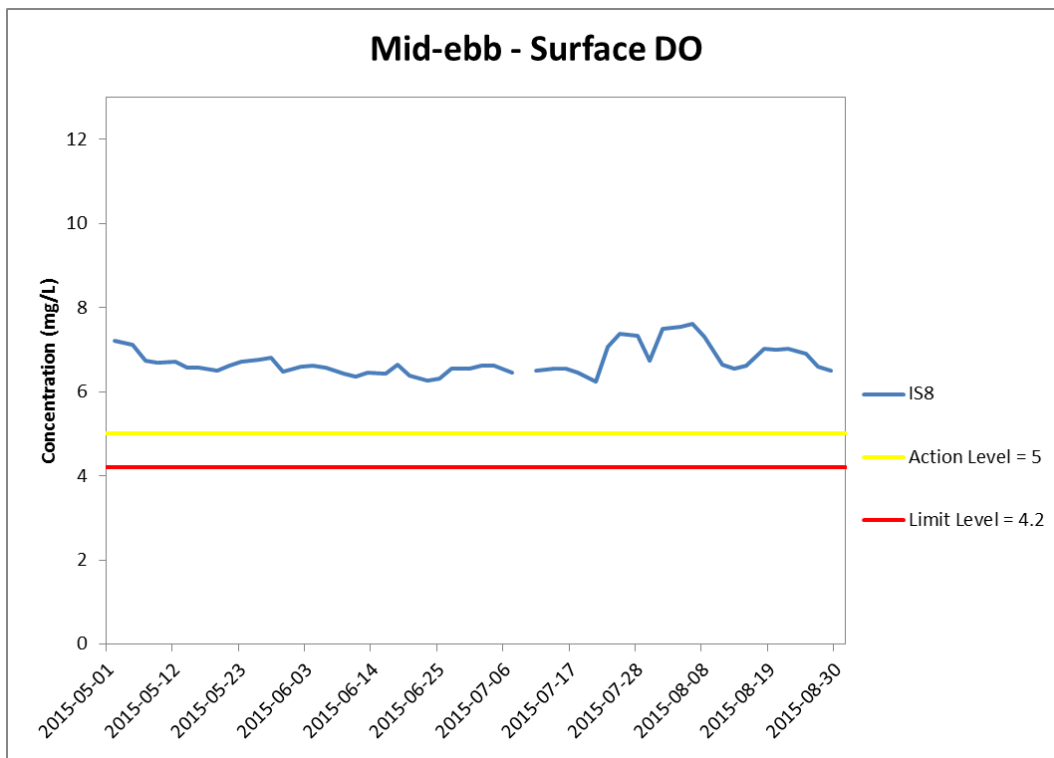


Figure H3 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 May and 31 August 2015 at IS8 and SR4.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
 Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine

**Environmental
 Resources
 Management**



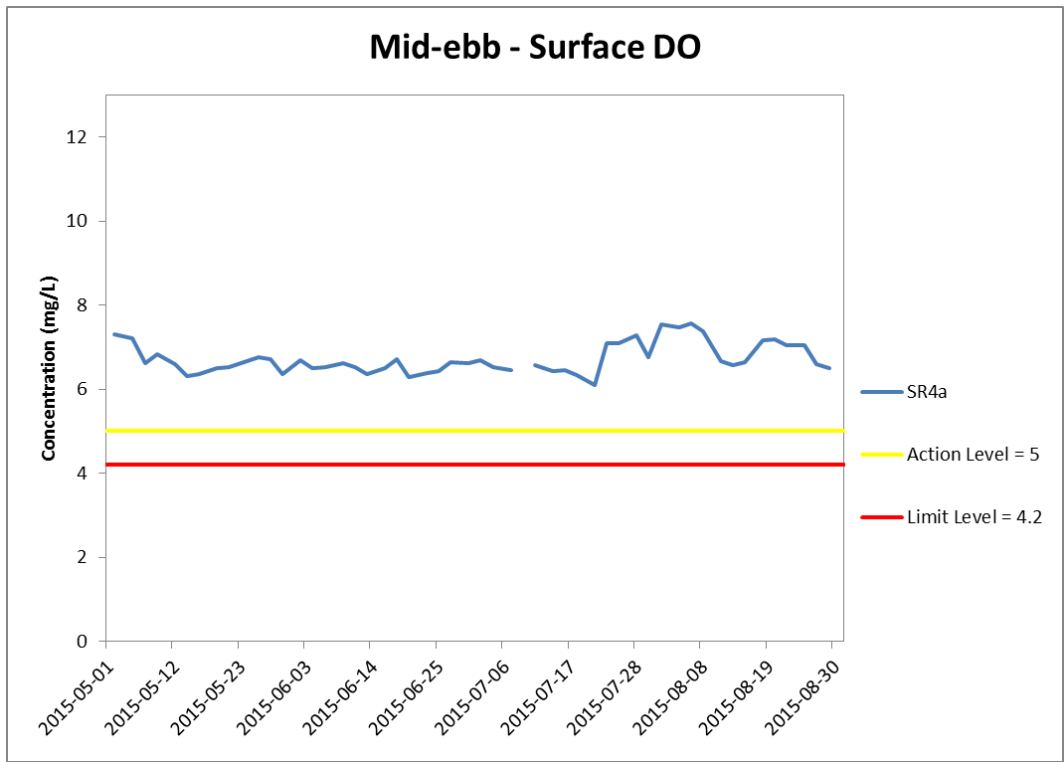


Figure H4 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 May and 31 August 2015 at SR4a.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



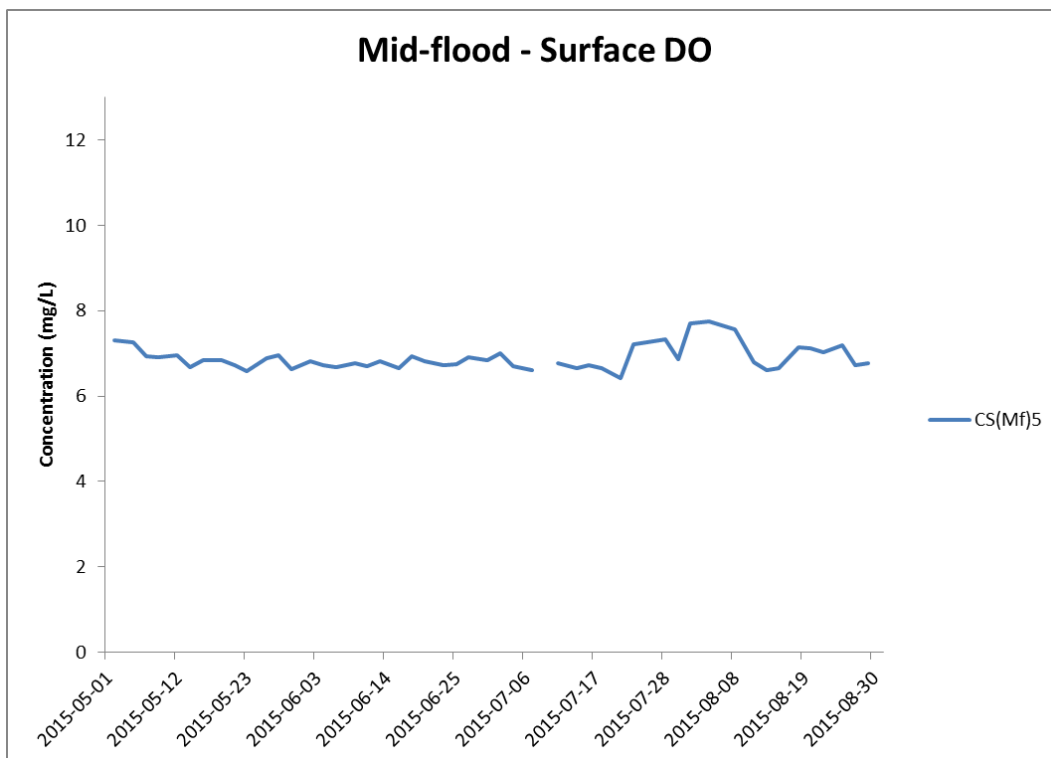
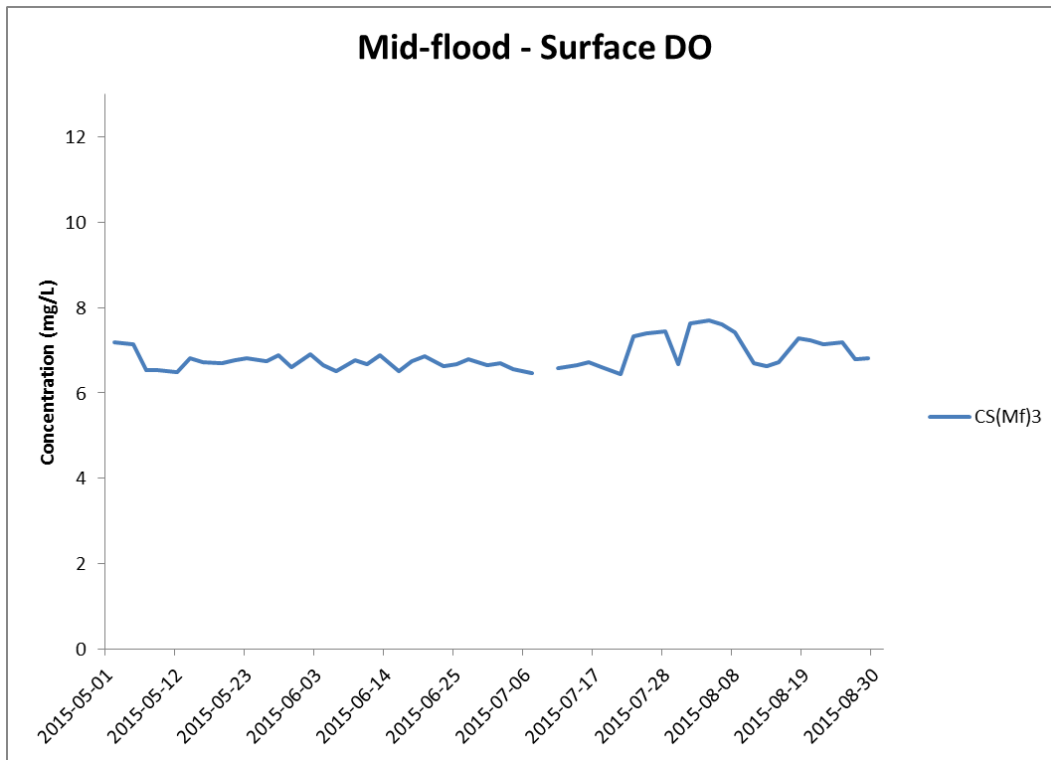
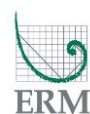


Figure H5 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(Mf)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
 Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



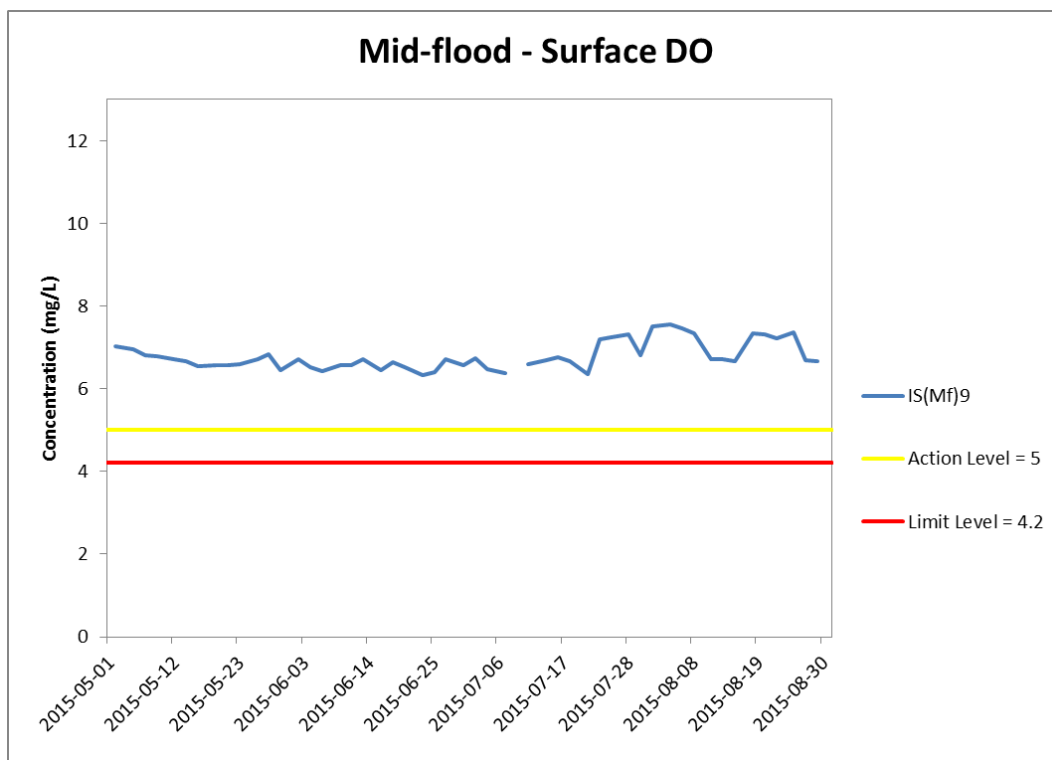
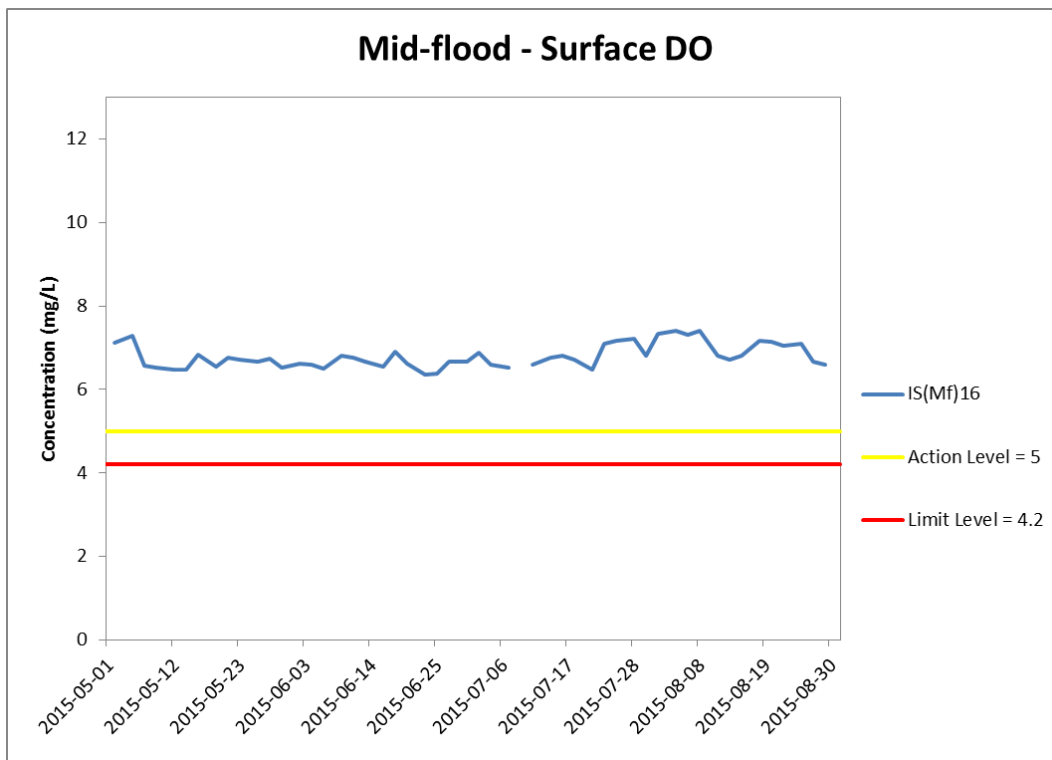


Figure H6 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 May and 31 August 2015 at IS(Mf)16 and IS(Mf)9.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



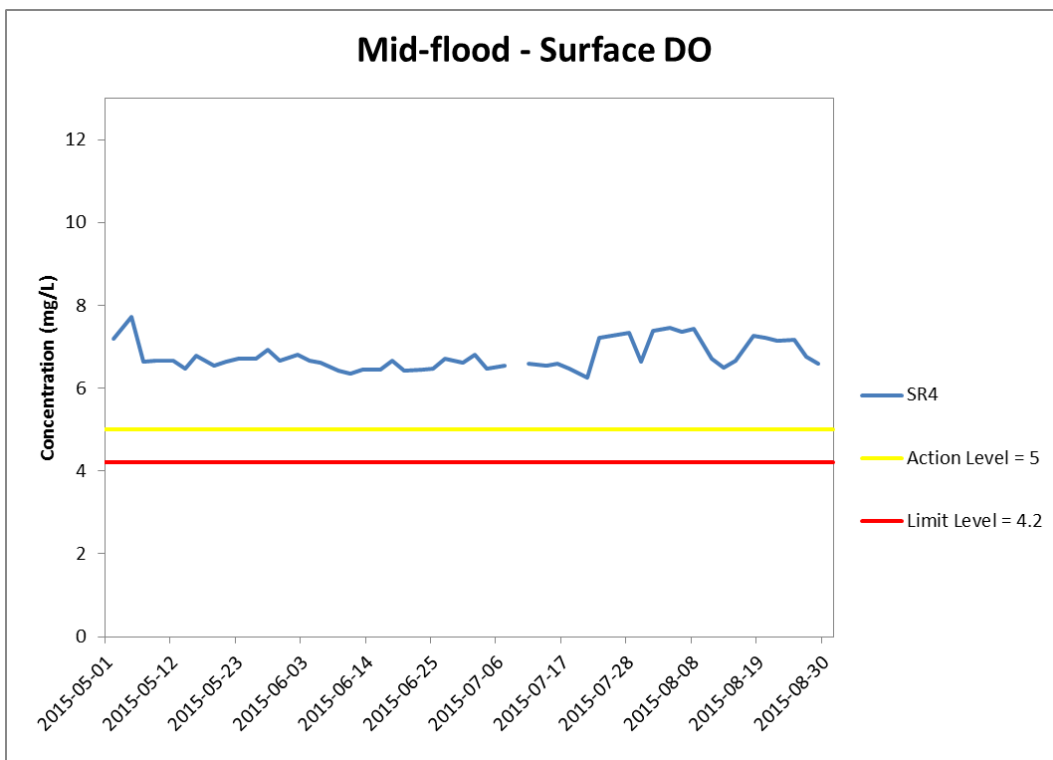
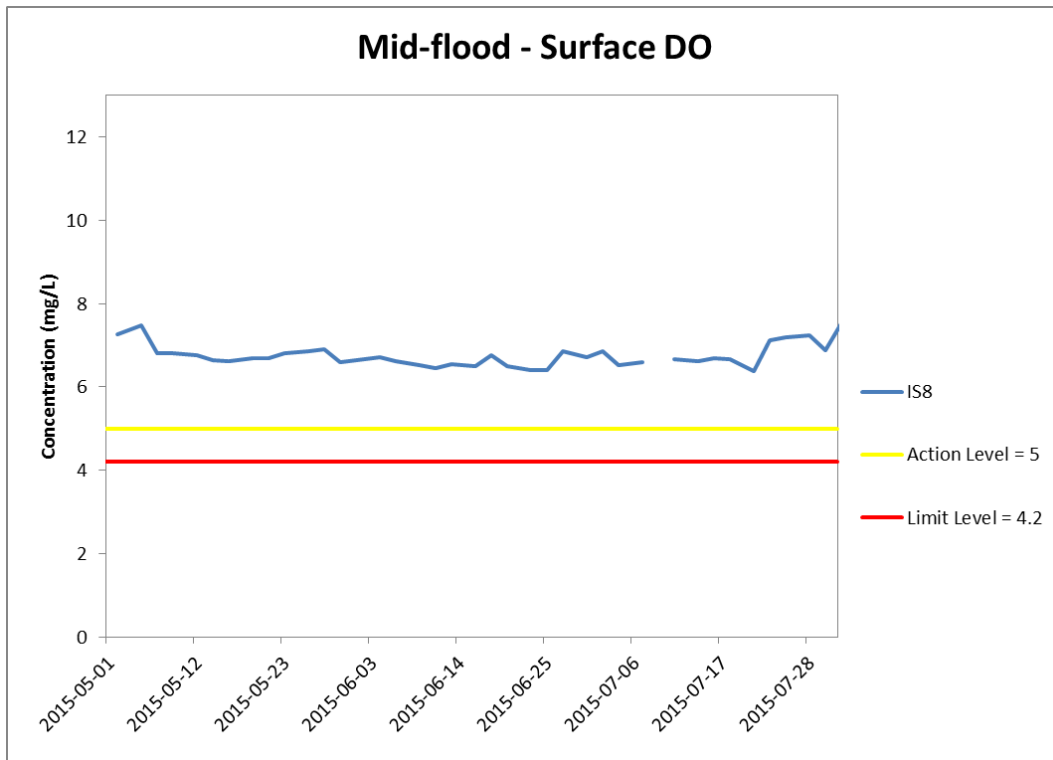


Figure H7 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 May and 31 August 2015 at IS8 and SR4.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



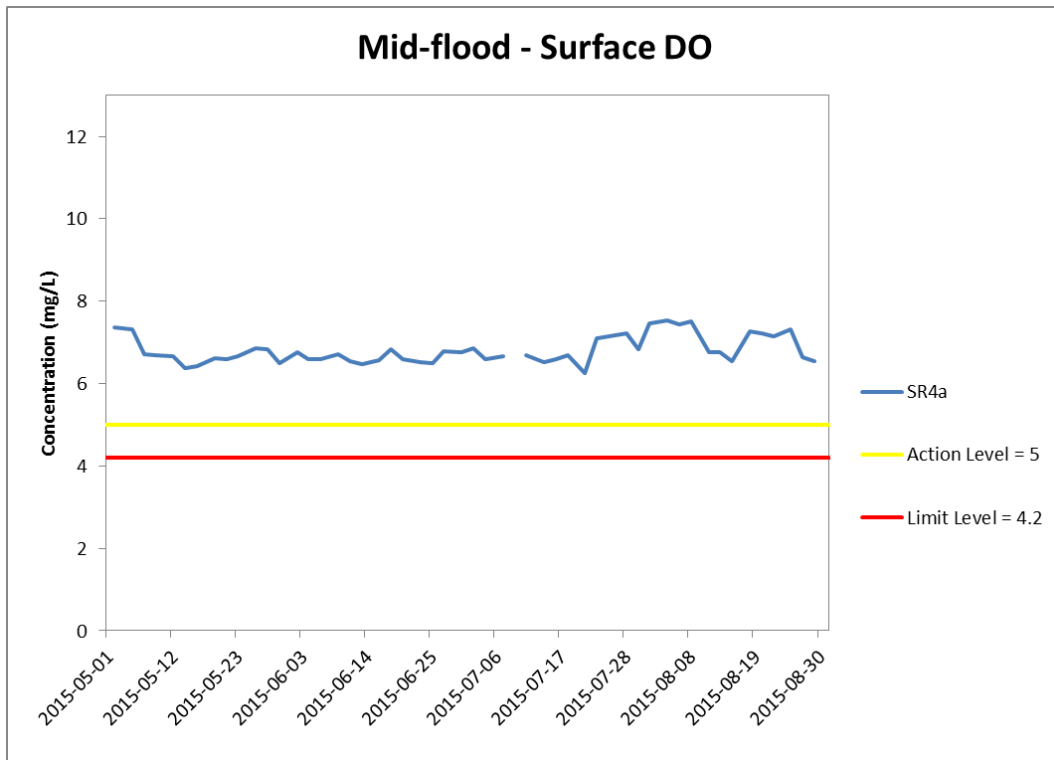


Figure H8 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 May and 31 August 2015 at SR4a.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



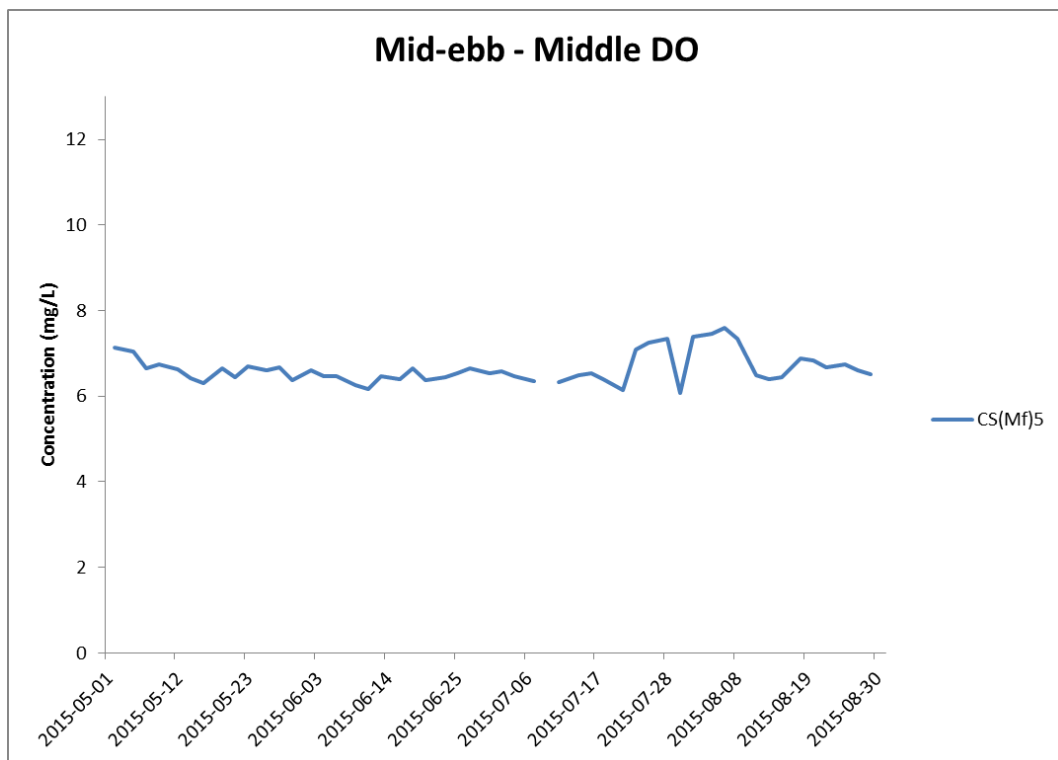
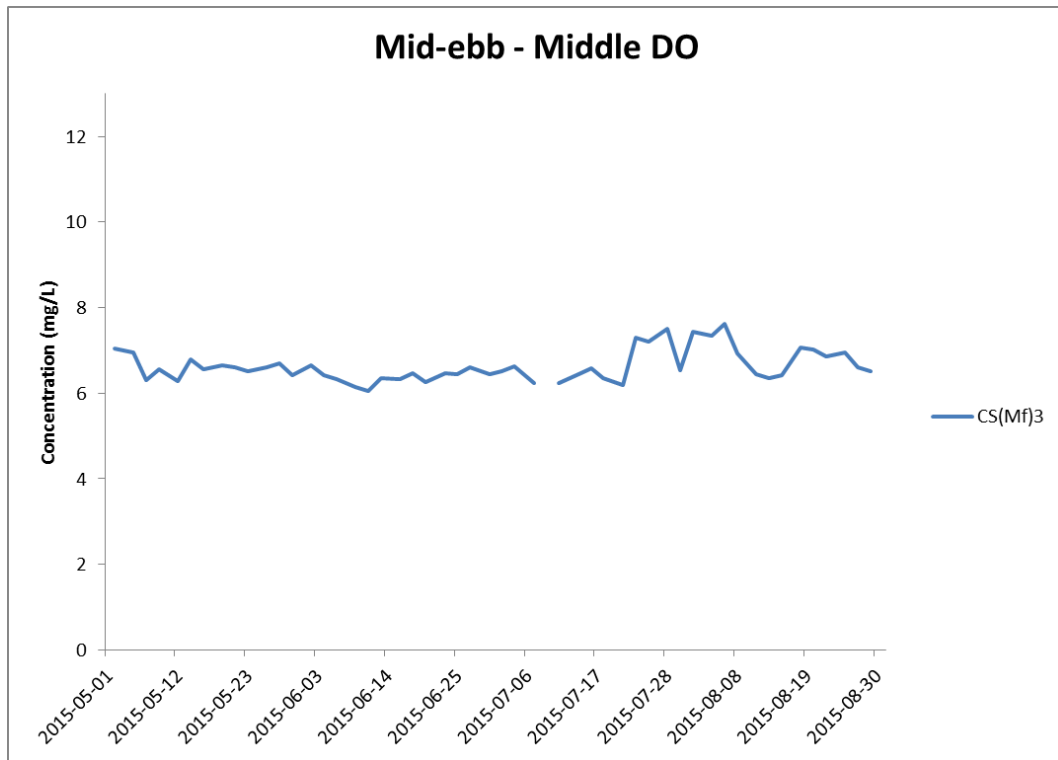


Figure H9 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-ebb tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(Mf)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



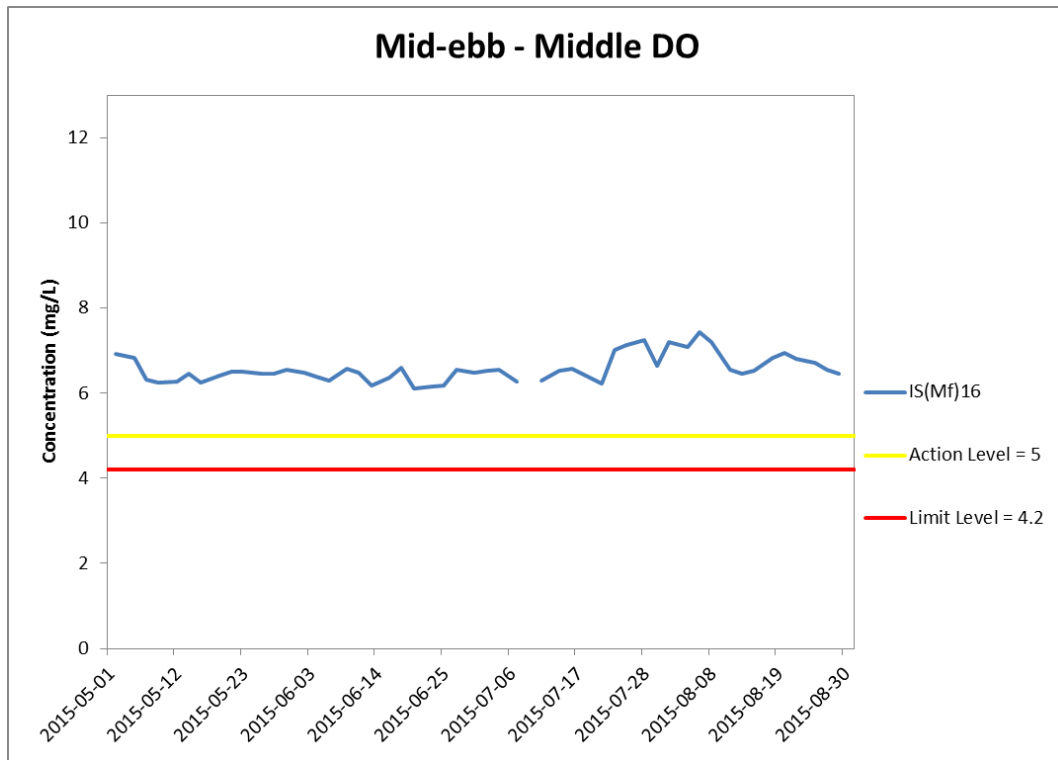


Figure H10 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-ebb tide between 1 May and 31 August 2015 at IS(Mf)16.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



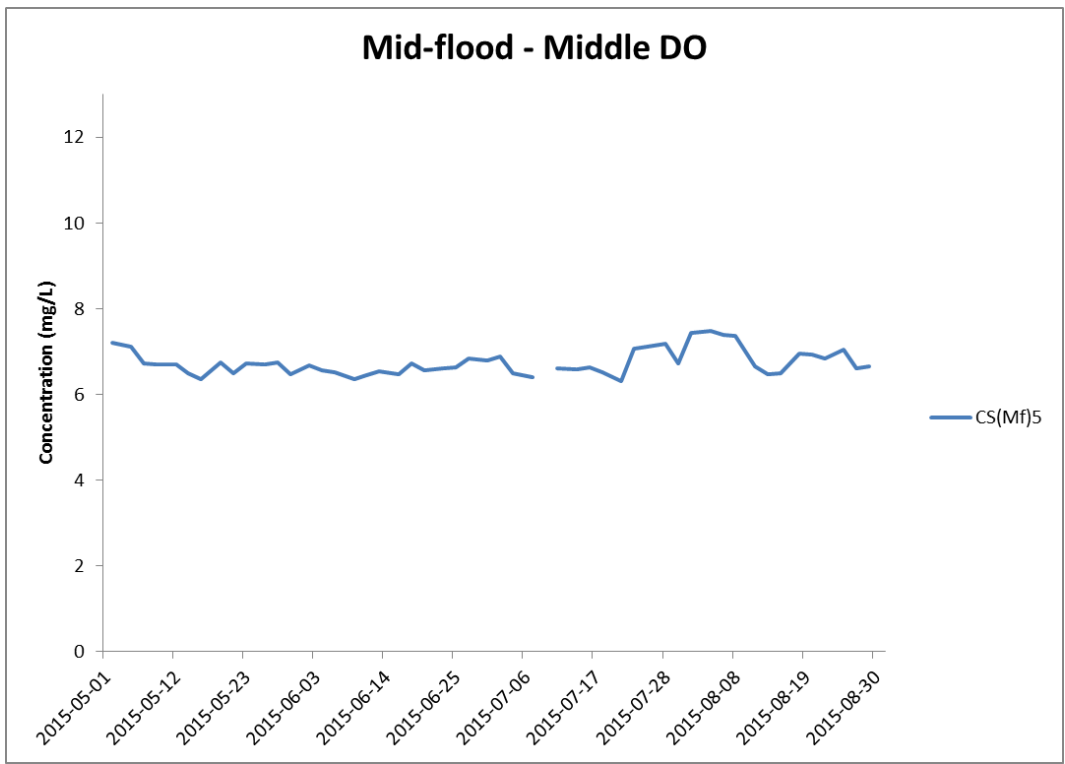
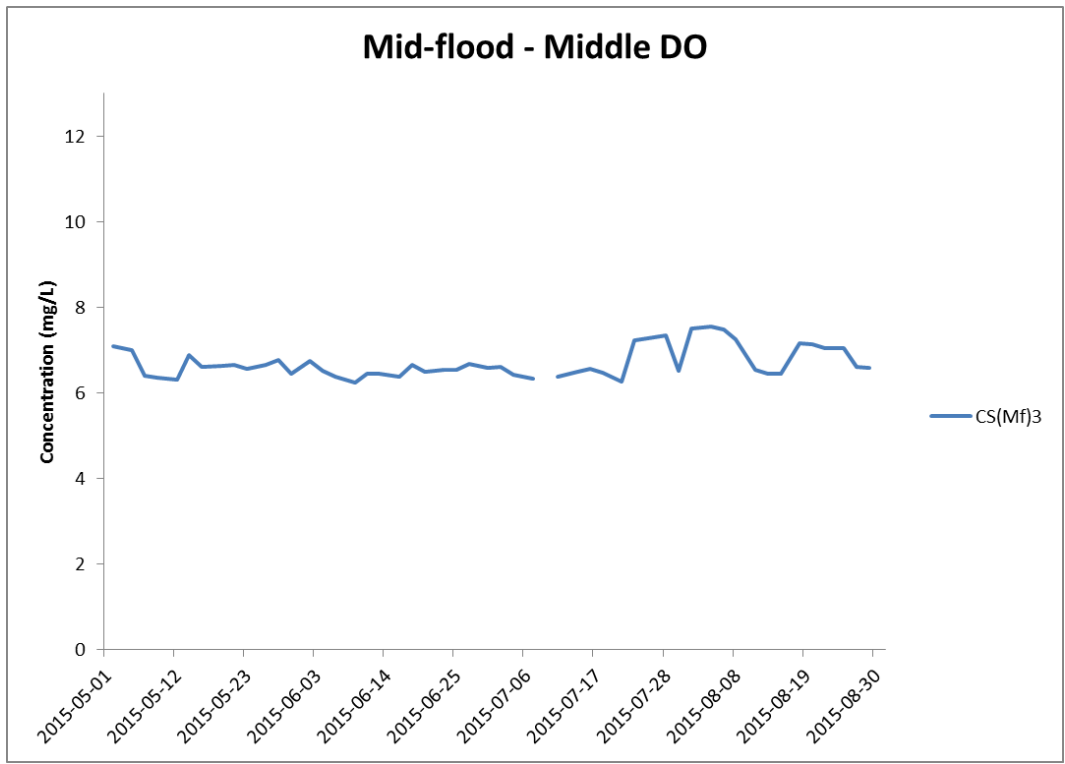


Figure H11 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-flood tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(Mf)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
 Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

Environmental Resources Management



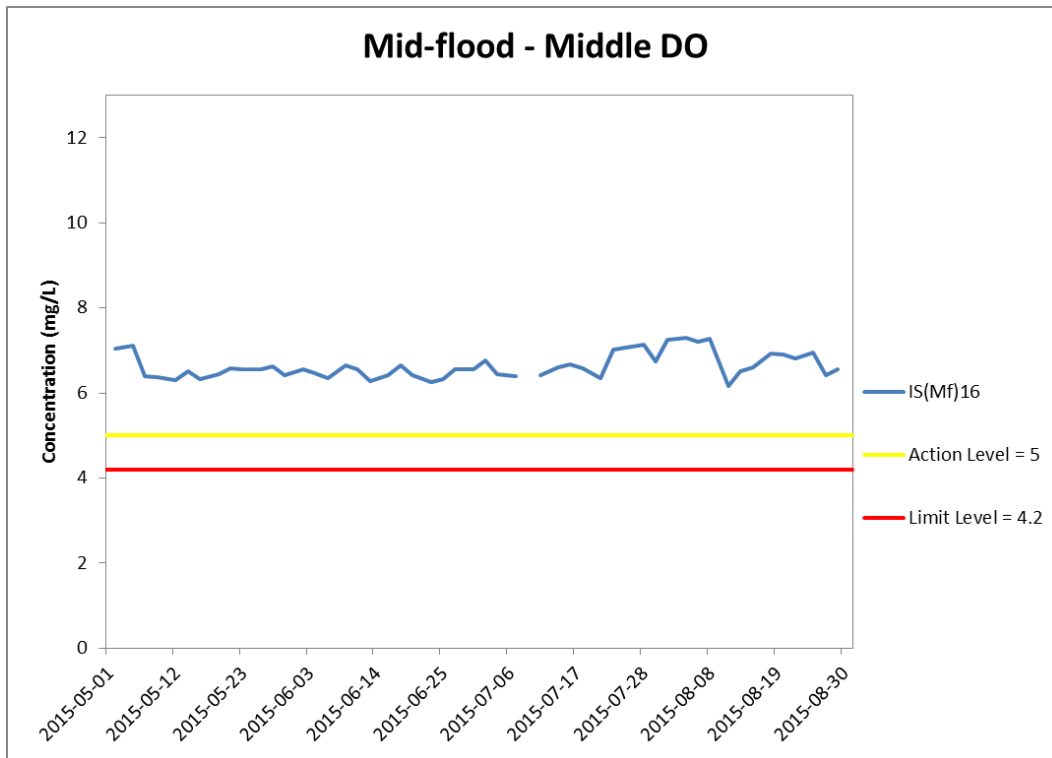


Figure H12 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-flood tide between 1 May and 31 August 2015 at IS(Mf)16.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



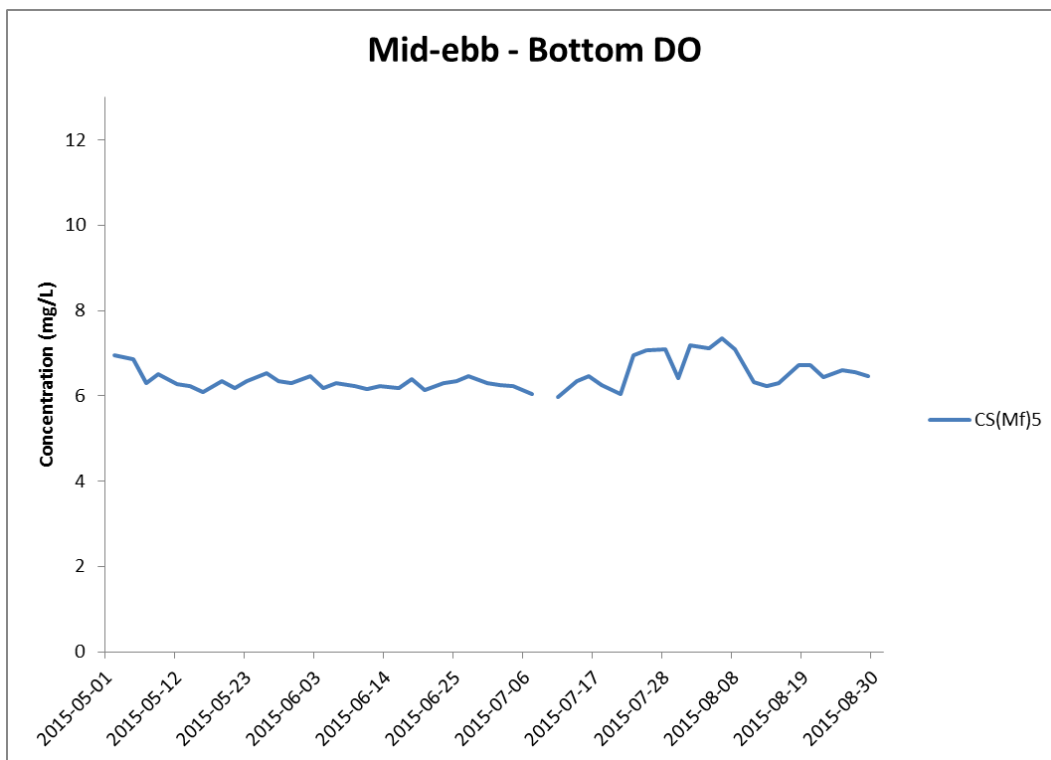
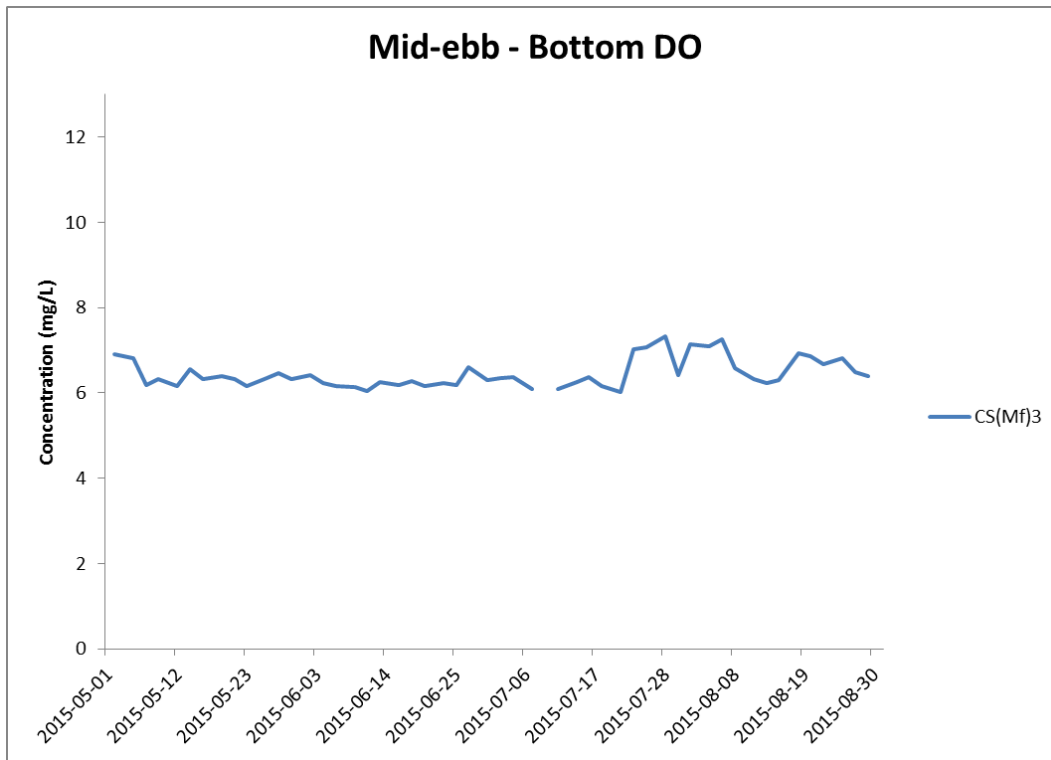


Figure H13 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(Mf)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
 Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



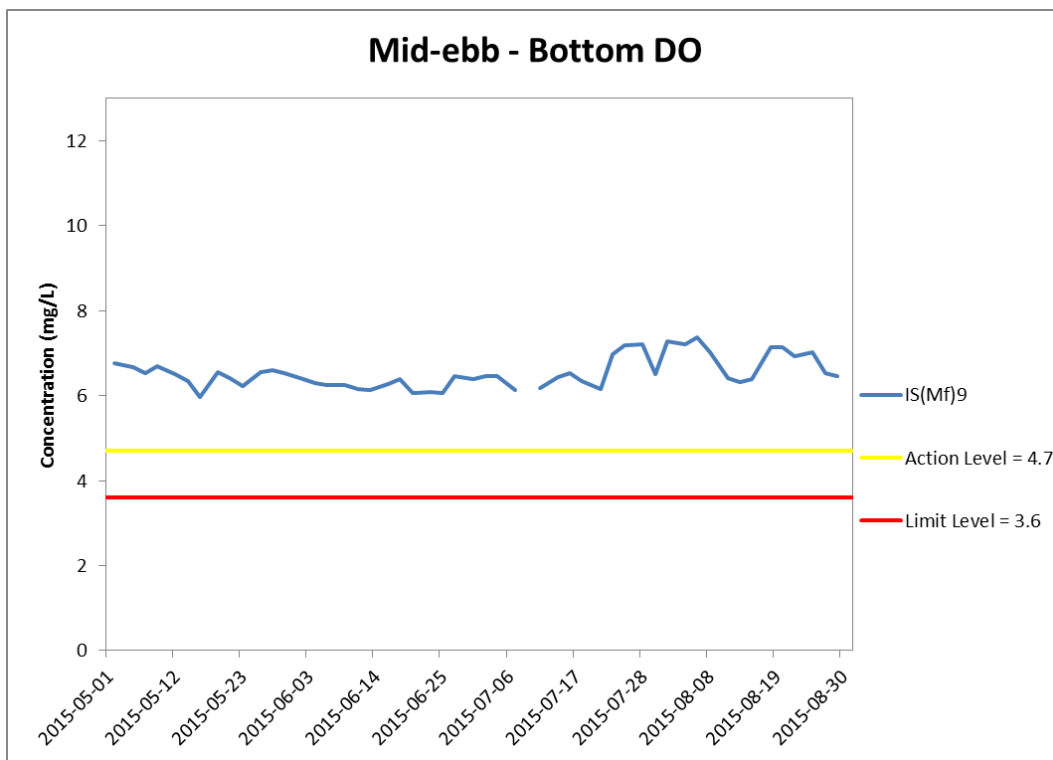
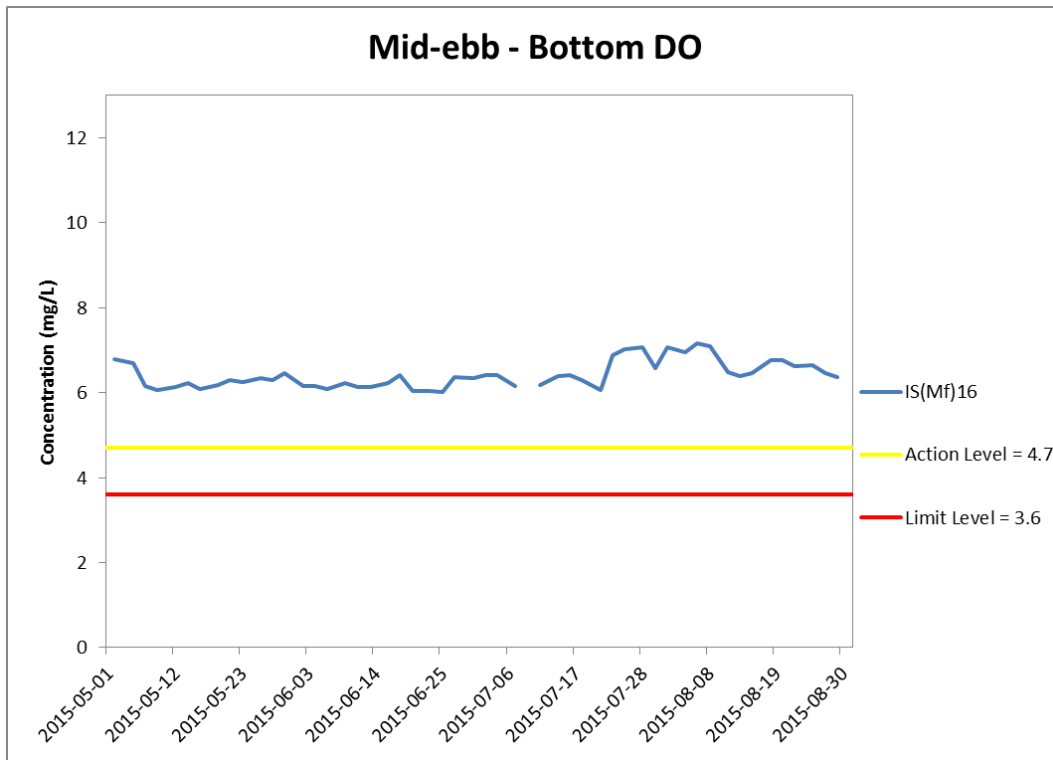


Figure H14 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 May and 31 August 2015 at IS(Mf)16 and IS(Mf)9.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



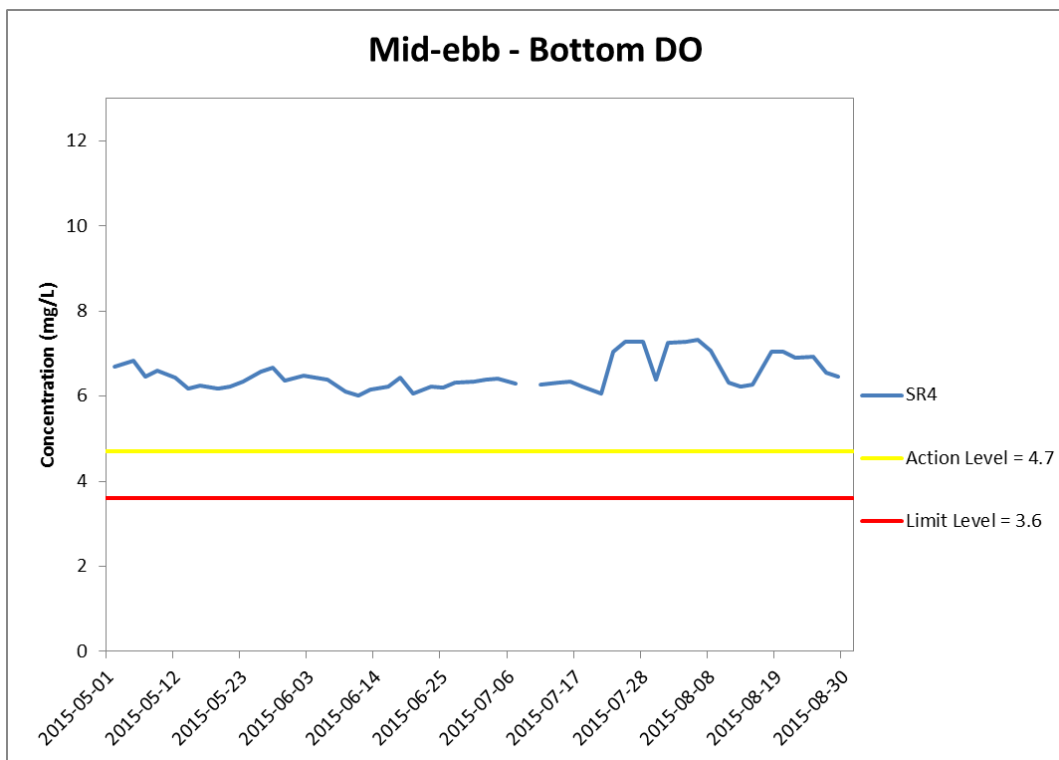
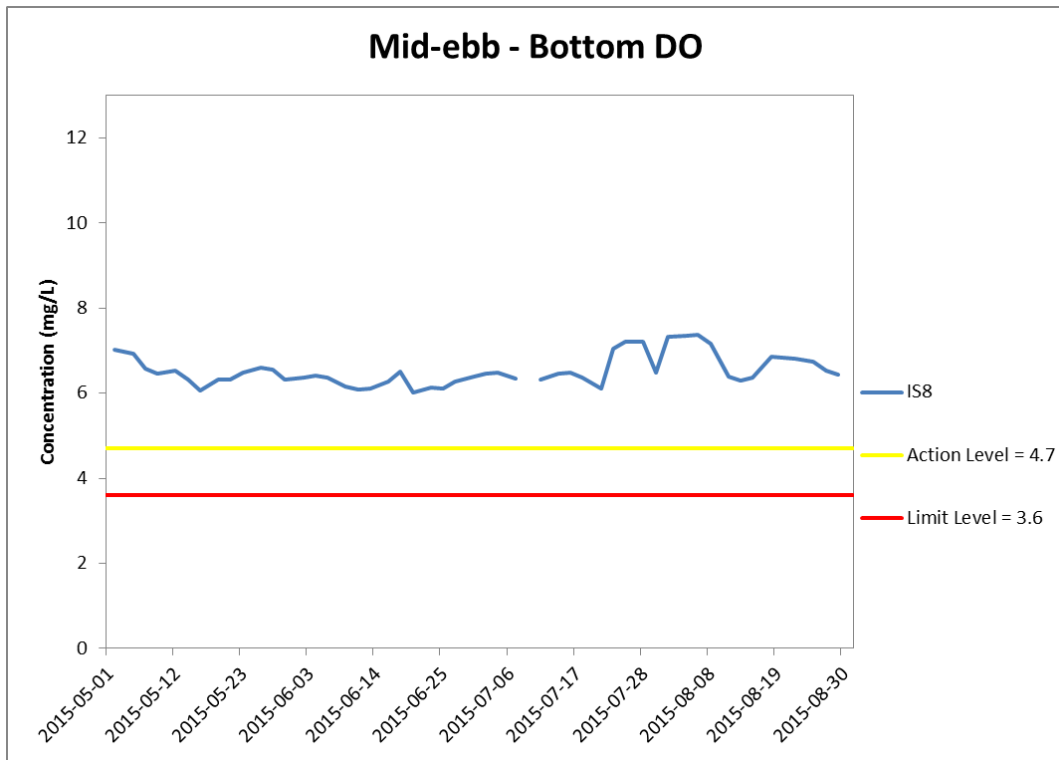


Figure H15 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 May and 31 August 2015 at IS8 and SR4.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



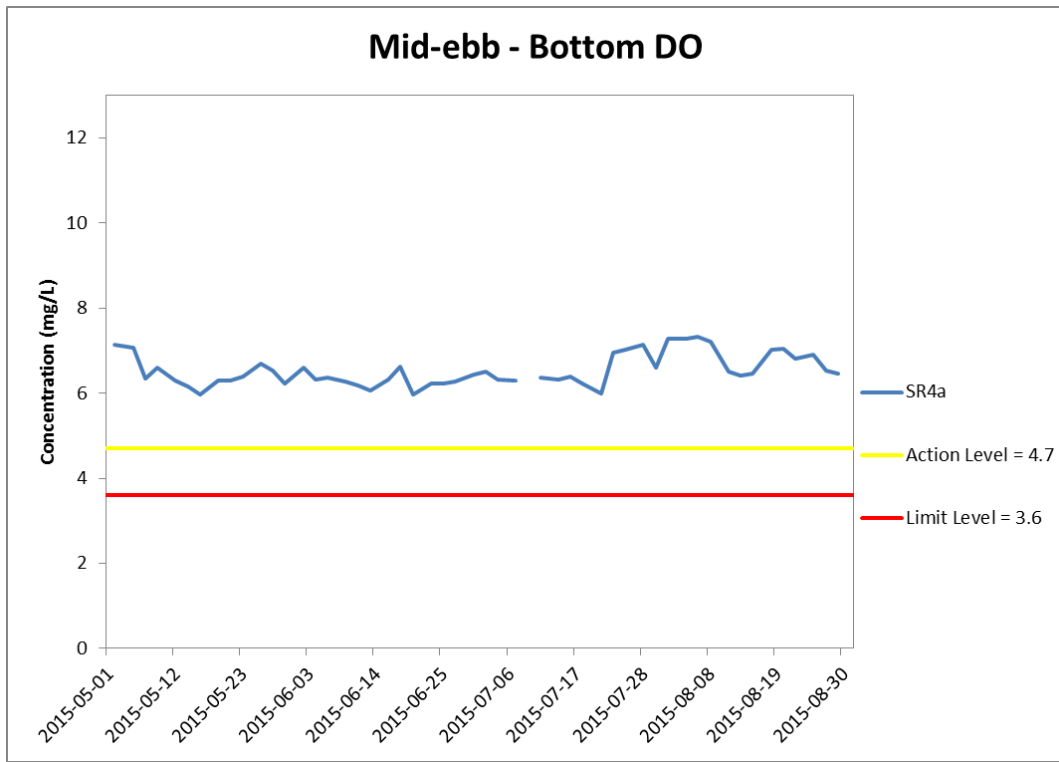


Figure H16 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 May and 31 August 2015 at SR4a.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



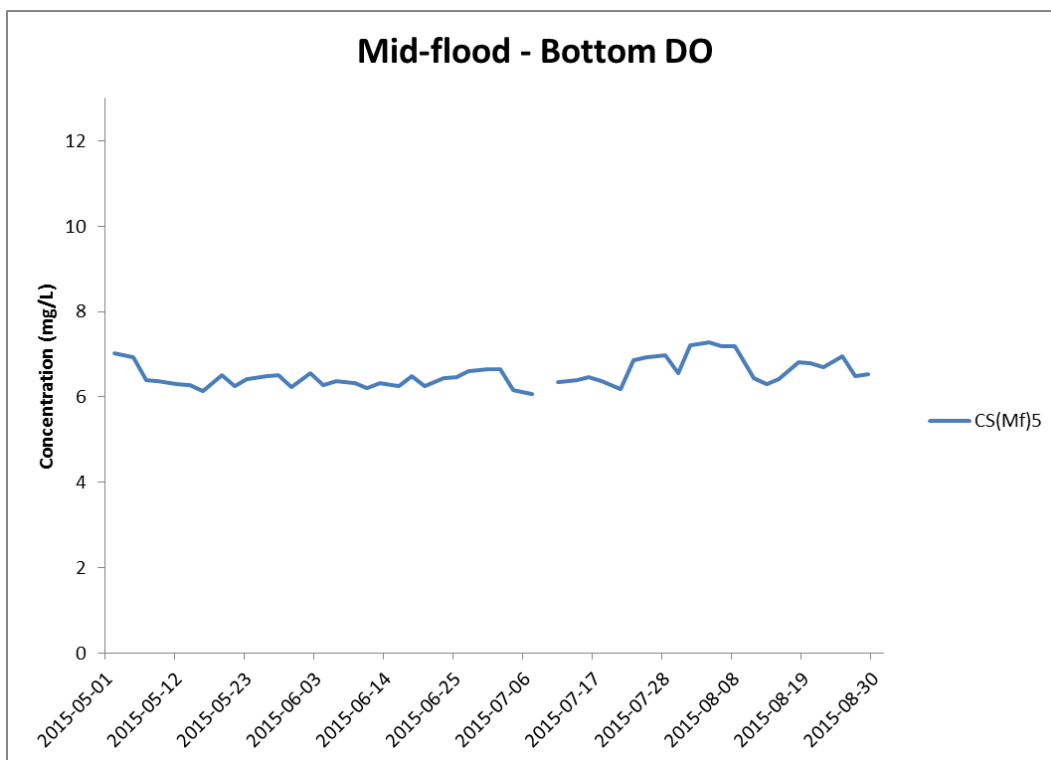
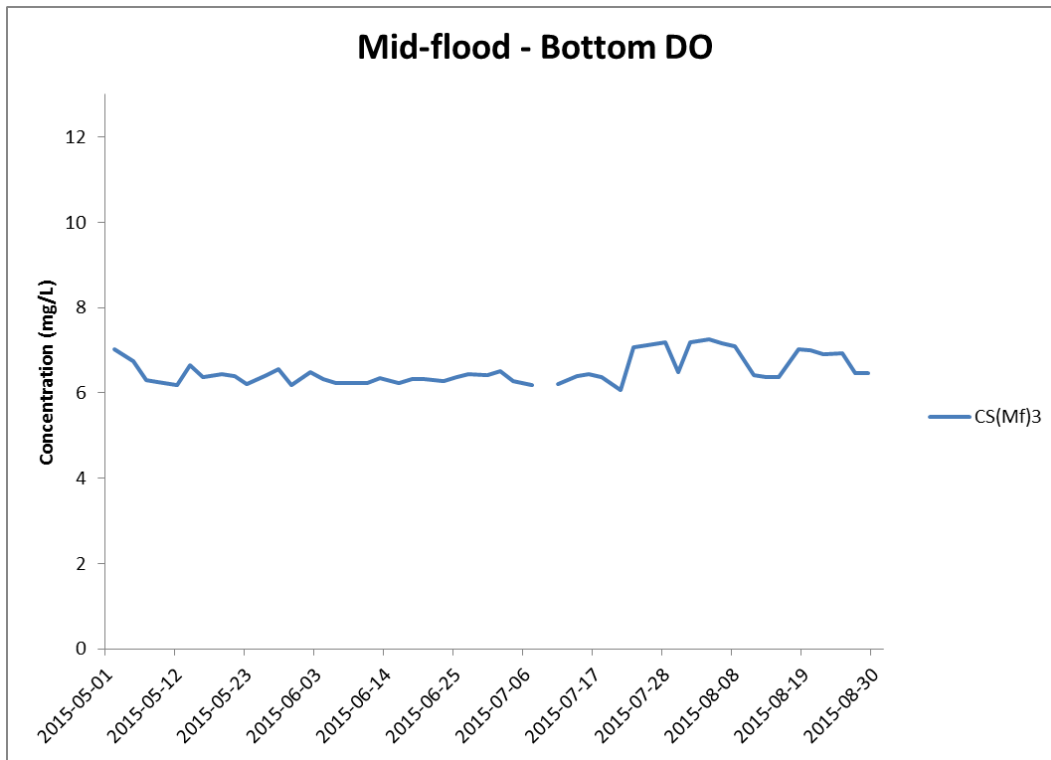


Figure H17 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(Mf)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



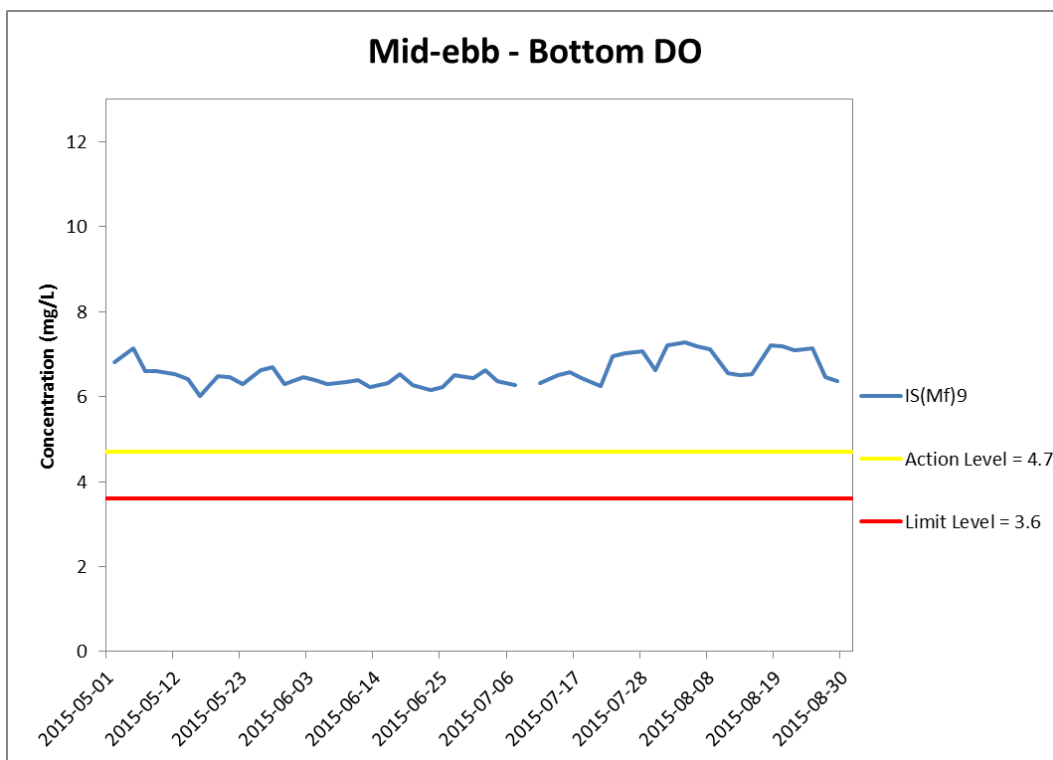
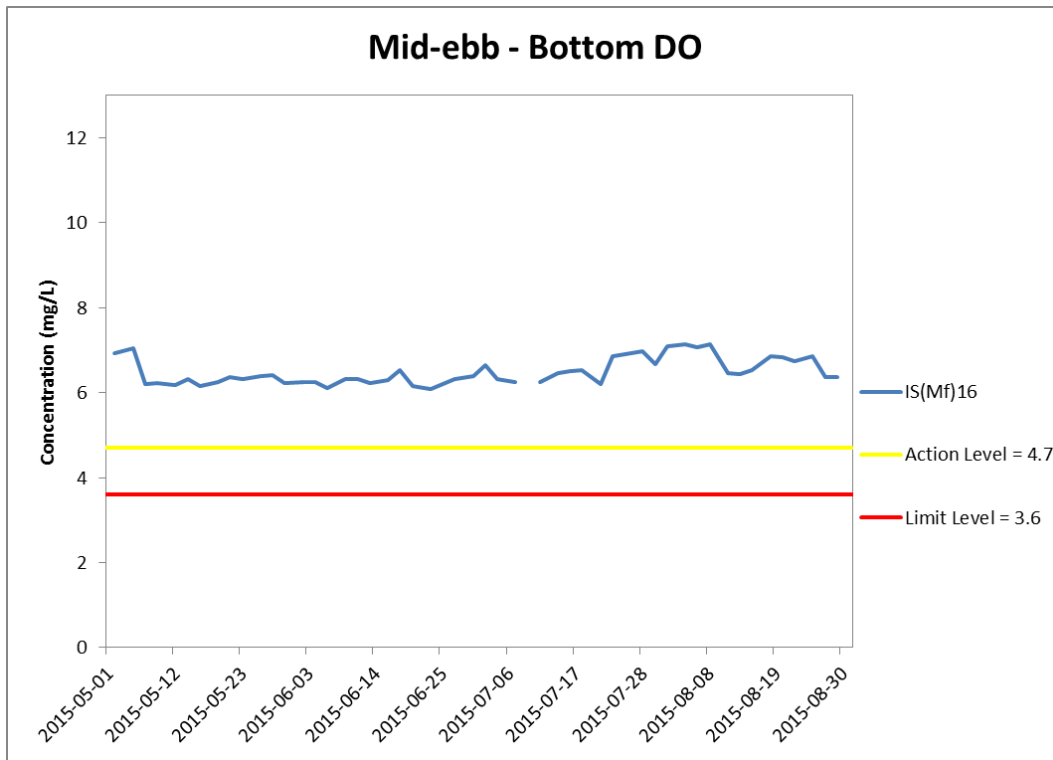
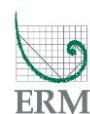


Figure H18 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 May and 31 August 2015 at IS(Mf)16 and IS(Mf)9.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



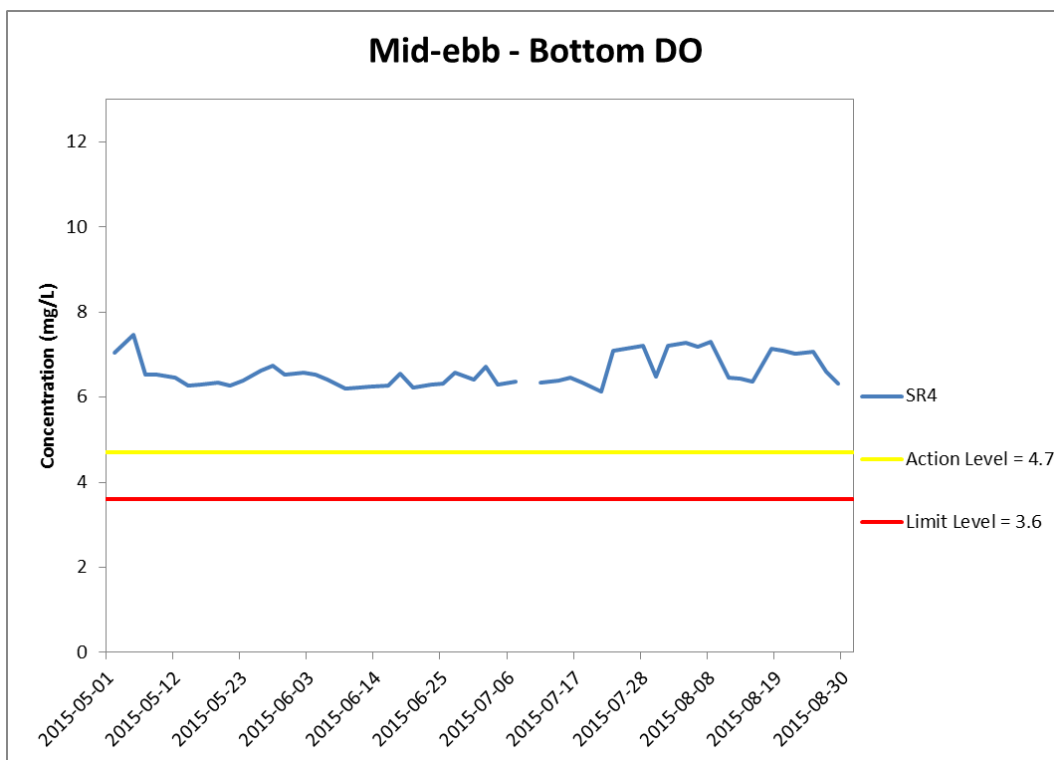
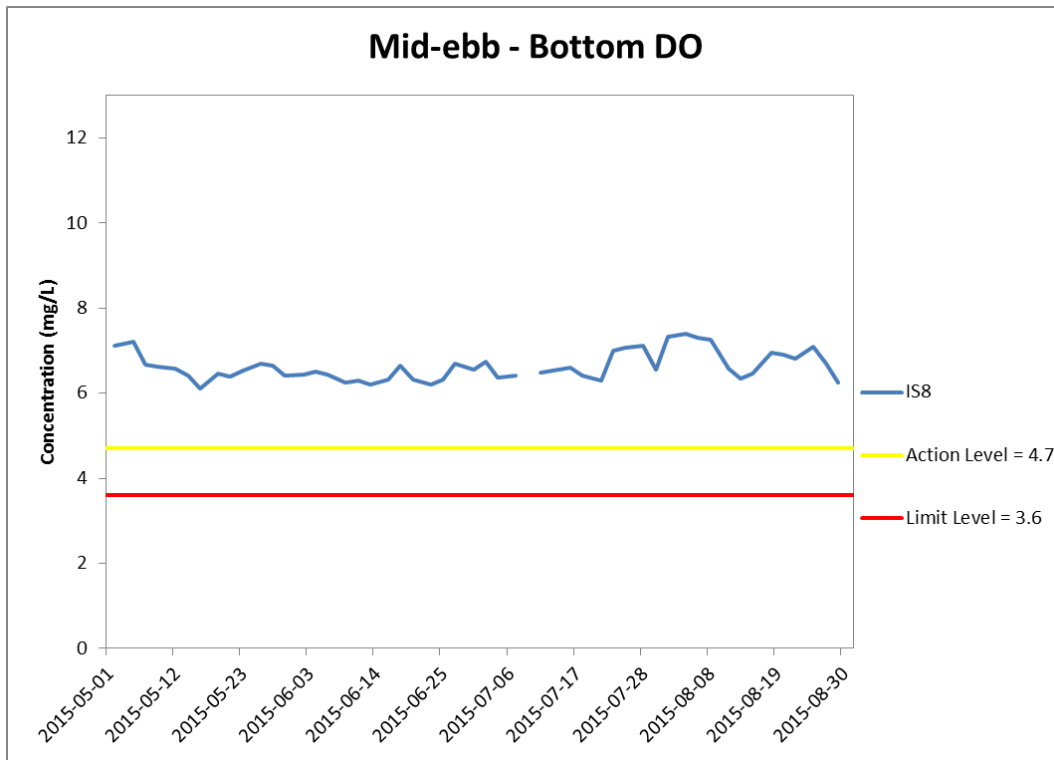
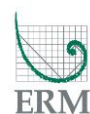


Figure H19 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 May and 31 August 2015 at IS8 and SR4.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



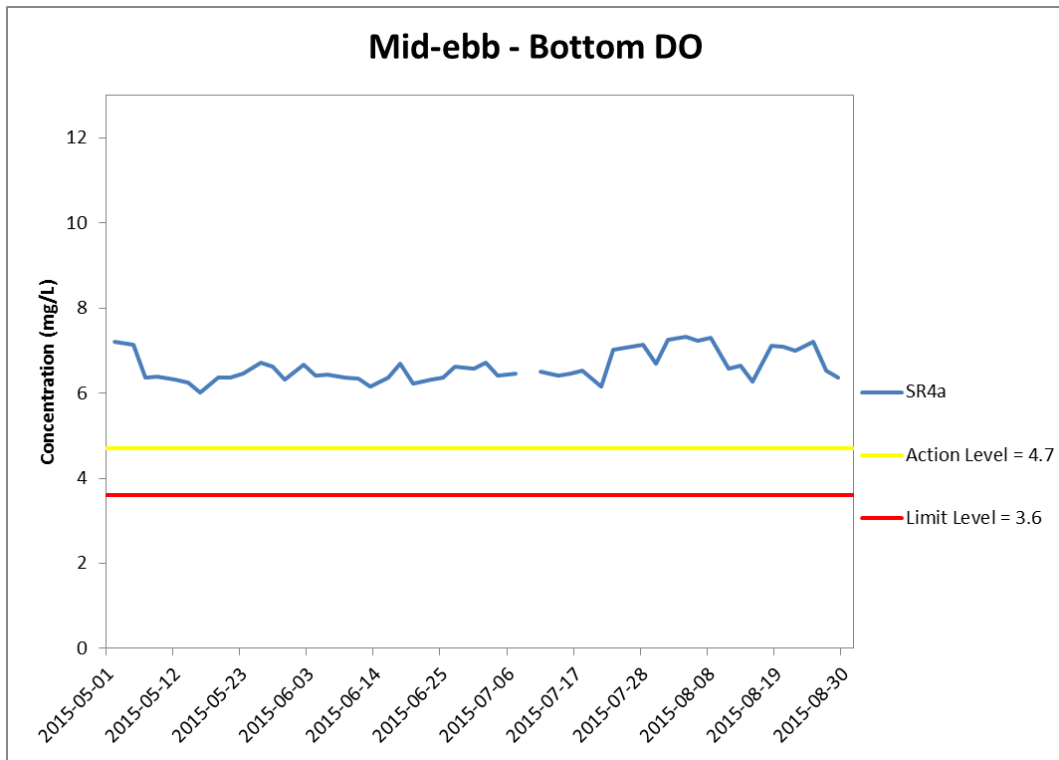


Figure H20 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 May and 31 August 2015 at SR4a.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
Management**



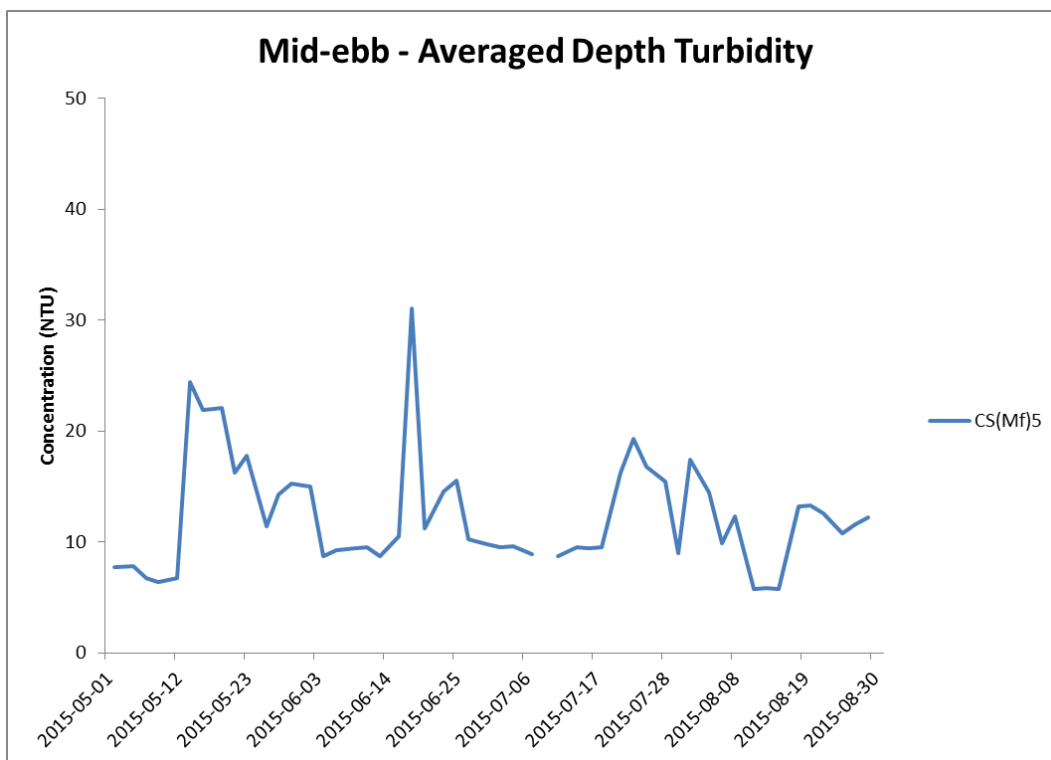
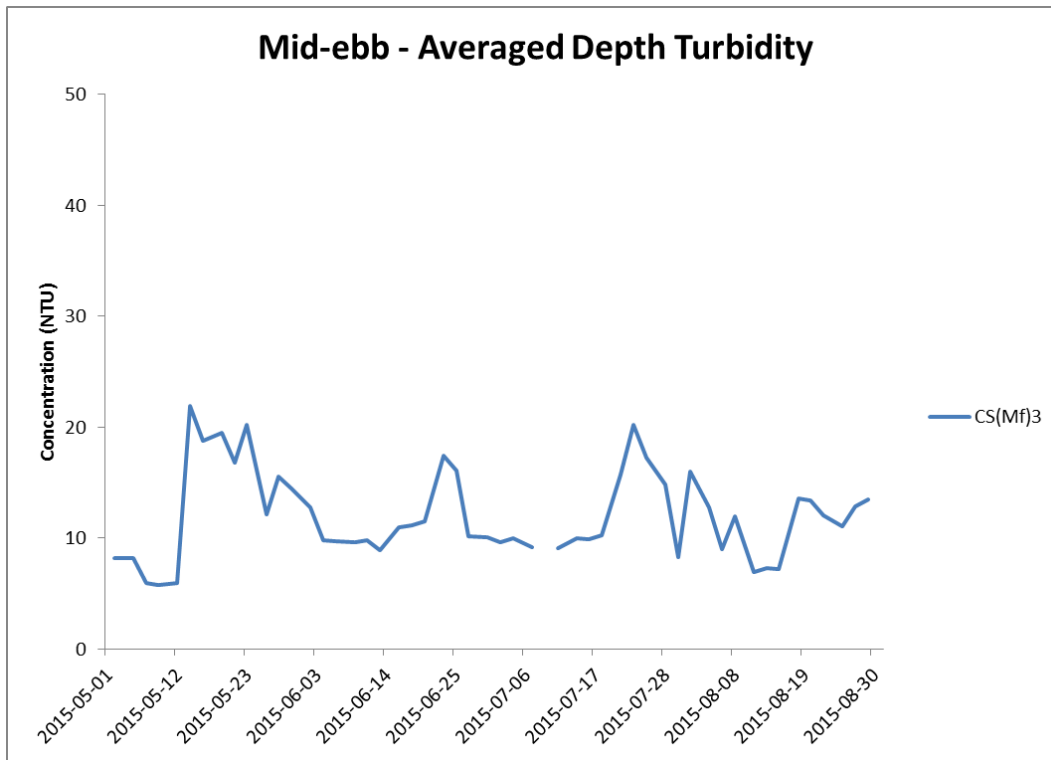
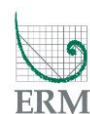


Figure H21 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(Mf)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
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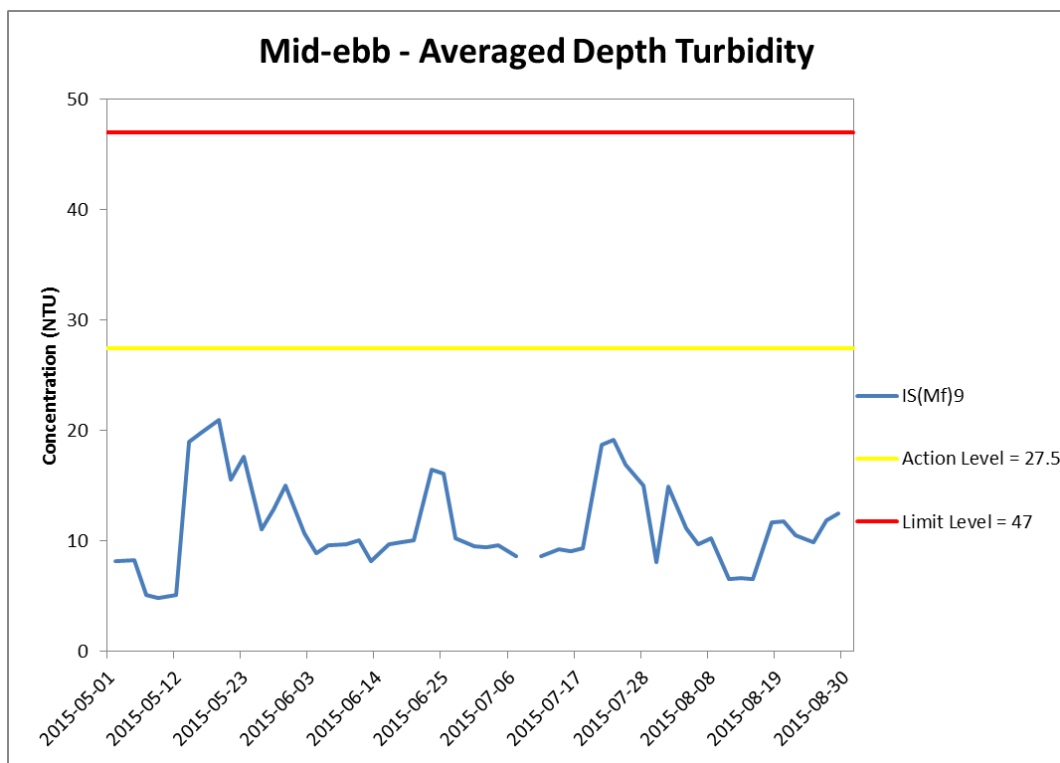
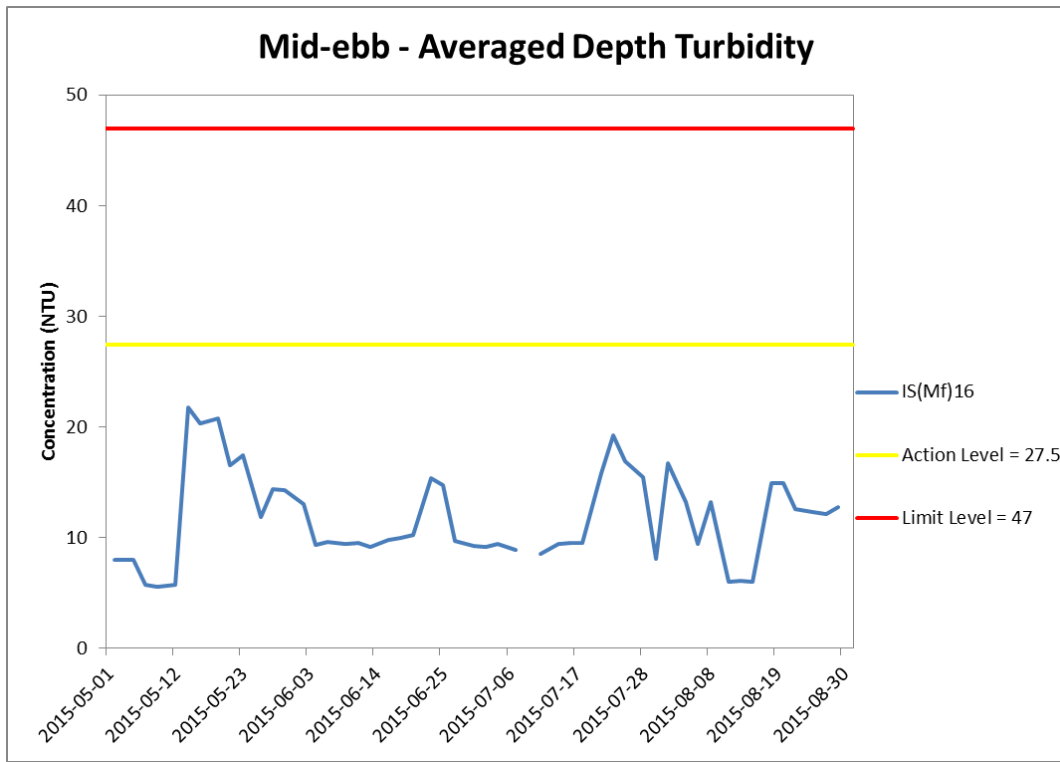


Figure H22 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 May and 31 August 2015 at IS(Mf)16 and IS(Mf)9.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
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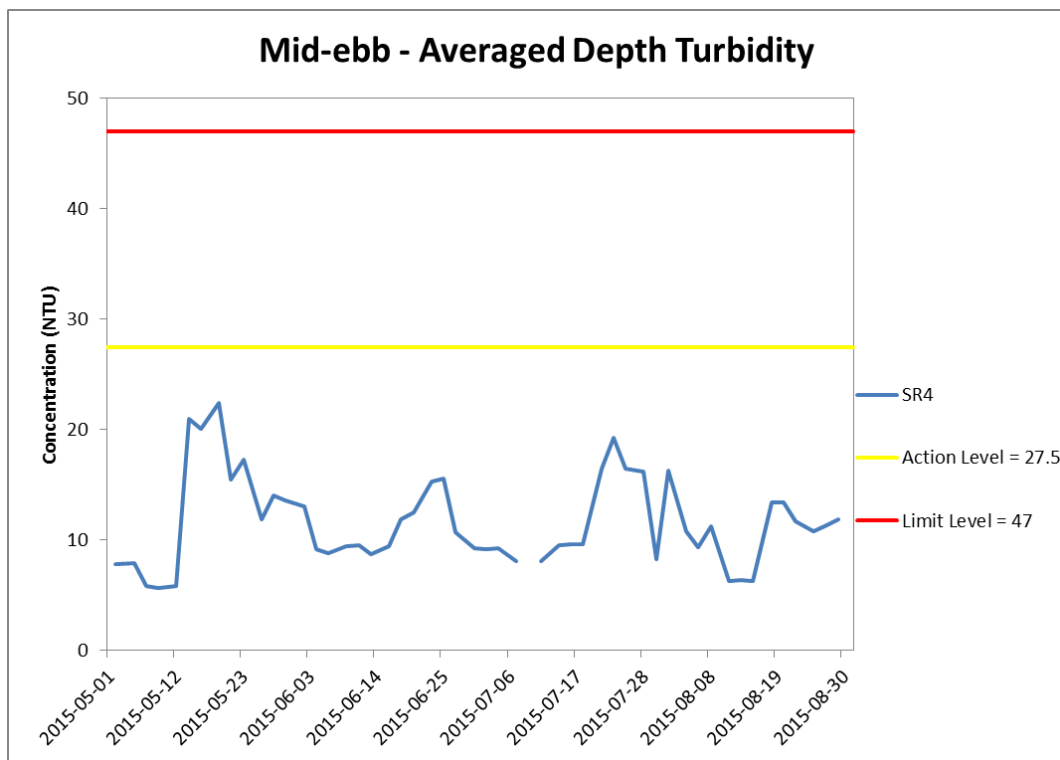
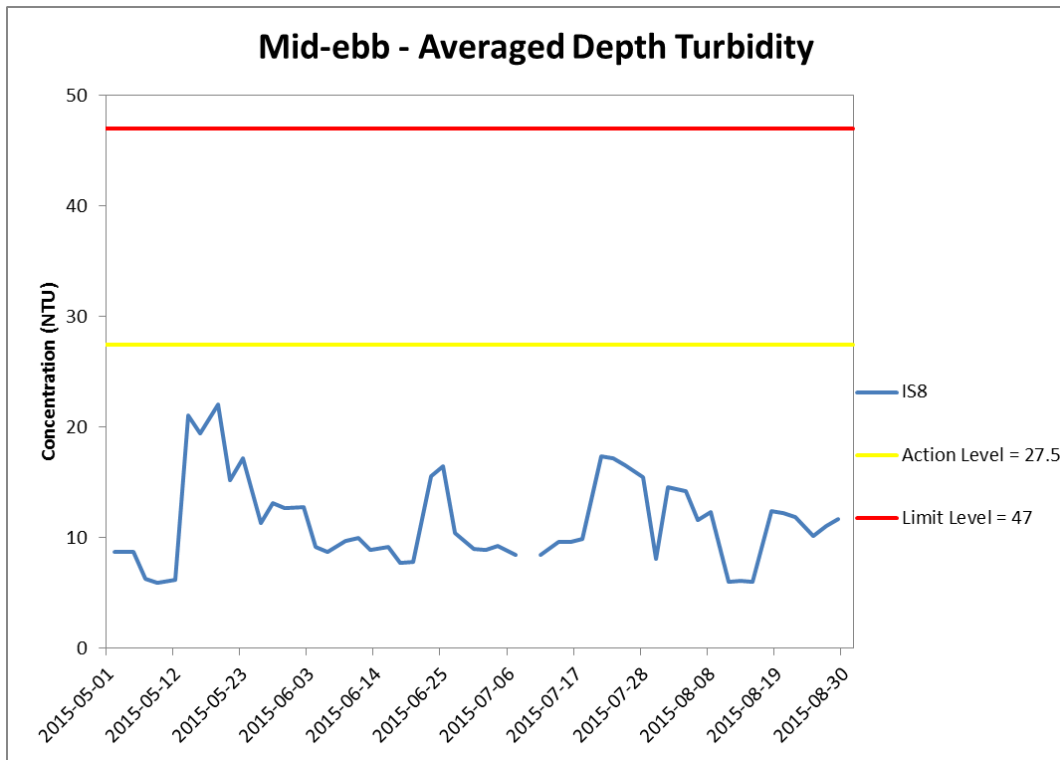


Figure H23 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 May and 31 August 2015 at IS8 and SR4.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
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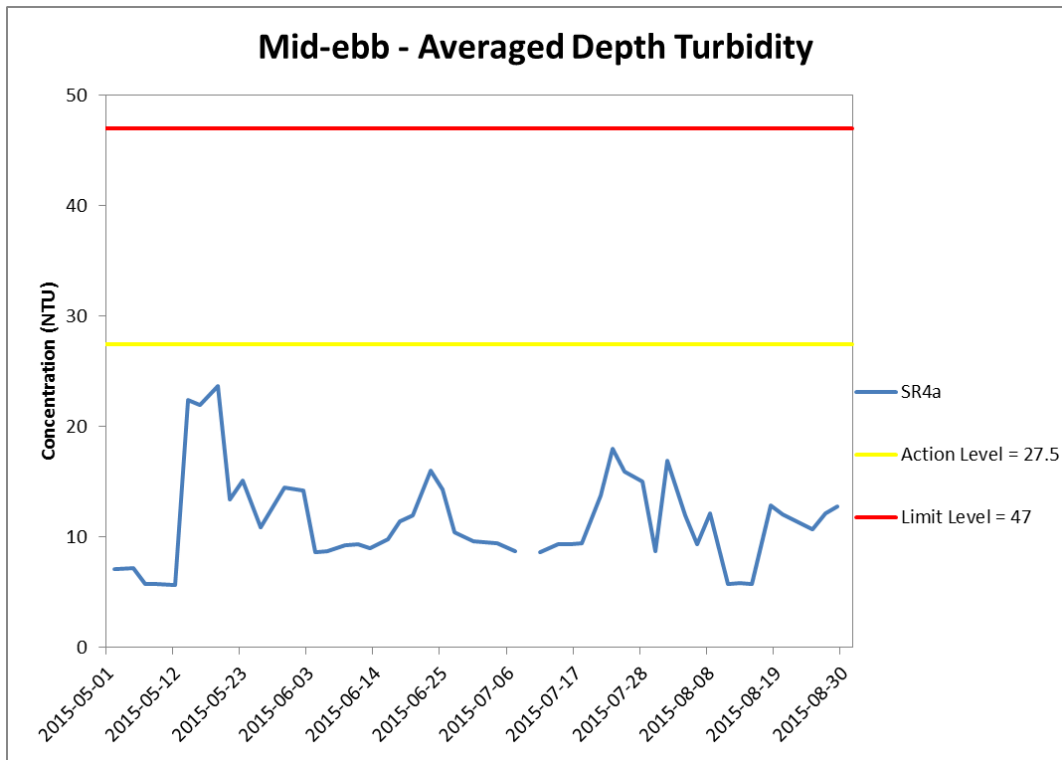


Figure H24 Impact Monitoring - Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 May and 31 August 2015 at SR4a.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
 Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
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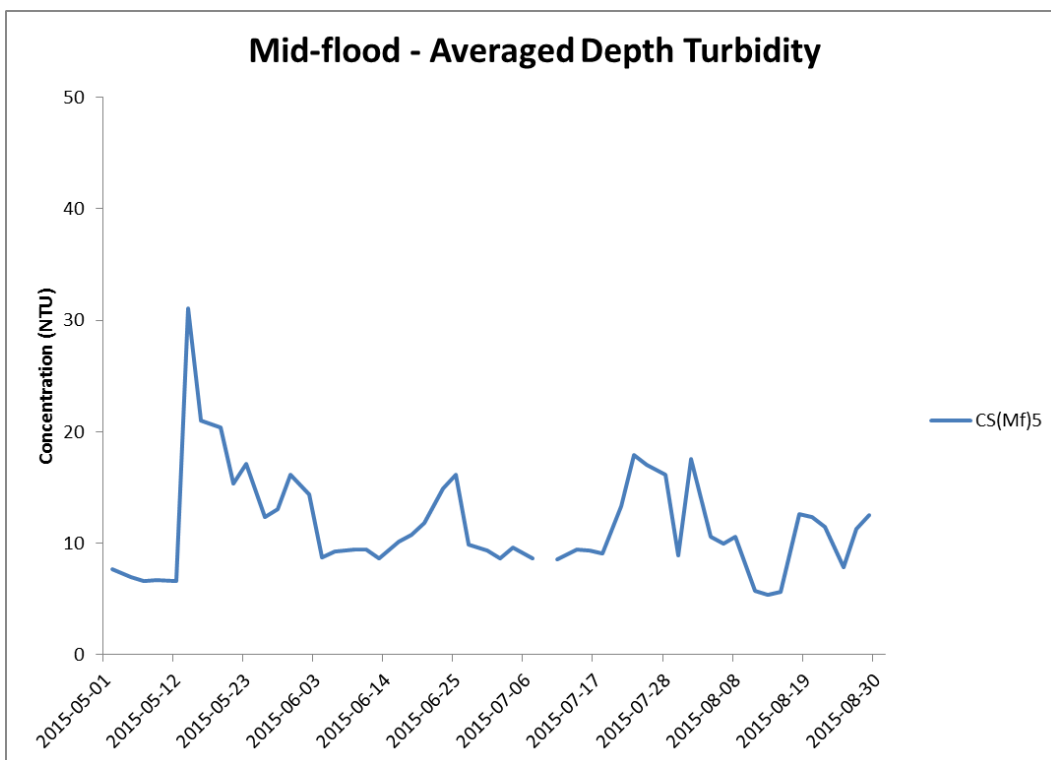
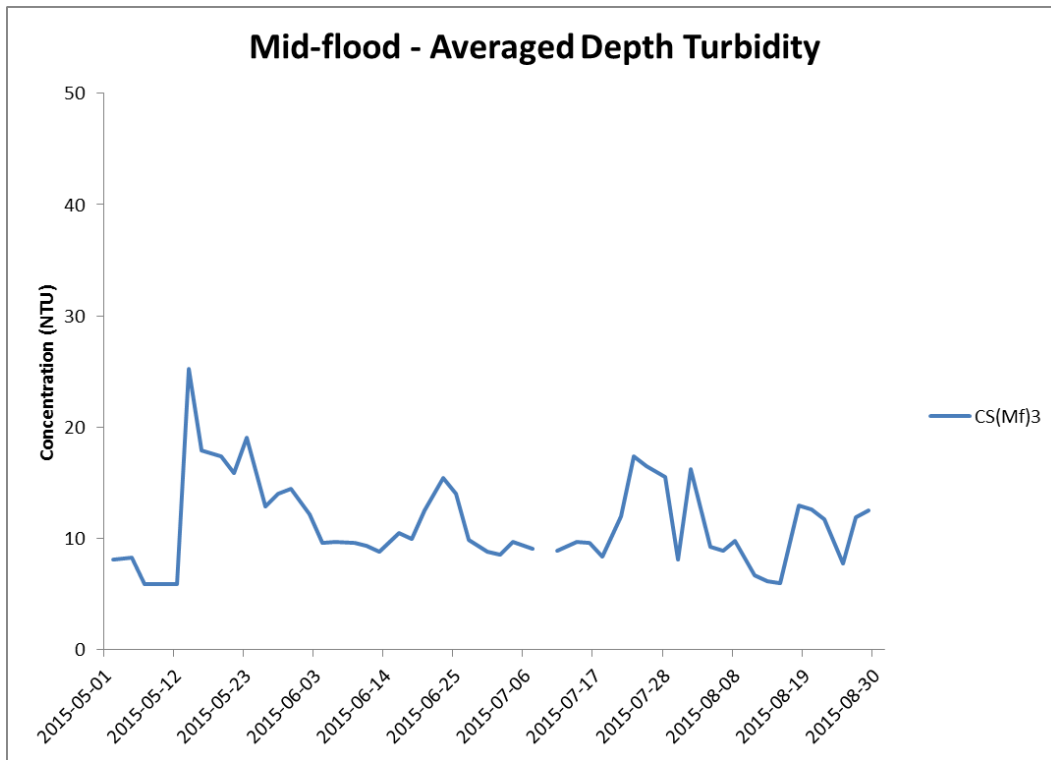


Figure H25 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(MF)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
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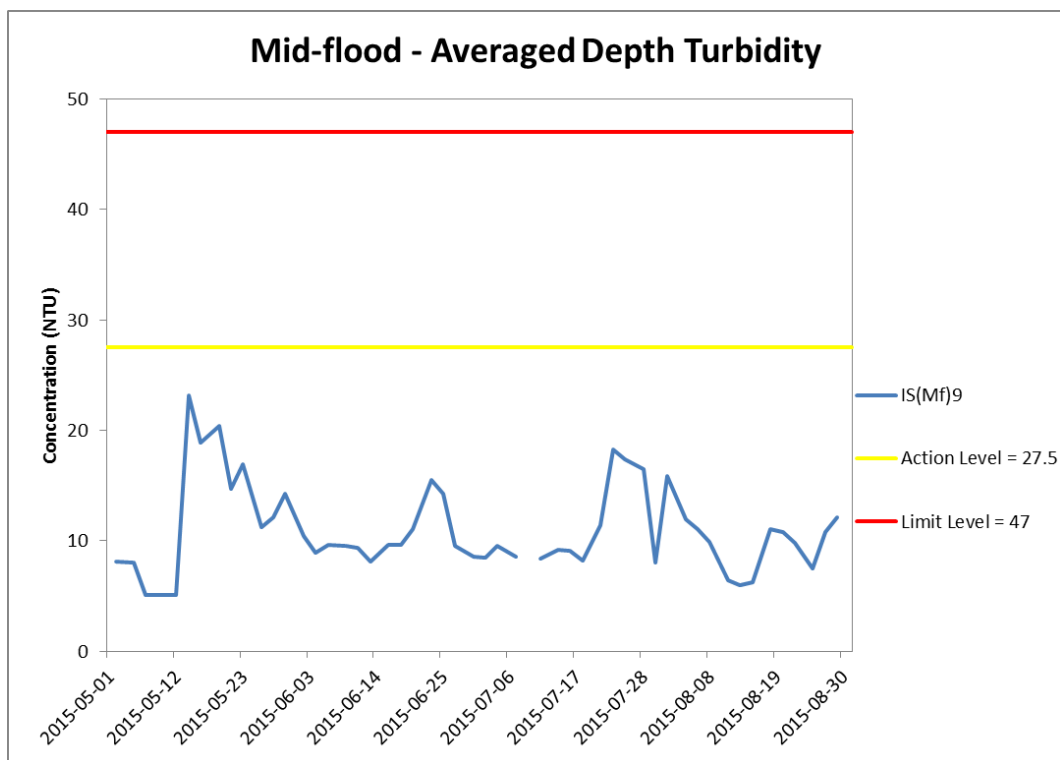
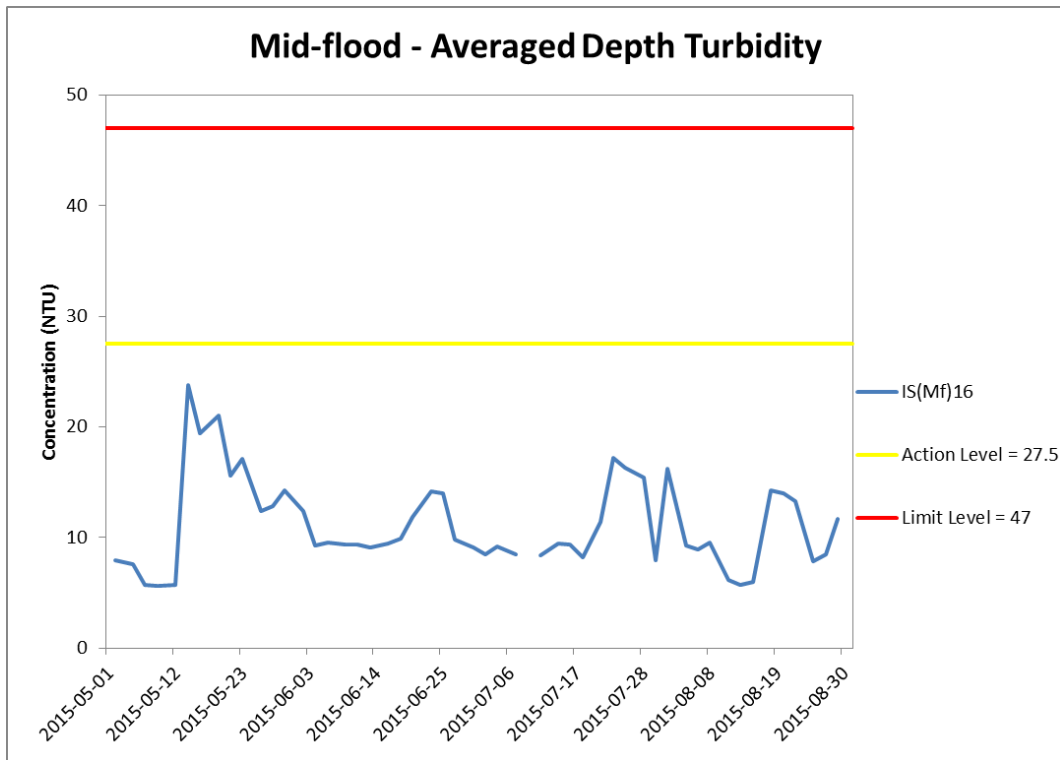


Figure H26 Impact Monitoring - Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 May and 31 August 2015 at IS(Mf)16 and IS(Mf)9.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
 Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
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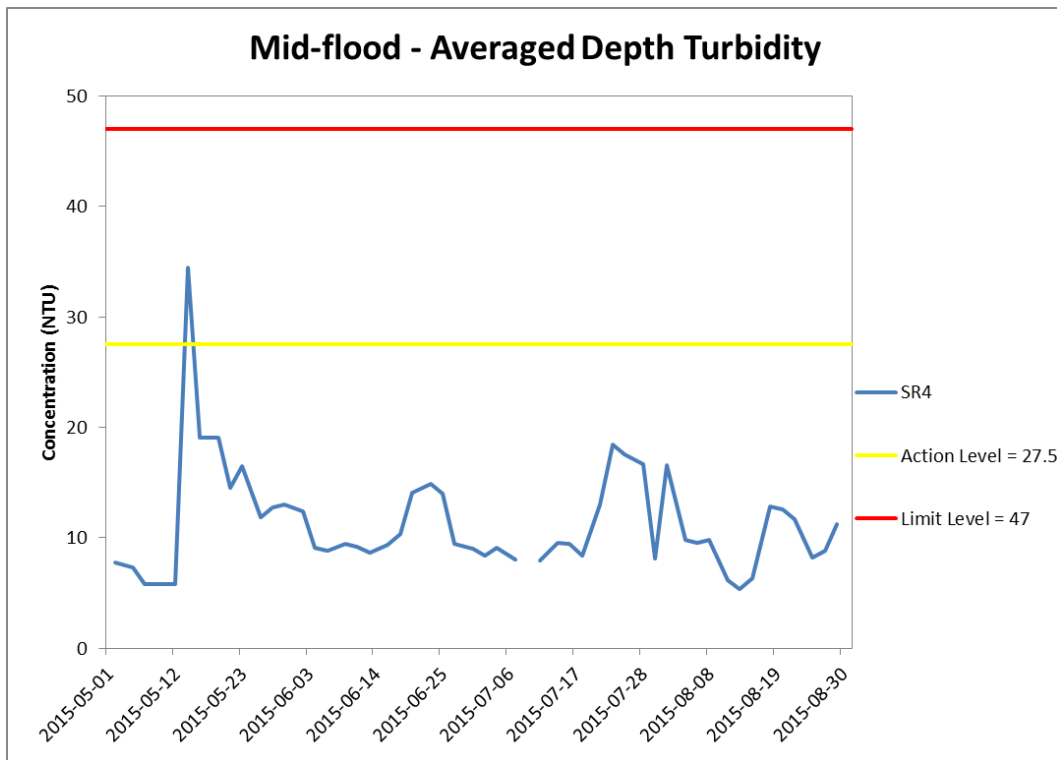
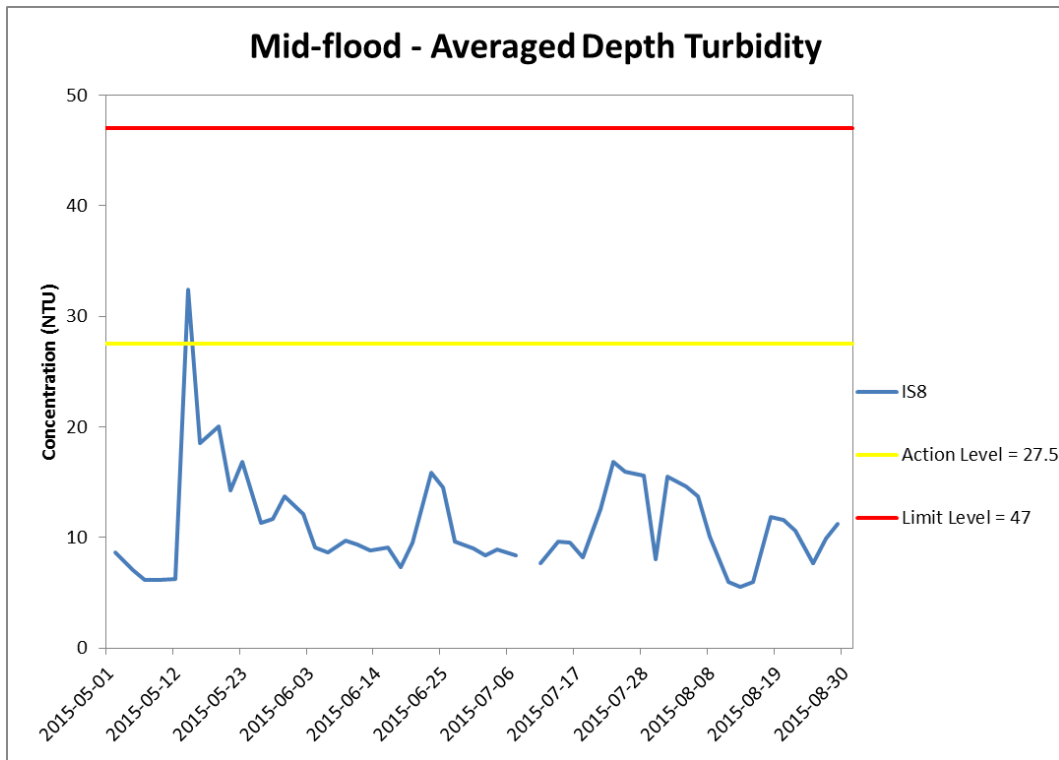


Figure H27 Impact Monitoring - Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 May and 31 August 2015 at IS8 and SR4.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
 Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling) The result higher than Action Level were not considered as exceedance as it was not higher than 120% of the upstream control station on the same day at same tide.

**Environmental
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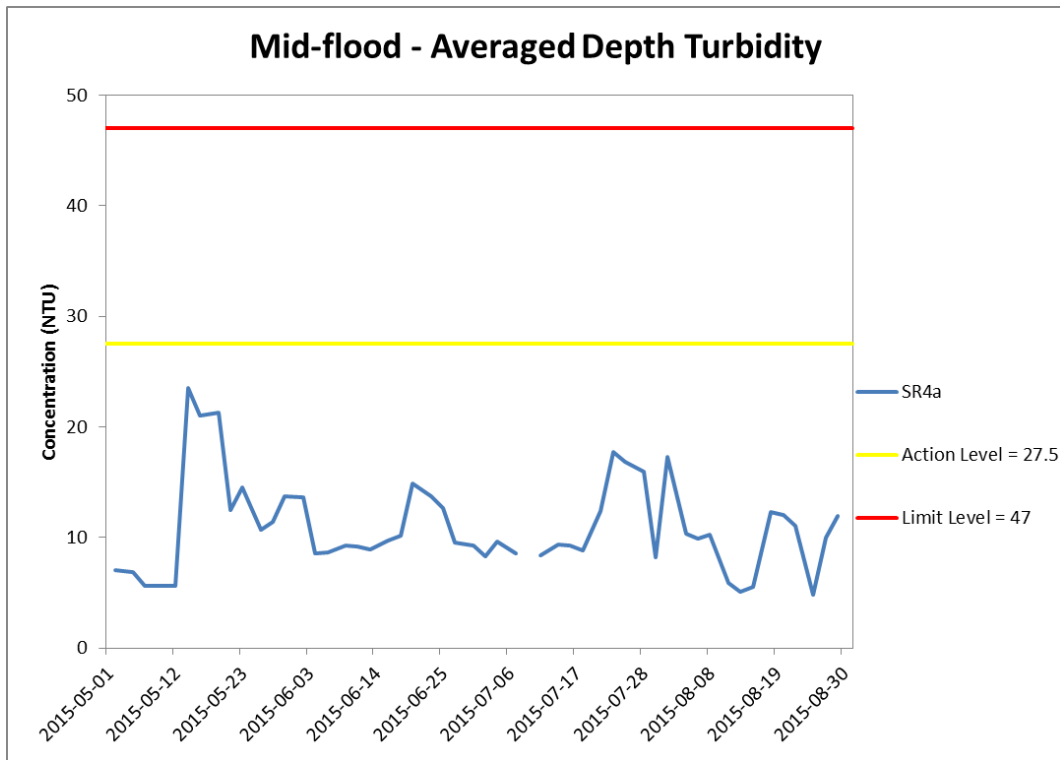


Figure H28 Impact Monitoring - Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 May and 31 August 2015 at SR4a.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
Resources
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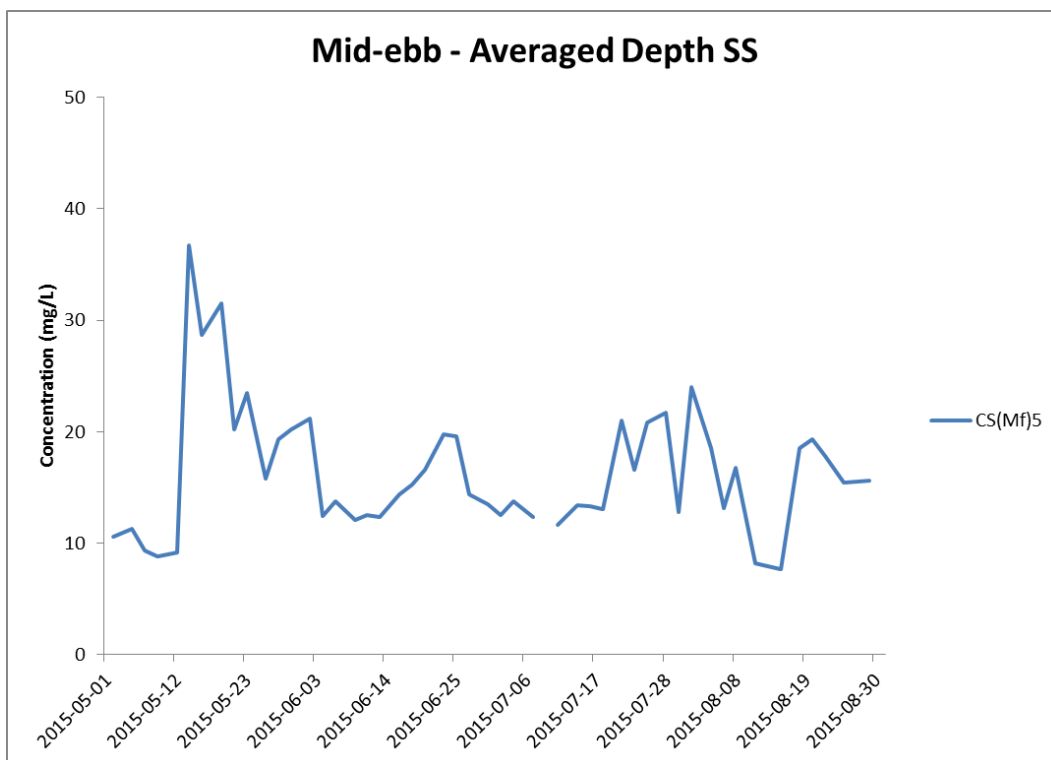
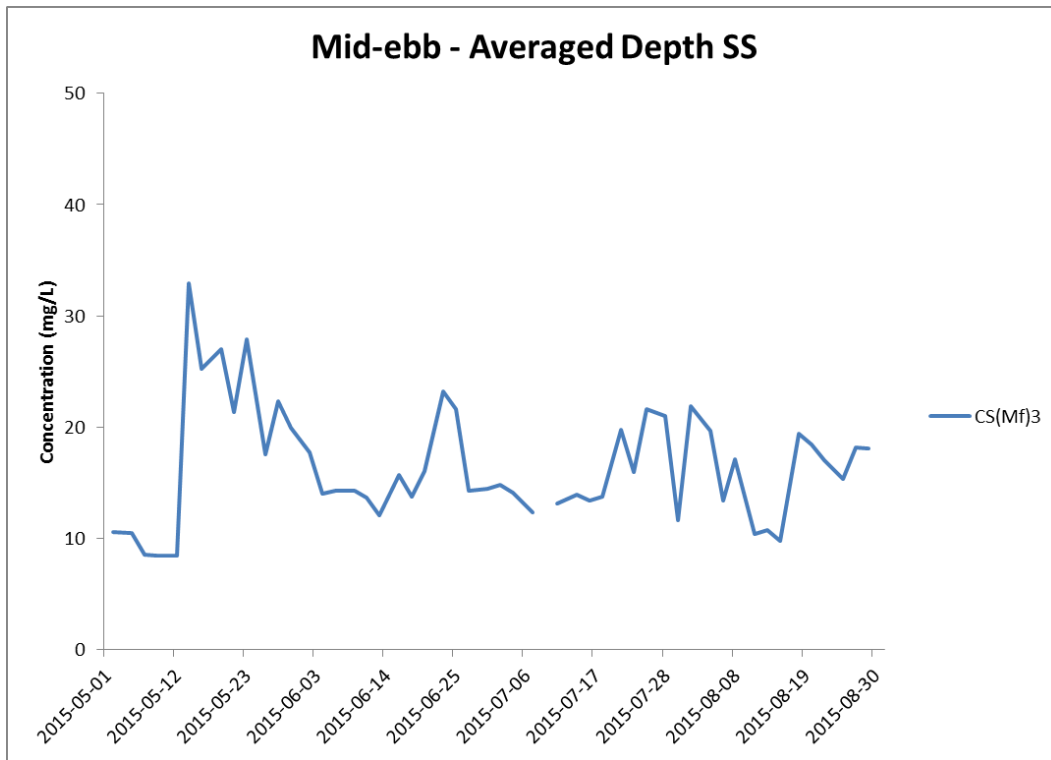


Figure H29 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(Mf)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
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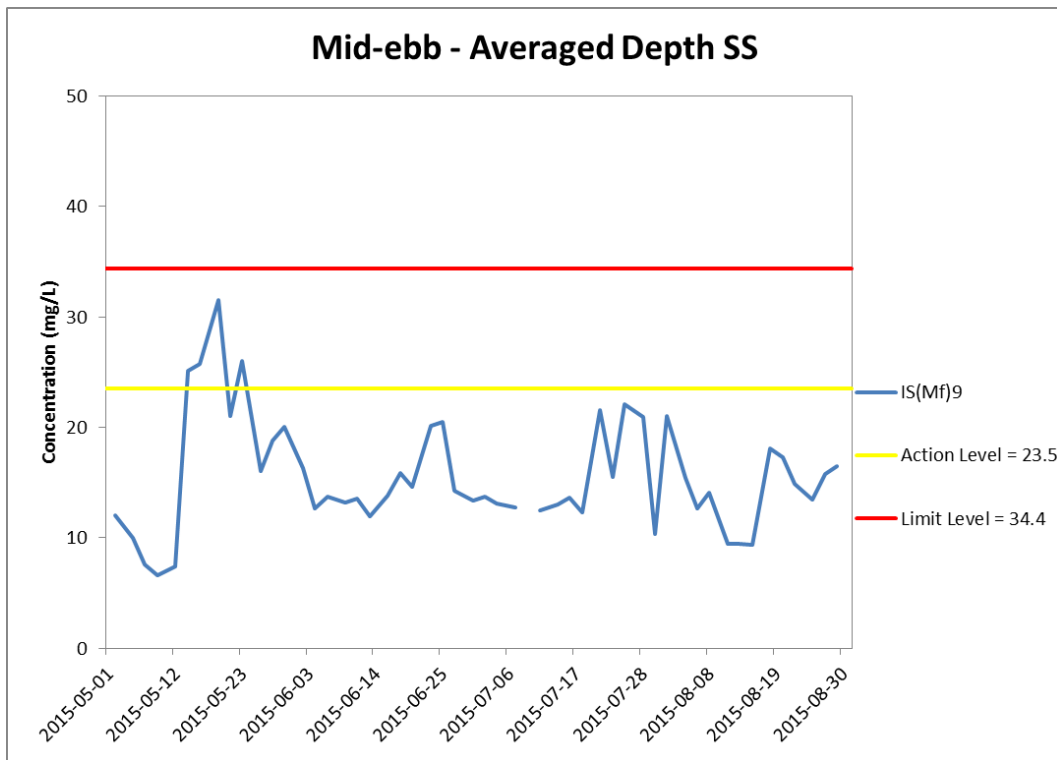
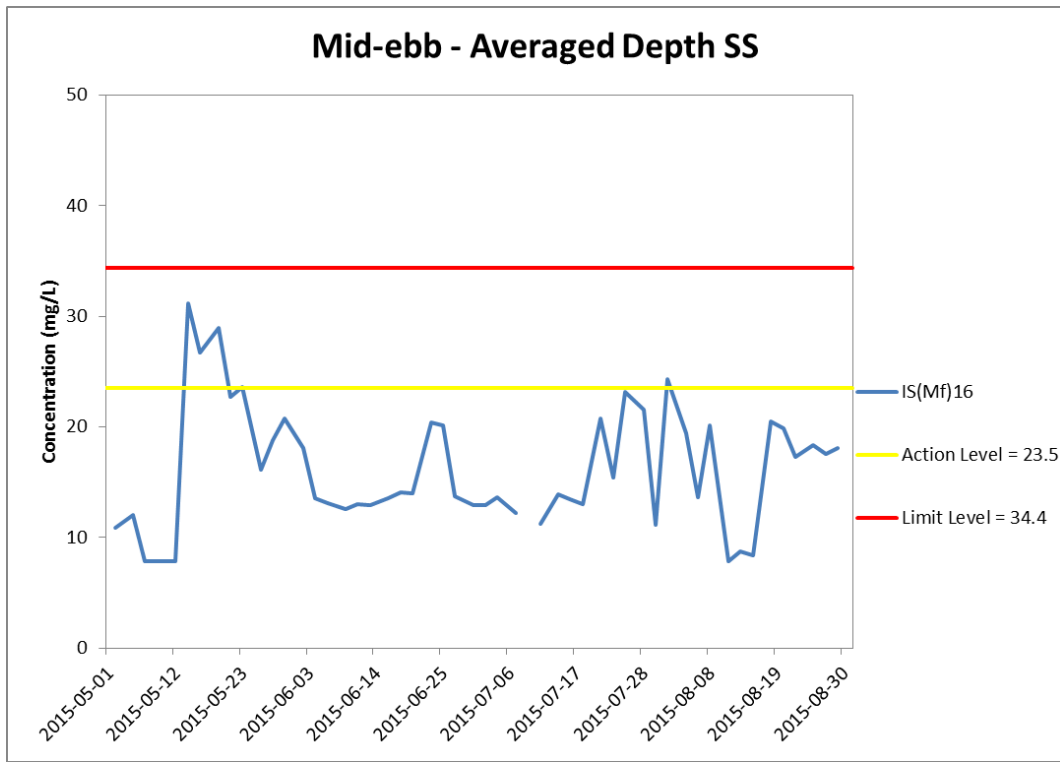


Figure H30 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 May and 31 August 2015 at IS(Mf)16 and IS(Mf)9.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling) The SS results higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.

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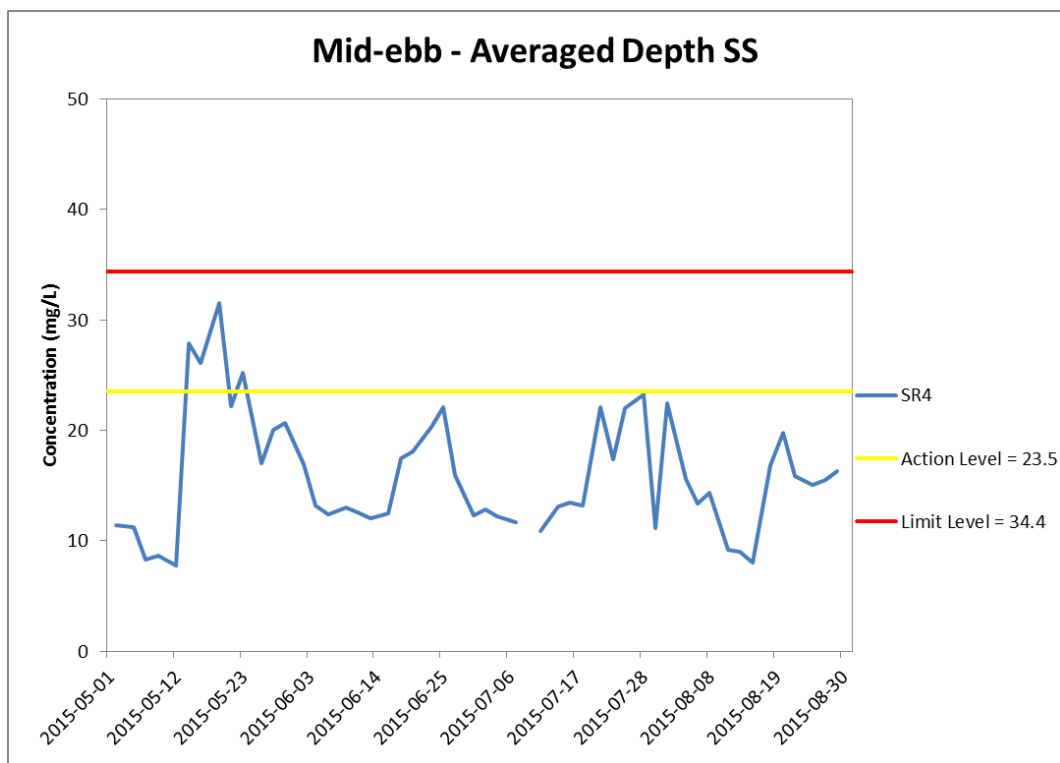
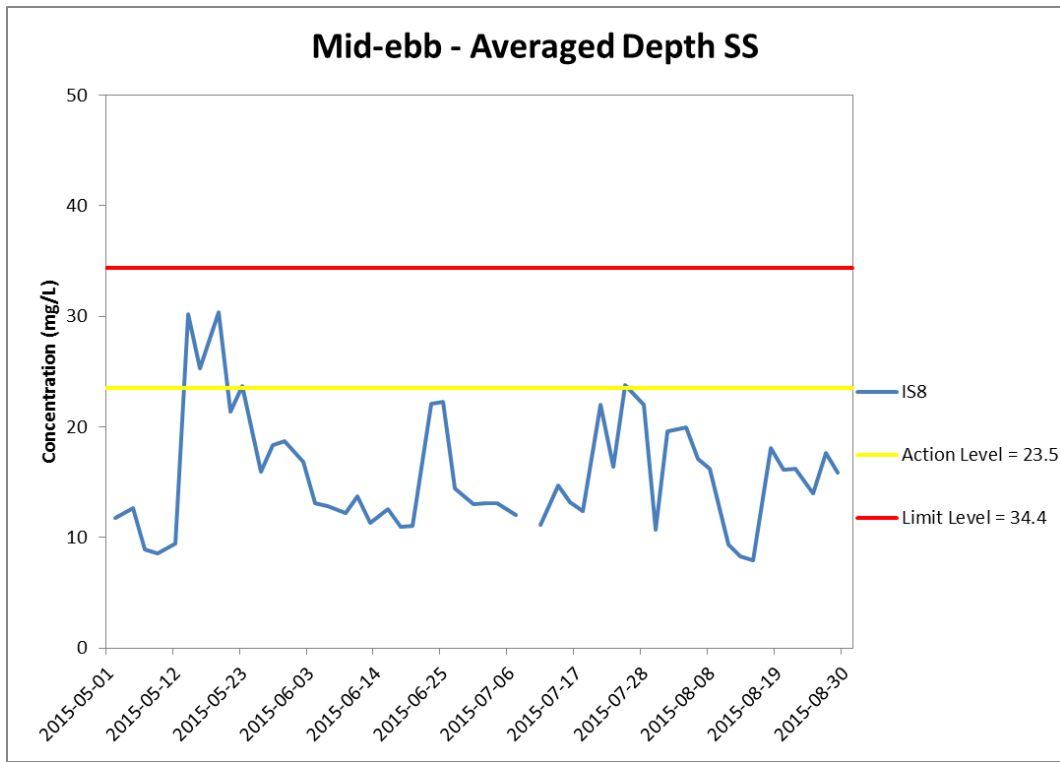


Figure H31 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 May and 31 August 2015 at IS8 and SR4.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.) Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling) The SS results higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.

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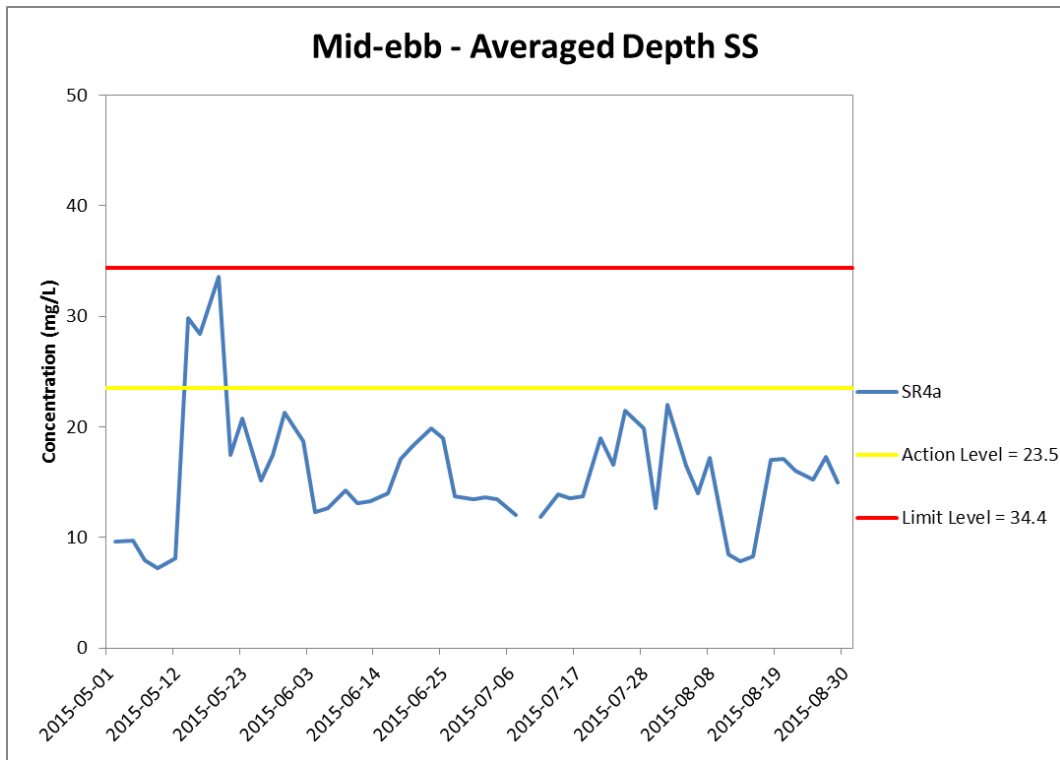


Figure H32 Impact Monitoring - Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 May and 31 August 2015 at SR4a.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling) Apart from 19 May, the SS results higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.

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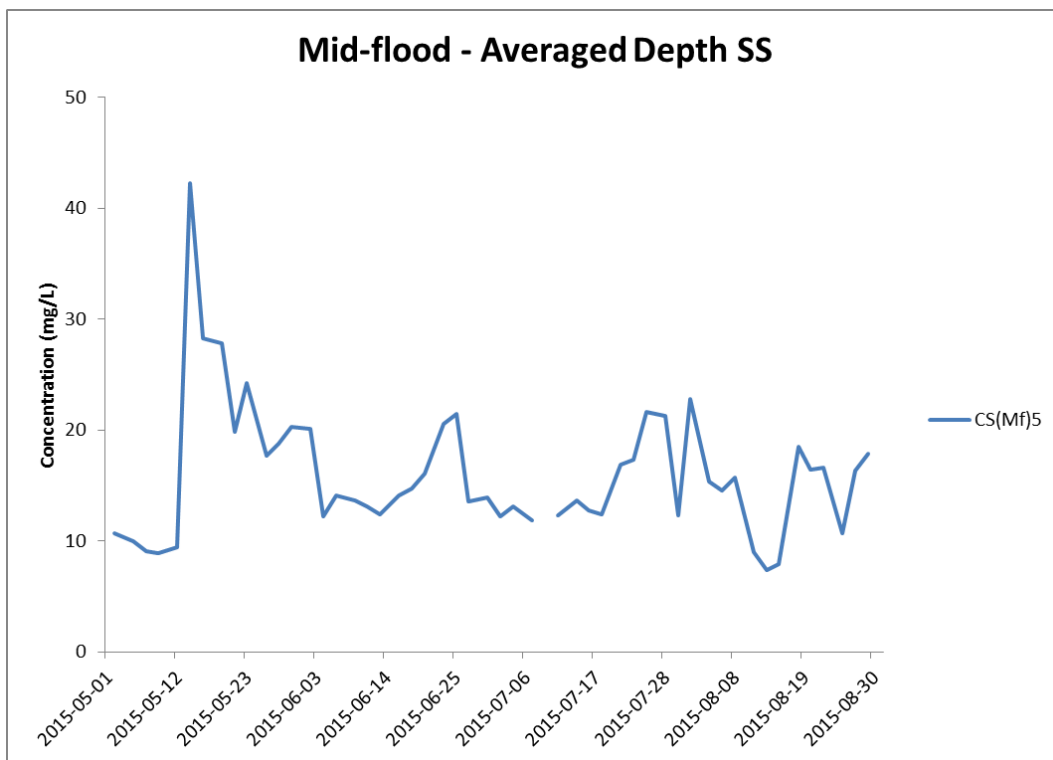
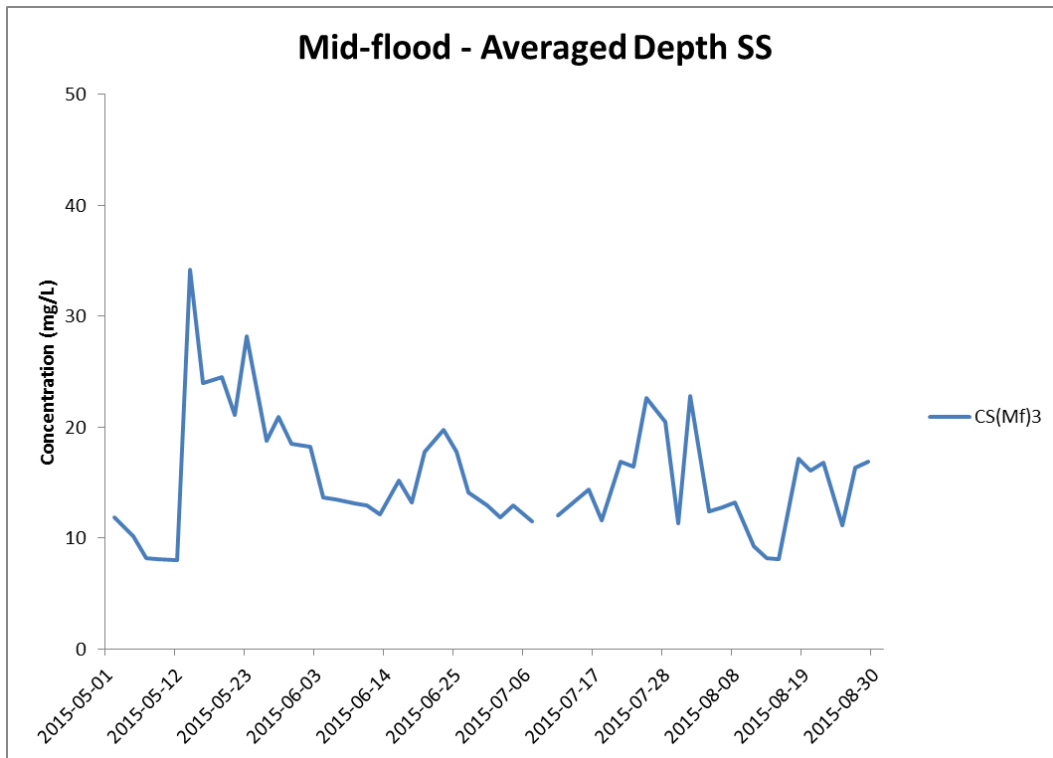


Figure H33 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 May and 31 August 2015 at CS(Mf)3 and CS(Mf)5.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling)

**Environmental
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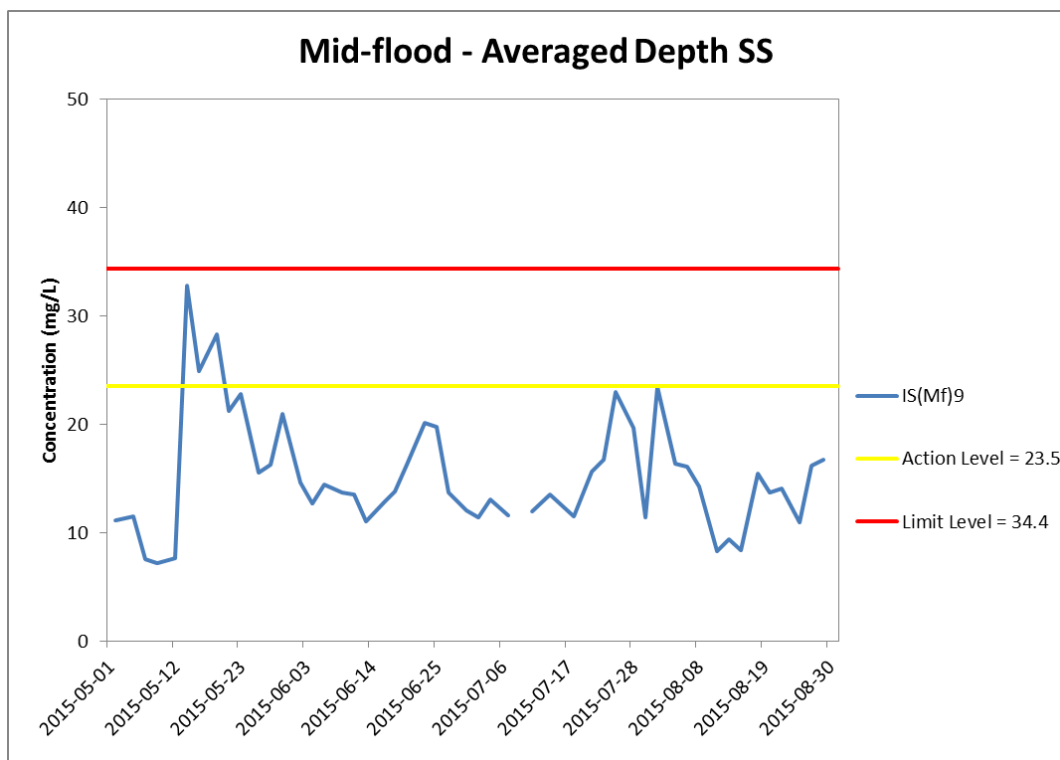
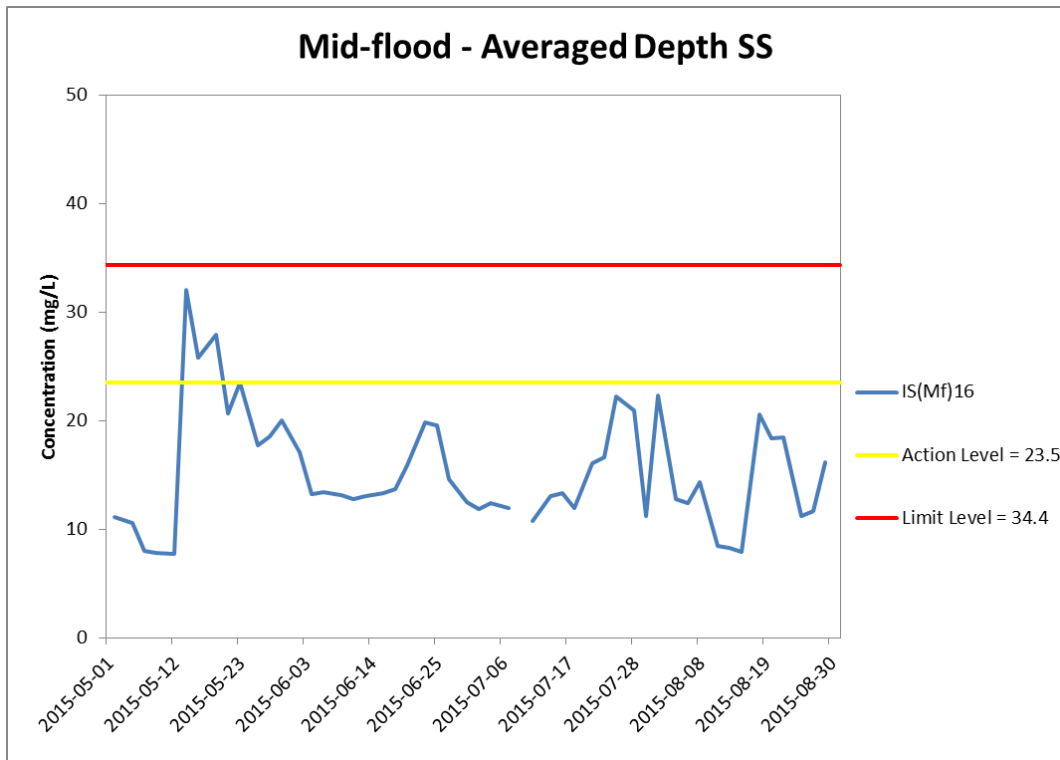


Figure H34 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 May and 31 August 2015 at IS(Mf)16 and IS(Mf)9.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
 Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling) The SS results higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.

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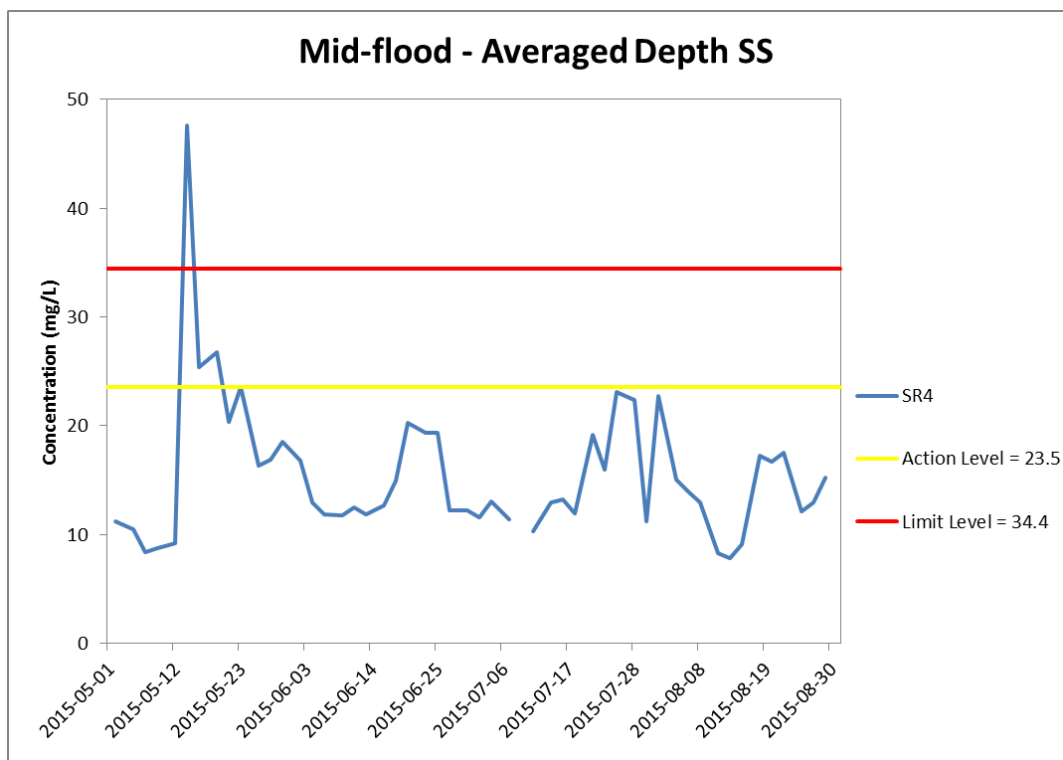
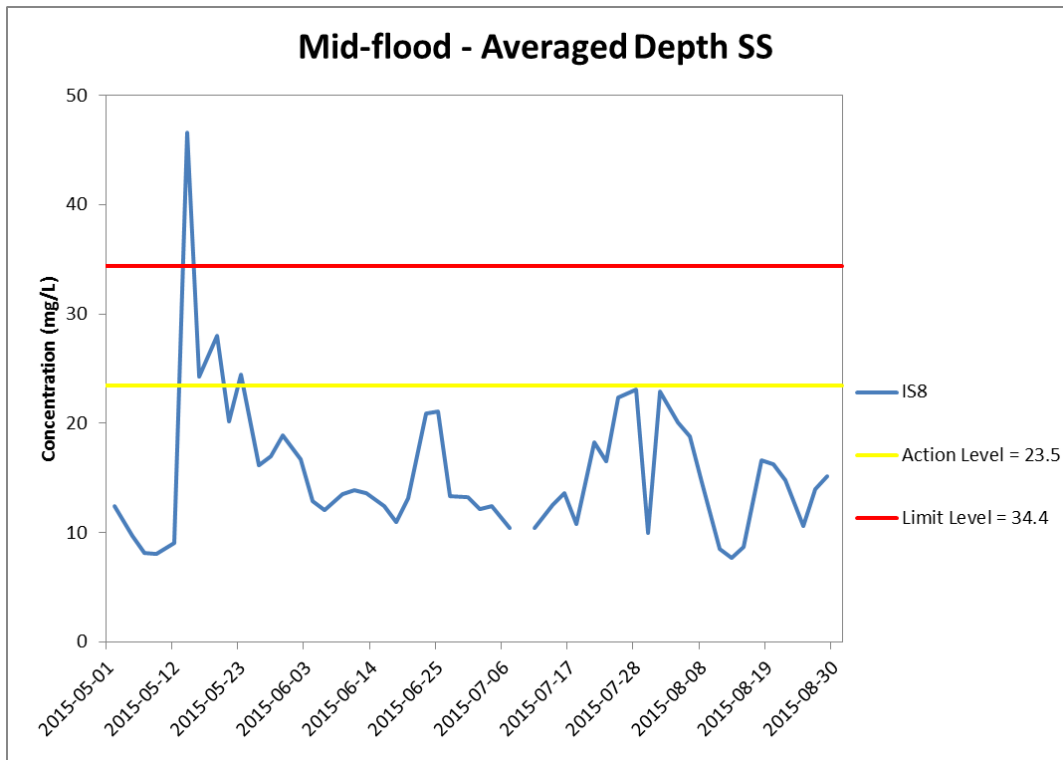


Figure H35 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 May and 31 August 2015 at IS8 and SR4.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.)
 Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling) The SS results higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.

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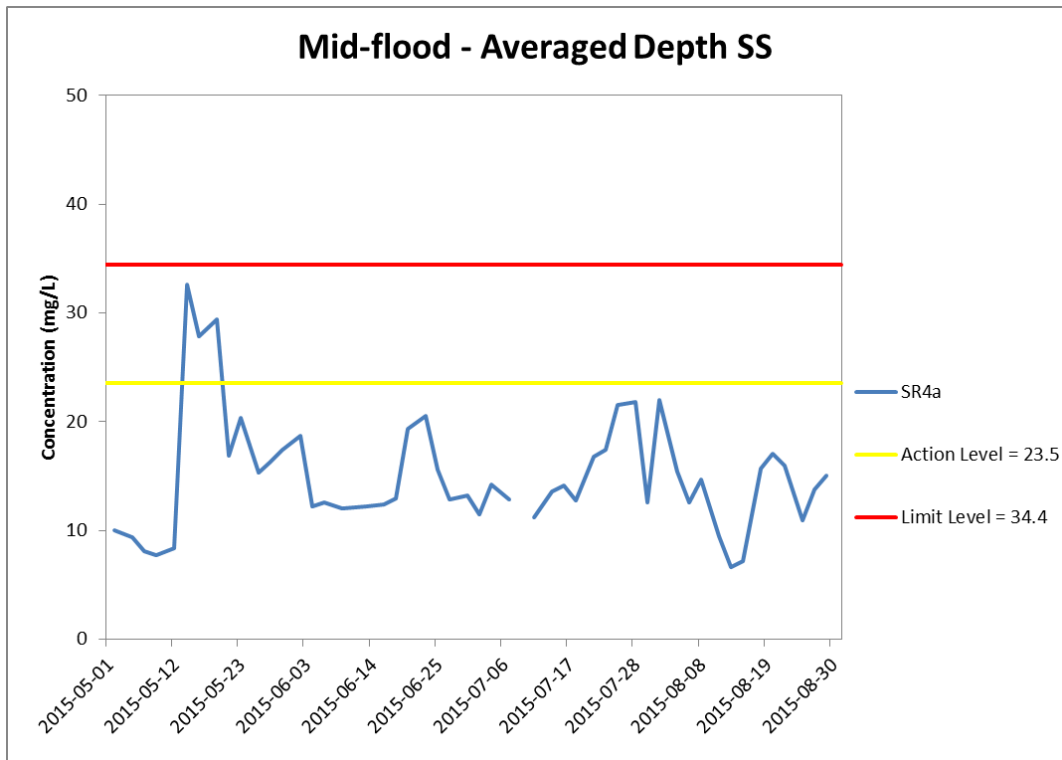


Figure H36 Impact Monitoring - Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 May and 31 August 2015 at SR4a.

WQM was cancelled on 9 July 2015 due to adverse weather. (Weather condition varied between sunny to rainy within the reporting period.

Marine works within the reporting period include Construction and installation of pile caps; Uninstallation of marine piling platform; Pier head segment installation; Pile cap installation; Pier construction; Launching gantry assembly and marine piling) The SS results higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.

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Appendix I

Impact Dolphin Monitoring Survey Results

CONTRACT NO. HY/2012/07

**Hong Kong-Zhuhai-Macao Bridge Tuen Mun – Chek Lap Kok Link
(Southern Connection Viaduct Section)
Dolphin Quarterly Monitoring**

*7th Quarterly Progress Report (June-August 2015)
submitted to Gammon Construction Limited*

Submitted by
Samuel K.Y. Hung, Ph.D., Hong Kong Cetacean Research Project

23 September 2015

1. Introduction

- 1.1. The Tuen Mun-Chek Lap Kok Link (TM-CLKL) comprises a 1.6 km long dual 2-lane viaduct section between the Hong Kong Boundary Crossing Facilities (HKBCF) and the North Lantau Highway and associated roads at Tai Ho. Gammon Construction Limited (hereinafter called the “Contractor”) was awarded as the main contractor of “Contract No. HY/2012/07 – Hong Kong-Zhuhai-Macao Bridge Tuen Mun-Chek Lap Kok Link – Southern Connection Viaduct Section”.
- 1.2. According to the updated Environmental Monitoring and Audit (EM&A) Manual (for TM-CLKL), monthly line-transect vessel surveys for Chinese White Dolphin should be conducted to cover the Northwest (NWL) and Northeast Lantau (NEL) survey areas as in AFCD annual marine mammal monitoring programme. However, as such surveys have been undertaken by the HKLR03 and HKBCF projects in the same areas (i.e. NWL and NEL), a combined monitoring approach is recommended by the Highways Department, that the TM-CLKL EM&A project can utilize the monitoring data collected by HKLR03 or HKBCF project to avoid any redundancy in monitoring effort. Such exemption for the dolphin monitoring will end upon the completion of the dolphin monitoring carried out by HKLR03 contract as well as the TM-CLKL Northern Connection Sub-Sea Tunnel Section (HY/2012/08)
- 1.3. In November 2013, the Director of Hong Kong Cetacean Research Project (HKCRP), Dr. Samuel Hung, has been appointed by Gammon Construction Limited as the dolphin specialist for the TM-CLKL Southern Viaduct Section EM&A project. He is responsible for the dolphin monitoring study, including the data collection on Chinese White Dolphins during the construction phase (i.e. impact period) of the TM-CLKL project in Northwest Lantau (NWL) and Northeast Lantau (NEL) survey areas.
- 1.4. During the construction period of HKLR, the dolphin specialist would be in charge of reviewing and collating information collected by HKLR03 dolphin monitoring programme to

examine any potential impacts of TM-CLKL construction works on the dolphins.

- 1.5. From the monitoring results, any changes in dolphin occurrence within the study area will be examined for possible causes, and appropriate actions and additional mitigation measures will be recommended as necessary.
- 1.6. This report is the seventh quarterly progress report under the TM-CLKL construction phase dolphin monitoring programme submitted to the Gammon Construction Limited, summarizing the results of the surveys findings during the period of June to August 2015, utilizing the survey data collected by HKLR03 project.

2. Monitoring Methodology

2.1. Vessel-based Line-transect Survey

- 2.1.1. According to the requirement of the updated EM&A manual, dolphin monitoring programme should cover all transect lines in NEL and NWL survey areas (see Figure 1) twice per month throughout the entire construction period. The co-ordinates of all transect lines conducted during the HKLR03 dolphin monitoring surveys are shown in Table 1.

Table 1 Co-ordinates of transect lines conducted by HKLR03 project

Line No.		Easting	Northing		Line No.	Easting	Northing	
1	Start Point	804671	814577		13	Start Point	816506	819480
1	End Point	804671	831404		13	End Point	816506	824859
2	Start Point	805475	815457		14	Start Point	817537	820220
2	End Point	805477	826654		14	End Point	817537	824613
3	Start Point	806464	819435		15	Start Point	818568	820735
3	End Point	806464	822911		15	End Point	818568	824433
4	Start Point	807518	819771		16	Start Point	819532	821420
4	End Point	807518	829230		16	End Point	819532	824209
5	Start Point	808504	820220		17	Start Point	820451	822125
5	End Point	808504	828602		17	End Point	820451	823671
6	Start Point	809490	820466		18	Start Point	821504	822371
6	End Point	809490	825352		18	End Point	821504	823761
7	Start Point	810499	820690		19	Start Point	822513	823268
7	End Point	810499	824613		19	End Point	822513	824321
8	Start Point	811508	820847		20	Start Point	823477	823402
8	End Point	811508	824254		20	End Point	823477	824613
9	Start Point	812516	820892		21	Start Point	805476	827081
9	End Point	812516	824254		21	End Point	805476	830562

10	Start Point	813525	820872		22	Start Point	806464	824033
10	End Point	813525	824657		22	End Point	806464	829598
11	Start Point	814556	818449		23	Start Point	814559	821739
11	End Point	814556	820992		23	End Point	814559	824768
12	Start Point	815542	818807					
12	End Point	815542	824882					

- 2.1.2. The HKLR03 survey team used standard line-transect methods (Buckland et al. 2001) to conduct the systematic vessel surveys, and followed the same technique of data collection that has been adopted over the last 16 years of marine mammal monitoring surveys in Hong Kong developed by HKCRP (see Hung 2013, 2014). For each monitoring vessel survey, a 15-m inboard vessel with an open upper deck (about 4.5 m above water surface) was used to make observations from the flying bridge area.
- 2.1.3. Two experienced observers (a data recorder and a primary observer) made up the on-effort survey team, and the survey vessel transited different transect lines at a constant speed of 13-15 km per hour. The data recorder searched with unaided eyes and filled out the datasheets, while the primary observer searched for dolphins and porpoises continuously through 7 x 50 *Fujinon* marine binoculars. Both observers searched the sea ahead of the vessel, between 270° and 90° (in relation to the bow, which is defined as 0°). One to two additional experienced observers were available on the boat to work in shift (i.e. rotate every 30 minutes) in order to minimize fatigue of the survey team members. All observers were experienced in small cetacean survey techniques and identifying local cetacean species.
- 2.1.4. During on-effort survey periods, the survey team recorded effort data including time, positions (latitude and longitude), weather conditions (Beaufort sea state and visibility), and distance traveled in each series (a continuous period of search effort) with the assistance of a handheld GPS (*Garmin eTrex Legend*).
- 2.1.5. Data including time, position and vessel speed were also automatically and continuously logged by handheld GPS throughout the entire survey for subsequent review.
- 2.1.6. When dolphins were sighted, the survey team would end the survey effort, and immediately record the initial sighting distance and angle of the dolphin group from the survey vessel, as well as the sighting time and position. Then the research vessel was diverted from its course to approach the animals for species identification, group size estimation, assessment of group composition, and behavioural observations. The perpendicular distance (PSD) of the dolphin group to the transect line was later calculated from the initial sighting distance and angle.
- 2.1.7. Survey effort being conducted along the parallel transect lines that were perpendicular to the coastlines (as indicated in Figure 1) was labeled as “primary” survey effort, while the survey effort conducted along the connecting lines between parallel lines was labeled as “secondary” survey effort. According to HKCRP long-term dolphin monitoring data, encounter rates of Chinese white dolphins deduced from effort and sighting data collected

along primary and secondary lines were similar in NEL and NWL survey areas. Therefore, both primary and secondary survey effort were presented as on-effort survey effort in this report.

2.2. Photo-identification Work

- 2.2.1. When a group of Chinese White Dolphins were sighted during the line-transect survey, the HKLR03 survey team would end effort and approach the group slowly from the side and behind to take photographs of them. Every attempt was made to photograph every dolphin in the group, and even photograph both sides of the dolphins, since the colouration and markings on both sides may not be symmetrical.
- 2.2.2. A professional digital camera (*Canon* EOS 7D or 60D model), equipped with long telephoto lenses (100-400 mm zoom), were available on board for researchers to take sharp, close-up photographs of dolphins as they surfaced. The images were shot at the highest available resolution and stored on Compact Flash memory cards for downloading onto a computer.
- 2.2.3. All digital images taken in the field were first examined, and those containing potentially identifiable individuals were sorted out. These photographs would then be examined in greater detail, and were carefully compared to the existing Chinese White Dolphin photo-identification catalogue maintained by HKCRP since 1995.
- 2.2.4. Chinese White Dolphins can be identified by their natural markings, such as nicks, cuts, scars and deformities on their dorsal fin and body, and their unique spotting patterns were also used as secondary identifying features (Jefferson 2000).
- 2.2.5. All photographs of each individual were then compiled and arranged in chronological order, with data including the date and location first identified (initial sighting), re-sightings, associated dolphins, distinctive features, and age classes entered into a computer database.

2.3. Data Analysis

- 2.3.1. Distribution Analysis – The line-transect survey data was integrated with the Geographic Information System (GIS) in order to visualize and interpret different spatial and temporal patterns of dolphin distribution using sighting positions. Location data of dolphin groups were plotted on map layers of Hong Kong using a desktop GIS (ArcView[®] 3.1) to examine their distribution patterns in details. The dataset was also stratified into different subsets to examine distribution patterns of dolphin groups with different categories of group sizes, young calves and activities.
- 2.3.2. Encounter rate analysis – Encounter rates of Chinese white dolphins (number of on-effort sightings per 100 km of survey effort, and total number of dolphins sighted on-effort per 100 km of survey effort) were calculated in NEL and NWL survey areas in relation to the amount of survey effort conducted during each month of monitoring survey. Only data

collect under Beaufort 3 or below condition would be used for the encounter rate analyses. Dolphin encounter rates were calculated in two ways for comparisons with the HZMB baseline monitoring results as well as to AFCD long-term marine mammal monitoring results.

Firstly, for the comparison with the HZMB baseline monitoring results, the encounter rates were calculated using primary survey effort alone. The average encounter rate of sightings (STG) and average encounter rate of dolphins (ANI) were deduced based on the encounter rates from six events during the present quarter (i.e. six sets of line-transect surveys in North Lantau), which was also compared with the one deduced from the six events during the baseline period (i.e. six sets of line-transect surveys in North Lantau).

Secondly, the encounter rates were calculated using both primary and secondary survey effort collected under Beaufort 3 or below condition as in AFCD long-term monitoring study. The encounter rate of sightings and dolphins were deduced by dividing the total number of on-effort sightings (STG) and total number of dolphins (ANI) by the amount of survey effort for the present quarterly period.

- 2.3.3. Quantitative grid analysis on habitat use – To conduct quantitative grid analysis of habitat use, positions of on-effort sightings of Chinese White Dolphins collected during the quarterly impact phase monitoring period were plotted onto 1-km² grids among NWL and NEL survey areas on GIS. Sighting densities (number of on-effort sightings per km²) and dolphin densities (total number of dolphins from on-effort sightings per km²) were then calculated for each 1 km by 1 km grid with the aid of GIS. Sighting density grids and dolphin density grids were then further normalized with the amount of survey effort conducted within each grid. The total amount of survey effort spent on each grid was calculated by examining the survey coverage on each line-transect survey to determine how many times the grid was surveyed during the study period. For example, when the survey boat traversed through a specific grid 50 times, 50 units of survey effort were counted for that grid. With the amount of survey effort calculated for each grid, the sighting density and dolphin density of each grid were then normalized (i.e. divided by the unit of survey effort).

The newly-derived unit for sighting density was termed SPSE, representing the number of on-effort sightings per 100 units of survey effort. In addition, the derived unit for actual dolphin density was termed DPSE, representing the number of dolphins per 100 units of survey effort. Among the 1-km² grids that were partially covered by land, the percentage of sea area was calculated using GIS tools, and their SPSE and DPSE values were adjusted accordingly. The following formulae were used to estimate SPSE and DPSE in each 1-km² grid within the study area:

$$\text{SPSE} = ((S / E) \times 100) / \text{SA}\%$$
$$\text{DPSE} = ((D / E) \times 100) / \text{SA}\%$$

where S = total number of on-effort sightings
D = total number of dolphins from on-effort sightings
E = total number of units of survey effort
SA% = percentage of sea area

- 2.3.4. Behavioural analysis – When dolphins were sighted during vessel surveys, their behaviour was observed. Different activities were categorized (i.e. feeding, socializing, traveling, and milling/resting) and recorded on sighting datasheets. This data was then input into a separate database with sighting information, which can be used to determine the distribution of behavioural data with a desktop GIS. Distribution of sightings of dolphins engaged in different activities and behaviours would then be plotted on GIS and carefully examined to identify important areas for different activities of the dolphins.
- 2.3.5. Ranging pattern analysis – Location data of individual dolphins that occurred during the 3-month impact phase monitoring period were obtained from the dolphin sighting database and photo-identification catalogue. To deduce home ranges for individual dolphins using the fixed kernel methods, the program Animal Movement Analyst Extension, was loaded as an extension with ArcView[®] 3.1 along with another extension Spatial Analyst 2.0. Using the fixed kernel method, the program calculated kernel density estimates based on all sighting positions, and provided an active interface to display kernel density plots. The kernel estimator then calculated and displayed the overall ranging area at 95% UD level.

3. Monitoring Results

3.1. *Summary of survey effort and dolphin sightings*

- 3.1.1. During the period of June to August 2015, six sets of systematic line-transect vessel surveys were conducted under the HKLR03 monitoring works to cover all transect lines in NWL and NEL survey areas twice per month.
- 3.1.2. From these HKLR03 surveys, a total of 900.64 km of survey effort was collected, with 92.8% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). Among the two areas, 345.58 km and 555.06 km of survey effort were conducted in NEL and NWL survey areas respectively.
- 3.1.3. The total survey effort conducted on primary lines was 655.74 km, while the effort on secondary lines was 244.90 km. Survey effort conducted on both primary and secondary lines were considered as on-effort survey data. A summary table of the survey effort is shown in Appendix I.
- 3.1.4. During the six sets of HKLR03 monitoring surveys in June to August 2015, a total of 12 groups of 42 Chinese White Dolphins were sighted. All dolphin sightings were made during on-effort search, and all of them were made on primary lines. In this quarterly period, all except one dolphin groups were sighted in NWL, while only one group of a lone animal was sighted in NEL. Notably, this was the first dolphin sighted in NEL since July 2014 during HKLR03 monitoring surveys. A summary table of the dolphin sightings is shown in Appendix II.

3.2. *Distribution*

- 3.2.1. Distribution of dolphin sightings made during monitoring surveys in June to August 2015 is shown in Figure 1. Dolphin sightings made in the present quarter were only clustered to the north and northeast of Lung Kwu Chau, and to the southwestern end of NWL survey area near the HKLR09 alignment (Figure 1). The lone dolphin sighted in NEL was located between Shum Shui Kok and Yam O, while there was another group of two dolphins sighted to the west of Sha Chau during this quarter (Figure 1).
- 3.2.2. Notably, none of the dolphin groups were sighted in the vicinity of TMCLKL southern viaduct or northern landfall section, as well as the HKLR03/HKBCF reclamation sites (Figure 1). On the other hand, three sightings (with two lone individuals in two sightings and another group of four dolphins) were made in the vicinity of the HKLR09 alignment (Figure 1).
- 3.2.3. Sighting distribution of the present impact phase monitoring period (June to August 2015) was compared to the one during the baseline monitoring period (September to November 2011). In the present quarter, dolphins have almost vacated the NEL region, which was in stark contrast to their frequent occurrence around the Brothers Islands, near Shum Shui Kok and in the vicinity of HKBCF reclamation site during the baseline period (Figure 1). The nearly complete abandonment of NEL region by the dolphins has been consistently recorded in the past ten quarters of HKLR03 monitoring, which has resulted in extremely low to zero dolphin encounter rate in this area.
- 3.2.4. In NWL survey area, dolphin occurrence was also drastically different between the baseline and impact phase periods. During the present impact monitoring period, much fewer dolphins occurred in this survey area than during the baseline period, when many of the dolphin sightings were concentrated between Lung Kwu Chau and Black Point, around Sha Chau, near Pillar Point and to the west of the Chek Lap Kok Airport (Figure 1).
- 3.2.5. Another comparison in dolphin distribution was made between the three quarterly periods of summer months in 2013, 2014 and 2015 (Figure 2). Among the three summer periods, only one dolphin sighting was made in NEL in both 2014 and 2015, while there were a number of sightings made there in 2013 (Figure 2).
- 3.2.6. Dramatic changes in dolphin distribution in NWL waters were also observed in the summer months during the three-year period (Figure 2). In 2013, dolphin regularly occurred throughout the NWL survey area, with higher concentrations of sightings around Sha Chau, Lung Kwu Chau, near Black Point and Pillar Point, and to the north of airport platform. In 2014, dolphin still occurred around Sha Chau and Lung Kwu Chau at a high level, but less frequently in the middle portion of North Lantau region. In 2015, they infrequently occurred in NWL survey area with the only concentration around Lung Kwu Chau while they generally absent throughout this area. The temporal trend indicated that dolphin usage in the NWL region has progressively diminished during the summer months in the past few years.

3.3. Encounter rate

3.3.1. During the present quarterly period, the encounter rates of Chinese White Dolphins deduced from the survey effort and on-effort sighting data from the primary transect lines under favourable conditions (Beaufort 3 or below) for each set of the HKLR03 surveys in NEL and NWL are shown in Table 2. The average encounter rates deduced from the six sets of HKLR03 surveys were also compared with the ones deduced from the baseline monitoring period (September – November 2011) (Table 3).

Table 2. Dolphin encounter rates (sightings per 100 km of survey effort) during June-August 2015

SURVEY AREA	DOLPHIN MONITORING DATES	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)
		Primary Lines Only	Primary Lines Only
Northeast Lantau	Set 1 (2 & 10 Jun 2015)	0.00	0.00
	Set 2 (24 & 26 Jun 2015)	2.64	2.64
	Set 3 (2 & 7 Jul 2015)	0.00	0.00
	Set 4 (22 & 27 Jul 2015)	0.00	0.00
	Set 5 (10 & 14 Aug 2015)	0.00	0.00
	Set 6 (19 & 28 Aug 2015)	0.00	0.00
Northwest Lantau	Set 1 (2 & 10 Jun 2015)	1.51	15.15
	Set 2 (24 & 26 Jun 2015)	0.00	0.00
	Set 3 (2 & 7 Jul 2015)	1.69	3.38
	Set 4 (22 & 27 Jul 2015)	3.46	6.92
	Set 5 (10 & 14 Aug 2015)	0.00	0.00
	Set 6 (19 & 28 Aug 2015)	8.53	29.84

Table 3. Comparison of average dolphin encounter rates from impact monitoring period (June-August 2015) and baseline monitoring period (September – November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions; \pm denotes the standard deviation of the average encounter rates)

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)		Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)	
	June - August 2015	September - November 2011	June - August 2015	September - November 2011
Northeast Lantau	0.44 \pm 1.08	6.00 \pm 5.05	0.44 \pm 1.08	22.19 \pm 26.81
Northwest Lantau	2.53 \pm 3.20	9.85 \pm 5.85	9.21 \pm 11.57	44.66 \pm 29.85

3.3.2. To facilitate the comparison with the AFCD long-term monitoring results, the encounter

rates were also calculated for the present quarter using both primary and secondary survey effort. The encounter rates of sightings (STG) and dolphins (ANI) in NWL were 2.04 sightings and 7.55 dolphins per 100 km of survey effort respectively, while the encounter rates of sightings (STG) and dolphins (ANI) in NEL were both 0.29 for this quarter.

- 3.3.3. In NEL, the average dolphin encounter rates (both STG and ANI) in the present three-month impact monitoring period were close to nil, and such low occurrence of dolphins in NEL have been consistently recorded in the past ten quarters of HKLR03 monitoring (Table 4). This is a serious concern that dolphin occurrence in NEL in the last ten quarters (0.0-1.0 for ER(STG) and 0.0-3.9 for ER(ANI)) have been exceptionally low when compared to the baseline period (Table 4). Dolphins have almost vacated from NEL waters since January 2014, with only two groups of five dolphins sighted since then despite consistent and intensive survey effort being conducted in this area.

Table 4. Comparison of average dolphin encounter rates in Northeast Lantau survey area from all quarters of impact monitoring period and baseline monitoring period (September-November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions; the encounter rates in summer months were highlighted in blue; \pm denotes the standard deviation of the average encounter rates)

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)
September-November 2011 (Baseline)	6.00 \pm 5.05	22.19 \pm 26.81
December 2012-February 2013 (Impact)	3.14 \pm 3.21	6.33 \pm 8.64
March-May 2013 (Impact)	0.42 \pm 1.03	0.42 \pm 1.03
June-August 2013 (Impact)	0.88 \pm 1.36	3.91 \pm 8.36
September-November 2013 (Impact)	1.01 \pm 1.59	3.77 \pm 6.49
December 2013-February 2014 (Impact)	0.45 \pm 1.10	1.34 \pm 3.29
March-May 2014 (Impact)	0.00	0.00
June-August 2014 (Impact)	0.42 \pm 1.04	1.69 \pm 4.15
September-November 2014 (Impact)	0.00	0.00
December 2014-February 2015 (Impact)	0.00	0.00
March-May 2015 (Impact)	0.00	0.00
June-August 2015 (Impact)	0.44 \pm 1.08	0.44 \pm 1.08

- 3.3.4. Moreover, the average dolphin encounter rates (STG and ANI) in NWL during the present impact phase monitoring period were also much lower (reductions of 74.3% and 79.3% respectively) than the ones recorded in the 3-month baseline period, indicating a dramatic decline in dolphin usage of this survey area as well during the present impact phase period (Table 5).

3.3.5. Even for the same summer quarters, the dolphin encounter rates in NWL during summer 2015 were much lower than the ones recorded in summer 2013 and 2014 (Table 5).

Table 5. Comparison of average dolphin encounter rates in Northwest Lantau survey area from all quarters of impact monitoring period and baseline monitoring period (September-November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions; the encounter rates in summer months were highlighted in blue; \pm denotes the standard deviation of the average encounter rates)

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)
September-November 2011 (Baseline)	9.85 \pm 5.85	44.66 \pm 29.85
December 2012-February 2013 (Impact)	8.36 \pm 5.03	35.90 \pm 23.10
March-May 2013 (Impact)	7.75 \pm 3.96	24.23 \pm 18.05
June-August 2013 (Impact)	6.56 \pm 3.68	27.00 \pm 18.71
September-November 2013 (Impact)	8.04 \pm 1.10	32.48 \pm 26.51
December 2013-February 2014 (Impact)	8.21 \pm 2.21	32.58 \pm 11.21
March-May 2014 (Impact)	6.51 \pm 3.34	19.14 \pm 7.19
June-August 2014 (Impact)	4.74 \pm 3.84	17.52 \pm 15.12
September-November 2014 (Impact)	5.10 \pm 4.40	20.52 \pm 15.10
December 2014-February 2015 (Impact)	2.91 \pm 2.69	11.27 \pm 15.19
March-May 2015 (Impact)	0.47 \pm 0.73	2.36 \pm 4.07
June-August 2015 (Impact)	2.53 \pm 3.20	9.21 \pm 11.57

3.3.6. Notably, for the TMCLKL dolphin monitoring programme, the Limit Levels have been triggered in the past three consecutive quarters under the Event and Action Plan.

3.3.7. As discussed recently in Hung (2015), the dramatic decline in dolphin usage of NEL waters in the past few years (including the declines in abundance, encounter rate and habitat use in NEL, as well as shifts of individual core areas and ranges away from NEL waters) was possibly related to the HZMB construction works that were commenced since 2012. It appeared that such noticeable decline has already extended to NWL waters progressively in 2013-2015.

3.3.8. A two-way ANOVA with repeated measures and unequal sample size was conducted to examine whether there were any significant differences in the average encounter rates between the baseline and impact monitoring periods. The two variables that were examined included the two periods (baseline and impact phases) and two locations (NEL and NWL).

- 3.3.9. For the comparison between the baseline period and the present quarter (eleventh quarter of the HKLR03 impact phase monitoring being assessed), the p-values for the differences in average dolphin encounter rates of STG and ANI were 0.0064 and 0.0270 respectively. If the alpha value is set at 0.05, significant differences were detected between the baseline and present quarters in both dolphin encounter rates of STG and ANI.
- 3.3.10. For the comparison between the baseline period and the cumulative quarters in impact phase (i.e. first eleven quarters of the HKLR03 impact phase monitoring being assessed), the p-values for the differences in average dolphin encounter rates of STG and ANI were 0.00020 and 0.00005 respectively. Even if the alpha value is set at 0.01, significant differences were detected in both the average dolphin encounter rates of STG and ANI (i.e. between the two periods and the locations).
- 3.3.11. As indicated in both dolphin distribution patterns and encounter rates, dolphin usage has been significantly reduced in both NEL and NWL survey areas during the present quarterly period, and such low occurrence of dolphins has also been consistently documented in previous quarters. This raises serious concern, as the timing of the decline in dolphin usage in North Lantau waters coincided well with the HZMB-related construction activities (Hung 2015).
- 3.3.12. To ensure the continuous usage of North Lantau waters by the dolphins, every possible measure should be implemented by the contractors and relevant authorities of HZMB-related works to minimize all disturbances to the dolphins.

3.4. Group size

- 3.4.1. Group size of Chinese White Dolphins ranged from one to ten individuals per group in North Lantau region during June to August 2015. The average dolphin group sizes from these three months were compared with the ones deduced from the baseline period in September to November 2011, as shown in Table 6.

Table 6. Comparison of average dolphin group sizes from impact monitoring period (June – August 2015) and baseline monitoring period (September – November 2011) (Note: \pm denotes the standard deviation of the average group size)

	Average Dolphin Group Size	
	June – August 2015	September – November 2011
Overall	3.50 \pm 2.65 (n = 12)	3.72 \pm 3.13 (n = 66)
Northeast Lantau	1.00 (n = 1)	3.18 \pm 2.16 (n = 17)
Northwest Lantau	3.73 \pm 2.65 (n = 11)	3.92 \pm 3.40 (n = 49)

- 3.4.2. The average dolphin group sizes in NWL waters during June to August 2015 were slightly smaller than the ones recorded during the three-month baseline period (Table 6). Half of the 12 groups were composed of 1-3 individuals only, while five other groups were

moderate in size with 4-5 individuals per group. On the other hand, only one large group of 10 dolphins was sighted during the present quarterly period.

- 3.4.3. Distribution of dolphins with larger group sizes (five individuals or more per group) during the present quarter is shown in Figure 3, with comparison to the one in baseline period. During the summer of 2015, distribution of the three groups with five animals and one group with ten animals were all located to the north and northeast of Lung Kwu Chau (Figure 3). This distribution pattern was drastically different from the baseline period, when the larger dolphin groups were distributed more evenly in NWL waters with a few more sighted in NEL waters (Figure 3).
- 3.4.4. None of the larger dolphin groups were sighted near the TMCLKL alignment during the present monitoring period (Figure 3).
- 3.5. *Habitat use*
- 3.5.1. From June to August 2015, the only area being heavily utilized by Chinese White Dolphins was around Lung Kwu Chau in North Lantau waters (Figures 4a and 4b). Only one grid in NEL recorded the presence of dolphin in the present quarter with low DPSE value (Figure 4b). Moreover, all grids near the TMCLKL alignment and HKLR03/HKBCF reclamation sites did not record any presence of dolphins during on-effort search in the present quarterly period, but a few grids in the vicinity of HKLR09 alignment recorded moderate dolphin densities (Figure 4b).
- 3.5.2. It should be emphasized that the amount of survey effort collected in each grid during the three-month period was fairly low (6-12 units of survey effort for most grids), and therefore the habitat use pattern derived from the three-month dataset should be treated with caution. A more complete picture of dolphin habitat use pattern should be examined when more survey effort for each grid will be collected throughout the impact phase monitoring programme.
- 3.5.3. When compared with the habitat use patterns during the baseline period, dolphin usage in NEL and NWL has dramatically diminished in both areas during the present impact monitoring period (Figure 5). During the baseline period, many grids between Siu Mo To and Shum Shui Kok recorded moderately high to high dolphin densities, which was in stark contrast to rare occurrence of dolphins during the present impact phase period (Figure 5).
- 3.5.4. The density patterns were also very different in NWL between the baseline and impact phase monitoring periods, with higher dolphin usage around Sha Chau, near Black Point, to the west of the airport, as well as between Pillar Point and airport platform during the baseline period. In contrast, only the Lung Kwu Chau area recorded high densities of dolphins during the present impact phase period (Figure 5).
- 3.6. *Mother-calf pairs*
- 3.6.1. During the present quarterly period, no young calves (i.e. unspotted calves or unspotted juveniles) for the third consecutive quarter among the seven quarters of TMCLKL impact phase monitoring.
-

- 3.6.2. This absence of young calves was also in stark contrast to their regular occurrence during the baseline period. Their absences should be of a serious concern, and the occurrence of calves should be closely monitored in the upcoming quarters.
- 3.7. *Activities and associations with fishing boats*
- 3.7.1. Only one dolphin group was associated with feeding activity, while none of the 12 dolphin groups was associated with socializing, traveling or milling/resting activity during the three-month study period.
- 3.7.2. The percentage of sightings associated with feeding activities during the present impact phase period (8.3%) was similar to the one recorded during the baseline period (11.6%). However, the sample sizes on total numbers of dolphin sightings were very different between the two periods.
- 3.7.3. Distribution of dolphins engaged in various activities during the present three-month period and baseline period is shown in Figure 6. The only sighting engaged in feeding activity was located near Lung Kwu Chau (Figure 6). When compared to the baseline period, distribution of dolphin activities in the present quarter was drastically different during the present impact phase monitoring quarter (Figure 6).
- 3.7.4. As consistently recorded in the past monitoring quarters, none of the twelve dolphin groups was found to be associated with operating fishing vessels in North Lantau waters during the present impact phase period.
- 3.8. *Summary of photo-identification works*
- 3.8.1. From June to August 2015, over 1,500 digital photographs of Chinese White Dolphins were taken during the impact phase monitoring surveys for the photo-identification work.
- 3.8.2. In total, 21 individuals sighted 30 times altogether were identified (see summary table in Appendix III and photographs of identified individuals in Appendix IV). All of these re-sightings were made in NWL. The lone dolphin sighted in NEL during this quarter was too elusive to be photographed for identification.
- 3.8.3. The majority of identified individuals were sighted only once during the three-month period, with the exception of three individuals (CH34, NL136 and NL310) being twice and another three individuals (NL104, NL202 and NL286) being sighted thrice.
- 3.8.4. Notably, four of these 21 individuals (NL136, NL293, WL05 and WL124) were also sighted in West Lantau waters during the HKLR09 monitoring surveys during June to August 2015, implying that they have moved across the HKLR09 bridge alignment during the same three-month period.
- 3.9. *Individual range use*
- 3.9.1. Ranging patterns of the 21 individuals identified during the three-month study period were determined by fixed kernel method, and are shown in Appendix V.
-

- 3.9.2. All identified dolphins sighted in the present quarter were utilizing NWL waters only, but have avoided the NEL waters where many of them have utilized as their core areas in the past (Appendix V). Moreover, this is in contrary to the extensive movements between NEL and NWL survey areas observed in the earlier impact monitoring quarters as well as during the baseline period.
- 3.9.3. Notably, one individual (NL136) consistently sighted in NWL and NEL waters in the past have extended its range use to WL waters in the present quarter. In the upcoming quarter, individual range use and movements should be continuously monitored to examine whether there has been any consistent shifts of individual home ranges from North Lantau to West or Southwest Lantau, as such shift could possibly be related to the HZMB-related construction works (see Hung 2015)s.

4. Conclusion

- 4.1. During this quarter of dolphin monitoring, no adverse impact from the activities of the TMCLKL construction project on Chinese White Dolphins was noticeable from general observations.
- 4.2. Although the dolphins infrequently occurred along the alignment of TMCLKL southern connection viaduct in the past and during the baseline monitoring period, it is apparent that dolphin usage has been significantly reduced in NEL, and many individuals have shifted away from the important habitat around the Brothers Islands.
- 4.3. It is critical to monitor the dolphin usage in North Lantau region in the upcoming quarters, to determine whether the dolphins are continuously affected by the various construction activities in relation to the HZMB-related works, and whether suitable mitigation measure can be applied to revert the situation.

5. References

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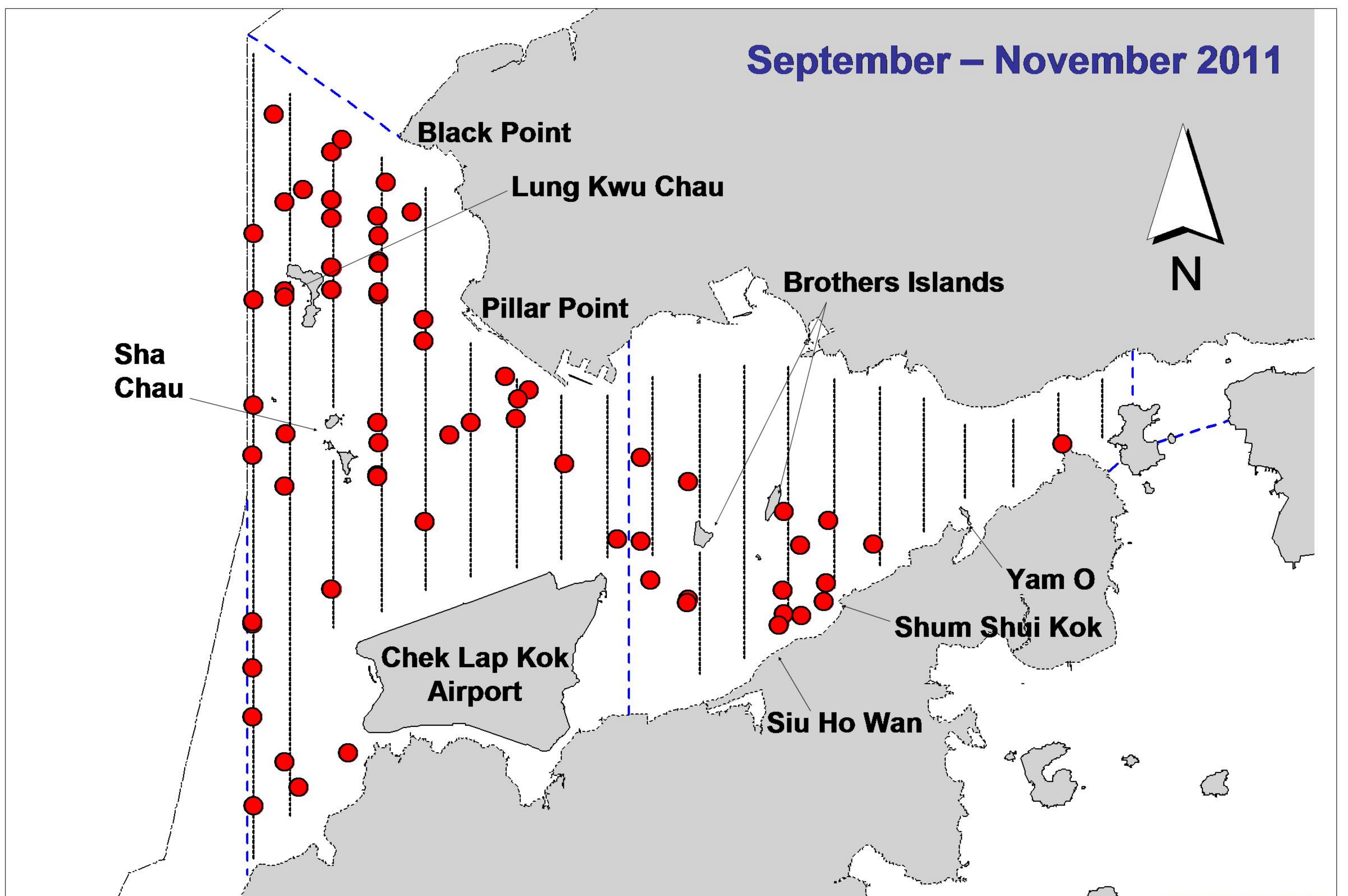
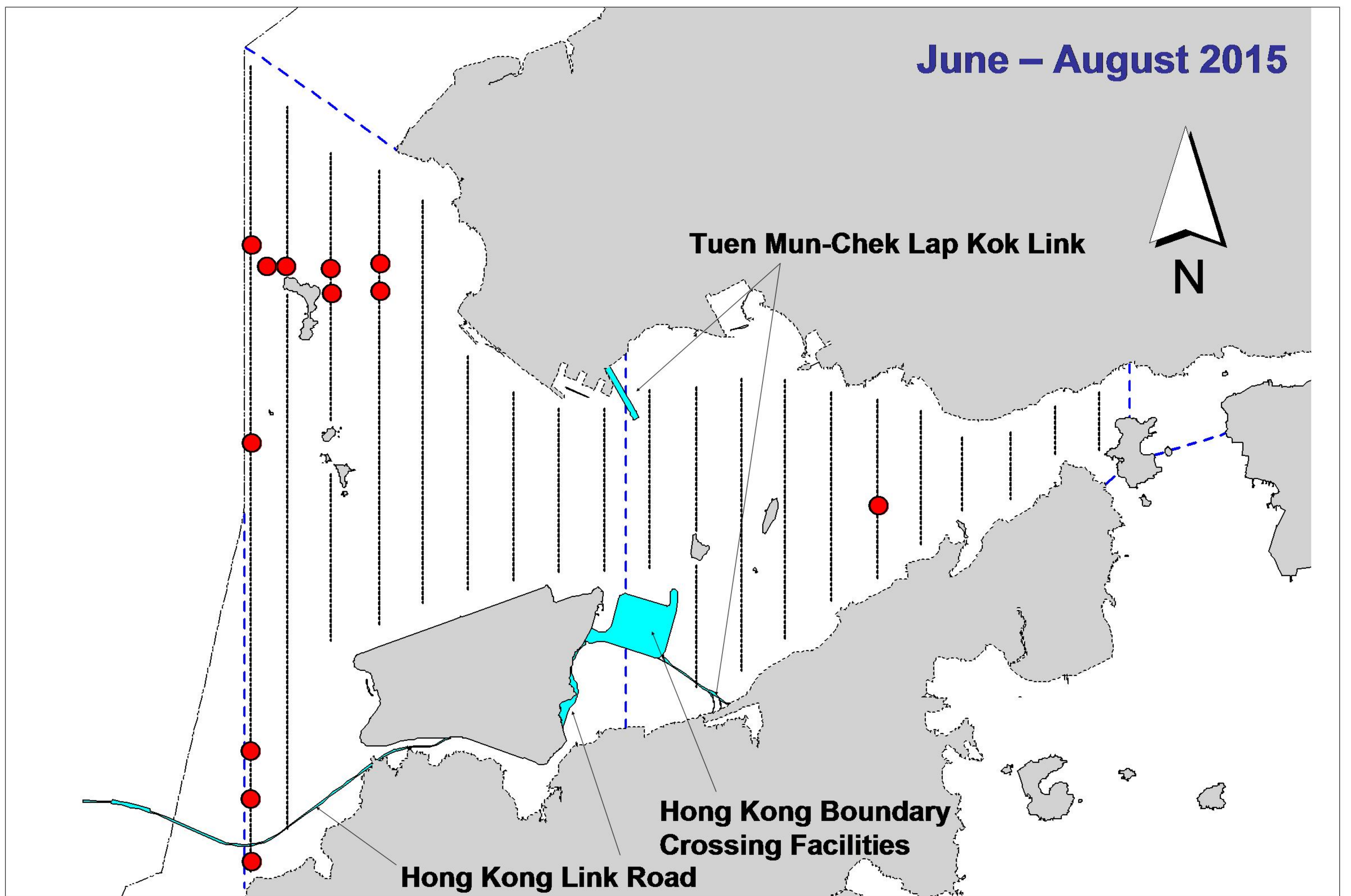


Figure 1. Distribution of Chinese white dolphin sighting in Northwest and Northeast Lantau during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

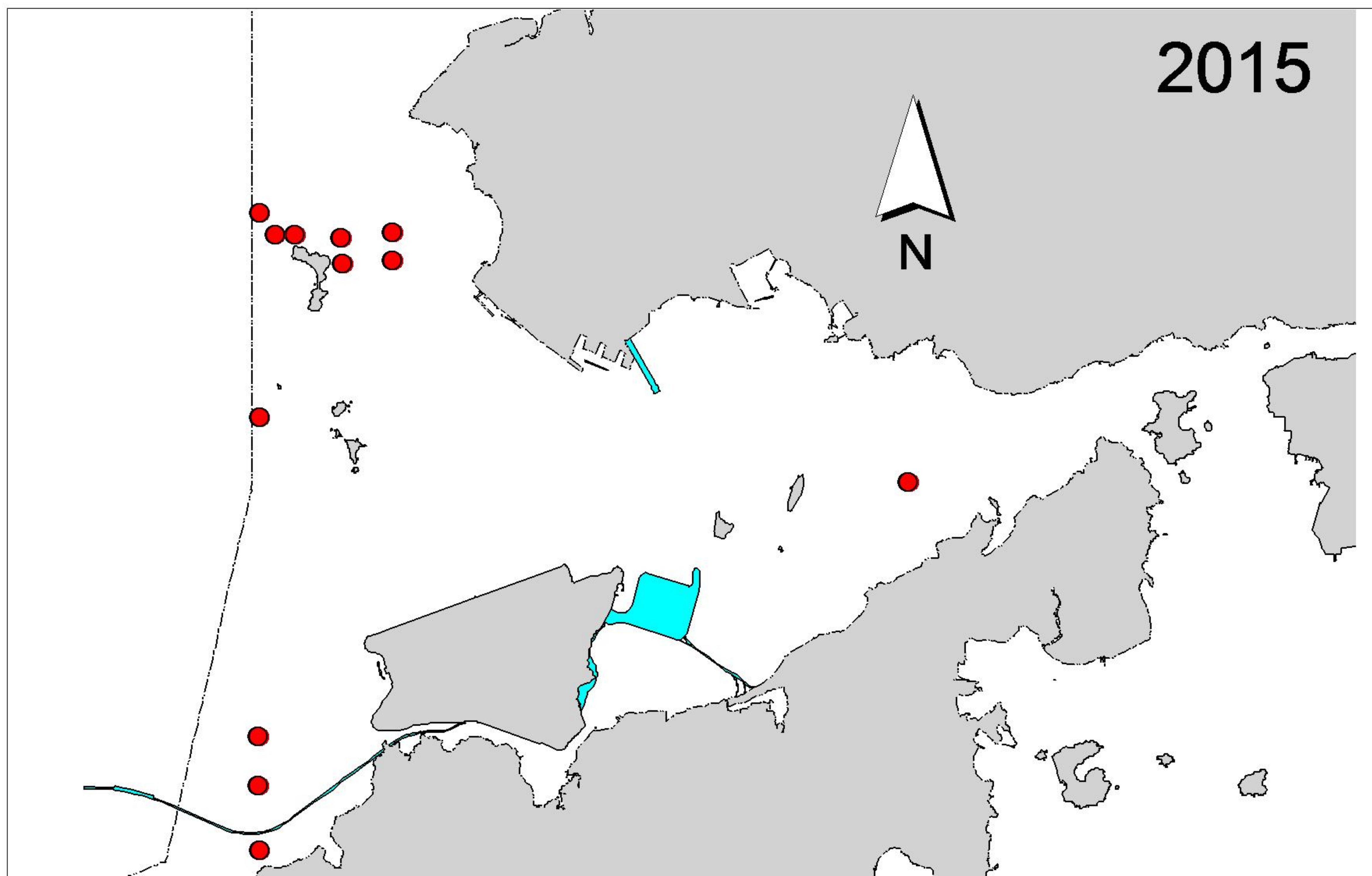
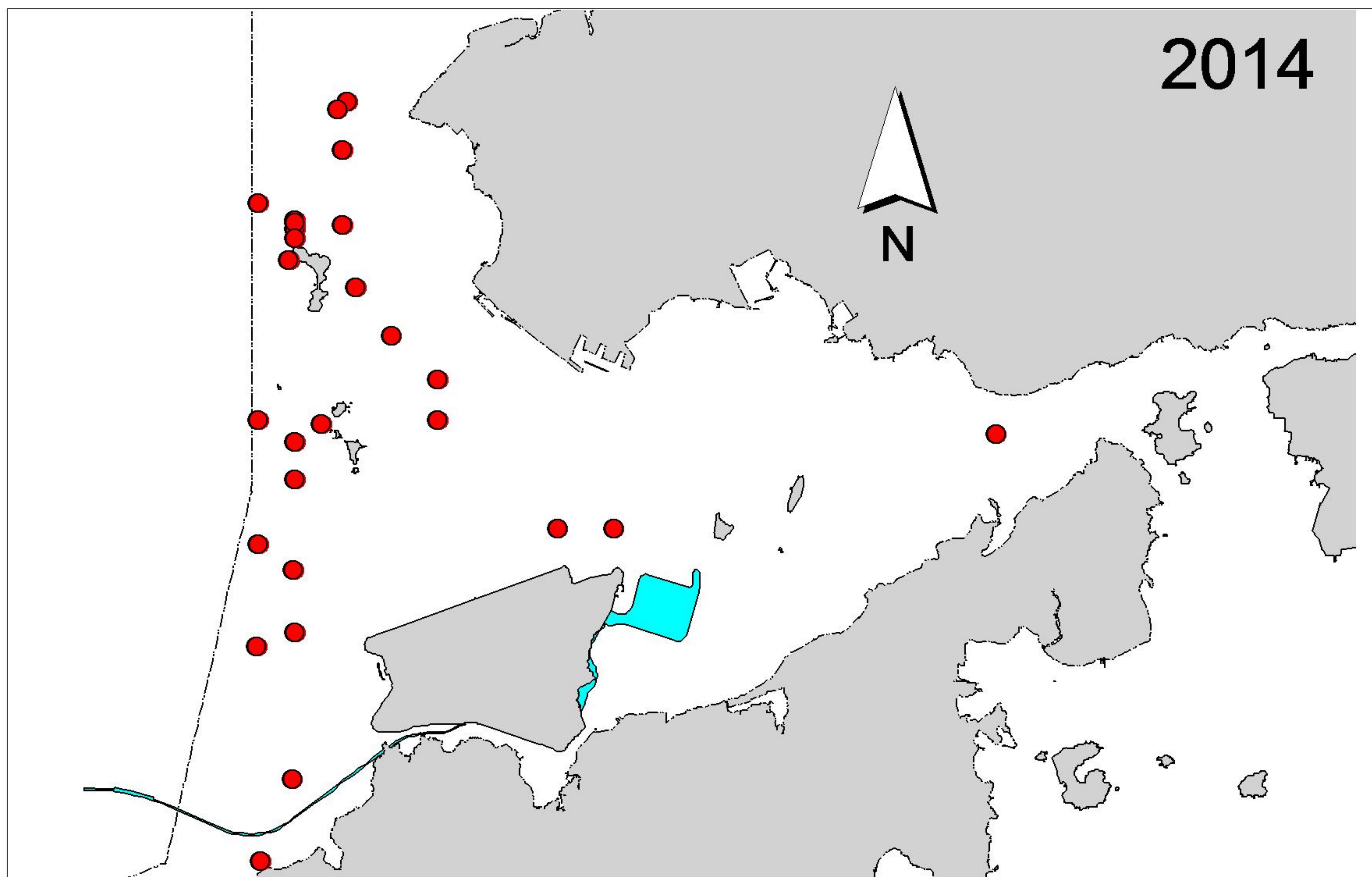
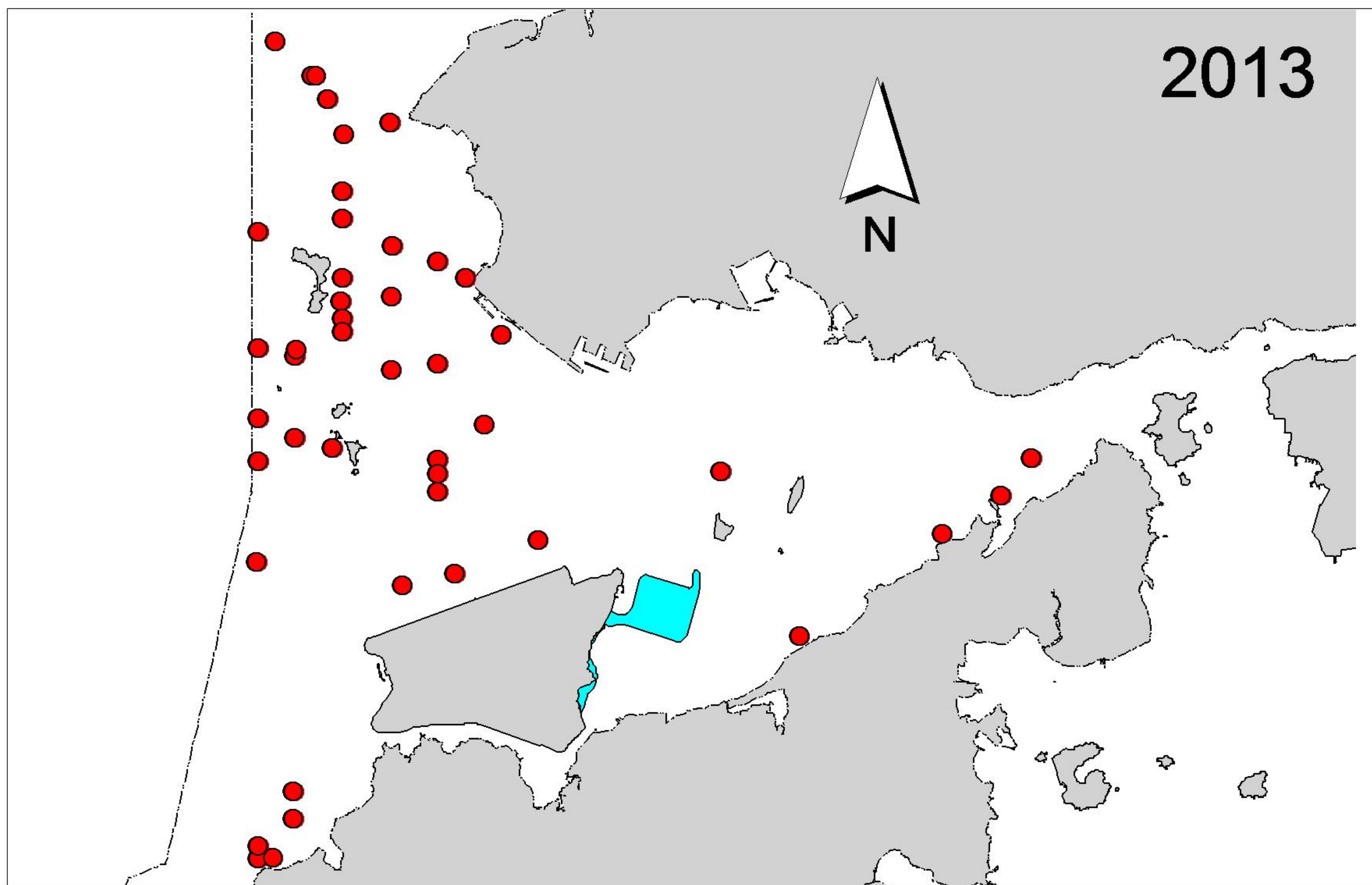


Figure 2. Distribution of Chinese white dolphin sightings in Northwest and Northeast Lantau during the same summer quarters (June-August) of HKLR03 impact phase in 2013-15

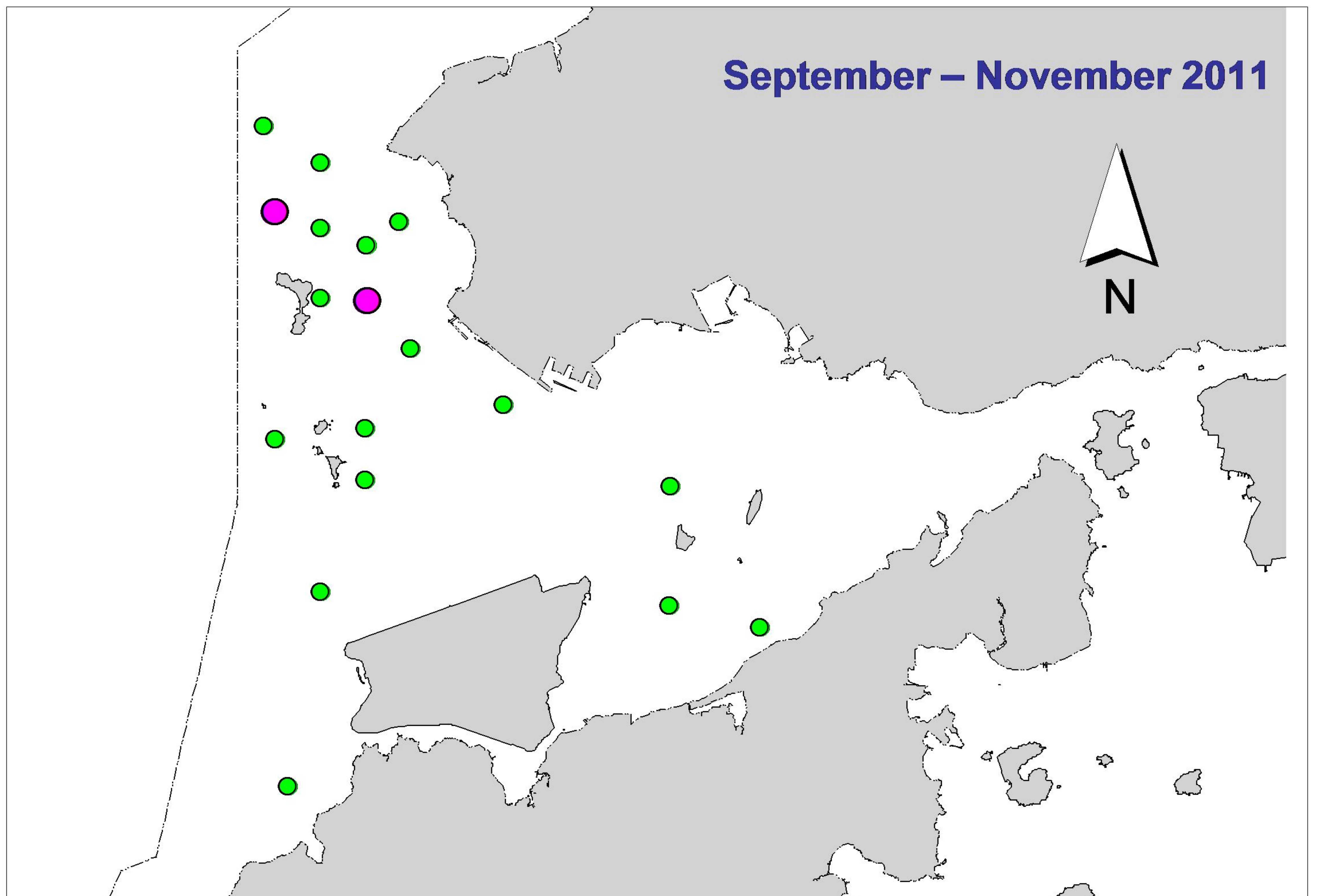
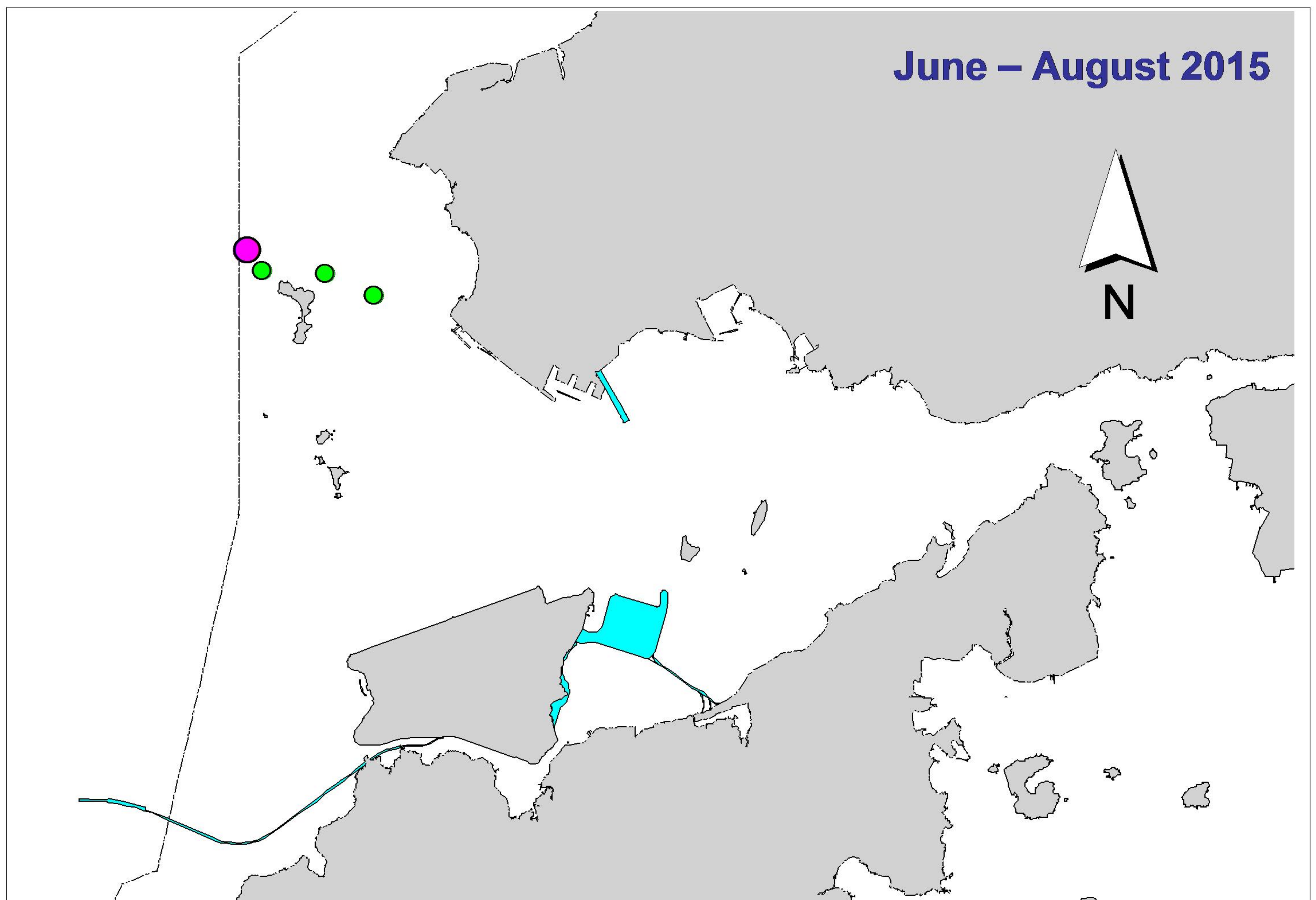


Figure 3. Distribution of Chinese white dolphins with larger group sizes during HKLR03 impact phase (top) and baseline monitoring surveys (bottom) (green dots: group sizes of 5 or more; purple dots: group sizes of 10 or more)

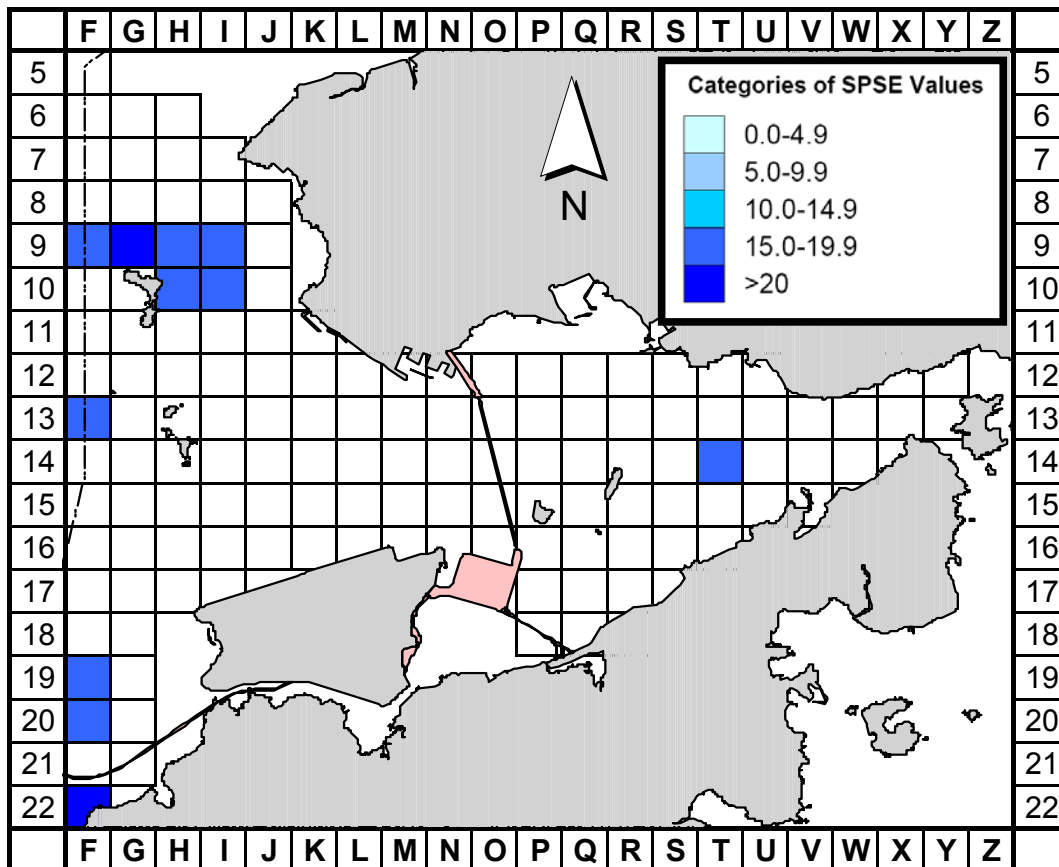


Figure 4a. Sighting density of Chinese white dolphins with corrected survey effort per km² in Northeast and Northwest Lantau survey areas, using data collected during HKLR03 impact monitoring period (Jun-Aug 15) (SPSE = no. of on-effort sightings per 100 units of survey effort)

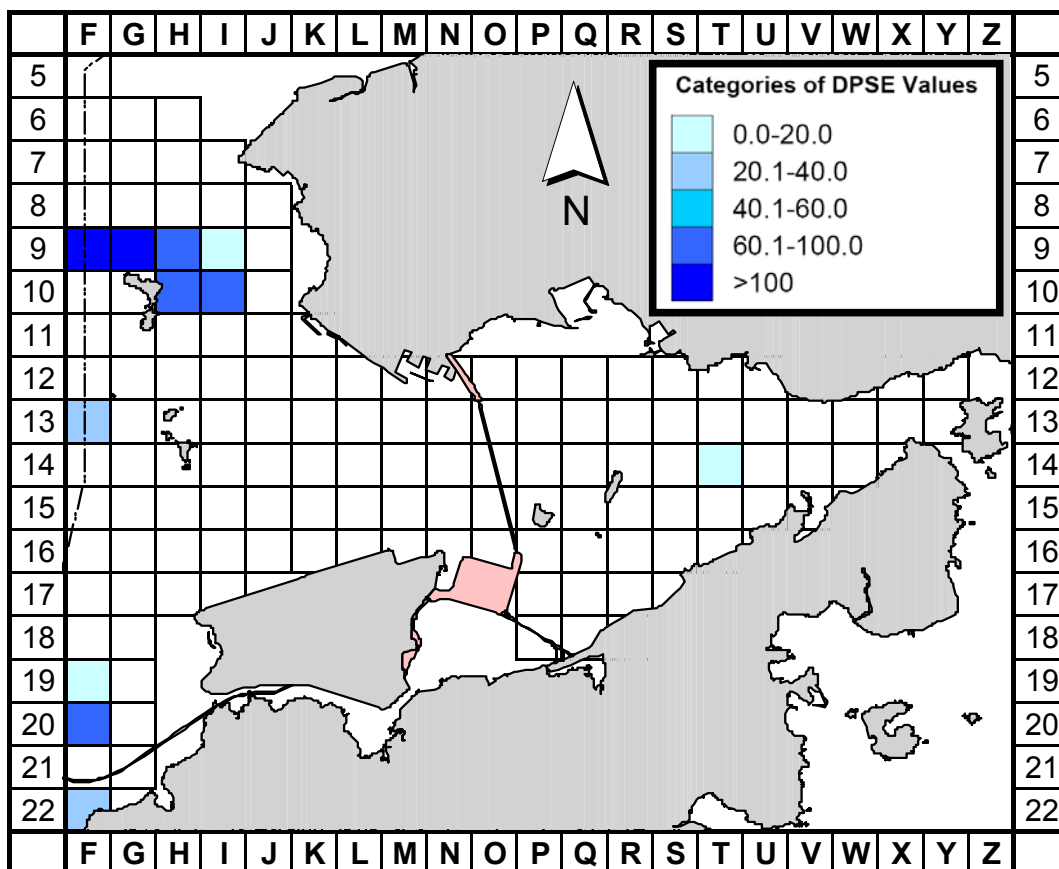


Figure 4b. Density of Chinese white dolphins with corrected survey effort per km² in Northeast and Northwest Lantau survey areas, using data collected during HKLR03 impact monitoring period (Jun-Aug 15) (DPSE = no. of dolphins per 100 units of survey effort)

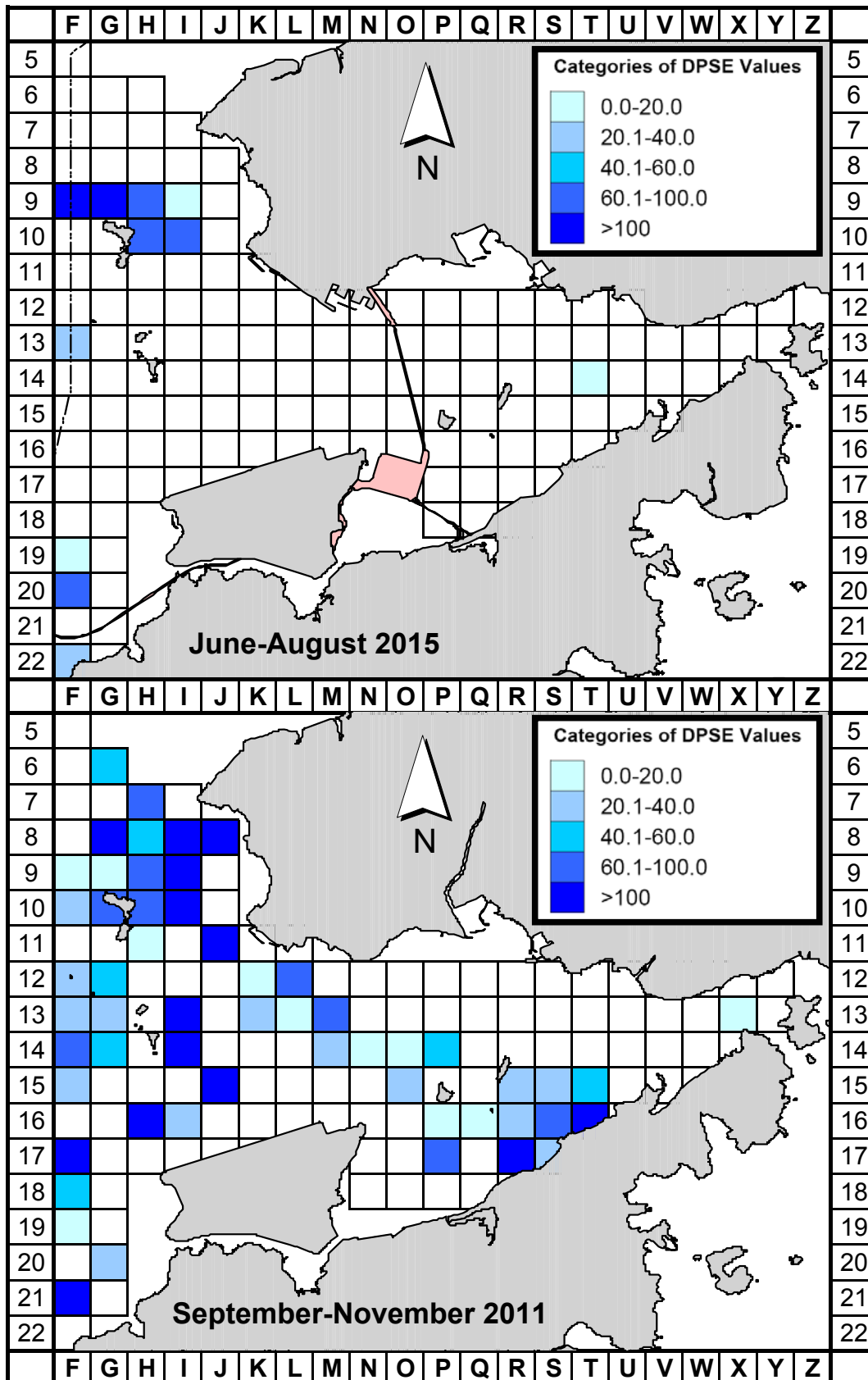


Figure 5. Comparison of density of Chinese white dolphins with corrected survey effort per km² in Northwest and Northeast Lantau survey area between the impact monitoring period (June-August 2015) and baseline monitoring period (September-November 2011) (DPSE = no. of dolphins per 100 units of survey effort)

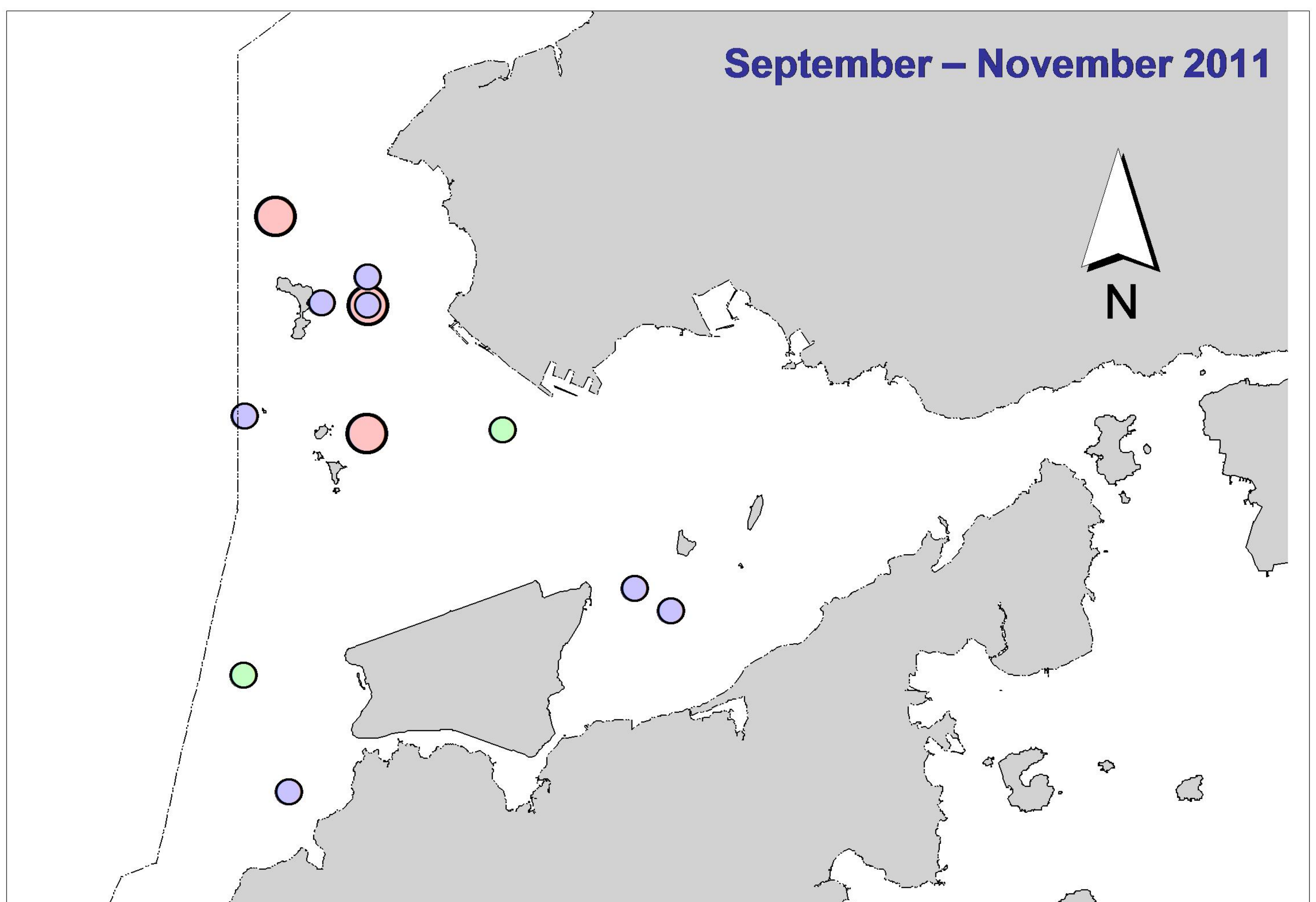
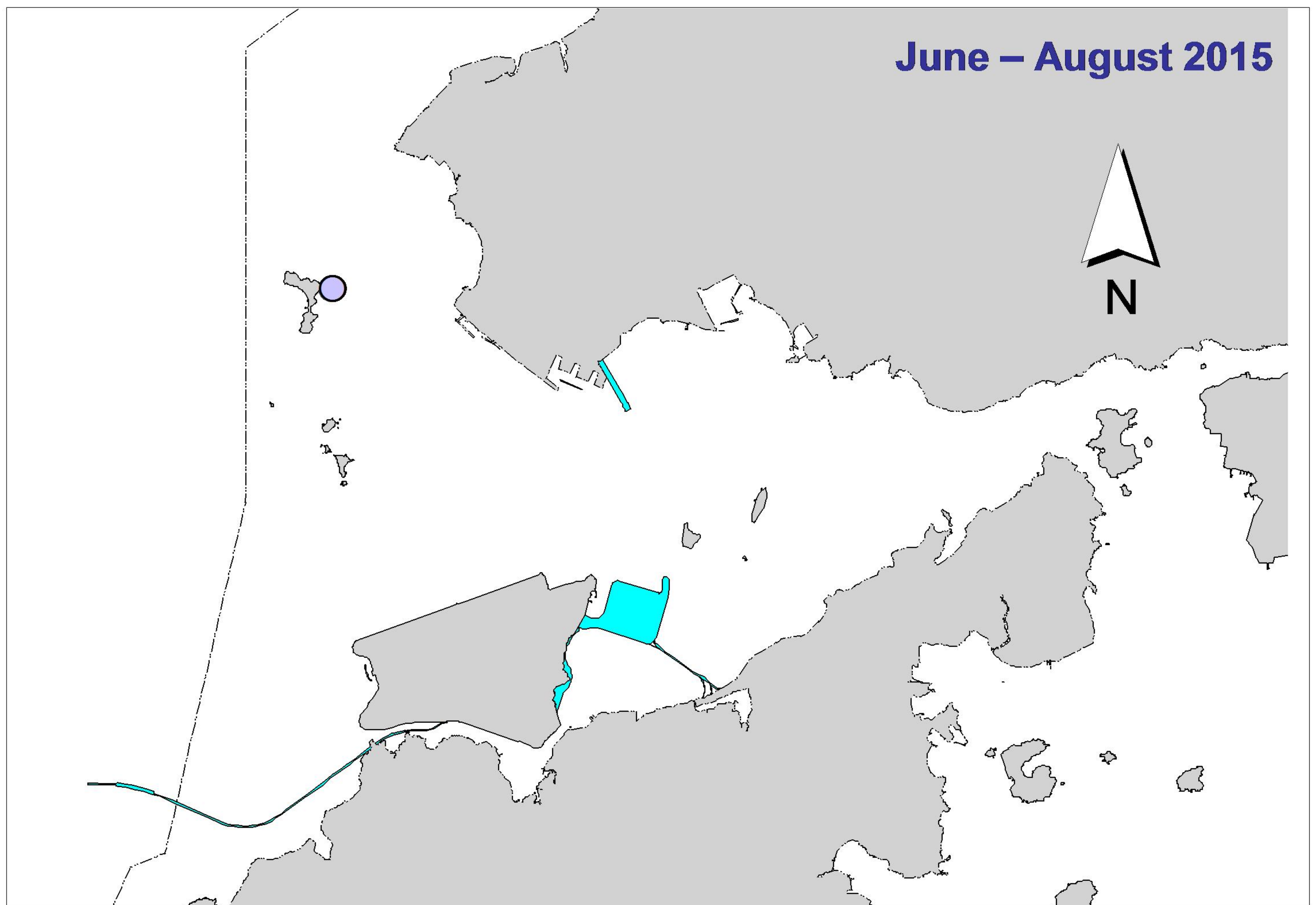


Figure 6. Distribution of Chinese white dolphins engaged in feeding (purple dots), socializing (pink dots) and traveling (green dots) activities during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

Appendix I. HKLR03 Survey Effort Database (June-August 2015)

(Abbreviations: BEAU = Beaufort Sea State; P = Primary Line Effort; S = Secondary Line Effort)

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
2-Jun-15	NW LANTAU	2	10.00	SUMMER	STANDARD31516	HKLR	P
2-Jun-15	NW LANTAU	3	30.49	SUMMER	STANDARD31516	HKLR	P
2-Jun-15	NW LANTAU	2	7.70	SUMMER	STANDARD31516	HKLR	S
2-Jun-15	NW LANTAU	3	5.61	SUMMER	STANDARD31516	HKLR	S
2-Jun-15	NE LANTAU	2	6.93	SUMMER	STANDARD31516	HKLR	P
2-Jun-15	NE LANTAU	3	10.05	SUMMER	STANDARD31516	HKLR	P
2-Jun-15	NE LANTAU	2	9.12	SUMMER	STANDARD31516	HKLR	S
2-Jun-15	NE LANTAU	3	0.80	SUMMER	STANDARD31516	HKLR	S
10-Jun-15	NE LANTAU	2	17.06	SUMMER	STANDARD31516	HKLR	P
10-Jun-15	NE LANTAU	3	3.30	SUMMER	STANDARD31516	HKLR	P
10-Jun-15	NE LANTAU	2	9.14	SUMMER	STANDARD31516	HKLR	S
10-Jun-15	NE LANTAU	3	1.30	SUMMER	STANDARD31516	HKLR	S
10-Jun-15	NW LANTAU	2	8.02	SUMMER	STANDARD31516	HKLR	P
10-Jun-15	NW LANTAU	3	17.50	SUMMER	STANDARD31516	HKLR	P
10-Jun-15	NW LANTAU	4	5.86	SUMMER	STANDARD31516	HKLR	P
10-Jun-15	NW LANTAU	2	3.48	SUMMER	STANDARD31516	HKLR	S
10-Jun-15	NW LANTAU	3	1.65	SUMMER	STANDARD31516	HKLR	S
10-Jun-15	NW LANTAU	4	2.39	SUMMER	STANDARD31516	HKLR	S
24-Jun-15	NW LANTAU	2	12.10	SUMMER	STANDARD31516	HKLR	P
24-Jun-15	NW LANTAU	3	19.70	SUMMER	STANDARD31516	HKLR	P
24-Jun-15	NW LANTAU	2	4.80	SUMMER	STANDARD31516	HKLR	S
24-Jun-15	NW LANTAU	3	2.40	SUMMER	STANDARD31516	HKLR	S
24-Jun-15	NE LANTAU	2	20.32	SUMMER	STANDARD31516	HKLR	P
24-Jun-15	NE LANTAU	2	10.68	SUMMER	STANDARD31516	HKLR	S
26-Jun-15	NW LANTAU	3	30.27	SUMMER	STANDARD31516	HKLR	P
26-Jun-15	NW LANTAU	4	10.98	SUMMER	STANDARD31516	HKLR	P
26-Jun-15	NW LANTAU	3	6.40	SUMMER	STANDARD31516	HKLR	S
26-Jun-15	NW LANTAU	4	6.05	SUMMER	STANDARD31516	HKLR	S
26-Jun-15	NE LANTAU	2	14.33	SUMMER	STANDARD31516	HKLR	P
26-Jun-15	NE LANTAU	3	3.16	SUMMER	STANDARD31516	HKLR	P
26-Jun-15	NE LANTAU	2	6.53	SUMMER	STANDARD31516	HKLR	S
26-Jun-15	NE LANTAU	3	3.18	SUMMER	STANDARD31516	HKLR	S
2-Jul-15	NW LANTAU	2	1.80	SUMMER	STANDARD31516	HKLR	P
2-Jul-15	NW LANTAU	3	29.96	SUMMER	STANDARD31516	HKLR	P
2-Jul-15	NW LANTAU	4	6.90	SUMMER	STANDARD31516	HKLR	P
2-Jul-15	NW LANTAU	5	2.30	SUMMER	STANDARD31516	HKLR	P
2-Jul-15	NW LANTAU	3	6.30	SUMMER	STANDARD31516	HKLR	S
2-Jul-15	NW LANTAU	4	6.26	SUMMER	STANDARD31516	HKLR	S
2-Jul-15	NE LANTAU	2	14.61	SUMMER	STANDARD31516	HKLR	P
2-Jul-15	NE LANTAU	3	2.80	SUMMER	STANDARD31516	HKLR	P
2-Jul-15	NE LANTAU	2	6.35	SUMMER	STANDARD31516	HKLR	S
2-Jul-15	NE LANTAU	3	3.44	SUMMER	STANDARD31516	HKLR	S
7-Jul-15	NE LANTAU	2	15.85	SUMMER	STANDARD31516	HKLR	P
7-Jul-15	NE LANTAU	3	4.59	SUMMER	STANDARD31516	HKLR	P
7-Jul-15	NE LANTAU	2	6.60	SUMMER	STANDARD31516	HKLR	S
7-Jul-15	NE LANTAU	3	4.36	SUMMER	STANDARD31516	HKLR	S
7-Jul-15	NW LANTAU	3	27.41	SUMMER	STANDARD31516	HKLR	P
7-Jul-15	NW LANTAU	4	4.20	SUMMER	STANDARD31516	HKLR	P
7-Jul-15	NW LANTAU	3	5.89	SUMMER	STANDARD31516	HKLR	S
7-Jul-15	NW LANTAU	4	1.90	SUMMER	STANDARD31516	HKLR	S

Appendix I. (cont'd)

(Abbreviations: BEAU = Beaufort Sea State; P = Primary Line Effort; S = Secondary Line Effort)

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
22-Jul-15	NW LANTAU	2	17.06	SUMMER	STANDARD31516	HKLR	P
22-Jul-15	NW LANTAU	3	14.40	SUMMER	STANDARD31516	HKLR	P
22-Jul-15	NW LANTAU	2	4.32	SUMMER	STANDARD31516	HKLR	S
22-Jul-15	NW LANTAU	3	2.62	SUMMER	STANDARD31516	HKLR	S
22-Jul-15	NE LANTAU	2	14.48	SUMMER	STANDARD31516	HKLR	P
22-Jul-15	NE LANTAU	3	5.54	SUMMER	STANDARD31516	HKLR	P
22-Jul-15	NE LANTAU	2	8.78	SUMMER	STANDARD31516	HKLR	S
22-Jul-15	NE LANTAU	3	2.00	SUMMER	STANDARD31516	HKLR	S
27-Jul-15	NW LANTAU	2	1.68	SUMMER	STANDARD31516	HKLR	P
27-Jul-15	NW LANTAU	3	24.69	SUMMER	STANDARD31516	HKLR	P
27-Jul-15	NW LANTAU	4	14.63	SUMMER	STANDARD31516	HKLR	P
27-Jul-15	NW LANTAU	2	2.10	SUMMER	STANDARD31516	HKLR	S
27-Jul-15	NW LANTAU	3	8.60	SUMMER	STANDARD31516	HKLR	S
27-Jul-15	NW LANTAU	4	2.50	SUMMER	STANDARD31516	HKLR	S
27-Jul-15	NE LANTAU	2	8.93	SUMMER	STANDARD31516	HKLR	P
27-Jul-15	NE LANTAU	3	7.93	SUMMER	STANDARD31516	HKLR	P
27-Jul-15	NE LANTAU	2	7.74	SUMMER	STANDARD31516	HKLR	S
27-Jul-15	NE LANTAU	3	2.10	SUMMER	STANDARD31516	HKLR	S
10-Aug-15	NW LANTAU	2	19.11	SUMMER	STANDARD31516	HKLR	P
10-Aug-15	NW LANTAU	3	21.29	SUMMER	STANDARD31516	HKLR	P
10-Aug-15	NW LANTAU	2	7.50	SUMMER	STANDARD31516	HKLR	S
10-Aug-15	NW LANTAU	3	5.90	SUMMER	STANDARD31516	HKLR	S
10-Aug-15	NE LANTAU	2	11.97	SUMMER	STANDARD31516	HKLR	P
10-Aug-15	NE LANTAU	3	4.50	SUMMER	STANDARD31516	HKLR	P
10-Aug-15	NE LANTAU	2	8.13	SUMMER	STANDARD31516	HKLR	S
10-Aug-15	NE LANTAU	3	2.10	SUMMER	STANDARD31516	HKLR	S
14-Aug-15	NW LANTAU	1	3.92	SUMMER	STANDARD31516	HKLR	P
14-Aug-15	NW LANTAU	2	20.74	SUMMER	STANDARD31516	HKLR	P
14-Aug-15	NW LANTAU	3	7.02	SUMMER	STANDARD31516	HKLR	P
14-Aug-15	NW LANTAU	2	3.00	SUMMER	STANDARD31516	HKLR	S
14-Aug-15	NW LANTAU	3	4.52	SUMMER	STANDARD31516	HKLR	S
14-Aug-15	NE LANTAU	2	18.24	SUMMER	STANDARD31516	HKLR	P
14-Aug-15	NE LANTAU	3	1.90	SUMMER	STANDARD31516	HKLR	P
14-Aug-15	NE LANTAU	2	8.36	SUMMER	STANDARD31516	HKLR	S
14-Aug-15	NE LANTAU	3	2.10	SUMMER	STANDARD31516	HKLR	S
19-Aug-15	NW LANTAU	2	26.22	SUMMER	STANDARD31516	HKLR	P
19-Aug-15	NW LANTAU	3	12.61	SUMMER	STANDARD31516	HKLR	P
19-Aug-15	NW LANTAU	2	8.42	SUMMER	STANDARD31516	HKLR	S
19-Aug-15	NW LANTAU	3	4.39	SUMMER	STANDARD31516	HKLR	S
19-Aug-15	NE LANTAU	2	16.55	SUMMER	STANDARD31516	HKLR	P
19-Aug-15	NE LANTAU	2	9.95	SUMMER	STANDARD31516	HKLR	S
28-Aug-15	NE LANTAU	1	1.65	SUMMER	STANDARD31523	HKLR	P
28-Aug-15	NE LANTAU	2	17.34	SUMMER	STANDARD31524	HKLR	P
28-Aug-15	NE LANTAU	1	3.09	SUMMER	STANDARD31525	HKLR	S
28-Aug-15	NE LANTAU	2	7.70	SUMMER	STANDARD31526	HKLR	S
28-Aug-15	NW LANTAU	2	16.74	SUMMER	STANDARD31527	HKLR	P
28-Aug-15	NW LANTAU	3	14.81	SUMMER	STANDARD31528	HKLR	P
28-Aug-15	NW LANTAU	4	1.30	SUMMER	STANDARD31529	HKLR	P
28-Aug-15	NW LANTAU	2	6.65	SUMMER	STANDARD31530	HKLR	S

Appendix II. HKLR03 Chinese White Dolphin Sighting Database (June-August 2015)

(Abbreviations: STG# = Sighting Number; HRD SZ = Dolphin Herd Size; BEAU = Beaufort Sea State; PSD = Perpendicular Distance; BOAT ASSOC. = Fishing Boat Association; P/S: Sighting Made on Primary/Secondary Line)

DATE	STG #	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
2-Jun-15	1	1110	10	NW LANTAU	3	88	ON	HKLR	827673	804687	SUMMER	NONE	P
26-Jun-15	1	1210	4	NW LANTAU	4	357	ON	HKLR	826650	806456	SUMMER	NONE	P
26-Jun-15	2	1610	1	NE LANTAU	2	0	ON	HKLR	822224	818562	SUMMER	NONE	P
2-Jul-15	1	1051	2	NW LANTAU	3	158	ON	HKLR	823542	804688	SUMMER	NONE	P
22-Jul-15	1	1055	3	NW LANTAU	3	153	ON	HKLR	827217	805458	SUMMER	NONE	P
22-Jul-15	2	1140	1	NW LANTAU	3	147	ON	HKLR	827280	807549	SUMMER	NONE	P
19-Aug-15	1	1019	1	NW LANTAU	2	45	ON	HKLR	814805	804681	SUMMER	NONE	P
19-Aug-15	2	1031	4	NW LANTAU	2	502	ON	HKLR	816101	804673	SUMMER	NONE	P
19-Aug-15	3	1036	1	NW LANTAU	2	285	ON	HKLR	817097	804675	SUMMER	NONE	P
19-Aug-15	4	1125	5	NW LANTAU	2	733	ON	HKLR	827218	805036	SUMMER	NONE	P
19-Aug-15	5	1221	5	NW LANTAU	2	98	ON	HKLR	827182	806436	SUMMER	NONE	P
28-Aug-15	1	1417	5	NW LANTAU	3	344	ON	HKLR	826693	807538	SUMMER	NONE	P

Appendix III. Individual dolphins identified during HKLR03 monitoring surveys in June-August 2015

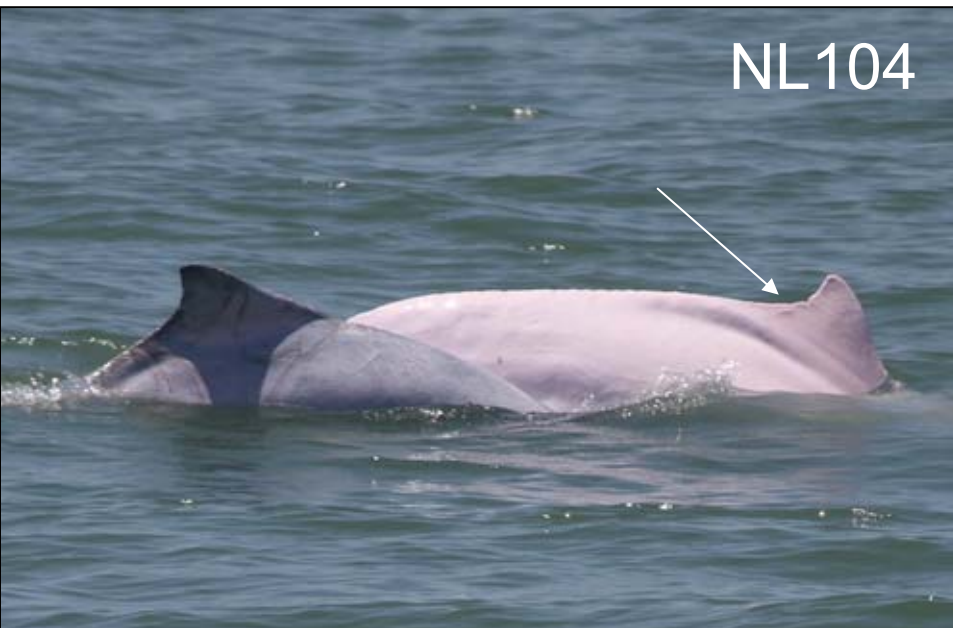
ID#	DATE	STG#	AREA
CH34	02/06/15	1	NW LANTAU
	28/08/15	1	NW LANTAU
NL37	02/06/15	1	NW LANTAU
NL46	19/08/15	4	NW LANTAU
NL48	02/06/15	1	NW LANTAU
NL104	02/06/15	1	NW LANTAU
	19/08/15	4	NW LANTAU
	28/08/15	1	NW LANTAU
NL136	02/06/15	1	NW LANTAU
	28/08/15	1	NW LANTAU
NL153	19/08/15	5	NW LANTAU
NL182	02/06/15	1	NW LANTAU
NL202	02/06/15	1	NW LANTAU
	26/06/15	1	NW LANTAU
	19/08/15	5	NW LANTAU
NL213	26/06/15	1	NW LANTAU
NL214	28/08/15	1	NW LANTAU
NL220	28/08/15	1	NW LANTAU
NL233	22/07/15	1	NW LANTAU
NL286	02/06/15	1	NW LANTAU
	26/06/15	1	NW LANTAU
	19/08/15	5	NW LANTAU
NL293	19/08/15	1	NW LANTAU
NL310	02/07/15	1	NW LANTAU
	19/08/15	4	NW LANTAU
NL319	26/06/15	1	NW LANTAU
WL05	02/06/15	1	NW LANTAU
WL17	19/08/15	4	NW LANTAU
WL124	19/08/15	3	NW LANTAU
WL167	02/07/15	1	NW LANTAU

Appendix IV. Twenty-one individual dolphins that were identified during June – August 2015 under HKLR03 impact phase monitoring surveys



Appendix IV. (cont'd)

NL104



NL136



NL153



NL182



Appendix IV. (cont'd)

NL202



NL213



NL214



NL220



Appendix IV. (cont'd)

NL233



NL286



NL293



NL310



Appendix IV. (cont'd)

NL319



WL05



WL17



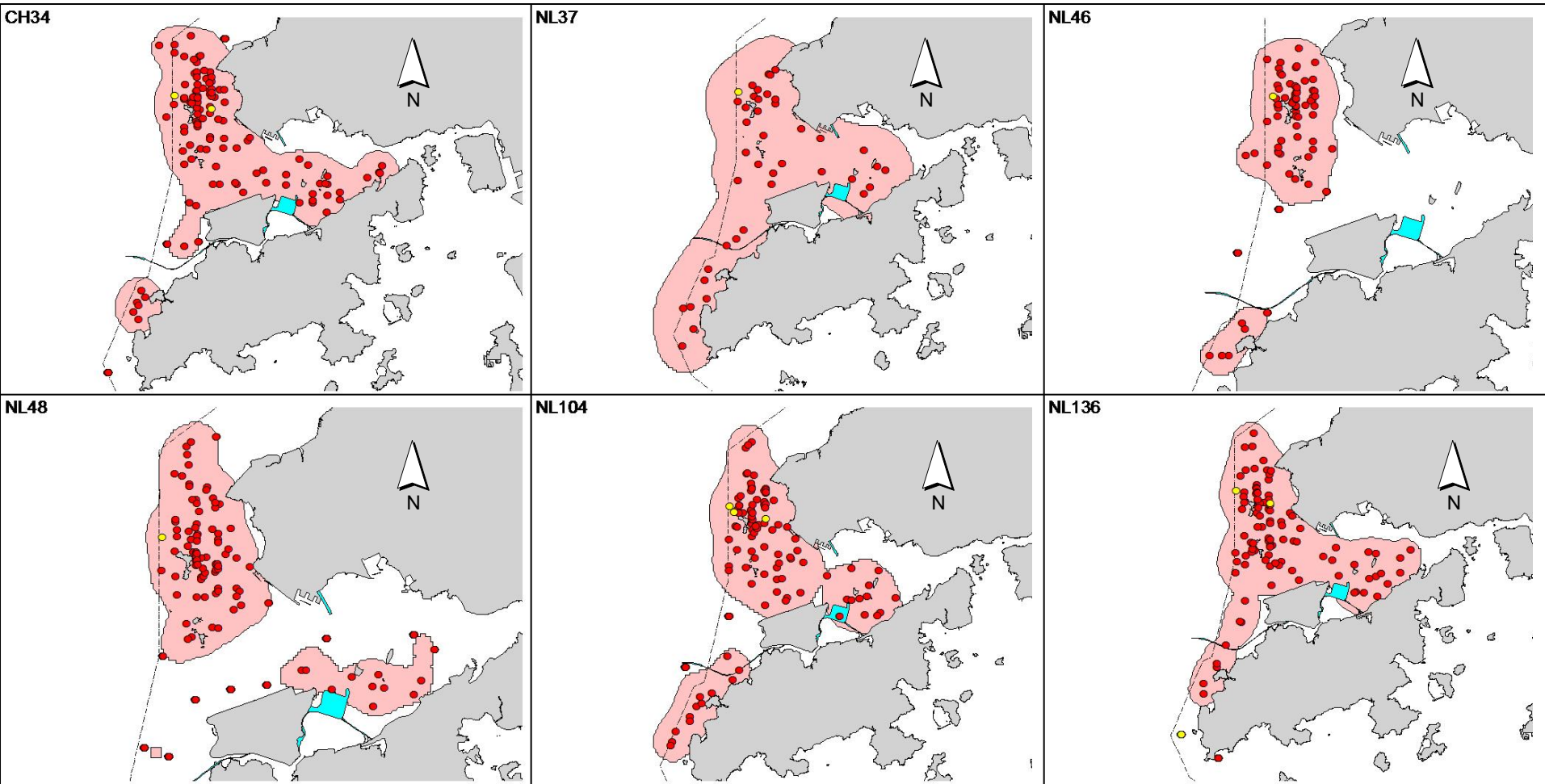
WL124



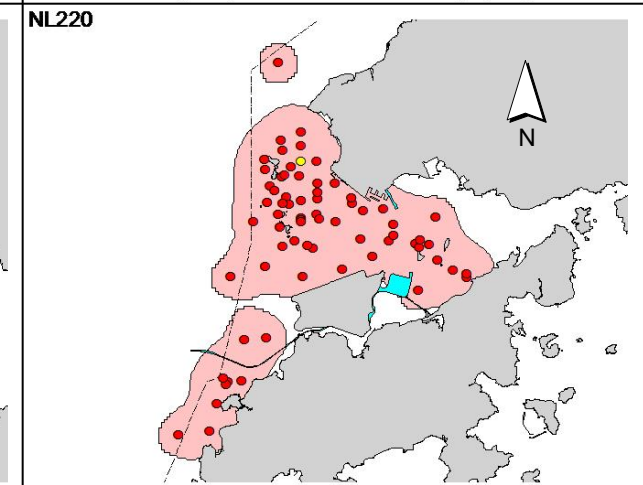
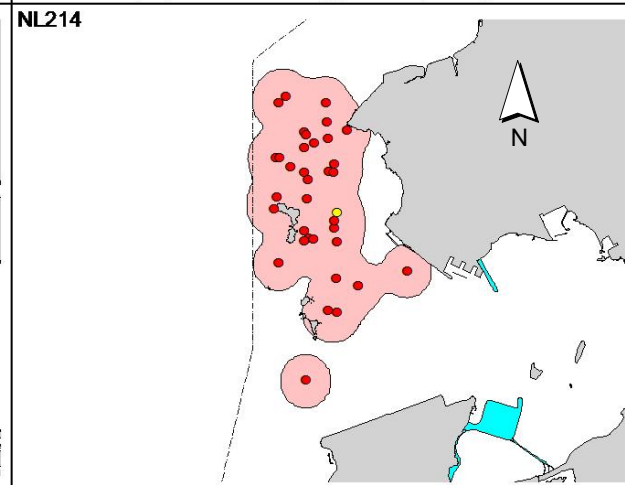
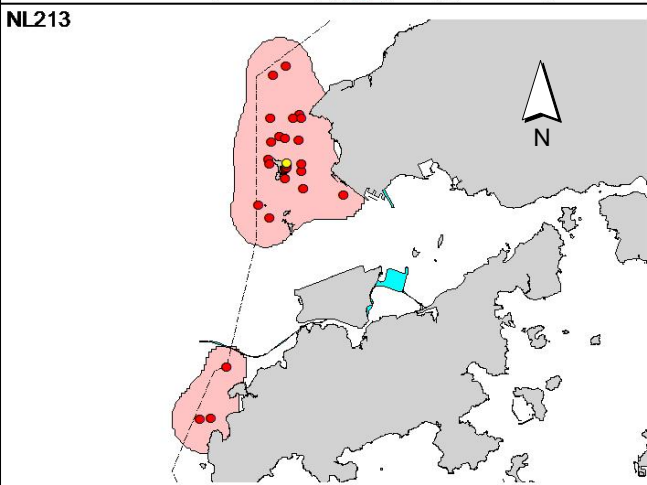
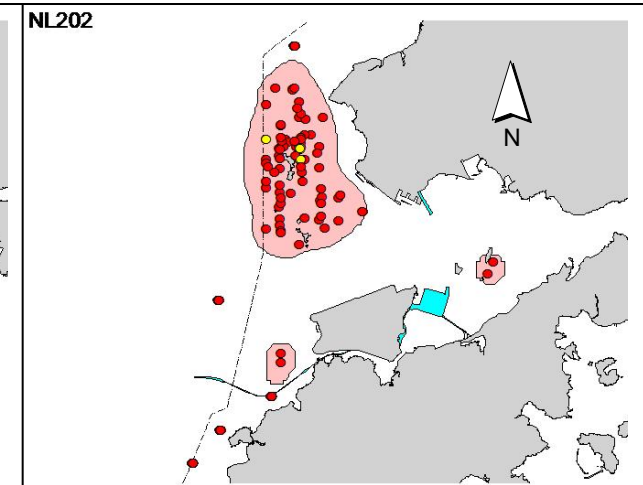
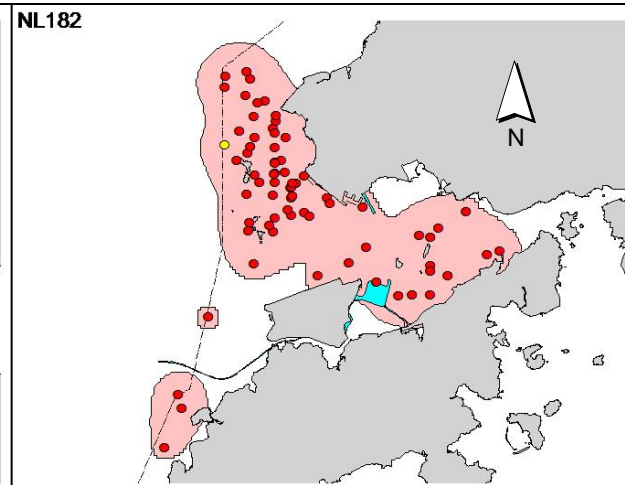
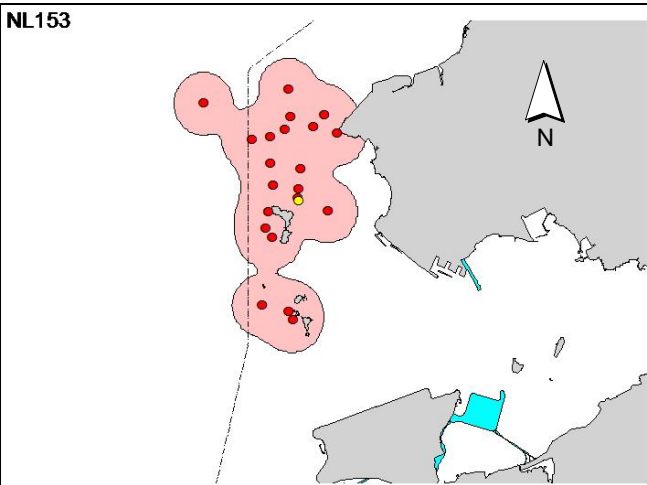
Appendix IV. (cont'd)



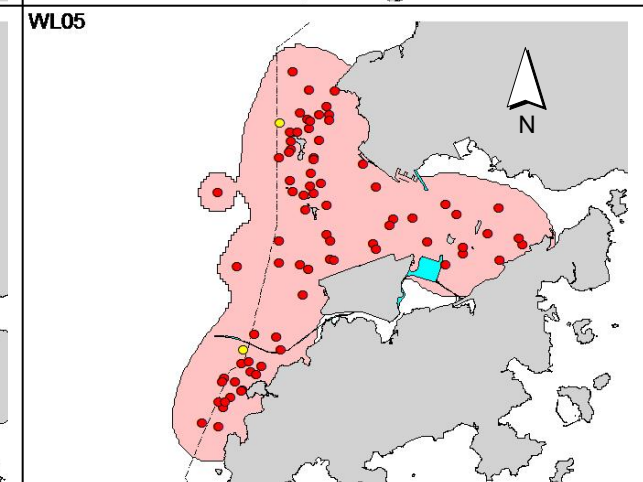
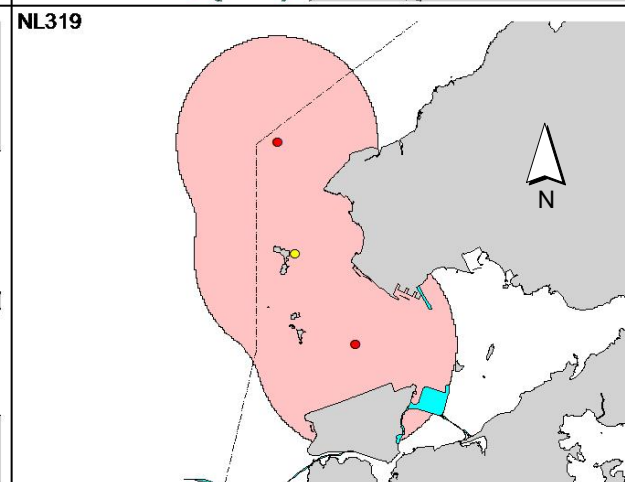
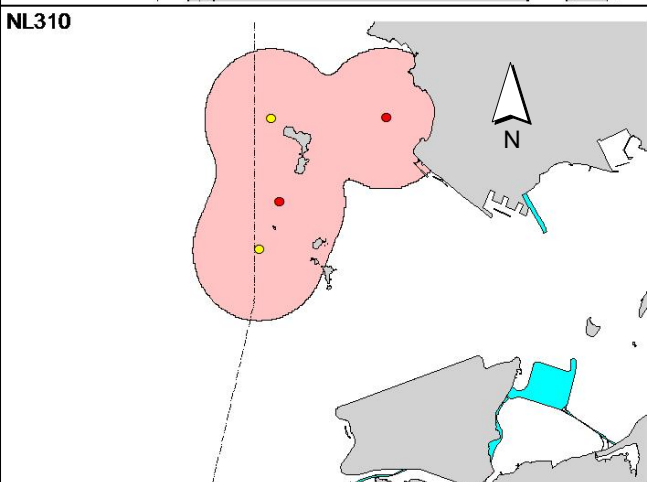
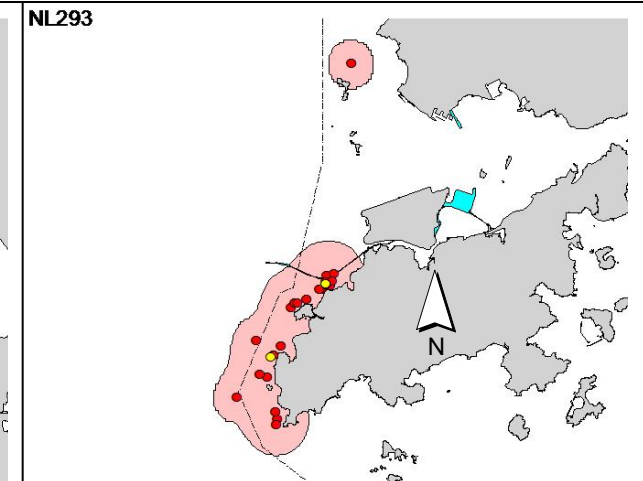
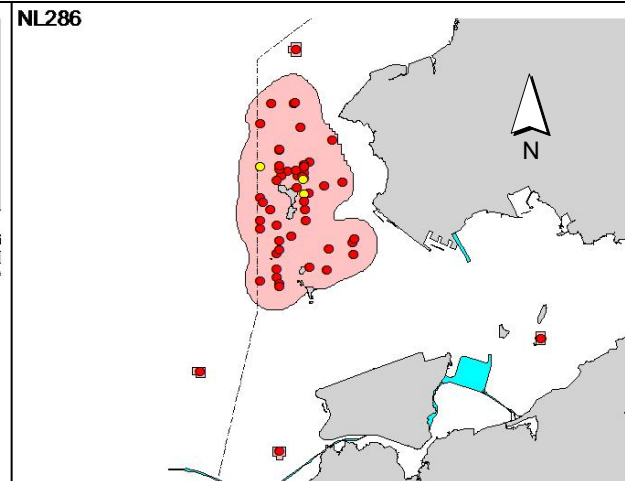
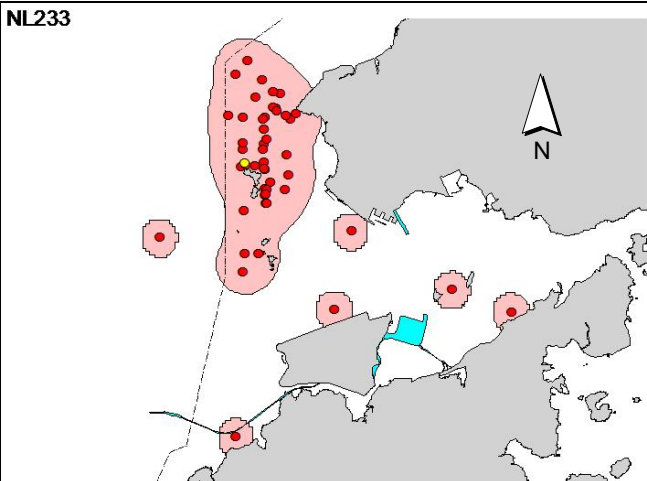
Appendix V. Ranging patterns (95% kernel ranges) of 21 individual dolphins that were sighted during HKLR03 impact phase monitoring period (note: yellow dots indicates sightings made in June – August 2015)



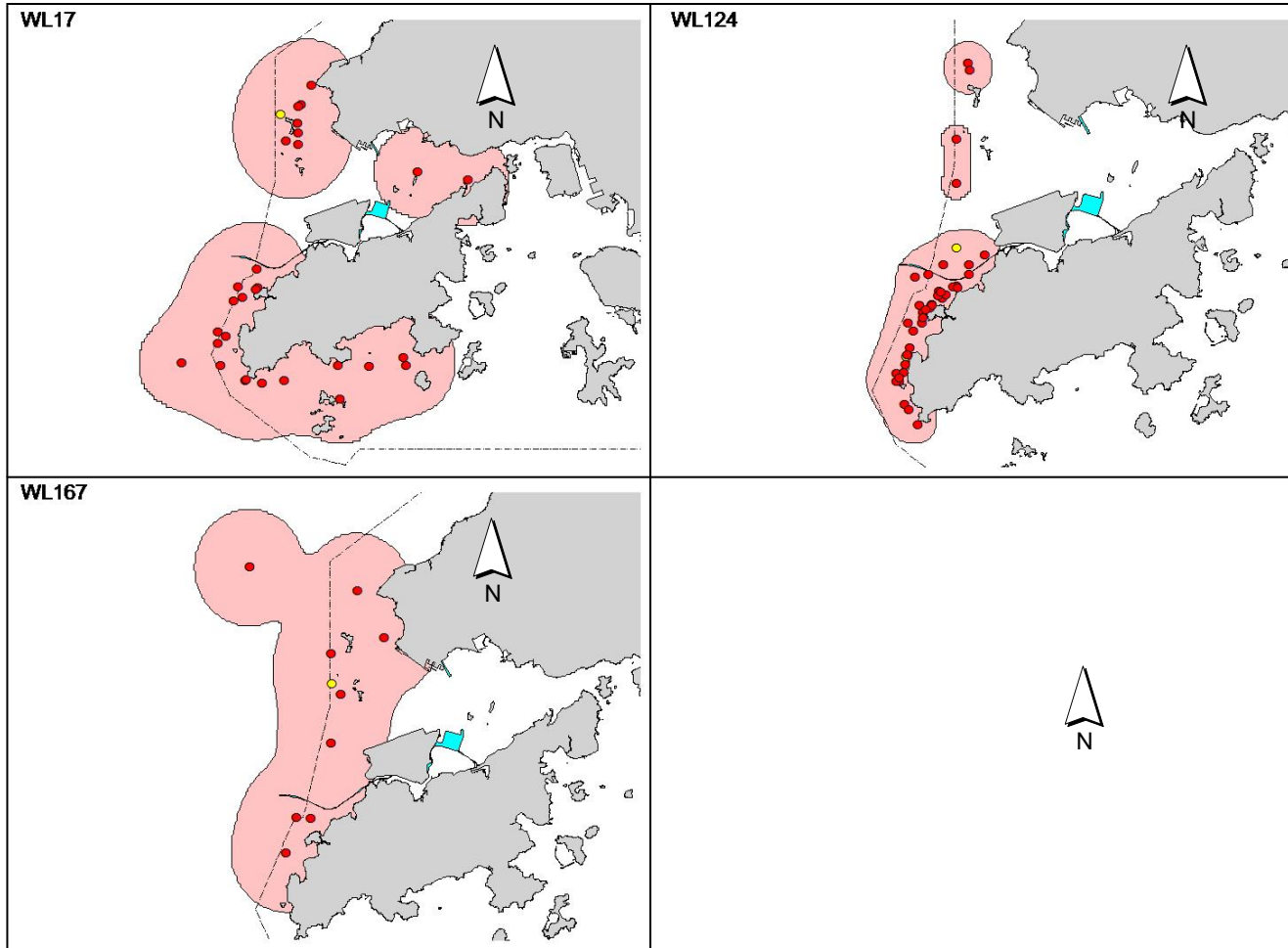
Appendix V. (cont'd)



Appendix V. (cont'd)



Appendix V. (cont'd)



Appendix J

Event Action Plan

Appendix J1 Event/ Action Plan for Air Quality

EVENT	ET ⁽¹⁾	ACTION		
		IEC ⁽¹⁾	SOR ⁽¹⁾	Contractor
Action Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify the source. 2. Inform the IEC and the SOR. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET. 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice 2. Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify the source. 2. Inform the IEC and the SOR. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Discuss with the IEC and the Contractor on remedial actions required. 6. If exceedance continues, arrange meeting with the IEC and the SOR. 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET. 2. Check the Contractor's working method. 3. Discuss with the ET and the Contractor on possible remedial measures. 4. Advise the SOR on the effectiveness of the proposed remedial measures. 5. Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate

ACTION				
EVENT	ET ⁽¹⁾	IEC ⁽¹⁾	SOR ⁽¹⁾	Contractor
Limit Level				
1. Exceedance for one sample	1. Identify the source. 2. Inform the SOR and the DEP. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results.	1. Check monitoring data submitted by the ET. 2. Check Contractor's working method. 3. Discuss with the ET and the Contractor on possible remedial measures. 4. Advise the SOR on the effectiveness of the proposed remedial measures. 5. Supervisor implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Ensure remedial measures are properly implemented.	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Amend proposal if appropriate
2. Exceedance for two or more consecutive samples	1. Notify the IEC, the SOR, the DEP and the Contractor. 2. Identify the source. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting with the IEC and the SOR to discuss the remedial actions to be taken. 7. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and	1. Discuss amongst the SOR, ET and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the SOR accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the SOR until the exceedance is abated.

the SOR informed of the results.

8. If exceedance stops cease
additional monitoring.

Appendix J2 Event/ Action Plan for Construction Noise

ACTION					
EVENT	ET	IEC	SOR	Contractor	
Action Level	<ol style="list-style-type: none"> 1. Notify the IEC and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET. 2. Review the proposed remedial measures by the Contractor and advise the SOR accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC 2. Implement noise mitigation proposals 	
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, the SOR, the DEP and the Contractor. 2. Identify the source. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Inform the IEC, the SOR and the DEP the causes & actions taken for the exceedances. 7. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results. 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst the SOR, the ET and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the SOR accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant activity of works as determined by the SOR until the exceedance is abated. 	

Appendix J3 **Event/ Action Plan for Water Quality**

Event	ET Leader	IEC	SOR	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat in situ measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor and SOR; Check monitoring data, all plant, equipment and Contractor's working methods. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor's working methods. 	<ol style="list-style-type: none"> Confirm receipt of notification of non-compliance in writing; Notify Contractor. 	<ol style="list-style-type: none"> Inform the SOR and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, SOR and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, SOR and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Action level; 	<ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor's working method; Discuss with ET and Contractor on possible remedial actions; Review the proposed mitigation measures submitted by Contractor and advise the SOR accordingly; Supervise the implementation of mitigation measures. 	<ol style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Ensure mitigation measures are properly implemented; Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> Inform the Supervising Officer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment and consider changes of working methods; Submit proposal of additional mitigation measures to SOR within 3 working days of notification and discuss with ET, IEC and SOR; Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; 	<ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor's working method; Discuss with ET and Contractor 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Discuss with IEC, ET and Contractor on the proposed 	<ol style="list-style-type: none"> Inform the SOR and confirm notification of the non-compliance in writing; Rectify unacceptable practice;

Event	ET Leader	IEC	SOR	Contractor
	3. Inform IEC, contractor, SOR and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, SOR and Contractor;	on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the SOR accordingly.	mitigation measures; 3. Request Contractor to review the working methods.	3. Check all plant and equipment and consider changes of working methods; 4. Submit proposal of mitigation measures to SOR within 3 working days of notification and discuss with ET, IEC and SOR.
Limit level being exceeded by two or more consecutive sampling days	1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, SOR and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, SOR and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days;	1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the SOR accordingly; 4. Supervise the implementation of mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. 5. Ensure mitigation measures are properly implemented; 6. 7. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.	1. Take immediate action to avoid further exceedance; 2. Submit proposal of mitigation measures to SOR within 3 working days of notification and discuss with ET, IEC and SOR; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; 5. As directed by the Supervising Officer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

Appendix J4 **Implementation of Event-Action Plan for Dolphin Monitoring**

Event	ET Leader	IEC	SOR	Contractor
Action Level	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, SOR and Contractor; 5. Check monitoring data. 6. Review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and findings with the ET and the Contractor. 	<ol style="list-style-type: none"> 1. Discuss monitoring with the IEC and any other measures proposed by the ET; 2. If SOR is satisfied with the proposal of any other measures, SOR to signify the agreement in writing on the measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SOR; 3. Implement the agreed measures.

Event	ET Leader	IEC	SOR	Contractor
Limit Level	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor of findings; 5. Check monitoring data; 6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary; 7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with IEC, ER/SOR and Contractor the necessity of additional dolphin monitoring and/or any other potential mitigation measures (e.g., consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activity etc.) and submit to IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and findings with the ET and the Contractor; 3. Attend the meeting to discuss with ET, ER/SOR and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures; 4. Review proposals for additional monitoring and any other mitigation measures submitted by ET and Contractor and advise ER/SOR of the results and findings accordingly; 5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise ER/SOR the results and findings accordingly. 	<ol style="list-style-type: none"> 1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures; 2. If ER/SOR is satisfied with the proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, ER/SOR to signify the agreement in writing on such proposals and any other mitigation measures; 3. Supervise the implementation of additional monitoring and/or any other mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the ER/SOR and confirm notification of the non-compliance in writing; 2. Attend the meeting to discuss with ET, IEC and ER/SOR the necessity of additional dolphin monitoring and any other potential mitigation measures; 3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary; 4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.

Appendix J5 *Event and Action Plan on Dolphin Acoustic Behaviour*

EVENT	ACTION			
	ET Leader	IEC	SO	Contractor
<u>Action Level</u>				
With the numerical values presented in <i>Table 5.7 of Baseline Monitoring Report</i> , when any of the response variable for dolphin acoustic behaviour recorded in the construction phase monitoring is 20% lower or higher than that recorded in the baseline monitoring (see <i>Table 5.8 of Baseline Monitoring Report</i>), or when there is a difference of 20% in dolphin acoustic signal detection at nighttime period at Site C1 only, the action level should be triggered	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data to ascertain if differences are as a result of natural variation or seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, SO and Contractor; 5. Check monitoring data; 6. Carry out audit to ensure all dolphin protective measures are implemented fully and additional measures be proposed if necessary 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring with the ET and the Contractor; 	<ol style="list-style-type: none"> 1. Discuss with the IEC the repeat monitoring and any other measures proposed by the ET; 2. Make agreement on measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the SO and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SO; 3. Implement the agreed measures.

EVENT	ACTION			
	ET Leader	IEC	SO	Contractor
<p><u>Limit Level</u></p> <p>With the numerical values presented in <i>Table 5.7 of Baseline Monitoring Report</i>, when any of the response variable for dolphin acoustic behaviour recorded in the construction phase monitoring is 40% lower or higher than that recorded in the baseline monitoring (see <i>Table 5.8 of Baseline Monitoring Report</i>), or when there is a difference of 40% in dolphin acoustic signal detection at nighttime at Site C1 only, the limit level should be triggered</p>	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data to ascertain if differences are as a result of natural variation or seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, SO and Contractor; 5. Check monitoring data; 6. Carry out audit to ensure all dolphin protective measures are implemented fully and additional measures be proposed if necessary 7. Discuss additional dolphin monitoring and any other potential mitigation measures (eg consider to temporarily stop relevant portion of construction activity) with the IEC and Contractor. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring with the ET and the Contractor; 3. Review proposals for additional monitoring and any other measures submitted by the Contractor and advise ER accordingly. 	<ol style="list-style-type: none"> 1. Discuss with the IEC the repeat monitoring and any other measures proposed by the ET; 2. Make agreement on measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the SO and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SO; 3. Implement the agreed measures.

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, SO – Supervising Office, DEP – Director of Environmental Protection

Appendix K

Quarterly Summary of Waste Flow Table

Contract No. : HY/2012/07

Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section

Monthly Summary Waste Flow Table for 2015 (Year)

Month/Material	Actual Quantities of Inert C&D Materials Generation						Actual Quantities of C&D wastes Generation						Actual Quantities of Recyclables Generation			
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills	Imported Fill	Marine Sediment, Cat. L	Marine Sediment, Cat. Mp	Marine Sediment, Cat. Mf	Marine Sediment, Cat. H	Chemical Waste	General Refuse	Metals	Felled trees	Paper/ cardboard packaging	Plastics
Unit	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan	13.578	0.081	0.990	-	12.474	0.115	0.178	0.229	0.258	-	-	132.170	-	61.380	0.091	-
Feb	6.233	0.148	0.461	-	5.759	0.014	0.801	0.110	0.223	-	0.400	141.020	-	73.690	0.112	-
Mar	10.149	0.220	0.473	-	9.600	0.077	0.618	0.073	0.149	-	-	120.940	-	9.140	0.203	-
Apr	9.986	0.410	2.261	-	7.694	0.032	-	-	-	-	-	133.630	-	2.740	0.105	-
May	8.753	0.177	0.662	-	8.091	-	0.550	-	-	-	-	107.920	-	13.070	0.042	-
Jun	8.517	0.132	1.351	-	7.166	-	0.324	0.118	0.169	-	0.017	89.930	-	2.000	0.119	-
SUB-TOTAL	57.217	1.168	6.197	-	50.782	0.238	2.471	0.530	0.799	-	0.417	725.610	-	162.020	0.672	-
Jul	3.391	0.137	0.992	-	2.322	0.078	-	-	-	-	1.400	111.570	-	-	0.105	-
Aug	1.370	0.203	0.105	-	1.265	-	-	-	-	-	1.200	87.760	-	-	0.133	-
Sep	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	61.978	1.509	7.293	-	54.368	0.316	2.471	0.530	0.799	-	3.017	924.940	-	162.020	0.910	-

Notes :

- 1 - The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2 - Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- 3 - Broken concrete for recycling into aggregates.
- 4 - Assumed 5 kg per damaged water-filled barrier.
- 5 - Disposed as Public Fills includes Hard Rock and Large Broken Concrete.

Appendix L

Cumulative Statistics on
Exceedances, Complaints,
Notifications of Summons
and Successful Prosecutions

Appendix L1 Cumulative Statistics on Exceedances

		Total No. recorded in this quarter	Total No. recorded since project commencement
1-Hr TSP	Action	0	0
	Limit	0	0
24-Hr TSP	Action	0	2
	Limit	0	0
Noise	Action	0	0
	Limit	0	0
Water Quality	Action	1	2
	Limit	0	0
Impact Dolphin Monitoring	Action	0	7
	Limit	2	3

Appendix L2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This quarter	1	0	0
Total No. received since project commencement	3	0	0



ENVIRONMENTAL COMPLAINT/ ENQUIRY FORM

Complaint/ Enquiry Received*
Date: 18 June 2015 Time: Undisclosed From: Environmental Protection Department (EPD) Via: Phone notification
Complainant/ Enquirer*: Name: Undisclosed Tel: Undisclosed Address: Undisclosed Media: Dust Noise Water Quality Other Description: A notification of complaint from EPD was received on 18 June 2015 regarding dust emission from dump trucks (Plate number: SE 577, NM 577 and NH 327) working for construction site of Tuen Mun-Chek Lap Kok Link-Southern Connection Viaduct Section (the Project). The complainant suspected that the dust suppression measures on site were insufficient.

Investigation Report & Response

Upon receiving the complaint notification, ET conducted a spot check of dust mitigation measures implementation in the Project area on 18 June 2015 at 2pm. Works areas along Cheung Tung Road (e.g. Area 1, Works Area 4, Area 2) were checked. During the investigation, no truck was observed loading dusty material and leaving Project area with improper cover. Wheel washing was also applied to every trucks leaving Project area. No non-compliance was observed during the investigation. Photos of implementing wheel washing facilities during the investigation are attached in *Annex A*.

A joint inspection was carried out by representatives of the EPD, SOR and Contractor on 19 June 2015 at 2pm. 11 site entrances along Cheung Tung Road and North Lantau Highway were visited. Wheel washing facilities for vehicles were found properly implemented in all entrances. EPD had no adverse comment on the implementation of wheel washing facilities during the inspection.

During the inspection on 19 June 2015, 2 of the trucks under complaint (car plate number: SE 577 and NH 327) were inspected. EPD had no adverse comment on NH 327. However, the sideboards of SE 577 were found higher than normal and the skip was found not fully covered by the mechanical cover. The truck driver was then advised by EPD representative that the cover was considered unable to mitigate dust emission effectively. Onsite discussion was conducted among EPD, SOR, Contractor and the truck driver. The truck driver took immediate action to lower the sideboards and to ensure the skip of dump truck was fully covered. Photos of the trucks under complaint are provided by Contractor and shown in *Annex B*.

The Contractor also provided toolbox talk trainings to the drivers and traffic controllers on 17, 18 and 25 June 2015 (*Annex C*).

Mitigation Measures and Follow-Up Actions Recommended to Contractor

To mitigate dust emission from trucks, below measures are advised to the Contractor:

1. Dust emission material should not be loaded to a level higher than side or tail boards and should be fully covered by tarpaulin sheet;
2. The tarpaulin sheet should be properly secured and shall extend at least 300mm over the edges of the side and tail boards;
3. The Contractor and the assigned traffic controllers should ensure the truck drivers of this Project using the mechanical cover properly, and all dusty materials should be fully covered;
4. The Contractor and the assigned traffic controllers should also ensure wheel washing is applied to all trucks at every entrance of Project area and the trucks are not overloading; and,
5. Toolbox talk trainings should be provided to truck drivers and traffic controllers, in which the truck drivers should be reminded to avoid sideboards or tailboards higher than normal to prevent dust emission.

Date of File Closed : 2 July 2015

Approved and Filed by:



(Jovy Tam, ET Leader)
Date: 2 July 2015

Annex A

Photos of Investigation on 18
June 2015

Truck wheel washing at Area 1 (without loading)



Truck wheel washing at Site Access 9B (without loading)



Wheel washing facility at Site Access 4A



Wheel washing facility at Site Access 3B



Annex B

Photos of Trucks under Complaint

Sideboards of truck (SE 577) were too high and loaded material was not fully covered (Photo taken on 19 Jun 2015)



Sideboards of truck (SE 577) were lower and mechanical cover can properly cover the dusty material (Photo taken on 19 Jun 2015)



Truck under complaint (NH 327) was wheel washed and its mechanical cover can properly cover the skip (Photo taken on 19 June 2015)



Mechanical cover of truck under complaint (NM 577) can properly cover the skip (Photo taken on 26 June 2015)



Annex C

Toolbox Talk Training Record
to Drivers and Traffic
Controllers



工具箱環保訓練出席記錄
Tool Box Talk Environmental Training Attendance Record

工地名稱

Project : Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section (J3518)

合約編號

Contract No. : HY/2012/07

導師

Conductor : Gammon Chan

地點

Venue : Gates at Viaduct C, D

日期

Date : 17-6-15

時間

Time: 14:00 至 16:30

Topic 題目 :

TC briefing (Things should do before allowing vehicle to leave)

工作編號	姓名 Name	公司 Company	工種 Trade	簽名 Signature	工作編號	姓名 Name	公司 Company	工種 Trade	簽名 Signature
	<u>梁卓榮</u>	<u>GM</u>	<u>TC</u>	<u>梁</u>					
	<u>Rai Bunditaka</u>	<u>"</u>	<u>"</u>	<u>Rai</u>					
	<u>Rai Dilkuneri</u>	<u>"</u>	<u>"</u>	<u>Rai</u>					
	<u>楊孟傑</u>	<u>"</u>	<u>"</u>	<u>傑</u>					
	<u>Rammaya</u>	<u>"</u>	<u>"</u>	<u>Ram</u>					
	<u>THAPA, PADMA</u>	<u>"</u>	<u>"</u>	<u>Pol.</u>					
	<u>梁玉英</u>	<u>"</u>	<u>"</u>	<u>英</u>					
	<u>ISANG WAI FOON</u>	<u>"</u>	<u>"</u>	<u>Happy</u>					
	<u>Rama Yug Mayer</u>	<u>"</u>	<u>"</u>	<u>Mayer</u>					

Certified by [Signature] (Environmental Officer Full Name: Roy Leung) and Date :

Total no. (9)
17 JUN 2015

收集以上的個人資料是用作保安及行政目的。所收集的一切資料均會按照個人資料(私隱)條例的規定來處理。
Collection of above personal data is served for security and administration purpose. All data collected shall be treated in accordance with the requirements of the Personal Data (Privacy) Ordinance.
Random check have been made by _____ (AECOM's Representative) on _____ to check that training course was carried out.



工具箱環保訓練出席記錄
Tool Box Talk Environmental Training Attendance Record

工地名稱
Project : Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section (J3518)
合約編號
Contract No. : HY/2012/07

導師
Conductor : Carmen Chan
日期
Date : 18-6-15

地點
Venue : Gates at Viaduct A,B
時間
Time : 14:00 至 16:30

Topic 題目 : TC briefing (Things should ~~be~~ do before allowing vehicle to leave site)

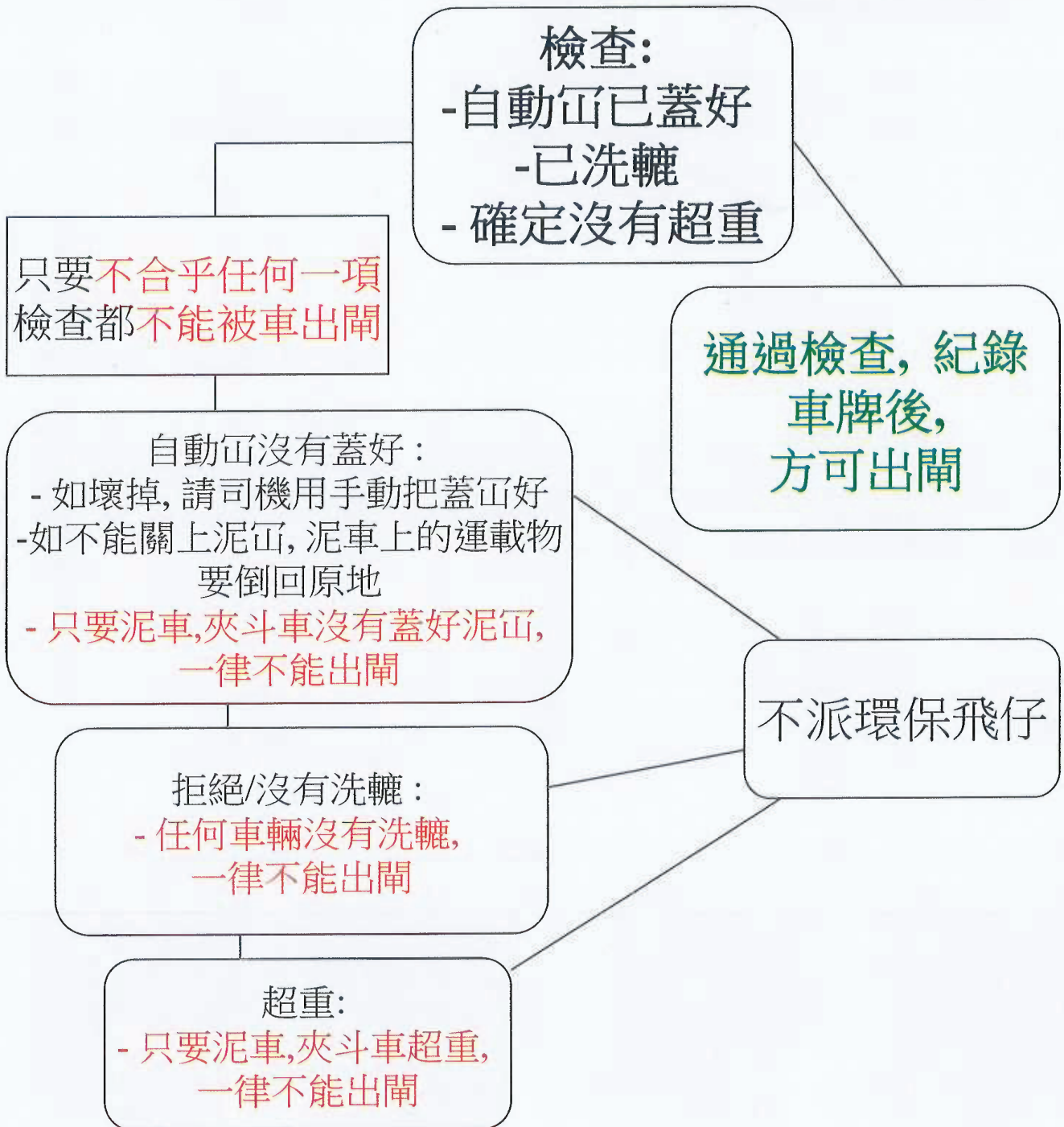
工作證編號	姓名 Name	公司 Company	工種 Trade	簽名 Signature	工作證編號	姓名 Name	公司 Company	工種 Trade	簽名 Signature
	THAPA PACHUN 莊的耕	CoCL	TC	PACHUN					
	莊的耕	"	"	莊					
	莊	"	"	莊					
	RAJ, TULASA	G.C.L	TC	RAJ					

Certified by [Signature] (Environmental Officer Full Name: Roy Leung) and Date : 18-6-15 Total no. (4)

收集以上的個人資料是用作保安及行政目的。所收集的一切資料均會按照個人資料(私隱)條例的規定來處理。
Collection of above personal data is served for security and administration purpose. All data collected shall be treated in accordance with the requirements of the Personal Data (Privacy) Ordinance.
Random check have been made by _____ (AECOM's Representative) on _____ to check that training course was carried out.



指定取票員



Email
message

Environmental
Resources
Management

To ENVIRON - Hong Kong, Limited (ENPO)

From ERM- Hong Kong, Limited

Ref/Project number Contract No. HY/2012/07 Tuen Mun–Chek Lap
Kok Link–Southern Connection Viaduct Section

Subject Notification of Exceedance for Impact Dolphin
Monitoring

Date 19 January 2016

16/F Berkshire House,
25 Westlands Road
Quarry Bay, Hong Kong
Telephone: (852) 2271 3113
Facsimile: (852) 2723 5660
E-mail: jovy.tam@erm.com



Dear Sir or Madam,

Please find attached the Notification of Exceedance (NOE) of the following
Log no.:

0215660_Jun2015/Aug2015_dolphin_STG&ANI_NEL&NWL

A total of one limit level exceedance was recorded in the quarterly impact
dolphin monitoring data between June and August 2015.

Regards,

A handwritten signature in black ink, appearing to read 'Jovy Tam', is positioned above the typed name.

Mr Jovy Tam
Environmental Team Leader

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ERM-Hong Kong, Limited

CONTRACT NO. HY/2012/07

TUEN MUN – CHEK LAP KOK LINK –
SOUTHERN CONNECTION VIADUCT SECTION

Impact Dolphin Monitoring
Notification of Exceedance

Log No.	0215660_Jun/Aug2015_dolphin_STG&ANI_NEL&NWL [Total No. of Exceedance = 1]	
Date	June 2015 to August 2015 (monitored) 24 September 2015 (results received by ERM)	
Monitoring Area	Northeast Lantau (NEL) and Northwest Lantau (NWL)	
Parameter(s) with Exceedance(s)	Quarterly encounter rate of dolphin sightings (STG) Quarterly encounter rate of total number of dolphins (ANI)	
Action Levels	North Lantau Social cluster	NEL: STG < 4.2 & ANI < 15.5 or NWL: STG < 6.9 & ANI < 31.3
Limit Levels		NEL: STG < 2.4 & ANI < 8.9 and NWL: STG < 3.9 & ANI < 17.9
Recorded Levels	NEL	STG = 0.44 & ANI = 0.44
	NWL	STG = 2.53 & ANI = 9.21
	One Limit Level Exceedance is recorded in the quarterly impact dolphin monitoring at NEL and NWL between June and August 2015. The exceedance was reported in the approved <i>Twenty second Monthly EM&A Report</i> dated 11 September 2015.	
Statistical Analyses	<p>Further to the review of the available and relevant dolphin monitoring data in the EM&A under this Contract, statistical analyses were conducted as follows:</p> <ul style="list-style-type: none"> A two-way ANOVA with repeated measures and unequal sample size was conducted using Period (2 levels: baseline vs impact – present impact quarter, June to August 2015) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the averages encounter rates between the baseline and present impact monitoring quarter. By setting $\alpha = 0.05$ as the significance level in the statistical tests, significant difference in STG ($p = 0.0064$) and in ANI ($p = 0.0270$) between Period were detected. A two-way ANOVA with repeated measures and unequal sample size was conducted using Cumulative Period (2 levels: baseline vs impact – cumulative quarters, December 2012 to August 2015) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the averages encounter rates between the baseline and cumulative impact monitoring quarter. By setting $\alpha = 0.01$ as the significance level in the statistical tests, significant difference in STG ($p = 0.00020$) and in ANI ($p = 0.00005$) between Cumulative Period and Location were detected. <p>* Note: The commencement date under <i>Contract No. HY/2012/07</i> is 31 October 2013.</p>	
Works Undertaken (in the monitoring quarter)	<p>In the quarter between June 2015 and August 2015, the major marine works under <i>Contract No. HY/2012/07</i> included:</p> <ul style="list-style-type: none"> Construction and installation of pile caps; Uninstallation of marine piling platform; Pier construction; Launching gantry assembly; Marine piling and Installation of pier head segment 	

<p>Possible Reason for Action or Limit Level Exceedance(s)</p>	<p>The potential factors that may have contributed to the observed exceedance are reviewed below:</p> <ul style="list-style-type: none"> • Blocking of CWD travelling corridor: The <i>Monitoring of Marine Mammals in Hong Kong Waters (2014 – 15)</i> ⁽¹⁾ reported that dolphin usage and traveling activities to the northern side of the airport (dolphin traveling corridor) are affected by frequent high-speed ferry traffic from Sky Pier (not related to this Contract), which is likely a major factor resulting in the decrease in dolphin abundances in North Lantau. • Marine works of the Contract: As per the findings from the EIA report (<i>Section 8.11.9</i>), the major influences on the Chinese White Dolphin (CWD) <i>Sousa chinensis</i> under this Contract are marine traffics and bored piling works. The Contractor has implemented the marine traffic control as per the requirements in the <i>EP-354/2009/D</i> and the updated <i>EM&A Manual</i>. Likewise, the bored piling works were undertaken within a metal casing as described in the EP and the approved EIA Report. After reviewing of the bored piling records, the bored piling working rates in this quarter are within the allowable working rate described in the EP (<i>Clause 3.11</i>), in which construction works were not undertaken at more than 15 piers sites from June to August 2015. During this quarter of dolphin monitoring, no unacceptable impact on CWD due to the activities under this Contract was observed. • Impact on water quality: According to the findings in the water quality monitoring at the impact monitoring stations between June and August 2015, there was no exceedance on WQM. No significant difference was found between this quarter and ambient level found at all impact monitoring stations. Overall, the WQM results imply that no unacceptable impact on water quality was associated with the marine works under this Contract, and thus no indirect impacts on marine habitat quality due to change in water quality is observed in this Contract. <p>In view of the above, marine ecological mitigation measures were considered properly implemented, and thus no unacceptable impact on CWD or its habitat is associated with this Contract from June to August 2015.</p>
<p>Actions Taken/ To Be Taken</p>	<p>With reference to the site inspection records in this quarter, the respective marine ecological mitigation measures have been implemented properly by the Contractor throughout the marine works period, including:</p> <ol style="list-style-type: none"> 1. 250m dolphin exclusion zone; 2. Acoustic decoupling plan; 3. Training to workers; 4. Offsite vessel routing control in accordance with Regular Marine Travel Routes Plan, especially routing to typhoon shelters under adverse weather (e.g. Tropical cyclone signal No.3 or above); and 5. Vessels speed limited at 5 knots and 10 knots within marine park boundary and site boundary respectively. <p>No immediate additional action is considered necessary. The ET will monitor for future trends in exceedance(s).</p> <p>A joint team meeting was held on 6 October 2015 for discussion on CWD trend, with attendance of ENPO, HyD, Representatives of Resident Site Staff (RSS), Representatives of Environmental Team (ET) for Contract No. HY/2010/02, HY2011/03, HY/2012/07 and HY/2012/08, and Representatives of Main Contractor for Contract No. HY/2012/07 and HY/2012/08. The relevant discussion/recommendation as recorded in the meeting minutes are summarized below. It was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified or separate from the other stress factors. It was reminded that the ETs shall keep reviewing the implementation status of the dolphin related mitigation measures and remind the contractor to ensure the relevant measures are fully implemented. The participants were requested by ENPO to collect and report the marine traffic statistics. It was recommended that the marine works of HZMB projects should be completed as soon as possible so as to reduce the overall duration of impacts and allow the dolphins population to recover as early as possible.</p>

(1) Hung SKY (2015). Prepared for AFCD. Available from: http://www.afcd.gov.hk/english/conservation/con_mar/con_mar_chi/con_mar_chi_chi/con_mar_chi_chi.html

Remarks	The results of impact water quality and impact dolphin monitoring, the status of implemented marine ecological mitigation measures are documented in the approved <i>Twentieth to Twenty second Monthly EM&A Reports</i> . Comparison on water quality between impact and baseline periods will be elaborated in the <i>7th Quarterly EM&A Report</i> .
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