Your ref
Our ref 214487/(HY/2011/09)/M45/630/B10884

BY HAND

B10884

Environmental Protection Department
Environmental Assessment Division
27th floor, Southorn Centre
130 Hennessy Road
Wan Chai
Hong Kong

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
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www.arup.com

For the attention of Ms HO Yuen Han, Marlene

22 October 2014

Dear Madam

Contract No. HY/2011/09
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill

Quarterly EM&A Report – June to August 2014

On behalf of HyD/HZMB Project Management Office (the Permit Holder) of the captioned Environmental Permit (EP), I submit herewith three hard copies and one electronic copy of the Quarterly EM&A Report for June to August 2014 in accordance with Section 16.1.3 of the Updated EM&A Manual.

I confirm that this submission package has been certified by Environmental Team Leader and verified by Independent Environmental Checker.

Yours faithfully

Michael Chan
CRE / Supervising Officer's Representative

cc	HyD/HZMBHKPMO	-	Mr K Y Yung	w/e – CD only
	EPD	-	Ms Connie Wong	w/e – One hard copy
	AFCD	-	Mr C P Lam	w/e – One hard copy
	ENPO	-	Mr Y H Hui	w/e – One hard copy and one CD
	IEC	-	Mr Antony Wong	w/o – By fax only
	Arup	-	Mr Eric Chan	w/e – CD only

Response required : No, thank you
Date required : -
Attachments : Yes

KHW/DS/KY/et

Ref.: HYDHZMBEEM00_0_2353L.14

22 October 2014

ARUP
Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon

By Fax (3767 5922) and By Post

Attention: Mr. Colin Meadows / Mr. Michael Chan

Dear Sirs,

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/2011/09 HZMB Hong Kong Link Road –
Section between HKSAR Boundary and Scenic Hill
Quarterly EM&A Report No.6 for June to August 2014 (Revision 2)

Reference is made to the submission of Quarterly EM&A Report No.6 for June to August 2014 version 2.0 dated 21 October 2014 certified by the ET Leader provided to us *via* email on 21 October 2014.

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

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

Yours sincerely,

Antony Wong
Independent Environmental Checker
Hong Kong Link Road

c.c.

	HyD – Mr. Matthew Fung	(By Fax: 3188 6614)
	HyD – Mr. Y K Lam	(By Fax: 3188 6614)
	ARUP – Mr. Eric Chan	(By Fax: 2268 3970)
	Cinotech – Dr. H F Chan	(By Fax: 3107 1388)
	DCVJV – Mr. Chu Chung Sing	(By Fax: 3121 6688)

Internal: DY, YH, CL, ENPO Site

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ENVIRON Hong Kong Limited 英環香港有限公司
Room 2403 Jubilee Centre, 18 Fenwick Street, Wan Chai, Hong Kong. Tel: 852 3465 2888 Fax: 852 3465 2899
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Dragages -China Harbour-VSL JV

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Quarterly EM&A Report

June to August 2014

(Version 2.0)

Certified By

Dr. H.F. Chan
Environmental Team Leader
(Date: 21 October 2014)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

CINOTECH CONSULTANTS LTD
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EXECUTIVE SUMMARY

Introduction

1. This is the 6th Quarterly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the project "Contract No. HY/2011/09 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill" (hereinafter called the "Contract"). This report documents the findings of EM&A Works performed in the period between June and August 2014.

Environmental Monitoring and Audit Progress

2. A summary of the monitoring activities in this reporting period is listed in **Table I** below:

Table I Summary Table for Monitoring Activities in the Reporting Period

Parameter(s)	Monitoring Date(s)
1-hr TSP Monitoring	5th, 11th, 17th, 23rd and 27th June 2014 3rd, 9th, 15th, 21st, 25th and 31st July 2014 6th, 12th, 18th, 22nd and 28th August 2014
24-hr TSP Monitoring	
Noise Monitoring	6th, 12th, 18th and 24th June 2014 4th, 10th, 16th, 22nd and 28th July 2014 7th, 13th, 19th and 25th August 2014
Water Quality Monitoring	3rd, 5th, 7th, 9th, 11th, 13th, 16th, 18th, 20th, 23rd, 25th, 27th and 30th June 2014 2nd, 4th, 7th, 9th, 11th, 14th, 16th, 21st, 23rd, 25th, 28th and 30th July 2014 1st, 4th, 6th, 8th, 11th, 13th, 15th, 19th, 21th, 23th, 25th, 27th and 29th August 2014
Dolphin Monitoring (Line-transect Vessel Surveys)	6th and 9th June 2014 4th and 9th July 2014 22nd and 27th August 2014
Additional Land-based Dolphin Behaviour and Movement Monitoring	3rd and 6th June 2014 11th and 25th July 2014 22nd and 27th August 2014
Environmental Site Inspection	3rd, 10th, 17th and 27th June 2014 2nd, 8th, 17th, 25th and 29th July 2014 5th, 12th, 19th and 29th August 2014
Archaeological Site Inspection	26th June 2014

Breaches of Action and Limit Levels

3. Summary of the environmental exceedances of the reporting period is tabulated in **Table II**.

Table II Summary Table for Events Recorded in the Reporting Period

Environmental Monitoring	Parameter	No. of Exceedance		No. of Exceedance related to the Construction Activities of this Contract	
		Action Level	Limit Level	Action Level	Limit Level
Air Quality	1-hr TSP	0	0	0	0
	24-hr TSP	0	0	0	0
Noise	$L_{eq(30min)}$	0	0	0	0
Water Quality	Dissolved Oxygen (DO) (Surface & Middle)	0	0	0	0
	Dissolved Oxygen (DO) (Bottom)	0	0	0	0
	Turbidity	0	0	0	0
	Suspended Solids (SS)	12	2	0	0
Dolphin Monitoring	Line-transect Vessel Surveys	0	0	0	0

4. Environmental monitoring works were performed in the reporting period and all monitoring results were checked and reviewed. The details of each exceedance were attached in the Monthly EM&A Reports.

Complaint Log

5. Summary of the environmental complaints of the reporting period is tabulated in **Table III**.

Table III Summary Table for Complaints Recorded in the Reporting Period

Complaint Log Ref.	Location	Received Date	Nature of Complaint
Com-2014-08-001	Near Sha Lo Wan	27 August 2014	Air Quality

Notification of Summons and Successful Prosecutions

6. No notification of summons and successful prosecution was received in the reporting period.

Reporting Changes

7. This report has been developed in compliance with the reporting requirements for the quarterly EM&A Summary Report as required by the EM&A Manual for Hong Kong Link Road (EM&A Manual).

Future Key Issues

8. Major site activities for the coming reporting month will include:

WA4

- Fabrication of rebar cages
- Fabrication of temporary piling platforms

WA7

- Fabrication of rebar cages
- Loading and Unloading of rebar materials

Marine Viaduct (P0 to P80)

RCD Method:

- Piling works
- Installation of piling jackets
- Dismantling of piling jackets
- Pile excavation and casing installation
- Inter-face tests, full depth coring test and sonic test
- Grouting works

Kelly Method:

- Installation of temporary piles, platforms permanent casing
- Removal of piling platform and temporary pile extraction
- Pile excavation
- Inter-face tests, full depth coring test and sonic test

Pile Cap Construction:

- Installation of precast cap shells
- Concreting
- Kingpost installation and associated steel welding works
- Concreting trimming

Works with Cofferdam:

- Installation of waling strut
- Installation of sheet pile
- Installation of temporary working platform
- Installation of shear pin
- Installation of bored pile casing
- Excavation works and casting of concrete plug
- Dewatering works and sealing works
- Additional welding

Column Construction:

- Lifting works
- Lift concreting
- Pier head works
- Pier head concreting
- Column insert installation, mobilization and temporary works

Deck Erection:

- Lifting frame fabrication in Dongguan
- Modification works to the
- Segment Unloading Frame (SUF) in Portion C
- Delivery and assembly of
- Launching Gantry 2 and Lifting
- Frame 2 at River Trade Terminal
- Winches delivery and commissioning
- Trial assembly of Lifting Frame 1

Land Viaduct (P85 to Abutment at SHT) & Marine Viaduct (P81 - P84)

- Pile construction
- Pouring of column
- Piling platform formation
- Steel fixing works and formwork erection
- Blinding concrete for scaffolding works
- Dismantling of steel bracket system
- Erection of steel bracket system

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Dragages -China Harbour-VSL JV (hereinafter called "the Contractor") as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Contract No. HY/2011/09 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill" (hereinafter called the "Contract") in accordance with EP Conditions 2.1.

Purpose of the report

1.2 This is the 6th Quarterly EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme in the period between June and August 2014.

Structure of the report

1.3 The structure of the report is as follows:

Section 1: **Introduction -** purpose and structure of the report.

Section 2: **Contract Information** - summarises background and scope of the Contract, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting month.

Section 3: **Environmental Monitoring and Audit Requirements -** summarises the monitoring parameters, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, site audit summary and environmental mitigation measures.

Section 4: **Environmental Monitoring Results -** summarises the environmental monitoring results in terms of air quality, noise, water quality, dolphin and waste management.

Section 5: **Environmental Non-conformance -** summarises any monitoring exceedance, environmental complaints, environmental summons and successful prosecutions within the reporting period.

Section 6: **Conclusions and Recommendation**

2 CONTRACT INFORMATION

Background

2.1 The proposed Hong Kong - Zhuhai - Macao Bridge Hong Kong Link Road (HKLR) is 12km long connecting the Hong Kong-Zhuhai-Macao Bridge (HZMB) at the HKSAR Boundary with the Hong Kong Boundary Crossing Facilities (HKBCF) situated at the north eastern waters of the Hong Kong International Airport, opening a new and direct connection route between Hong Kong, Macao and the Western Pearl River Delta.

2.2 The HKLR comprises a 9.4km long viaduct section from the HKSAR boundary to Scenic Hill on the Airport Island; a 1km tunnel section to the reclamation formed along the east coast of the Airport Island and a 1.6km long at-grade road section on the reclamation connecting to the HKBCF. The tunnel section of HKLR will pass under Scenic Hill, Airport Road and Airport Railway to minimize the environmental and visual impacts to Tung Chung residents.

2.3 An application (No ESB-110/2003) for an Environmental Impact Assessment (EIA) Study Brief under Section 5(1) of the Environmental Impact Assessment Ordinance (EIAO) was submitted by Highways Department (the Project Proponent) on 8 October 2003 with a Project Profile (No. No. PP-201/2003) for the Hong Kong - Zhuhai - Macao Bridge Hong Kong Section and North Lantau Highway Connection. The Hong Kong - Zhuhai - Macao Bridge Hong Kong Section and North Lantau Highway Connection has subsequently been renamed as HKLR. EPD issued an EIA Study Brief (No: ESB-110/2003) in November 2003 to the Project Proponent to carry out an EIA study.

2.4 An EIA Study (Reg. No. AEIAR-144/2009) has been undertaken to provide information on nature and extent of environmental impacts arising from the construction and operation of HKLR. The Environmental Permit was issued on 4 November 2009 (Permit No. EP-352/2009). Pursuant to Section 13 of the EIAO, the Director of Environmental Protection amends the Environmental Permit (No. EP-352/2009) based on the Application No. VEP-339/2011 and the environmental Permit (Permit No. EP-352/2009/A) was issued on 9 November 2011 for HKLR to the Highways Department as the Permit Holder. Subsequently, the Director of Environmental Protection amends the Environmental Permits (No. EP-352/2009/A and EP-352/2009/B) based on the Application No. VEP-409/2013 and VEP-411/2013 respectively. The environmental Permit (Permit No. EP-352/2009/C) was then issued on 5 September 2013.

2.5 **Figure 1a-d** shows the layout of the Contract and the scope of the Contract works comprises the following major items:

- a dual 3-lane carriageway in the form of viaduct from the HKSAR boundary (connecting with the HZMB Main Bridge) to the Scenic Hill (connecting with the tunnel under separate Contract No. HY/2011/03), of approximately 9.4km in length with a hard shoulder for each bound of carriageway and a utilities trough on the outer edge of each bound of viaducts;
- a grade-separated turnaround facility located near San Shek Wan, composed of sliproads in the form of viaduct with single-lane carriageway bifurcated from the HKLR mainline with an elevated junction above the mainline;
- provision of ancillary facilities including, but not limited to, meteorological enhancement measures including the provisioning of anemometers and

modification of the wind profiler station at hillside of Sha Lo Wan, provisioning of a compensatory marine radar, and provisioning of security systems; and

- associated civil, structural, geotechnical, marine, environmental protection, landscaping, drainage and highways electrical and mechanical (E&M) works, street lightings, traffic aids and sign gantries, marine navigational aids, ship impact protection system, water mains and fire hydrants, lightning protection system, structural health monitoring and maintenance management system (SHM&MMS), supervisory control and data acquisition (SCADA) system, as well as operation and maintenance provisions of viaducts, provisioning of facilities for installation of traffic control and surveillance system (TCSS), provisioning of facilities for installation of telecommunication cables/equipments and reprovisioning works of affected existing facilities/utilities.

Contract Organisation

2.6 Different parties with different levels of involvement in the Contract organization include:

- Supervising Officer's Representative (SOR) – Ove Arup & Partners Hong Kong Limited (ARUP)
- Contractor –Dragages -China Harbour-VSL JV (DCVJV)
- Environmental Team (ET) – Cinotech Consultants Ltd. (Cinotech)

2.7 The proposed project organization and lines of communication with respect to the on-site environmental management structure are shown in **Figure 2**. The key personnel contact names and numbers are summarized in **Table 2.1.**

Table 2.1 Key Contacts of the Contract

Party	Position	Name	Phone No.	Fax No.
SOR (ARUP)	CRE	Mr. Michael Chan	3767 5803	3767 5922
		Mr. Colin Meadows	3767 5801	
ENPO/IEC (Environ)	Environmental Project Office Leader	Mr. Y. H Hui	3465 2888	3465 2899
	Independent Environmental Checker	Mr. Antony Wong	3465 2888	3465 2899
Contractor (DCVJV)	Deputy Project Director	Mr. W.K Poon	3121 6638	3121 6688
	Environmental Officer	Mr. CHU Chung Sing	3121 6672	
	24-hour Hotline	--	6898 6161	--
ET (Cinotech)	Environmental Team Leader	Dr. H.F Chan	2151 2088	3107 1388

2.8 ENVIRON Hong Kong Ltd. (Environ) is employed by the Highways Department as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) for the Project.

Construction Programme

2.9 A copy of Contractor's construction programme is provided in **Appendix A**.

Summary of Construction Works Undertaken During Reporting Period

2.10 The major site activities undertaken in the reporting period included:

June 2014:

Land Viaduct (P85 to Abutment at SHT) & Marine Viaduct (P81 - P84)

(a) Pile construction is in progress at grid line P83, P84, P90 & P91 and 4 piles were concreted in this reporting period.

(b) Total 65 pours for column were completed with 8 pours in this reporting period; 22 columns was completed to top level (9 gridlines - P103 to P105 and P109 to P114 complete).

(c) Construction of the temporary carriageway for road diversion at P82 & P83 is completed.

(d) Formation of piling platform at P83 and P91 were completed and platform at P82 is in progress.

(e) Portal P111 steel fixing is in progress.

(f) Portal P113 side formwork erection is in progress.

(g) Portal P105 was cast on 13 Jun 2014.

(h) Portal P114 blinding concrete for scaffolding work was cast and pending for Airport Authority (AA)'s Work Permit for portal construction.

(i) Dismantling of steel bracket system for Portal P109 is in progress.

(j) Erection of steel bracket system for Portal P103 and P104 is in progress.

Marine Viaduct (P0 to P80)

Reverse Circulation Drill (RCD) Method:

(a) Construction of temporary platform for piling works at P68 is on hold.

(b) Piling jackets were installed at P62, P63, P67.

(c) Piling jackets were dismantled at P29.

(d) Pile excavations and casing installation are in progress at P11, P13, P24, P25, P26, P62, P63, P69, P79 with 8 nos. piles concreted in the reporting period.

(e) Inter-face coring tests were carried out at P14, P22, P60, P61, P64, P77.

(f) Full depth coring tests was carried at P14 & P64.

(g) Sonic tests were carried out at P14, P54, P60, P61, P77.

(h) Grouting works were carried out at P53, P60 & P70.

Kelly Method:

(i) Installation of temporary piles were carried out at P2, P12 & P19(D).

(j) Installation of platforms were carried out at P11 & P19(D).

(k) Installation of permanent casing were carried out at P21.

(l) Piling platform removal and temporary pile extraction were carried out at P18 P34 & P41.

(m) Pile excavation by Kelly method are in progress at P4, P16 with 5 piles concreted in the reporting period.

(n) Inter-face core test were carried out at P17.

(o) No Full depth coring at P34-R1.

(p) Sonic tests were carried out at P19 & P19.

Pilecap Construction:

(a) 4 precast cap shells were installed at P39 & P51.

(b) Stage 1 concreting was completed at P40, P42 & P45.

(c) Stage 1 works in progress at P39, P40, P42, P45 & P51.

(d) Stage 2 concreting was completed at P40 & P43.

(e) Stage 2 works in progress at P40, P43 & P45.

(f) Kingpost installation and associated steel welding works for precast shell installation are in progress at P37, P38, P39, P41, P49, P51 & P52 in the reporting period.

(g) Concrete trimming and advanced trimming (inside casing) works were carried out at P19, P36, P37, P38, P39, P42, P45, P49 & P52 in the reporting period.

(h) Submerged pilecap works with cofferdam:

- P70L&R: Installation of temporary working platform is in progress.
- P71L: Excavation works and casting of concrete plug were completed. Dewatering works and sealing works are in progress.
- P71R: Installation of waling strut was completed. Excavation works is in progress.
- P72L&R: Installation of temporary working platform was completed. Installation of sheet-pile is in progress.
- P73L: Installation of waling strut at 2nd layer is in progress.
- P73R: Installation of waling strut at 1st layer is in progress; and

- P74R: Proof drilling to locate the level of rockhead and pre-boring to overcome obstruction was carried out in the reporting period.

Column Construction

(a) 1st lift works: P44.
(b) 2nd lift works: P46, P47 & P48.
(c) 2nd lift concreting: P46 & P48L.
(d) Pier head works: P46, P47 & P48-L.
(e) Concrete remedial at P48-R 1st lift.
(f) Columns insert installation, mobilization and temporary works were carried out at P40.

Deck Erection

(a) Preparatory works for segment erection:

- Off-site fabrication of lifting frame continues in Dongguan.

- Modification works to the Segment Unloading Frame (SUF) is 90% completed at Portion C and assembly commenced.

- Pouring of the footing foundation for the Segment Unloading Frame at the Southeast Quay was completed and initial sections of towers erected.

- Delivery and assembly of Launching Gantry 2 (LG2) continues at River Trade Terminal (RTT), winches have been tested.

- Delivery and assembly of Lifting Frames 2 (LF2) continues at RTT, winches delivery and commissioning has commenced.

Precast Segment

(a) Progress for mould assembly:

Type of Segment	Number of Segment	Status
A	10	Completed (including 2 nos. SPO)
B	1	Completed
D	2	Completed
E	4	Completed
CH2	2	Completed
CH3	2	Completed
CH4	2	Completed
CH5	1	Completed
CP (long span SOP)	2	Completed
CH	3	In progress
DT	1	In progress

(b) Rebar jigs fabrication and installation with 30 out of 30 nos. completed (6 in Line No. 1, 18 in Line No. 2 and 6 in Line No. 6)

(c) A total of 122 segments were cast in this reporting period which including 3 no. Segments on Pier (SOP) of long-span segment and up to end of the reporting period total 558 segments cast

(d) Site clearance of the area for yard extension in progress

Precast Concrete Shell Casting

(a) Summary of precast shell cast in the precast yard:

Type of Shell	Number of Precast Shell Cast in this reporting period	Cumulative No. of Precast Shell Completed (up to 28th of each month)
CP1	4	31
CP2	1	4
CP4	1	3

July 2014:

Land Viaduct (P85 to Abutment at SHT) & Marine Viaduct (P81 - P84)

(a) Pile construction is in progress at P82, P83 & P91 and 6 piles were concreted in this reporting period.

(b) Total 82 pours for column were completed with 13 pours in this reporting period; 29 columns was completed to top level (14 gridlines – P96 & P97, P103 to P114).

(c) Formation of piling platform at P82R was completed and formation of platform at P81 commenced at the end of July.

(d) Portal P111 was concreted on 16 July 2014.

(e) Portal P113 was concreted on 26 July 2014.

(f) Portal P103 & P104 erection of side formwork is in progress.

(g) Portal P114 blinding concrete for scaffolding work was cast and erection of the framework above footpath of Scenic Road is pending the issue of Airport Authority (AA)'s Work Permit.

(h) Dismantling of steel bracket system for Portal P105 is in progress.

(i) Erection of steel girder system for Portal P108, P107 and P106 is pending for approval of method statement and work permit application.

Marine Viaduct (P0 to P80)

RCD Method:

(a) Construction of the temporary platform for piling works at P68 was suspended since 10 June 2014.

(b) Piling works at P69 was suspended on 12 July (9 out of 12 piles already completed).

(c) Forming the formation for the temporary for piling P75 was suspended on 22 July 2014.

(d) Piling jackets were installed at P79 and P32.

(e) Piling jackets were dismantled at P79 and P26.

(f) Pile excavations and casing installation are in progress at P11, P26, P32, P62, P67, P69, and P79 with 27 nos. piles concreted in the reporting period.

(g) Inter-face coring tests were carried out at P22, P27, P59 and P76.

(h) No full depth coring test was carried during the reporting period.

(i) Sonic tests were carried out at P27, P59, P64, P76 and P77.

(j) Grouting works were carried out at P61 and P76.

Kelly Method:

(k) Installation of temporary piles were carried out at P2 and P3.

(l) Installation of platforms were carried out at P2 and P19D.

(m) Installation of permanent casing were carried out at P2 and P19D.

(n) Piling platform removal and temporary pile extraction were carried out at P18b, P18c and P34.

(o) Pile excavation by Kelly method are in progress at P2, P4, P16, P30, P33 with 10 piles concreted in the reporting period.

(p) Inter-face core test were carried out at P17.

(q) Full depth coring was carried out at P17-L1.

(r) Sonic tests were carried out at P17 & P18.

Pilecap Construction:

(a) 12 precast cap shells were installed at P20, P36, P37, P38, P41 and P52 (8 CP1, 2 CP2 & 2 CP4).

(b) Stage 1 concreting was completed at P39, P49 and P51.

(c) Stage 1 works is in progress at P41 & P52.

(d) Stage 2 concreting was completed at P42 & P45.

(e) Stage 2 works is in progress at P39 & P49.

(f) Kingpost installation and associated steel welding works for precast shell installation are in progress at P19, P36, P50 and P66.

(g) Concrete trimming and advanced trimming (inside casing) works were carried out at P19, P20, P35, P51, P52, P60, P61 and P66.

(h) Submerged pilecap works with cofferdam:

- P70R: Installation of sheet-pile is in progress.
- P70L: Installation of temporary working platform is in progress.
- P71L: Additional welding to the cofferdam is in progress.
- P71R: Excavation works for the concrete plug is in progress.
- P72L&R: Installation of sheet-pile substantially completed, preparation works for the installation of struts is in progress.
- P73L: Installation of waling strut at 2nd layer is in progress;
- P73R: Installation of waling strut at 2nd layer substantially completed
- P74R: Installation of shear pin is in progress.
- P78L&R: Cutting of bored pile casing for the construction of working platform is in progress.
- A derrick barge for the pile cap construction was mobilized on 20 June 2014, bending of rebar and preparation of formwork is in progress

Column Construction

(a) 1st lift works : P43 and P44.
(b) 2nd lift works : P46, P47 & P48L.
(c) 2nd lift concreting : P46 & P48L.
(d) Pier head works : P46, P47 & P48L.
(e) Pier head concreting : P47.
(f) Demolishing works at P48-R 1st lift.
(g) Columns' insert installation, mobilization and temporary works were carried out at P40 and P45

Deck Erection

(a) Preparatory works for segment erection:

- Off-site fabrication of lifting frame is substantially completed in Dongguan.

- Segment Unloading Frame (SUF) is substantially completed with all towers and truss steelwork erected and the main winch installed
- Delivery and assembly of Launching Gantry 2 (LG2) continues at River Trade Terminal (RTT). Winches have been tested.
- Launching Gantry 1 (LG1) assembly re-started with all components on site.
- Delivery and assembly of Lifting Frames 2 (LF2) continues. 4 frames have been fully delivered and assembled at RTT of which one has been erected at P109-L. 50% of the remaining 2 frames have been delivered to WA4 with assembly commenced.
- Trial assembly of Lifting Frames 1 (LF1) has commenced in Donguan with delivery to be made as soon as space is freed up on site for assembly.
- 4 winches have been delivered with other 4 winches during transit from Europe.

Precast Segment

(a) Progress for mould assembly:

Type of Segment	Number of Segment	Status
A	10	Completed (including 2 nos. SPO)
B	1	Completed
D	2	Completed
E	4	Completed
CH2	2	Completed
CH3	2	Completed
CH4	2	Completed
CH5	1	Completed
CP (long span SOP)	2	Completed
CH	3	In progress
DT	1	Completed

(b) 140 segments were cast in this reporting period including the first DT segment.

(c) Cumulative total 798 segments cast.

(d) Site clearance of the area for yard extension is in progress.

Precast Concrete Shell Casting

(a) Summary of precast shell cast in the precast yard:

Type of Shell	Number of Precast Shell Cast in this reporting period	Cumulative No. of Precast Shell Completed (up to 28th of each month)
CP1	6	37
CP2	3	7

CP4	0	3

Ground Investigations

- Up to 4 drilling rigs are working on micro platforms and jack-up barges.
- Predrilling works were carried out at P1, P2 & P3 in this reporting period.
- 7 nos. of pre-drills were completed in this reporting period including additional holes. Total 722 piles have completed predrills (including GI used as predrill).
- Total 113 gridline (97%) out of 115 were completed for pre-drilling.
- Total 110 gridlines for first issue of Founding Level Proposals were submitted. 3 no. was submitted in this reporting period.

August 2014:

Land Viaduct (P85 to Abutment at SHT) & Marine Viaduct (P81 - P84)

(a) Pile construction is in progress at P81, P82 & P83 and 4 piles were concreted in this reporting period.

(b) Completion of the remaining 2 predrilling hole at P81.

(c) Total 97 pours for column were completed with 15 pours in this reporting period; 33 columns was completed to top level (15 gridlines - P96, P97 and P102 to P114).

(d) Formation of piling platform at P81 was completed.

(e) Pre-bored for sheet pile for cofferdam construction at P84 commenced.

(f) Seawall block coring and breaking at P82L & P83L for bored piling works commenced.

(g) Portal P103 was concreted on 26 August 2014.

(h) Portal P111 & P113 falsework dismantling is in progress.

(i) Portal P104 erection of formwork is in progress.

(j) Portal P114 falsework erection is in progress.

(k) Portal P108 steel girders, cross beams and planking erection are in progress.

(l) Portal P107 and P106 construction of concrete footings for plate girder supports are in progress

Marine Viaduct (P0 to P80)

RCD Method:

(a) Construction of the temporary platform for piling works at P68 was suspended since 10 June 2014.

(b) Piling works at P69 was suspended on 12 July (9 out of 12 piles already completed).

(c) Forming the formation for the temporary platform for piling works at P75 was suspended on 22 July 2014.

(d) Piling jackets were installed at P17 and P80.

(e) Piling jackets were dismantled at P79 and P13.

(f) Pile excavations and casing installation were in progress at P13, P17, P32, P62, P63, P67, P79 and P80 with 26 nos. piles concreted in the reporting period.

(g) Inter-face coring tests were carried out at P58, P59, P62, P63 and P67.

(h) Full depth coring test was carried at P27.

(i) Sonic tests were carried out at P58, P59, P62 and P67.

(j) Grouting works were carried out at P77.

Kelly Method:

(k) Installation of temporary piles were carried out at P1, P3 and P12.

(l) Installation of platforms were carried out at P3 and P12.

(m) Installation of permanent casing were carried out at P3 and P12.

(n) Piling platform removal and temporary pile extraction were carried out at P11, P17 and P18.

(o) Pile excavation by Kelly method are in progress at P2, D19, P21 and P30 with 13 piles concreted in the reporting period.

(p) Inter-face core tests were carried out at P17 & P33.

(q) Full depth coring was carried out at P17-L1.

(r) Sonic tests were carried out at P17, P18 & P33.

(s) Toe grouting preparation works were carried out at P4 & P16.

Pilecap Construction:

(a) 10 precast cap shells were installed at P19, P50, P60, P65 & P66.

(b) Stage 1 concreting was completed at P20L, P37, P38, P41 & P52.

(c) Stage 1 works is in progress at P36.

(d) Stage 2 concreting was completed at P39, P41, P49, P51 & P52.

(e) Stage 2 works is in progress at P20L, P38 & P52.

(f) Kingpost installation and associated steel welding works for precast shell installation are in progress at P19, P50, P60, P65 & P66.

(g) Concrete trimming and advanced trimming (inside casing) works were carried out at P18, P19, P20, P36, P37, P38, P52, P61 & P64.

(h) Submerged pilecap works with cofferdam:

- P70L: Installation of sheet-pile completed. Removal of temporary working platform is in progress.
- P70R: Installation of sheet-pile completed. Installation of shear pin is in progress.
- P71L: Additional installation of waling strut at 3rd layer completed Dewatering to the bottom of cofferdam is on-going. Cleaning of concrete plug for casting of blinding layer is in progress.
- P71R: Casting of concrete plug completed and curing is in progress.
- P72L: Installation of sheet-pile completed. Removal of temporary working platform is in progress.
- P72R: Installation of waling strut at 2nd layer is in progress.
- P73L: Excavation is in progress.
- P73R: Installation of waling strut at 2nd layer substantially completed.
- P74L: Installation of shear pin completed.
- P74R: Installation of shear pin is in progress.
- P76: Cutting of bore pile casing completed. Installation of temporary working platform is in progress.
- P77: Cutting of bore pile casing completed. Installation of temporary working platform is in progress.
- P78L: Installation of sheet pile is in progress.
- P78R: Installation of sheet pile is in progress.

Column Construction

(a) 1st lift works in progress at P39, P40, P42, P43, P44L, P45, P48R and P49.
(b) 1st lift concrete was poured at P40, P42R, P44, P45 and P49.
(c) 2nd lift works in progress at P45 and P49.
(d) 2nd lift concreting was poured: nil.

(e) Pier head works in progress at: P46 and P48L.
(f) Pier head concrete was poured at P46 and P48L.
(g) Demolishing works at P48-R 1st lift was completed & reconstruction in progress.
(h) Columns' insert installation, mobilization and temporary works were carried out at P51.

Deck Erection

(a) Preparatory works for segment erection:

- Off-site fabrication of the first 3 sets of Lifting Frames is substantially completed in Dongguan with delivery of all 6 sets of Lifting Frames 2 (LF2).
- Segment Unloading Frame (SUF) was completed awaiting load test;
- Assembly of Launching Gantry 2 (LG2) continues at River Trade Terminal (RTT). Winches have been tested.
- Launching Gantry 1 (LG1) assembly continues at Portion C with all components on site.
- Assembly and erection of LF2 continues with 2 frames having been erected at P109 awaiting load test, 2 frames are assembled at RTT and 2 frames are assembled at WA4.
- Trial assembly of Lifting Frames 1 (LF1) has been commenced in Dongguan with delivery to site will commence before end of August.
- 8 winches have been delivered to Hong Kong;
- Preparatory works have commenced for Segments on Pier (SOP) erection at P47.
- Preparatory works have commenced for Precast Column erection at P43.

Precast Segment

(a) Progress for mould assembly:

Type of Segment	Number of Segment	Status
A	10	Completed (including 2 nos. SPO)
B	1	Completed
D	2	Completed
E	4	Completed
CH1	2	Completed
CH2	2	Completed
CH3	2	Completed
CH4	2	Completed
CH5	2	Completed
CP (long span SOP)	3	2 CPA complete, CPB in progress
DT	1	Completed

(b) 151 segments were cast in this reporting period.

(c) Cumulative total 967 segments cast.

(d) The first 4 segments were loaded onto a barge and are awaiting Customs and other necessary clearances.

Precast Concrete Shell Casting

(a) Summary of precast shell cast in the precast yard:

Type of Shell	Number of Precast Shell Cast in this reporting period	Cumulative No. of Precast Shell Completed (up to 28th of each month)
CP1	4	41
CP2	2	9
CP4	1	5

Ground Investigations

- 1 drill rig was working during this period on micro platform and land section.
- Predrilling works were carried out at P1 & P81 in this reporting period.
- 3 nos. of pre-drills were completed in this reporting period. Total 725 piles have completed predrills (including GI used as predrill).
- Total 115 gridline (100%) out of 115 were completed for pre-drilling. Additional predrills are required for the friction piles at P1 and P7 for SPT tests, these shall be done from the piling platforms.
- Total 112 gridlines for first issue of Founding Level Proposals were submitted. 2 no. was submitted in this reporting period.

Status of Environmental Licences, Notification and Permits

2.11 The valid environmental licenses and permits were attached in the Monthly EM&A Reports.

3 ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Monitoring Locations

3.1 The EM&A Manual designates locations for the ET to monitor environmental impacts in terms of air quality, noise, underwater noise, water quality and dolphin to the Contract. The monitoring locations are depicted in **Figures 3 to 6**. The details of monitoring requirements are presented in **Table 3.1**.

Table 3.1 Summary of Impact EM&A Requirements

Type of Monitoring	Parameter	Frequency	Location	Remarks
Air Quality	1-hr TSP	Three times / 6 days	AMS1 – Sha Lo Wan AMS4 – San Tau	While the highest dust impact was expected
	24-hr TSP	Once / 6 days		--
Noise	$L_{10(30\ min.)}$ dB(A) $L_{90(30\ min.)}$ dB(A) $L_{eq(30\ min.)}$ dB(A) (as six consecutive $L_{eq,\ 5min}$ readings)	Once per week	NMS1 – Sha Lo Wan NMS4 – San Tau	Daytime on normal weekdays (0700-1900 hrs)
Water Quality	• Temperature(°C) • pH(pH unit) • turbidity (NTU) • water depth (m) • salinity (ppt) • dissolved oxygen (DO) (mg/L and % of saturation) • suspended solids (SS) (mg/L)	Impact monitoring: 3 days per week, at mid-flood and mid-ebb tides (within ± 1.75 hour of the predicted time) during the construction period of the Contract	IS1, IS2, IS3 IS4, CS1, CS2, SR1, SR2, SR3, SR6, ST1, ST2, ST3, SRA	• 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.
Dolphin	Line-transect Methods	Twice per month	West Lantau	--

3.2 The wind speed and wind direction were recorded by the installed Wind Anemometer set at AMS4. The location is shown in **Figure 3**.

Monitoring Methodology and Calibration Details

3.3 Monitoring works/equipments were conducted/calibrated regularly in accordance with the EM&A Manual. Copies of calibration certificates are attached in the appendices of the Monthly EM&A Reports.

Environmental Quality Performance Limits (Action and Limit Levels)

3.4 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results (except the Action and Limit Levels for underwater noise monitoring). Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective action plans would be implemented. The Action/Limit Levels for each environmental parameter are given in **Table 3.2a-f**.

Table 3.2a Action and Limit Levels for 1-Hour TSP

Location	Action Level, μg/m^3	Limit Level, μg/m^3
AMS1	381	500
AMS4	352	

Table 3.2b Action and Limit Levels for 24-Hour TSP

Location	Action Level, μg/m^3	Limit Level, μg/m^3
AMS1	170	260
AMS4	171	

Table 3.2c Action and Limit Levels for Construction Noise

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

Noted: If works are to be carried during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.
(*) reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

Table 3.2d Action and Limit Levels for Water Quality

Parameter (unit)	Water Depth	Action Level	Limit Level
Dissolved Oxygen (mg/L) (surface, middle, bottom)	Surface and Middle	***5.0***	***4.2*** except 5 for FCZ
	Bottom	***4.7***	***3.6***
Turbidity (NTU)	Depth average	***27.5*** and 120% of upstream control station's turbidity at the same tide of the same day	***47.0*** and 130% of turbidity at the upstream control station at the same tide of same day
Suspended Solids (mg/L)	Depth average	***23.5*** and 120% of upstream control station's SS at the same tide of the same day	***34.4*** and 130% of SS at the upstream control station at the same tide of same day and 10mg/L for WSD Seawater Intakes

Note:
(1) Depth-averaged is calculated by taking the arithmetic means of reading of all three depths
(2) For DO, non-compliance of the water quality limit occurs when monitoring result is lower that the limit.
(3) For SS & turbidity non-compliance of the water quality limits occur when monitoring result is higher than the limits.
(4) All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.
(5) The 1%-ile of baseline data for dissolved oxygen (surface and middle) and dissolved oxygen (bottom) are 4.2mg/L and 3.6mg/L respectively.

Table 3.2e Action and Limit Levels for Dolphin Line Transect Monitoring

	West Lantau
Action Level	STG < 60% of baseline & ANI <60% of baseline
Limit Level	STG < 45% of baseline & ANI <45% of baseline

Derived Value of Action Level (AL) and Limit Level (LL):

	West Lantau
Action Level	STG < 9.8 & ANI <36.3
Limit Level	STG < 7.4 & ANI <27.2

Remarks:
1. STG means quarterly encounter rate of number of dolphin sightings
2. ANI means quarterly encounter rate of total number of dolphins
3. Baseline value: 16.4 for ER (STG) and 60.5 for ER (ANI)

Event and Action Plan

3.5 Should non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix G** shall be carried out.

Implementation Status of Environmental Mitigation Measures

3.6 Relevant mitigation measures as recommended in the EIA report have been stipulated in the EM&A Manual for the Contractor to implement. The implementation status of environmental mitigation measures (EMIS) is given in **Appendix H**.

3.7 Regular marine travel route for marine vessels were implemented properly in accordance with the submitted plan and relevant records were kept properly.

3.8 Acoustic decoupling measures for the stationary equipment (generators, winch generators and air compressors) mounted on boards were adopted according to the submitted Acoustic Decoupling Measures Plan.

3.9 Dolphin exclusion zone and dolphin watching plan according to EM&A Manual, Section 10.2.12 and EP Condition 3.5 was implemented by DCVJV's trained dolphin watcher.

3.10 Spill kits and booms are ready on site for the event of accidental spillage of oil or other hazardous chemicals from construction activities including vessels operating for the Contract.

Site Audit Summary

3.11 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Contract site. The observations and recommendations made during the reporting period are summarized in **Appendix I**.

3.12 According to EP condition 4.7 and EM&A Manual, periodic monitoring (every three months) of construction works shall be conducted to ensure the avoidance of any impacts on Sha Lo Wan (West) Archaeological Site. Access to Sha Lo Wan (West) Archaeological site for works areas and storage of construction equipment is not allowed. One inspection to the Sha Lo Wan (West) Archaeological Site was conducted in the reporting period (26th June 2014). No access to Sha Lo Wan (West) Archaeological site for works areas and storage of construction equipment was observed. The photographic records of the inspection to the Sha Lo Wan (West) Archaeological Site are shown in the Monthly EM&A Reports**.**

Status of Waste Management

3.13 The amount of wastes generated by the activities of the Contract during the reporting month is shown in **Appendix J**.

4 ENVIRONMENTAL MONITORING RESULTS

Air Quality Monitoring Results

4.1 The monitoring results for 1-hour TSP and 24-hour TSP are summarized in **Table 4.1 and 4.2** respectively. Graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices B and C** respectively.

Table 4.1 Summary Table of 1-hour TSP Monitoring Results during the Reporting Period

Month	Monitoring Station	Concentration (µg/m3)		Action Level, µg/m^3	Limit Level, µg/m^3
		Average	Range		
June 2014	AMS1	17	14 - 23	381	500
	AMS4	18	14 - 23	352	
July 2014	AMS1	43	14 - 192	381	
	AMS4	31	14 - 72	352	
August 2014	AMS1	15	4 - 23	381	
	AMS4	20	14 - 35	352	

Table 4.2 Summary Table of 24-hour TSP Monitoring Results during the Reporting Period

Month	Monitoring Station	Concentration (µg/m3)		Action Level, µg/m^3	Limit Level, µg/m^3
		Average	Range		
June 2014	AMS1	27	13 - 51	170	260
	AMS4	27	18 - 40	171	
July 2014	AMS1	35	18 – 82	170	
	AMS4	22	16 - 32	171	
August 2014	AMS1	22	18 – 21	170	
	AMS4	24	15 - 42	171	

4.2 According to our field observations, the major dust source identified at the designated air quality monitoring stations in the reporting period are as follows:

Table 4.3 Observation at Dust Monitoring Stations

Monitoring Station	Major Dust Source
AMS1	Exhaust from marine traffic
AMS4	N/A

4.3 The wind data monitoring results were attached in the Monthly EM&A Reports

Noise Monitoring Results

4.4 The noise monitoring results are summarized in **Table 4.4**. Graphical presentations of noise monitoring are shown in **Appendix D**.

Table 4.4 Summary Table of Noise Monitoring Results during the Reporting Period

Month	Monitoring Station	Noise Level, $L_{eq\ (30min)}$ dB(A)		Limit Level
		Average	Range	
June 2014	NMS1	71	71	75 dB(A)
	NMS4	61	60 – 61	
July 2014	NMS1	70	67 - 72	
	NMS4	60	56 – 61	
August 2014	NMS1	71	70 - 72	
	NMS4	60	55 – 62	

Remark: +3dB(A) Façade correction included

4.5 According to our field observations, the major noise source identified at the designated noise monitoring stations in the reporting period are as follows:

Table 4.5 Observation at Noise Monitoring Stations

Monitoring Station	Major Noise Source
NMS1	Air traffic & marine traffic noise
NMS4	Air traffic & marine traffic noise

Water Quality Monitoring Results

4.6 The graphical presentation of water quality at the monitoring stations is shown in **Appendix E**.

4.7 Water quality impact sources during the water quality monitoring were the construction activities of the Contract, nearby construction activities by other parties and near by operating vessels by other parties.

Dolphin Monitoring (Line-transect Vessel Survey)

Summary of survey effort and dolphin sightings

4.8 During the period of June to August 2014, six sets of systematic line-transect vessel surveys were conducted to cover all transect lines in WL survey area twice per month.

4.9 From these surveys, a total of 189.86 km of survey effort was collected, with 90.5% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). The total survey effort conducted on primary lines was 126.24 km, while the effort on secondary lines was 63.62km.

Survey effort conducted on primary and secondary lines were both considered as on-effort survey data. Summary table of the survey effort is shown in **Appendix I of Appendix F**.

4.10 During the six sets of monitoring surveys in June to August 2014, a total of 43 groups of 188 Chinese White Dolphins were sighted. All except three sightings were made during on-effort search. Twenty-five on-effort sightings were made on primary lines, while another 15 on-effort sightings were made on secondary lines. Summary table of the dolphin sightings is shown in **Appendix II of Appendix F**.

Distribution

4.11 Distribution of dolphin sightings made during monitoring surveys in June to August 2014 is shown in **Figure 1 of Appendix F**. The dolphin groups were evenly distributed throughout the WL survey area, with higher concentrations near Fan Lau.

4.12 Sighting distribution of dolphins in the present quarter was similar to the one during the baseline period, with some subtle differences. There appeared to be fewer dolphins sighted near Kai Kung Shan and more dolphins sighted near Fan Lau during the present monitoring quarter when compared to the one during the baseline period.

4.13 Only one dolphin sighting was made close to the HKLR09 alignment in WL survey area during the present quarter (**Figure 1 of Appendix F)**.

Encounter rate

4.14 During the three-month impact phase monitoring 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) from West Lantau survey area are shown in **Table 4.6**. The average encounter rates deduced from the six sets of surveys from June to August 2014 were also compared with the ones deduced from the baseline monitoring period (September – November 2011) (**Table 4.7**).

4.15 In WL survey area, the average dolphin encounter rates (ER(STG) and ER(ANI)) in the present three-month study period were both higher than the ones recorded in the three-month baseline period (**Table 4.7**), indicating the dolphin usage during this impact phase monitoring period in this survey area were more intensive when compared to the baseline phase.

Table 4.6 Dolphin encounter rates (sightings per 100 km of survey effort) during the impact monitoring period (June – August 2014)

Survey Area	Dolphin Monitoring	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
West Lantau	Set 1 (June 06, 2014)	28.9	115.7
	Set 2 (June 09, 2014)	4.7	9.5
	Set 3 (July 04, 2014)	50.0	272.1
	Set 4 (July 09, 2014)	24.4	131.5
	Set 5 (August 22, 2014)	18.3	68.6
	Set 6 (August 27, 2014)	11.1	11.1

Table 4.7 Comparison of average dolphin encounter rates from impact monitoring period (June – August 2014) and baseline monitoring period (September-November 2011)

	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 2014	**September-November 2011**	**June-August 2014**	**September-November 2011**
West Lantau	22.90 ± 15.88	16.43 ± 7.70	101.41 ± 97.90	60.50 ± 38.47

4.16 A one-way ANOVA was conducted to examine whether there were any significant differences in the average encounter rates between the baseline and impact monitoring periods. For the comparison between the baseline period and the present quarter (sixth quarter of the impact phase), the p-value for the differences in average dolphin encounter rates of STG and ANI were 0.391 and 0.363 respectively. Therefore, no significant difference in dolphin encounter rate was detected between the baseline period and the present quarter.

4.17 Another comparison was made between the baseline period and the cumulative quarters in the impact phase (i.e. first six quarters of the impact phase), and the p-value for the differences in average dolphin encounter rates of STG and ANI were 0.744 and 0.784 respectively. As a result, no significant difference was found in the dolphin encounter

rates between the baseline period and the cumulative quarters in the impact phase.

4.18 To facilitate the comparison with the AFCD long-term monitoring results, the encounter rates were also calculated for the present quarter (June to August 2014) using both primary and secondary survey effort. The encounter rates of sightings (STG) and dolphins (ANI) in WL were 22.7 sightings and 104.2 dolphins per 100 km of survey effort respectively.

Group size

4.19 Group size of Chinese White Dolphins ranged from 1-12 individuals per group in WL survey area between June to August 2014. The average dolphin group sizes from these three months were compared with the one deduced from the baseline period in September to November 2011, as shown in **Table 4.8**. The average dolphin group size in the WL region during June to August 2014 was higher than the ones recorded in the 3-month baseline period (**Table 4.8**). About half of the dolphin groups were composed of 1-3 dolphins, but there were also 9 groups with more than 5 animals per group, and two groups with 10 animals or more per group.

Table 4.8 Comparison of average dolphin group sizes from impact monitoring period (June – August 2014) and baseline monitoring period (September-November 2011)

	Average Dolphin Group Size	
	June to August 2014	**September – November 2011**
West Lantau	4.37 ± 2.78 (n = 43)	3.63 ± 2.97 (n = 46)

4.20 Distribution of dolphins with the larger groups during June to August 2014 is shown in **Figure 3 of Appendix F**. These groups were evenly distributed between Tai O Peninsula and Fan Lau, but were generally far away from the HKLR09 alignment. This was quite different from the baseline period, when some of the larger dolphin groups also occurred near Tai O Peninsula closer to the bridge alignment (**Figure 3 of Appendix F**).

Habitat use

4.21 From June to August 2014, the most heavily utilized habitats by the dolphins mainly concentrated near Tai O Peninsula and Fan Lau (**Figures 4a and 4b of Appendix F**). However, it should be noted that the amount of survey effort collected in each grid during the three-month period was fairly low (6 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 will be presented when more survey effort for each grid will be collected throughout the impact phase monitoring programme.

4.22 When compared with the habitat use pattern recorded during the baseline period, it

appears that dolphin densities were more evenly spread during the baseline period than in the present impact phase monitoring period (**Figure 5 of Appendix F**). Moreover, dolphin densities appeared to be much higher near Fan Lau during the present quarter than in the baseline period.

Mother-calf pairs

4.23 During the three-month impact phase monitoring period, two unspotted calves and two unspotted juveniles (UJ) were sighted in WL survey area. These young calves comprised 2.1% of all animals sighted, which was only one third of the percentage recorded during the baseline monitoring period (6.6%).

4.24 The rare occurrence of these young calves were located near Tai O Peninsula, off Peaked Hill and near Fan Lau, which was in stark contrast to the baseline period when calf occurrence was more concentrated near Tai O Peninsula (**Figure 6 of Appendix F**).

Activities and associations with fishing boats

4.25 A total of three dolphin sightings were associated with feeding activities near Tai O and Fan Lau (**Figure 7 of Appendix F)**, comprising of 7% of the total number of dolphin sightings. This percentage was much lower than the percentage recorded during the baseline period (13.0%). Only two of the 43 sightings were associated with socializing activity near the Peaked Hill, while one group of five dolphins were engaged in traveling activity during the present quarter (**Figure 7 of Appendix F)**.

4.26 Apparently, the distribution of these activities during the present impact phase monitoring period was different from the one during the baseline period, with higher concentration of these activities occurred between Tai O and Peaked Hill during the baseline period (**Figure 7 of Appendix F**).

4.27 During the three-month period, none of the dolphin groups was associated with an operating fishing vessel.

Summary of photo-identification works

4.28 From June to August 2014, over 3,000 digital photographs of Chinese White Dolphins were taken during the impact phase monitoring surveys for the photo-identification work.

4.29 In total, 62 individuals sighted 81 times altogether were identified (see summary table in **Appendix III of Appendix F** and photographs of identified individuals in **Appendix IV of Appendix F**. The majority of identified individuals were sighted only once or twice during the three-month period, but two individuals (WL46 and WL114) were sighted thrice.

4.30 During the three-month period, five recognizable females, including NL212, WL94, WL118, WL207 and WL224, were sighted to be accompanied with their calf during her re-sighting.

Individual range use

4.31 Ranging patterns of the 62 individuals identified during the three-month study period were determined by fixed kernel method, and are shown in **Appendix V of Appendix F**.

4.32 Among these 62 individuals, 17 of them (CH34, NL37, NL46, NL49, NL98, NL136, NL139, NL150, NL213, NL261, NL262, NL295, NL300, NL308, WL04, WL05, WL188) occurred primarily in North Lantau but ventured into West Lantau during the three-month period, while a few other individuals (e.g. NL212, NL249, NL279 and WL46) split their time between North and West Lantau waters. The other individuals centered their range use primarily in West Lantau waters. (**Appendix V of Appendix F)**

4.33 For those that regularly occurred in North Lantau waters, they have extended their range use from there to West Lantau waters, which could be a result of a range shift from North Lantau waters. Such range shifts should be continuously monitored in the upcoming quarters to determine whether these range shifts are consistent for North Lantau individuals and possibly related to the negative impacts of the HZMB-related construction activities.

4.34 On the other hand, for those that primarily used West Lantau waters as their home ranges, it was apparent that almost all of them utilized the southern part of their ranges, but seldom in the northern part of West Lantau, especially near the HKLR09 alignment where they frequently occurred in the past.

Conclusion

4.35 During this quarter of dolphin monitoring, no adverse impact from the activities of the HKLR09 construction project on Chinese White Dolphins was noticeable from general observations.

4.36 Nevertheless, dolphin usage in WL region should be continuously monitored, to further examine whether it has been affected by the on-going construction activities in relation to the HZMB works.

Additional Land-based Dolphin Behaviour and Movement Monitoring

4.37 Additional land-based dolphin behavior and movement monitoring were conducted in the reporting period. The progress of the monitoring is summarized in the **Table 4.9**.

Table 4.9 Progress Record of Additional Land-based Dolphin Behaviour and Movement Monitoring (June to August 2014)

Date	Time	Weather		Number of Staff	Number of Dolphin Sighting
		Beaufort	Visibility		
2014/6/3	09:27 - 14:38	2-3	2	3	2
2014/6/6	09:18 - 14:59	2-3	1.5	3	1
2014/7/11	09:25 - 14:49	2	1.5	3	3
2014/7/25	09:33 - 14:53	2-3	2	3	2
2014/8/22	09:24 - 14:45	2	1	3	2
2014/8/27	09:24 - 14:56	2-3	2	3	1

4.38 Detailed monitoring methodology and results will be provided in a separate report after the completion of full set of additional land-based dolphin behavior and movement monitoring.

Advice on the Solid and Liquid Waste Management Status

4.39 The Contractor was advised to minimize the wastes generated through the recycling or reusing. All mitigation measures stipulated in approved waste management plan shall be fully implemented.

4.40 The amount of wastes generated by the activities of the Contract during the reporting month is shown in **Appendix J**.

5 ENVIRONMENTAL NON-CONFORMANCE (EXCEEDANCES)

Summary of Exceedances

5.1 Summary of exceedance is provided in **Appendix K**. The details of the exceedances were attached in the Monthly EM&A Report.

Air Quality

5.2 For 1-hour TSP monitoring, no Action/Limit Level exceedance was recorded in the reporting period.

5.3 For 24-hr TSP monitoring, no Action/Limit Level exceedance was recorded in the reporting period.

Noise

5.4 No Action/Limit Level exceedance was recorded in the reporting period.

Water Quality

5.5 There are 12 Action Level exceedances and 2 Limit Level exceedances were recorded for suspended solids. No Action/Limit Level exceedance for turbidity were recorded in the reporting period.

5.6 According to the investigation, the exceedances are considered not due to the Contract due to the following reasons:

1) No pollution discharge was observed from the site;
2) No marine construction works were conducted in vicinity of monitoring station in which exceedance was recorded;
3) Sediment plume due to natural fluctuation of shallow water was observed; and
4) The exceeded results were similar or within the ranges baseline monitoring results.

Dolphin Monitoring (Line-transect Vessel Survey)

5.7 No Action/Limit Level exceedance was recorded in the reporting period.

Summary of Environmental Complaint

5.8 One environmental related complaint was received in the reporting period. The Complaint Log is attached in **Appendix L**. All investigation reports for complaint of the Contract have been submitted to summarize the investigation results. The summary of environmental complaints is presented in **Table 5.1**.

Table 5.1 Summary of Environmental Complaints in the Reporting Period

Complaint Log Ref.	Location	Received Date	Nature of Complaint
Com-2014-08-001	Near Sha Lo Wan	27 August 2014	Air Quality

Summary of Notification of Summons and Successful Prosecution

5.9 There was no prosecution or notification of summons received since the Contract commencement.

6 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

6.1 This Quarterly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken in the period between June and August 2014 in accordance with EM&A Manual.

6.2 No Action/Limit Level exceedance was recorded for noise.

6.3 For 1-hour TSP monitoring, no Action/Limit Level exceedance was recorded in the reporting period.

6.4 For 24-hr TSP monitoring, no Action/Limit Level exceedance was recorded in the reporting period.

6.5 For water quality monitoring, there are 12 Action Level exceedances and 2 Limit Level exceedances were recorded for suspended solids. No Action/Limit Level exceedance was for turbidity were recorded in the reporting period.

6.6 According to the investigation, all exceedances are considered not due to the Contract.

6.7 During this quarter of dolphin monitoring, no adverse impact from the activities of the HKLR09 construction project on Chinese White Dolphins was noticeable from general observations.

6.8 Environmental site inspection was conducted on 3rd, 10th, 17th and 27th June 2014, 2nd, 8th, 17th, 25th and 29th July 2014, 5th, 12th, 19th and 29th August 2014 by ET in the reporting month. All deficiencies identified during the site inspection have already rectified / improved during the follow-up audit session.

6.9 The inspection to the Sha Lo Wan (West) Archaeological Site was conducted on 26th June 2014. No access to Sha Lo Wan (West) Archaeological site for works areas and storage of construction equipment was observed.

6.10 There were one environmental complaint, no notification of summons and successful prosecution received in the reporting period.

6.11 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

6.12 According to the environmental audit performed in the reporting month, the following recommendations were made:

Air Quality Impact

- To regularly maintain the quality of machinery and vehicles on site.
- To implement dust suppression measures on all haul roads, stockpiles, dry surfaces and excavation works.

- To provide hoarding along the entire length of that portion of the site boundary.

Noise Impact

- To inspect the noise sources inside the site.
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers.
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers, if necessary.

Water Impact

- To prevent any surface runoff discharge into any stream course and sea.
- To review and implement temporary drainage system.
- To identify any wastewater discharges from site.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks.
- To review the capacity of de-silting facilities for discharge.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.
- To avoid accumulation of stagnant and ponding water on site.

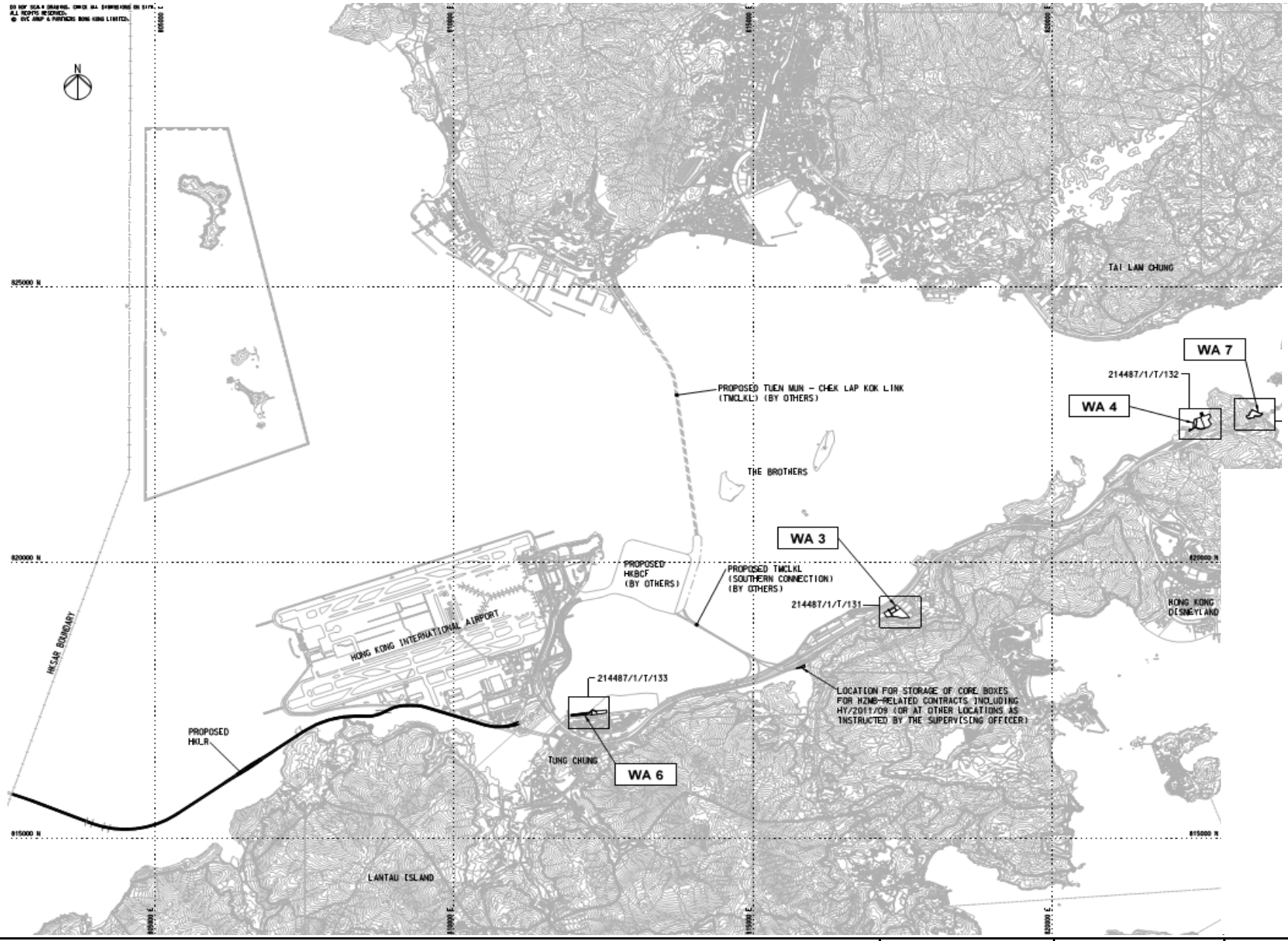
Ecology Impact

- To implement Spill Response Plan in the event of accidential spillage of or other hazardours chemicals.
- To implement Dolphin Exclusion Zone during the installation of bored pile casing located in the waters to the west of Airport.
- To implement Dolphin Watching Plan after the bored piling casing is installed.
- To ensure the acoustically-decoupled measures were implemented for air compressors and other noisy equipment mounted on construction vessels according to acoustic decoupling measures plan.

Waste/Chemical Management

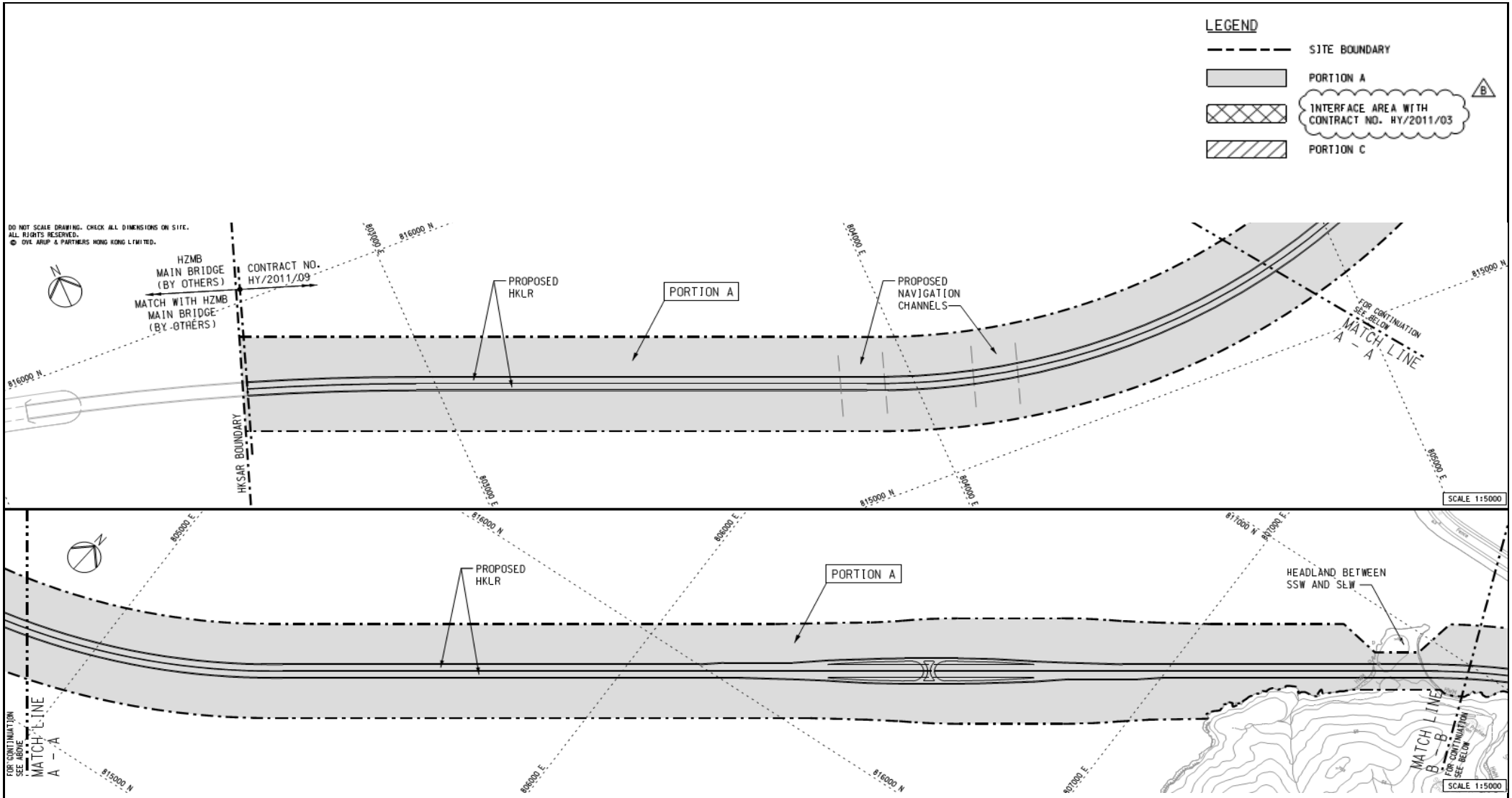
- To check for any accumulation of waste materials or rubbish on site.
- To ensure the performance of sorting of C&D materials at source (during generation);
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To avoid improper handling or storage of oil drum on site.

FIGURE(S)



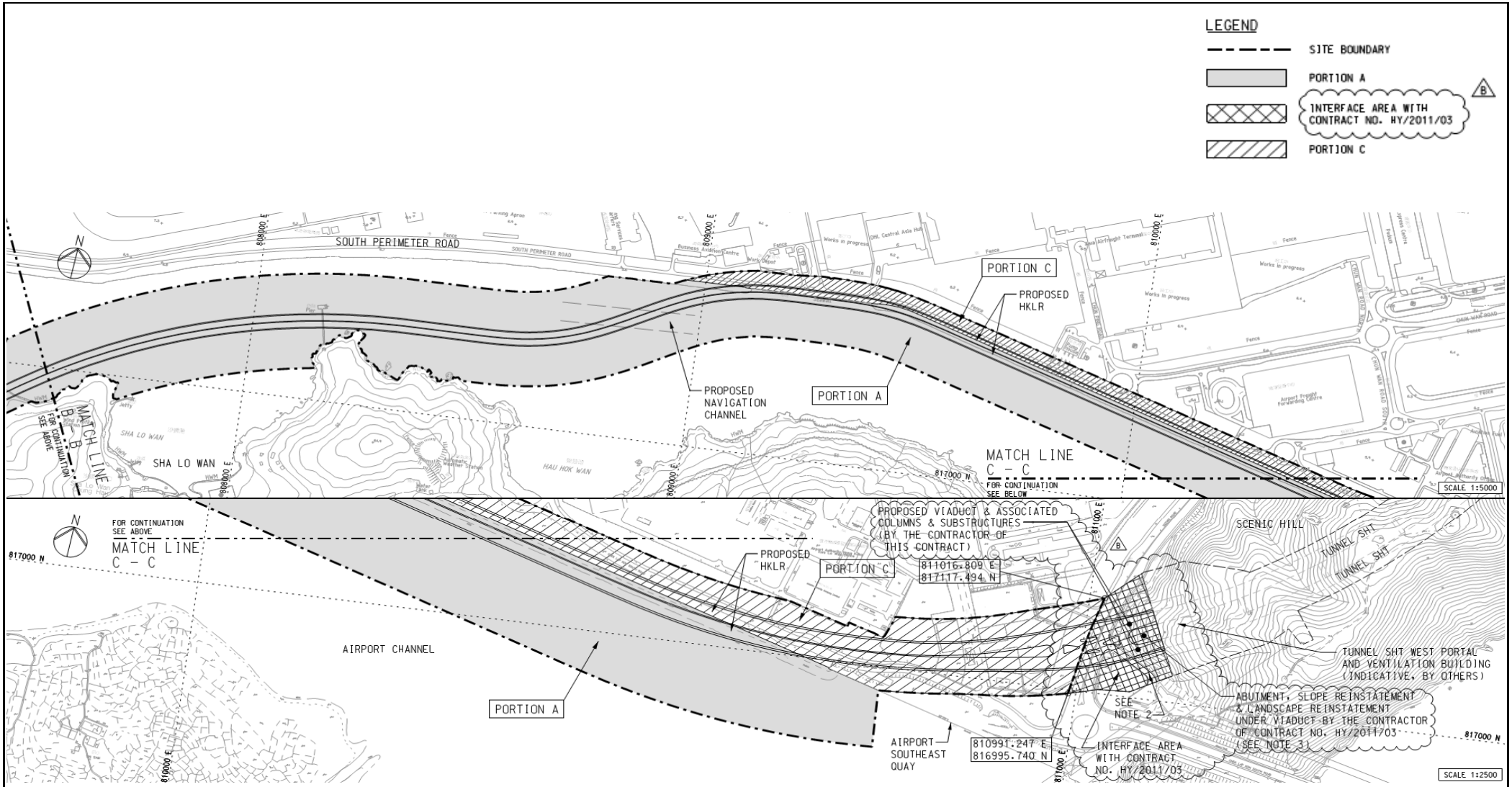
Title	Scale	Proposa	
Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Site Layout Plan (WA3, WA4, WA6 and WA7)	N.T.S	No.	MA12014
	Date	Figure	
	Feb-13		1a

CINOTECH



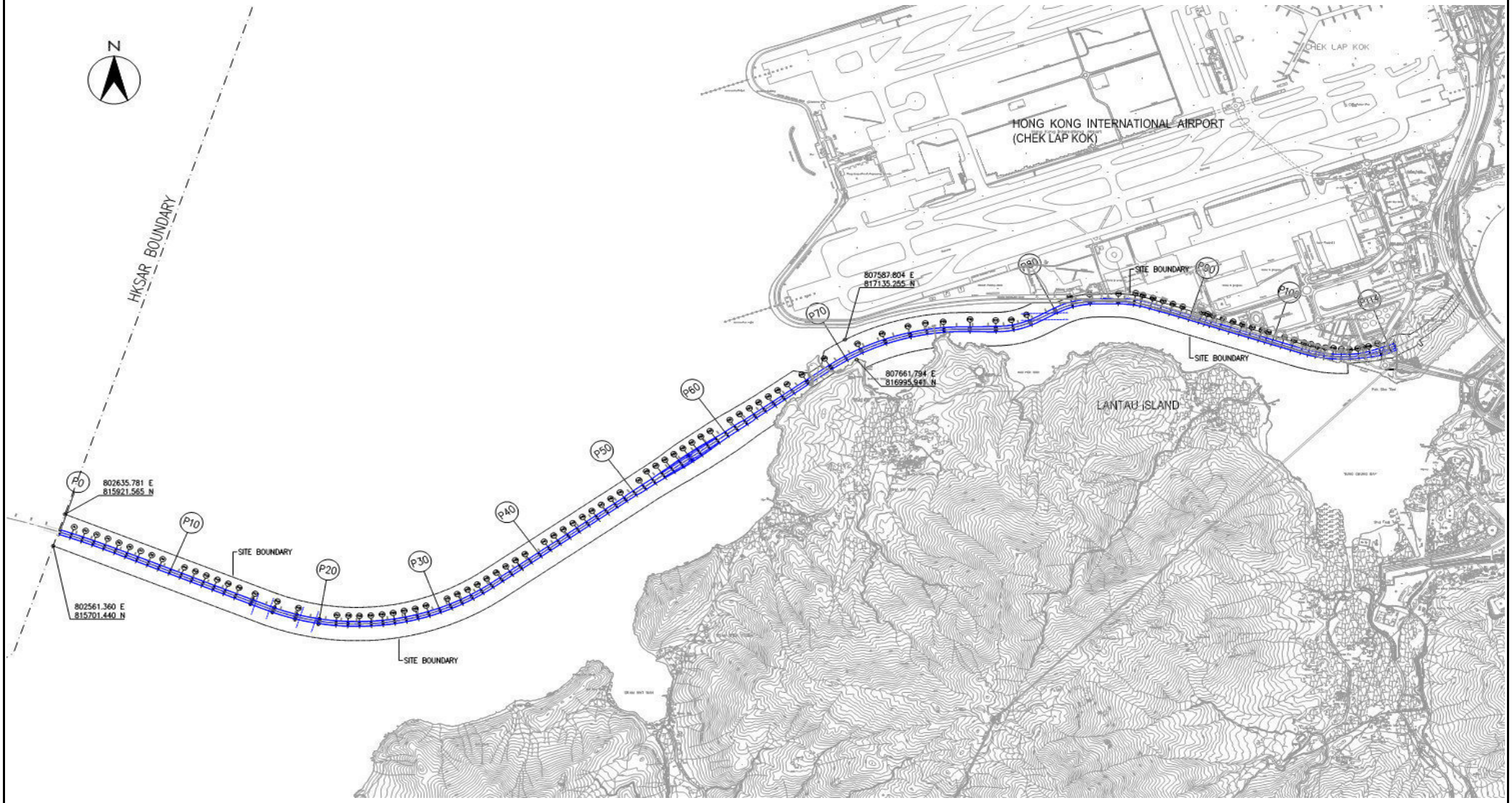
Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Site Layout Plan (Portion A)	Scale: N.T.S Date: May-13	Proposa No. MA12014 Figure: 1b

CINOTECH



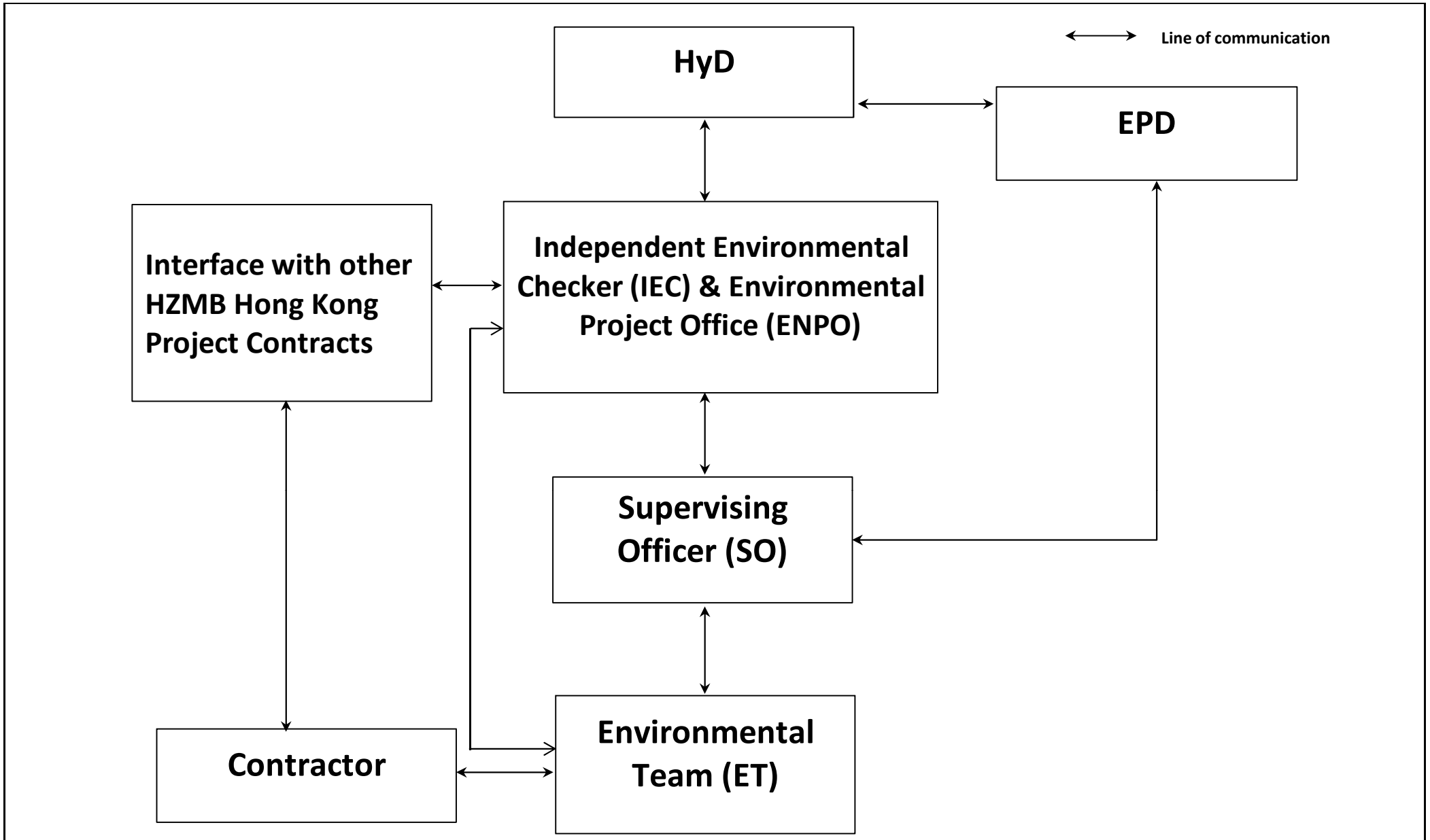
Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Site Layout Plan (Portion A and C)	Scale N.T.S Date May-13	Proposa No. MA12014 Figure 1c

CINOTECH

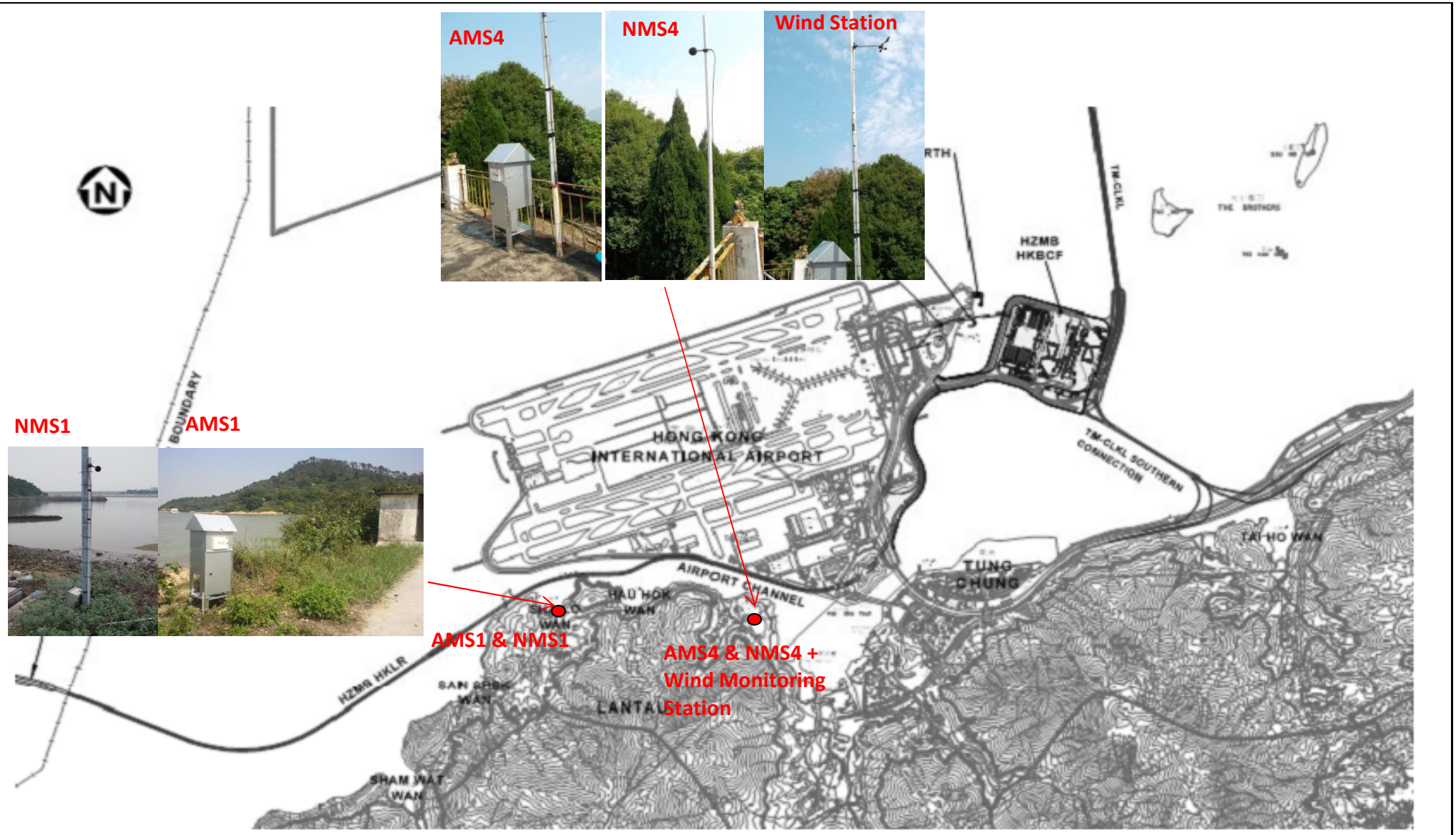


Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Site Layout Plan (Pier(s) Site)	Scale: N.T.S Date: Feb-13	Proposa No. MA12014 Figure: 1d

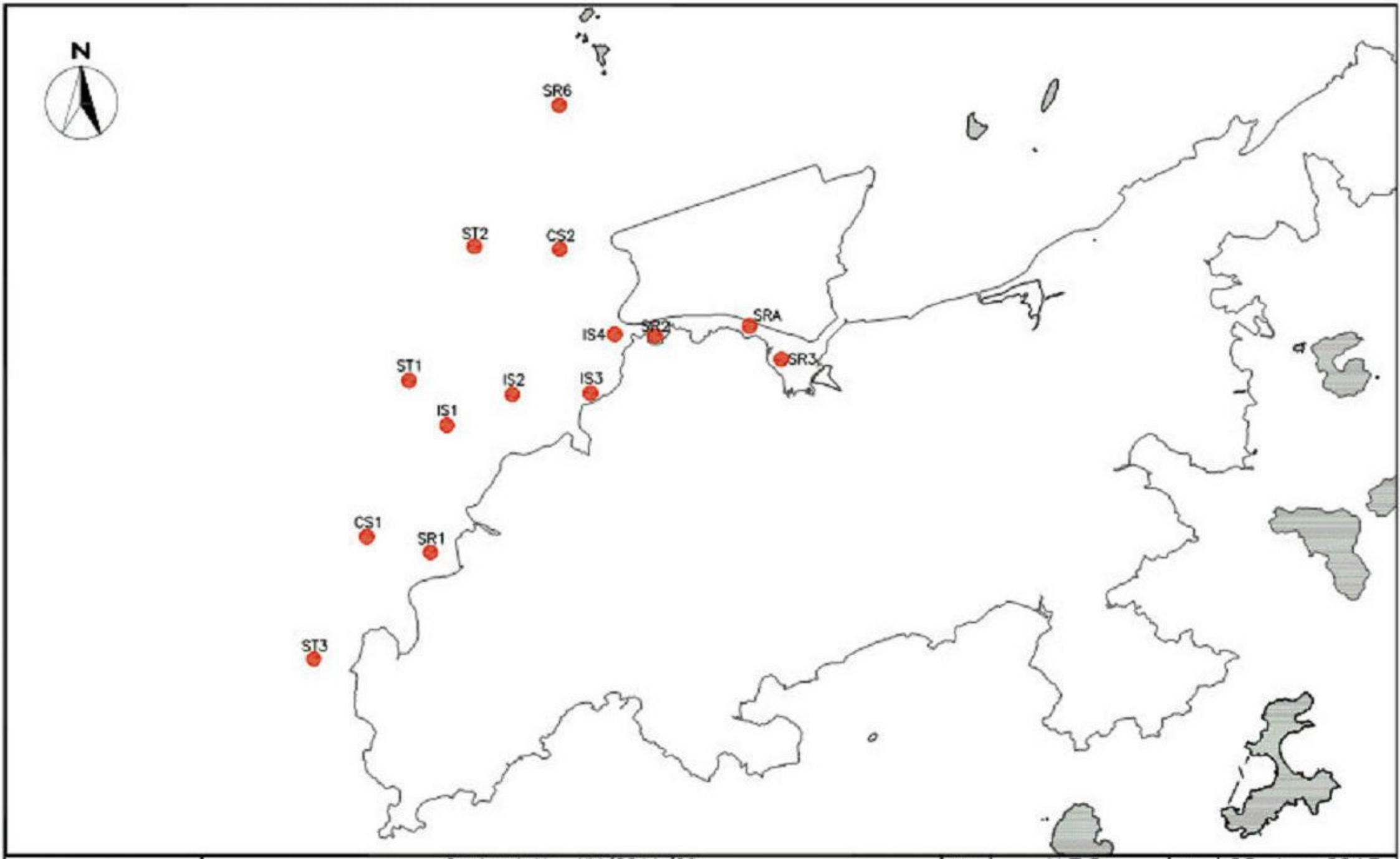
CINOTECH



Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Project Organisation for Environmental Works	Scale N.T.S Date Feb-13	Proposa No. MA12014 Figure 2	CINOTECH



Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Locations of Air Quality and Noise Monitoring Stations	Scale: N.T.S Date: Feb-13	Proposa No. MA12014 Figure: 3	CINOTECH



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Cinotech Consultants Limited

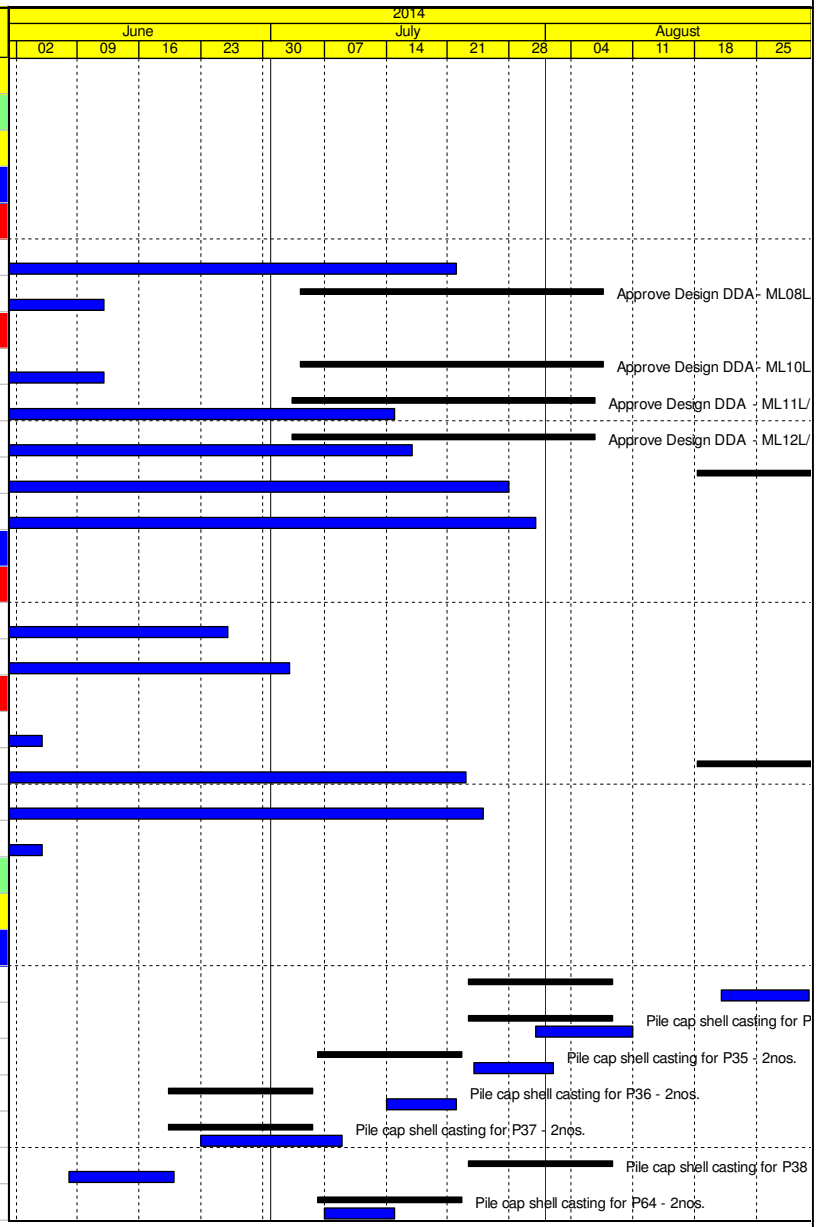
Contract No. HY/2011/09
Hong Kong–Zhuhai–Macao Bridge Hong Kong Link Road – Section Between HKSAR Boundary and Scenic Hill
Locations of Marine Water Quality Monitoring Stations

SCALE	N.T.S	DATE	28 Jan 2013
CHECK	PC	DRAWN	IT
PROJECT NO.	MA12014	FIGURE NO.	4
		REV	–

APPENDIX A
CONSTRUCTION PROGRAMME

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
HKZB Hong Kong Link Road - 3 Months Rolling Programme 1409 (Based on DWP01dOP1)								
Design and Design Checking of the Works								
Detailed Design Approval (DDA)								
Substructure								
Western Water								
DDA02.02-40	Approve Design DDA - ML02L/R	35	0	100%	29/01/14 A	22/07/14 A	17/09/14	21/10/14
DDA08.02-40	Approve Design DDA - ML08L/R (with trunaround)	35	0	100%	15/01/14 A	12/06/14 A	04/07/14	07/08/14
Airport Channel								
DDA10.02-40	Approve Design DDA - ML10L/R	35	0	100%	20/02/14 A	12/06/14 A	04/07/14	07/08/14
DDA11.02-40	Approve Design DDA - ML11L/R	35	0	100%	21/01/14 A	15/07/14 A	03/07/14	06/08/14
DDA12.02-40	Approve Design DDA - ML12L/R	35	0	100%	21/01/14 A	17/07/14 A	03/07/14	06/08/14
DDA13.02-40	Approve Design DDA - ML13L/R	35	0	100%	25/02/14 A	28/07/14 A	18/08/14	21/09/14
DDA14.02-40	Approve Design DDA - ML14L/R	35	0	100%	28/02/14 A	31/07/14 A	03/10/14	06/11/14
Superstructure								
Western Water								
DDA04.03-40	Approve Design DDA - ML04L/R	35	0	100%	16/01/14 A	26/06/14 A	05/01/15	08/02/15
DDATR.03-40	Approve Design DDA - MTL01,02 & MTR01,02	35	0	100%	28/02/14 A	03/07/14 A	22/09/14	26/10/14
Airport Channel								
DDA10.03-40	Approve Design DDA - ML10L/R	35	0	100%	15/02/14 A	05/06/14 A	22/12/14	25/01/15
DDA11.03-40	Approve Design DDA - ML11L/R	35	0	100%	18/02/14 A	23/07/14 A	18/08/14	21/09/14
DDA12.03-40	Approve Design DDA - ML12L/R	35	0	100%	25/02/14 A	25/07/14 A	02/10/14	05/11/14
DDA13.03-40	Approve Design DDA - ML13L/R	35	0	100%	25/02/14 A	05/06/14 A	05/10/14	08/11/14
Procurement and Fabrication								
Pile Cap Shell Casting								
Type CP1 & CP5								
PC1290	Pile cap shell casting for P33 - 2nos.	16	0	100%	21/08/14 A	31/08/14 A	23/07/14	08/08/14
PC1300	Pile cap shell casting for P34 - 2nos.	16	0	100%	31/07/14 A	11/08/14 A	23/07/14	08/08/14
PC1310	Pile cap shell casting for P35 - 2nos.	16	0	100%	24/07/14 A	02/08/14 A	06/07/14	22/07/14
PC1320	Pile cap shell casting for P36 - 2nos.	16	0	100%	14/07/14 A	22/07/14 A	19/06/14	05/07/14
PC1330	Pile cap shell casting for P37 - 2nos.	16	0	100%	23/06/14 A	09/07/14 A	19/06/14	05/07/14
PC1340	Pile cap shell casting for P38 - 2nos.	16	0	100%	08/06/14 A	20/06/14 A	23/07/14	08/08/14
PC1600	Pile cap shell casting for P64 - 2nos.	16	0	100%	07/07/14 A	15/07/14 A	06/07/14	22/07/14



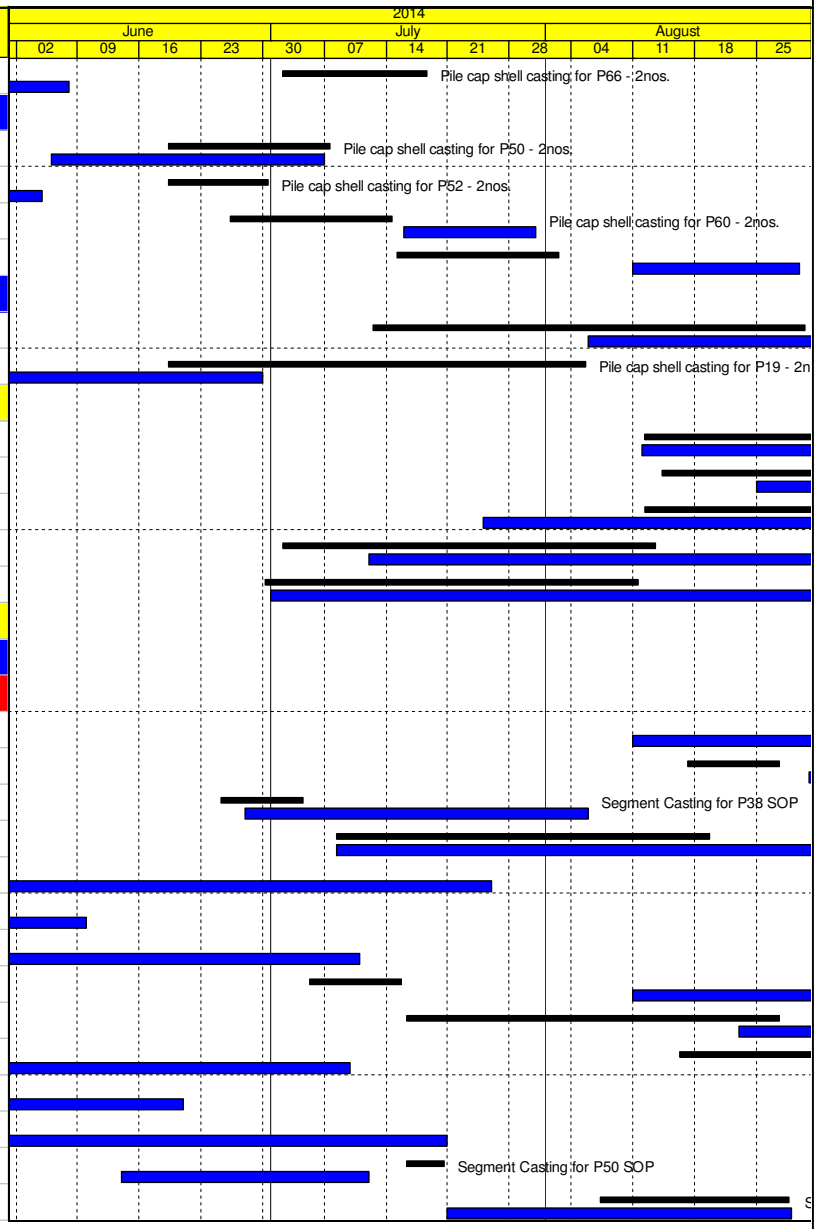
DWP_01d Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone

3MRP DWP_01d 1409

Date	Revision	Checked	Approved
06/10/14	1409 rolling based on DWP01d R1	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
PC1620	Pile cap shell casting for P66 - 2nos.	16	0	100%	26/05/14 A	08/06/14 A	02/07/14	18/07/14
Type CP2 & CP3								
PC1460	Pile cap shell casting for P50 - 2nos.	18	0	100%	06/06/14 A	07/07/14 A	19/06/14	07/07/14
PC1480	Pile cap shell casting for P52 - 2nos.	11	0	100%	20/05/14 A	05/06/14 A	19/06/14	30/06/14
PC1560	Pile cap shell casting for P60 - 2nos.	18	0	100%	16/07/14 A	31/07/14 A	26/06/14	14/07/14
PC1570	Pile cap shell casting for P61 - 2nos.	18	0	100%	11/08/14 A	30/08/14 A	15/07/14	02/08/14
Type CP4, CP6, F1 & F2								
PC1650	Pile cap shell casting for P18 - 2nos.	45	0	100%	06/08/14 A	10/09/14 A	12/07/14	30/08/14
PC1660	Pile cap shell casting for P19 - 2nos.	45	0	100%	29/03/14 A	30/06/14 A	19/06/14	05/08/14
Column Casting								
PC2090	Precast Column & Columnhead P40	28	8	70%	12/08/14 A	14/10/14	12/08/14	09/09/14
PC2100	Precast Column & Columnhead P41	20	13	35%	25/08/14 A	18/10/14	14/08/14	03/09/14
PC2110	Precast Column & Columnhead P42 (Learning)	30	5	84%	25/07/14 A	10/10/14	12/08/14	11/09/14
PC2120	Precast Column & Columnhead P43 (Learning)	40	0	100%	12/07/14 A	10/09/14 A	02/07/14	13/08/14
PC2130	Precast Column & Columnhead P44 (Learning)	40	0	100%	01/07/14 A	03/09/14 A	30/06/14	11/08/14
Segment Casting								
Type A, C, D Segment (Total 12 set Moulds)								
Type A Segment (Western Water Typical Span)								
SC5348	Segment Casting for P33 SOP	10	5	50%	11/08/14 A	30/01/15	08/12/14	18/12/14
SC5428	Segment Casting for P37 SOP	10	8	25%	31/08/14 A	21/10/14	17/08/14	27/08/14
SC5448	Segment Casting for P38 SOP	10	0	100%	28/06/14 A	06/08/14 A	25/06/14	04/07/14
SC5458	Segment Casting for P38 field segment	40	10	75%	08/07/14 A	15/10/14	08/07/14	19/08/14
SC5468	Segment Casting for P39 SOP	10	0	100%	14/03/14 A	26/07/14 A	05/01/15	15/01/15
SC5558	Segment Casting for P43 field segment	43	0	100%	28/04/14 A	10/06/14 A	23/12/14	06/02/15
SC5578	Segment Casting for P44 field segment	44	0	100%	16/04/14 A	11/07/14 A	28/11/14	13/01/15
SC5588	Segment Casting for P45 SOP	10	3	75%	11/08/14 A	08/10/14	05/07/14	15/07/14
SC5598	Segment Casting for P45 field segment	40	36	10%	23/08/14 A	24/11/14	16/07/14	27/08/14
SC5618	Segment Casting for P46 field segment	44	0	100%	24/04/14 A	10/07/14 A	16/08/14	08/10/14
SC5668	Segment Casting for P49 SOP	11	0	100%	27/11/13 A	21/06/14 A	27/09/14	15/10/14
SC5678	Segment Casting for P49 field segment	40	0	100%	03/12/13 A	21/07/14 A	11/11/14	22/12/14
SC5688	Segment Casting for P50 SOP	5	0	100%	14/06/14 A	12/07/14 A	16/07/14	20/07/14
SC5698	Segment Casting for P50 field segment	20	0	100%	21/07/14 A	29/08/14 A	07/08/14	28/08/14



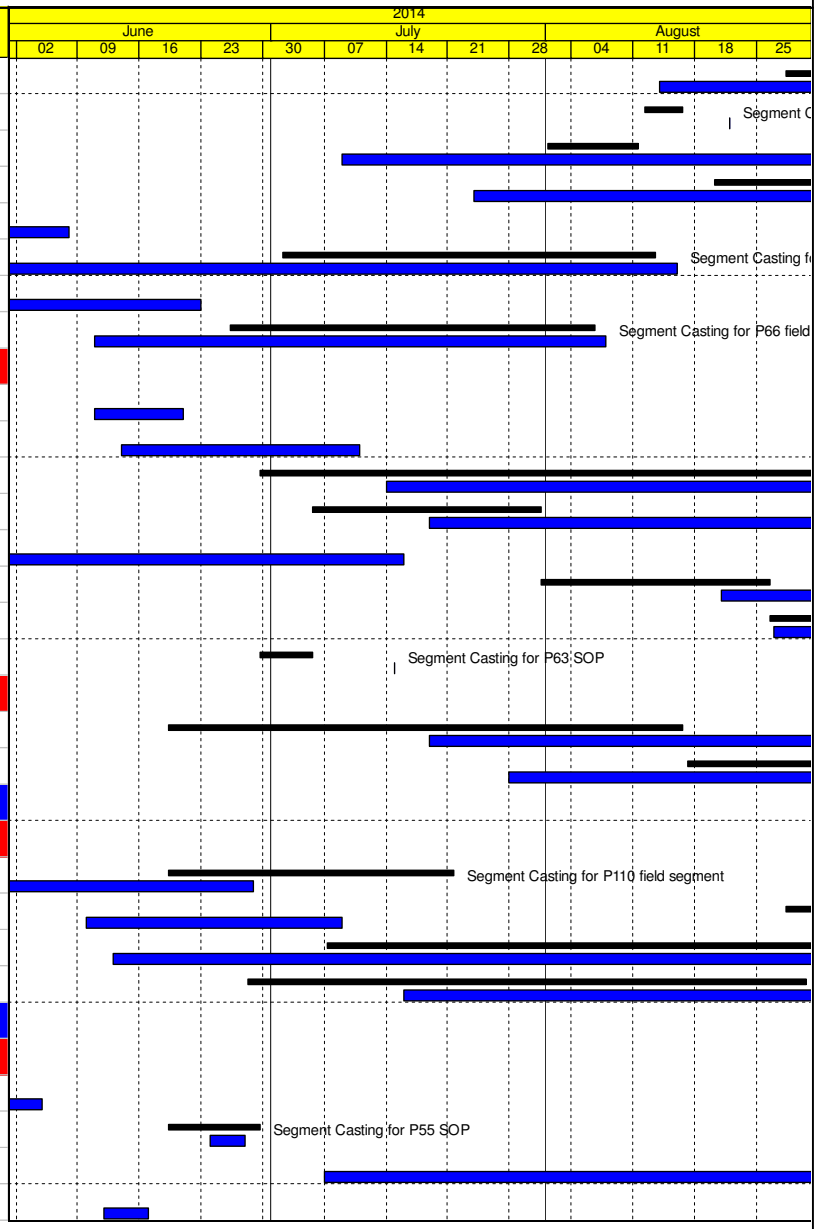
DWP_01d Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone

3MRP DWP_01d 1409

Date	Revision	Checked	Approved
06/10/14	1409 rolling based on DWP01d R1	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
SC5878	Segment Casting for P60 field segment	20	6	70%	14/08/14 A	30/11/14	28/08/14	17/09/14
SC5908	Segment Casting for P62 SOP	5	0	100%	22/08/14 A	22/08/14 A	12/08/14	16/08/14
SC5928	Segment Casting for P63 SOP	10	0	100%	09/07/14 A	26/09/14 A	01/08/14	11/08/14
SC5938	Segment Casting for P63 field segment	30	20	34%	24/07/14 A	05/11/14	20/08/14	20/09/14
SC5968	Segment Casting for P65 SOP	11	0	100%	16/05/14 A	08/06/14 A	27/10/14	06/11/14
SC5978	Segment Casting for P65 field segment	40	0	100%	28/05/14 A	16/08/14 A	02/07/14	13/08/14
SC5988	Segment Casting for P66 SOP	10	0	100%	29/05/14 A	23/06/14 A	14/10/14	24/10/14
SC5998	Segment Casting for P66 field segment	40	0	100%	11/06/14 A	08/08/14 A	26/06/14	06/08/14
Type D Segment (P49 to P63)								
SC6036	Segment Casting for P49 SOP	6	0	100%	11/06/14 A	21/06/14 A	27/09/14	10/10/14
SC6046	Segment Casting for P50 SOP	20	0	100%	14/06/14 A	11/07/14 A	17/09/14	14/10/14
SC6048	Segment Casting for P50 field segment	60	40	34%	14/07/14 A	16/11/14	29/06/14	01/09/14
SC6056	Segment Casting for P51 SOP	24	12	50%	19/07/14 A	17/10/14	05/07/14	31/07/14
SC6078	Segment Casting for P60 field segment	33	0	100%	12/04/14 A	16/07/14 A	04/03/15	07/04/15
SC6086	Segment Casting for P61 SOP	24	12	50%	21/08/14 A	30/10/14	31/07/14	26/08/14
SC6096	Segment Casting for P62 SOP	18	12	34%	27/08/14 A	12/11/14	26/08/14	13/09/14
SC6106	Segment Casting for P63 SOP	6	0	100%	15/07/14 A	15/07/14 A	29/06/14	05/07/14
Type DT Segment								
SC6038	Segment Casting for P49 field segment (DT)	55	33	40%	19/07/14 A	08/11/14	19/06/14	16/08/14
SC6108	Segment Casting for P63 field segment (DT)	55	33	40%	28/07/14 A	13/12/14	17/08/14	21/10/14
Type E Segment (Total 5 set Moulds)								
Land Viaduct (P85 to Easternmost Abutment)								
SC6548	Segment Casting for P110 field segment	31	0	100%	30/04/14 A	29/06/14 A	19/06/14	21/07/14
SC6558	Segment Casting for P111 field segment	22	0	100%	10/06/14 A	09/07/14 A	28/08/14	19/09/14
SC6568	Segment Casting for P112 field segment	58	0	100%	13/06/14 A	20/09/14 A	07/07/14	06/09/14
SC6578	Segment Casting for P113 field segment	60	35	42%	16/07/14 A	11/11/14	28/06/14	30/08/14
Type B Segment (Total 1 set Mould)								
Turnaround								
SC6136	Segment Casting for P54 SOP	11	0	100%	25/05/14 A	05/06/14 A	19/06/15	30/06/15
SC6146	Segment Casting for P55 SOP	10	0	100%	24/06/14 A	28/06/14 A	19/06/14	29/06/14
SC6148	Segment Casting for P55 field segment	65	33	50%	07/07/14 A	22/05/15	08/01/15	25/03/15
SC6166	Segment Casting for P57 SOP	11	0	100%	12/06/14 A	17/06/14 A	27/07/15	06/08/15



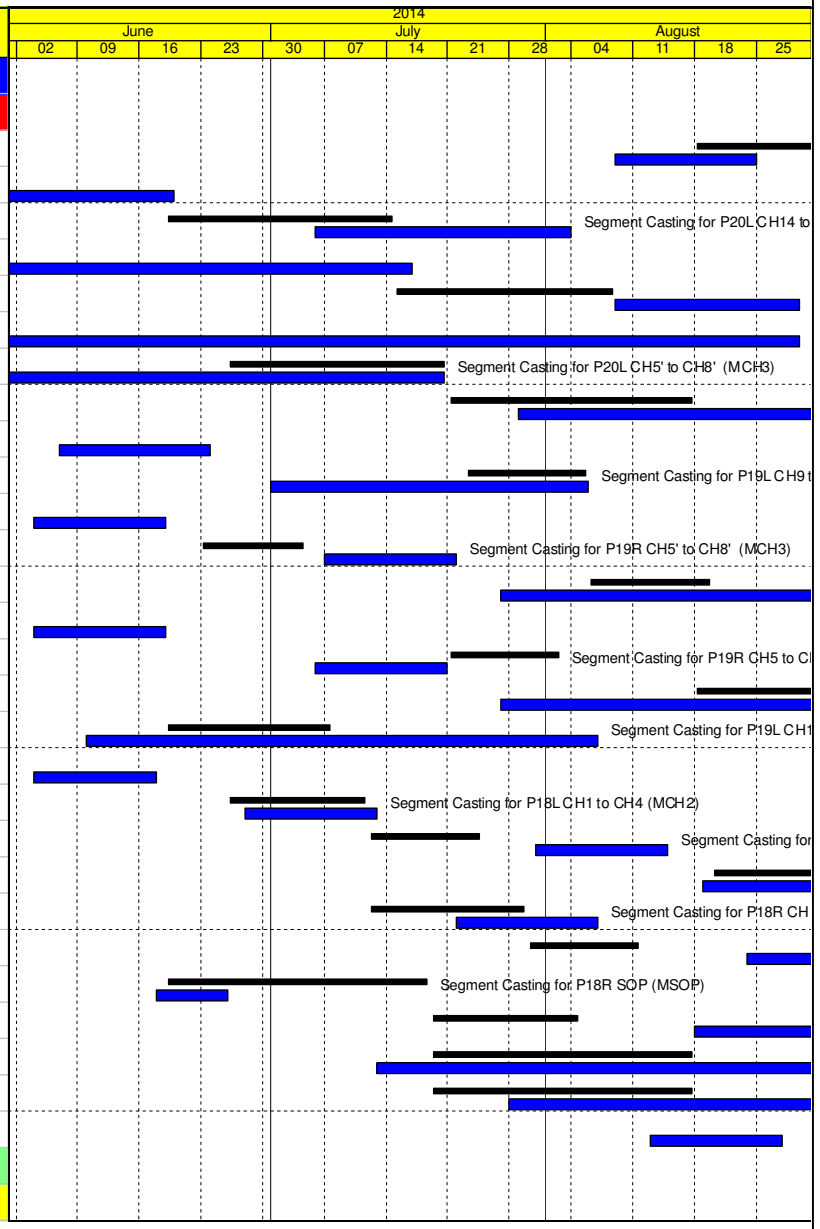
DWP_01d Programme
Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

3MRP DWP_01d 1409

Date	Revision	Checked	Approved
06/10/14	1409 rolling based on DWP01d R1	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Type CH Segment (Total 12 set Moulds)								
ML03 (P16 TO P21)								
SC1000	Segment Casting for P20L SOP (MSOP)	28	0	100%	09/08/14 A	25/08/14 A	18/08/14	16/09/14
SC1030	Segment Casting for P20L CH9 to CH13 (MCH4) learning	26	0	100%	30/04/14 A	20/06/14 A	06/04/15	11/05/15
SC1040	Segment Casting for P20L CH14 to CH19 (MCH5) Learning	24	0	100%	06/07/14 A	04/08/14 A	19/06/14	14/07/14
SC1046	Segment Casting for P20R CH9' to CH13' (MCH4) learning	26	0	100%	31/05/14 A	17/07/14 A	17/04/15	21/05/15
SC1048	Segment Casting for P20R CH14' to CH19' (MCH5) Learning	24	0	100%	09/08/14 A	30/08/14 A	15/07/14	08/08/14
SC1078	Segment Casting for P20R CH5 to CH8 (MCH3)	24	0	100%	27/05/14 A	30/08/14 A	23/03/15	16/04/15
SC1118	Segment Casting for P20L CH5' to CH8' (MCH3)	24	0	100%	27/05/14 A	20/07/14 A	26/06/14	20/07/14
SC1128	Segment Casting for P20L CH9' to CH13' (MCH4) learning	26	0	100%	29/07/14 A	09/09/14 A	21/07/14	17/08/14
SC1168	Segment Casting for P19L CH5 to CH8 (MCH3)	12	0	100%	07/06/14 A	24/06/14 A	20/04/15	09/05/15
SC1178	Segment Casting for P19L CH9 to CH13 (MCH4)	13	0	100%	01/07/14 A	06/08/14 A	23/07/14	05/08/14
SC1198	Segment Casting for P19R CH1' to CH4' (MCH2)	16	0	100%	04/06/14 A	19/06/14 A	22/04/15	16/05/15
SC1208	Segment Casting for P19R CH5' to CH8' (MCH3)	12	0	100%	07/07/14 A	22/07/14 A	23/06/14	04/07/14
SC1218	Segment Casting for P19R CH9' to CH13' (MCH4)	13	0	100%	27/07/14 A	03/09/14 A	06/08/14	19/08/14
SC1248	Segment Casting for P19R CH1 to CH4 (MCH2)	17	0	100%	04/06/14 A	19/06/14 A	06/04/15	23/04/15
SC1258	Segment Casting for P19R CH5 to CH8 (MCH3)	12	0	100%	06/07/14 A	21/07/14 A	21/07/14	02/08/14
SC1268	Segment Casting for P19R CH9 to CH13 (MCH4)	13	5	60%	27/07/14 A	11/10/14	18/08/14	31/08/14
SC1288	Segment Casting for P19L CH1' to CH4' (MCH2)	18	0	100%	10/06/14 A	07/08/14 A	19/06/14	07/07/14
SC1328	Segment Casting for P18L SOP (MSOP)	31	0	100%	04/06/14 A	18/06/14 A	26/05/15	26/06/15
SC1338	Segment Casting for P18L CH1 to CH4 (MCH2)	16	0	100%	28/06/14 A	13/07/14 A	26/06/14	11/07/14
SC1348	Segment Casting for P18L CH5 to CH8 (MCH3)	12	0	100%	31/07/14 A	15/08/14 A	12/07/14	24/07/14
SC1358	Segment Casting for P18L CH9 to CH13 (MCH4)	13	10	20%	19/08/14 A	27/10/14	20/08/14	02/09/14
SC1378	Segment Casting for P18R CH1' to CH4' (MCH2)	16	0	100%	22/07/14 A	07/08/14 A	12/07/14	29/07/14
SC1388	Segment Casting for P18R CH5' to CH8' (MCH3)	12	3	75%	24/08/14 A	08/10/14	30/07/14	11/08/14
SC1418	Segment Casting for P18R SOP (MSOP)	28	0	100%	18/06/14 A	26/06/14 A	19/06/14	18/07/14
SC1428	Segment Casting for P18R CH1 to CH4 (MCH2)	16	0	100%	18/08/14 A	07/09/14 A	19/07/14	04/08/14
SC1508	Segment Casting for P17L SOP (MSOP)	28	0	100%	13/07/14 A	03/09/14 A	19/07/14	17/08/14
SC1598	Segment Casting for P17R SOP (MSOP)	28	0	100%	28/07/14 A	17/09/14 A	19/07/14	17/08/14
SC1648	Segment Casting for P17L CH1' to CH4' (MCH2)	16	0	100%	13/08/14 A	28/08/14 A	26/01/16	17/02/16
Viaduct between HKSAR Boundary and Landing Point on Airport Island								
ML01L/R 75mx8 - Stage 2 of Works								



DWP_01d Programme
Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

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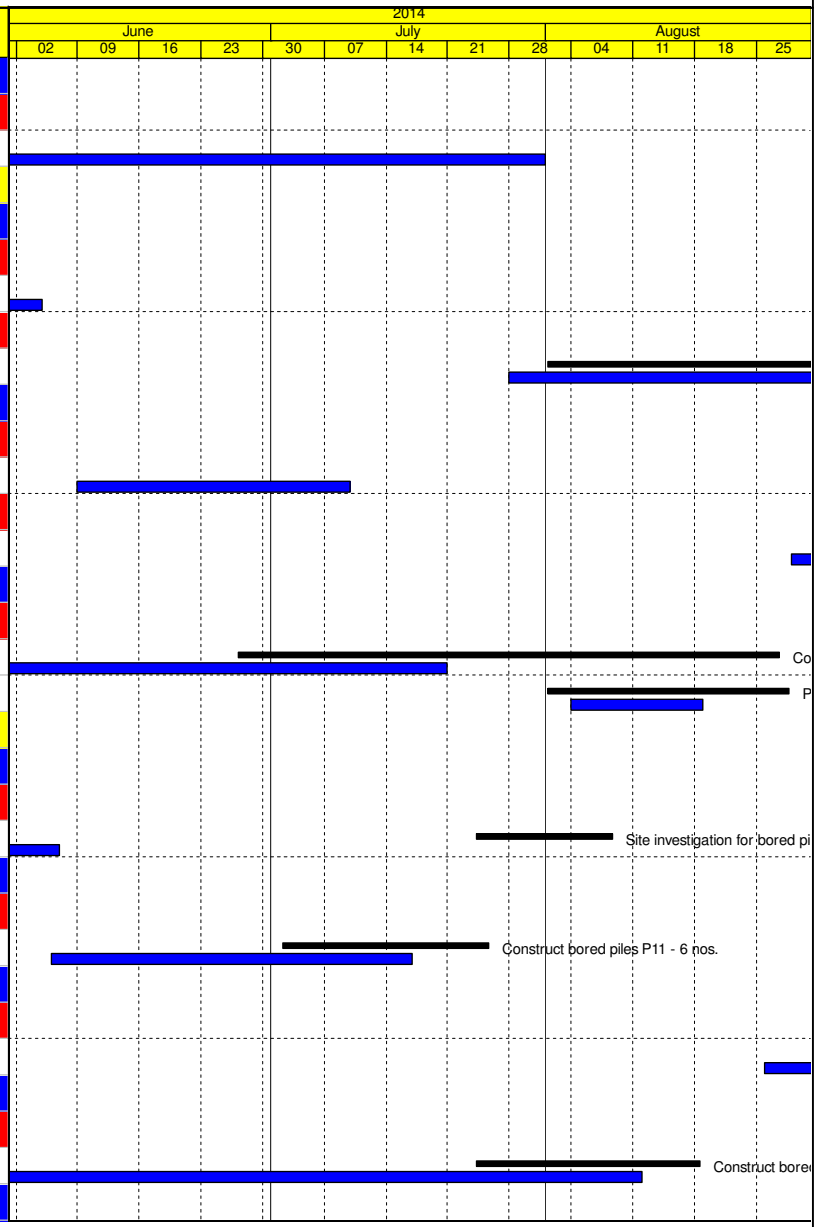
Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Pier P1L/R								
Site Investigation								
WW1090	Site investigation for bored pile P1	12	0	100%	05/02/14 A	01/08/14 A	04/11/14	17/11/14
ML01L/R 75mx8 - Stage 4 of Works								
Pier P2L/R								
Site Investigation								
WW1170	Site investigation for bored pile P2	12	0	100%	15/04/14 A	05/06/14 A	21/10/14	03/11/14
Foundation - Bored Pile								
WW1190	Construct bored piles P2 - 6 nos. (Friction Pile)	50	8	84%	28/07/14 A	10/10/14	01/08/14	14/10/14
Pier P3L/R								
Site Investigation								
WW1250	Site investigation for bored pile P3	12	0	100%	09/06/14 A	10/07/14 A	03/10/14	20/10/14
Foundation - Bored Pile								
WW1270	Construct bored piles P3- 6 nos. (Friction Pile)	50	33	35%	29/08/14 A	20/11/14	15/10/14	12/12/14
Pier P4L/R								
Foundation - Bored Pile								
WW1350	Construct bored piles P4 - 6 nos. (Friction Pile)	44	0	100%	06/05/14 A	21/07/14 A	27/06/14	27/08/14
WW1360	Pile testing P4	28	0	100%	04/08/14 A	19/08/14 A	01/08/14	28/08/14
ML02L/R 75mx8 - Stage 4 of Works								
Pier P8L/R (M.J.)								
Site Investigation								
WW1650	Site investigation for bored pile P8	12	0	100%	08/03/14 A	07/06/14 A	24/07/14	08/08/14
Pier P11L/R								
Foundation - Bored Pile								
WW1909	Construct bored piles P11 - 6 nos.	18	0	100%	06/06/14 A	17/07/14 A	02/07/14	25/07/14
Pier P12L/R								
Foundation - Bored Pile								
WW1989	Construct bored piles P12 - 6 nos.	38	19	50%	26/08/14 A	31/10/14	30/09/14	18/11/14
Pier P13L/R								
Foundation - Bored Pile								
WW2070	Construct bored piles P13 - 6 nos.	18	0	100%	02/05/14 A	12/08/14 A	24/07/14	18/08/14
Pier P14L/R								



DWP_01d Programme
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Date	Revision	Checked	Approved
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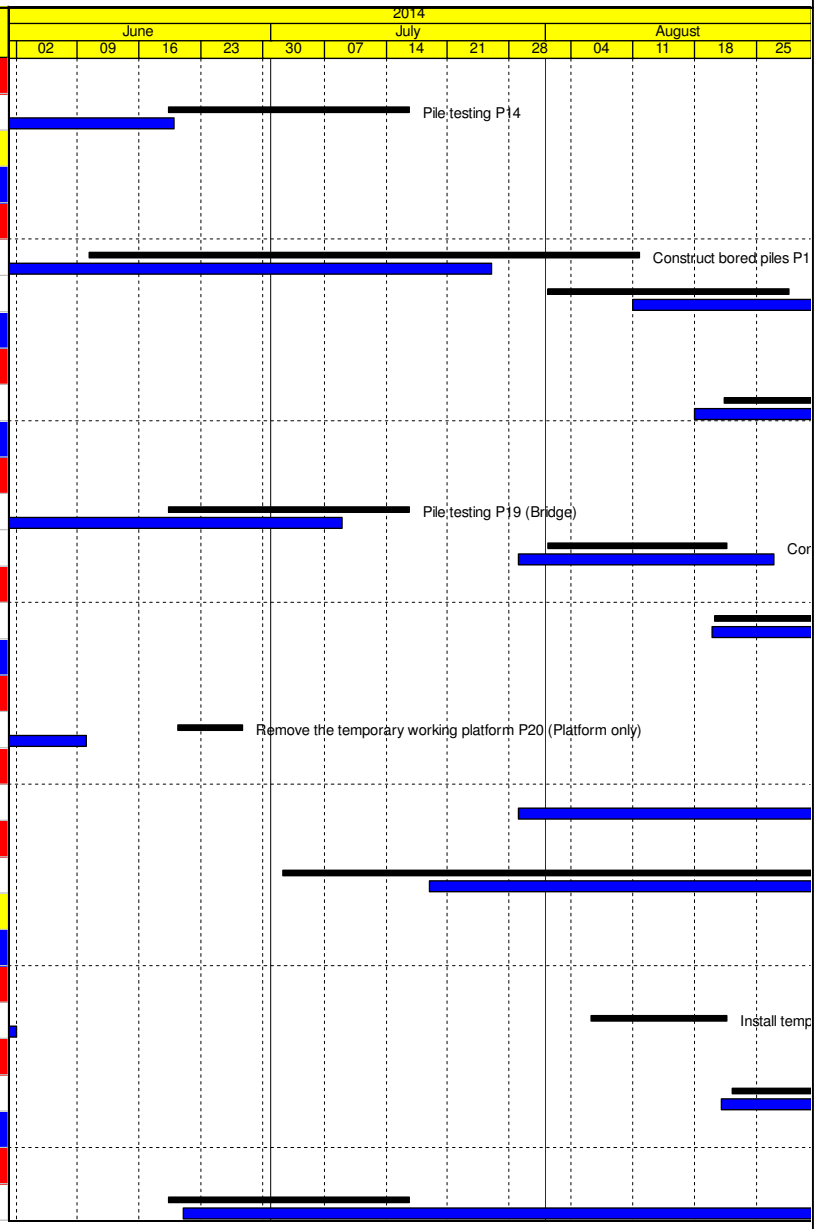
Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Foundation - Bored Pile								
WW2160	Pile testing P14	28	0	100%	22/05/14 A	20/06/14 A	19/06/14	16/07/14
ML03L/R 109.661m+150mx3+109.661m Navigation Channel - Stage 4 of Works								
Pier P16L/R (M.J.)								
Foundation - Bored Pile								
NC1040	Construct bored piles P16 - 6 nos. (Friction Pile)	44	0	100%	05/05/14 A	26/07/14 A	10/06/14	11/08/14
NC1060	Pile testing P16 (Bridge)	28	3	90%	11/08/14 A	30/09/14	01/08/14	28/08/14
Pier P17L/R								
Foundation - Bored Pile								
NC1170	Construct bored piles P17 - 3 nos. (Downstream Dolphin)	20	0	100%	18/08/14 A	18/09/14 A	21/08/14	18/09/14
Pier P19L/R								
Foundation - Bored Pile								
NC1405	Pile testing P19 (Bridge)	28	0	100%	17/03/14 A	09/07/14 A	19/06/14	16/07/14
NC1410	Construct bored piles P19 - 3 nos. (Downstream Dolphin)	15	0	100%	29/07/14 A	27/08/14 A	01/08/14	21/08/14
Pile Cap Construction								
NC1440	Construct pile cap P19 - 2 nos.	60	36	40%	20/08/14 A	14/11/14	20/08/14	11/11/14
Pier P20L/R								
Temporary Works								
NC1510	Remove the temporary working platform P20 (Platform only)	6	0	100%	01/06/14 A	10/06/14 A	20/06/14	27/06/14
Foundation - Bored Pile								
NC1530	Construct bored piles P20 - 3 nos. (Downstream Dolphin)	20	19	5%	29/07/14 A	25/10/14	17/09/14	16/10/14
Pile Cap Construction								
NC1560	Construct pile cap P20 - 2 nos. (Learning)	75	0	100%	19/07/14 A	26/09/14 A	02/07/14	17/10/14
ML04L/R 74.5mx8 - Stage 4 of Works								
Pier P21L/R (M.J.)								
Temporary Works								
WW8570	Install temporary working platform for bored pile P21 (Platform only)	12	0	100%	19/05/14 A	02/06/14 A	06/08/14	21/08/14
Foundation - Bored Pile								
WW5025	Construct bored piles P21 - 6 nos.	26	4	83%	21/08/14 A	07/10/14	22/08/14	29/09/14
Pier P22L/R								
Foundation - Bored Pile								
WW5040	Pile testing P22	28	7	75%	21/06/14 A	04/10/14	19/06/14	16/07/14



DWP_01d Programme
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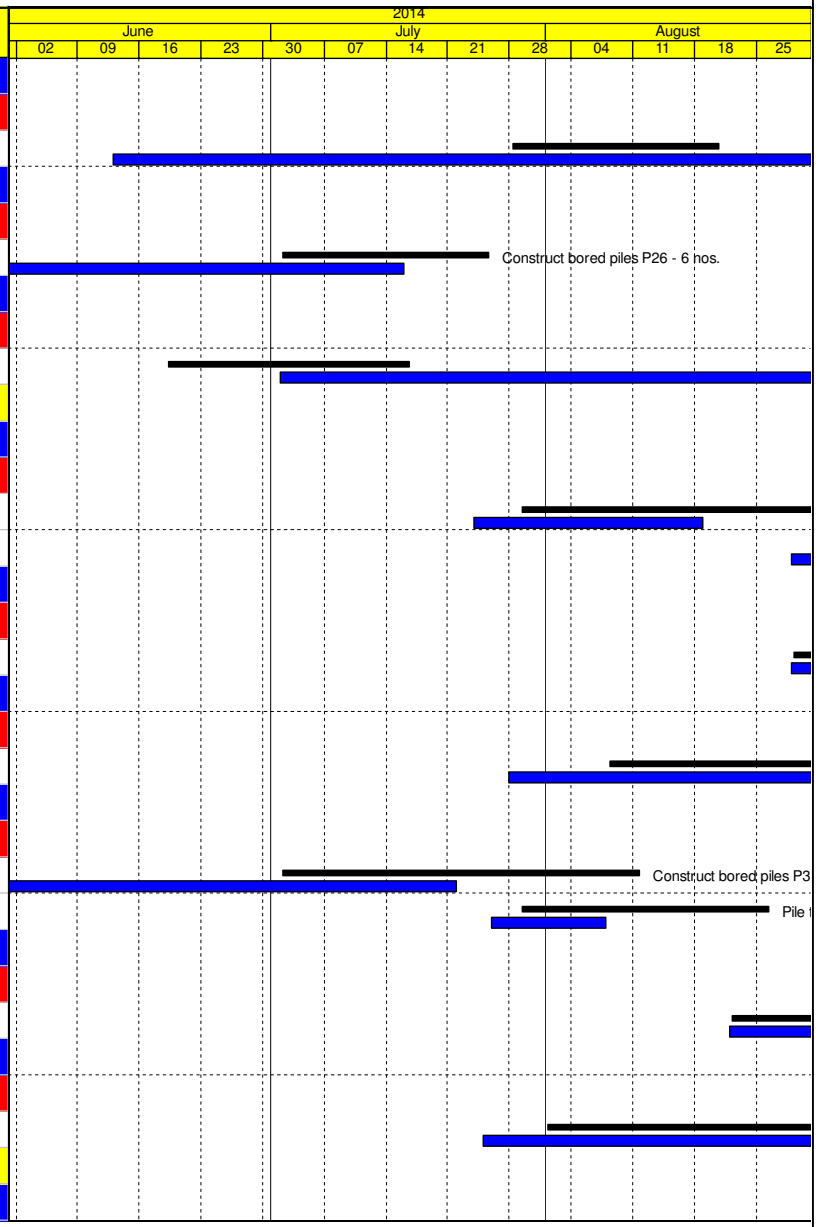
Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Pier P25L/R								
Foundation - Bored Pile								
WW5269	Construct bored piles P25- 6 nos.	18	0	100%	13/06/14 A	10/09/14 A	28/07/14	20/08/14
Pier P26L/R								
Foundation - Bored Pile								
WW5349	Construct bored piles P26 - 6 nos.	18	0	100%	24/05/14 A	16/07/14 A	02/07/14	25/07/14
Pier P27L/R								
Foundation - Bored Pile								
WW5440	Pile testing P27	28	0	100%	02/07/14 A	18/09/14 A	19/06/14	16/07/14
ML05L/R 74.5mx8 - Stage 4 of Works								
Pier P30L/R								
Foundation - Bored Pile								
WW5670	Construct bored piles P30 - 6 nos.	27	0	100%	24/07/14 A	19/08/14 A	29/07/14	04/09/14
WW5680	Pile testing P30	28	0	100%	29/08/14 A	12/09/14 A	04/09/14	02/10/14
Pier P31L/R								
Foundation - Bored Pile								
WW5750	Construct bored piles P31 - 6 nos.	24	8	65%	29/08/14 A	13/10/14	29/08/14	06/10/14
Pier P32L/R								
Foundation - Bored Pile								
WW5830	Construct bored piles P32 - 6 nos.	28	0	100%	28/07/14 A	01/09/14 A	08/08/14	17/09/14
Pier P33L/R								
Foundation - Bored Pile								
WW5910	Construct bored piles P33 - 6 nos.	29	0	100%	23/04/14 A	22/07/14 A	02/07/14	11/08/14
WW5920	Pile testing P33	28	0	100%	26/07/14 A	08/08/14 A	29/07/14	26/08/14
Pier P35L/R								
Pile Cap Construction								
WW6090	Construct pile cap P35 - 2 nos.	30	21	30%	22/08/14 A	28/10/14	22/08/14	07/10/14
Pier P36L/R								
Pile Cap Construction								
WW6170	Construct pile cap P36 - 2 nos.	30	0	100%	25/07/14 A	22/09/14 A	01/08/14	12/09/14
ML06L/R 74.5mx8 - Stage 4 of Works								
Pier P37L/R (M.J.)								



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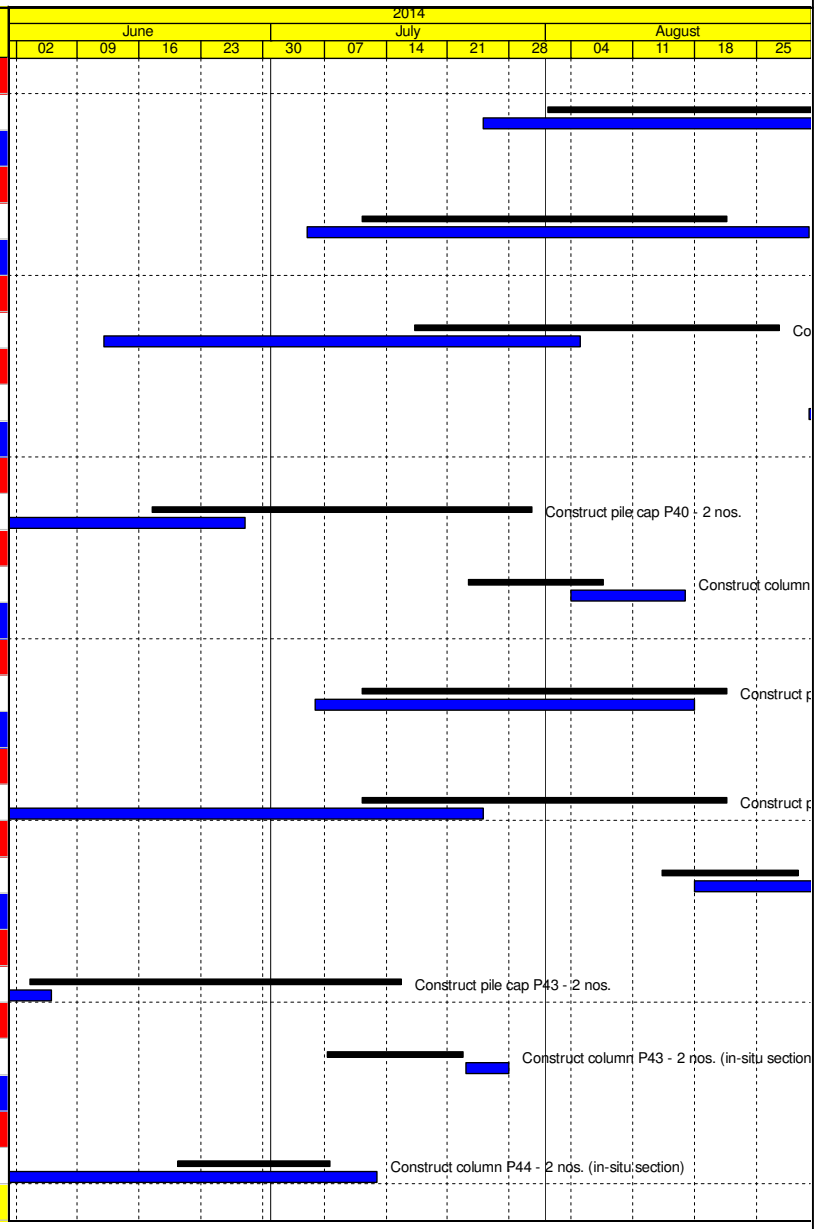
Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Pile Cap Construction								
WW6250	Construct pile cap P37 - 2 nos.	30	0	100%	25/07/14 A	10/09/14 A	01/08/14	12/09/14
Pier 38L/R								
Pile Cap Construction								
WW6330	Construct pile cap P38 - 2 nos.	30	0	100%	05/07/14 A	31/08/14 A	11/07/14	21/08/14
Pier 39L/R								
Pile Cap Construction								
WW6410	Construct pile cap P39 - 2 nos.	30	0	100%	12/06/14 A	05/08/14 A	17/07/14	27/08/14
Column Construction								
WW6420	Construct column P39 - 2 nos. (in-situ section)	12	6	50%	31/08/14 A	08/10/14	18/09/14	07/10/14
Pier 40L/R								
Pile Cap Construction								
WW6490	Construct pile cap P40 - 2 nos.	30	0	100%	25/04/14 A	28/06/14 A	17/06/14	30/07/14
Column Construction								
WW6500	Construct column P40 - 2 nos. (in-situ section)	12	0	100%	04/08/14 A	17/08/14 A	23/07/14	07/08/14
Pier 41L/R								
Pile Cap Construction								
WW6570	Construct pile cap P41 - 2 nos.	30	0	100%	06/07/14 A	18/08/14 A	11/07/14	21/08/14
Pier 42L/R								
Pile Cap Construction								
WW6650	Construct pile cap P42 - 2 nos.	30	0	100%	24/05/14 A	25/07/14 A	11/07/14	21/08/14
Column Construction								
WW6660	Construct column P42 - 2 nos. (in-situ section)	12	0	100%	18/08/14 A	01/09/14 A	14/08/14	29/08/14
Pier 43L/R								
Pile Cap Construction								
WW6730	Construct pile cap P43 - 2 nos.	30	0	100%	17/03/14 A	06/06/14 A	03/06/14	15/07/14
Column Construction								
WW6740	Construct column P43 - 2 nos. (in-situ section)	12	0	100%	23/07/14 A	28/07/14 A	07/07/14	22/07/14
Pier 44L/R								
Column Construction								
WW6820	Construct column P44 - 2 nos. (in-situ section)	12	0	100%	23/05/14 A	13/07/14 A	20/06/14	07/07/14
ML07L/R 73.396mx8 - Stage 4 of Works								



DWP_01d Programme
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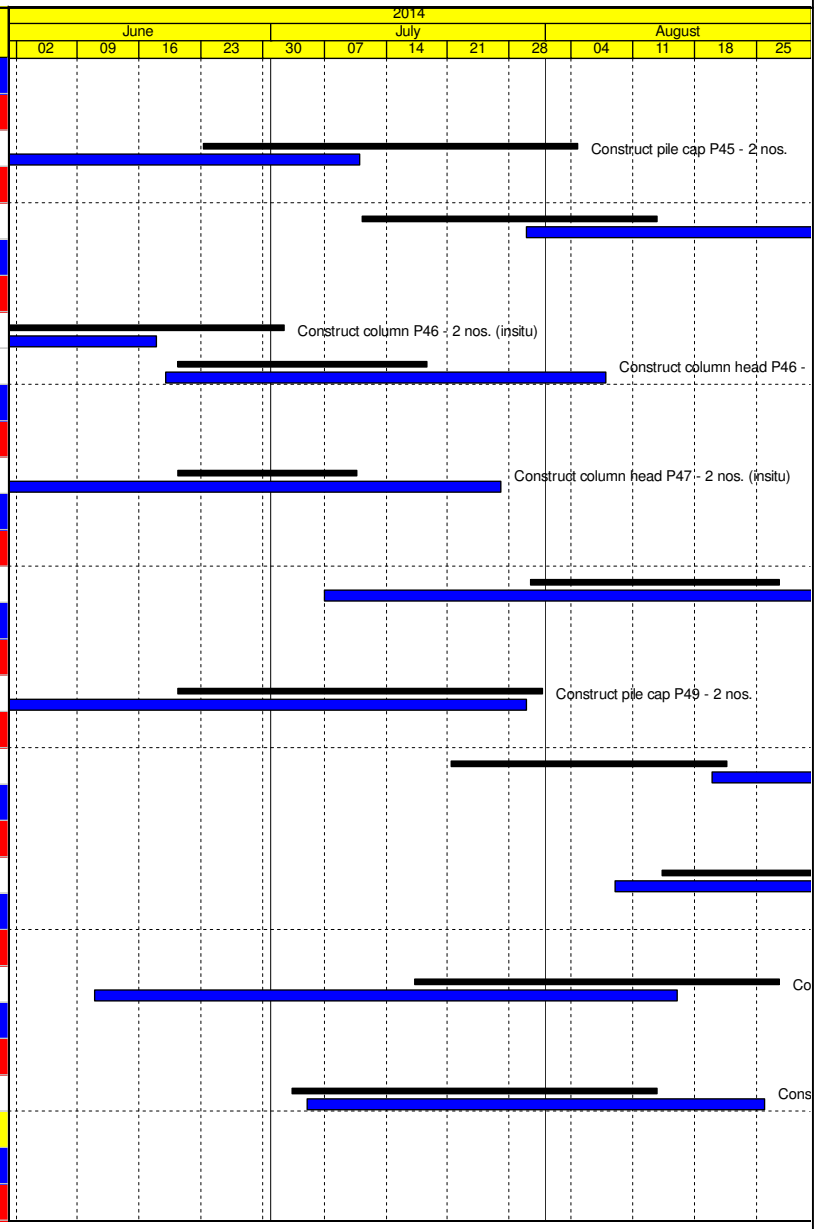
Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Pier P45L/R (M.J.)								
Pile Cap Construction								
WW6890	Construct pile cap P45 - 2 nos.	30	0	100%	25/04/14 A	11/07/14 A	23/06/14	04/08/14
Column Construction								
WW10005	Construct column P45 - 2 nos. (insitu)	24	0	100%	30/07/14 A	07/09/14 A	11/07/14	13/08/14
Pier P46L/R								
Column Construction								
WW10007	Construct column P46 - 2 nos. (insitu)	24	0	100%	21/04/14 A	18/06/14 A	29/05/14	02/07/14
WW10017	Construct column head P46 - 2 nos. (insitu)	21	0	100%	19/06/14 A	08/08/14 A	20/06/14	18/07/14
Pier P47L/R								
Column Construction								
WW10037	Construct column head P47 - 2 nos. (insitu)	15	0	100%	25/05/14 A	27/07/14 A	20/06/14	10/07/14
Pier P48L/R								
Column Construction								
WW10057	Construct column head P48 - 2 nos. (insitu)	21	11	50%	07/07/14 A	22/10/14	30/07/14	27/08/14
Pier P49L/R								
Pile Cap Construction								
WW7210	Construct pile cap P49 - 2 nos.	30	0	100%	23/05/14 A	30/07/14 A	20/06/14	31/07/14
Column Construction								
WW10067	Construct column P49 - 2 nos. (insitu)	24	6	75%	20/08/14 A	08/10/14	21/07/14	21/08/14
Pier P50L/R								
Pile Cap Construction								
WW7290	Construct pile cap P50 - 2 nos.	30	0	100%	09/08/14 A	29/09/14 A	14/08/14	25/09/14
Pier P51L/R								
Pile Cap Construction								
WW7360	Construct pile cap P51 - 2 nos.	30	0	100%	11/06/14 A	16/08/14 A	17/07/14	27/08/14
Pier P52L/R								
Pile Cap Construction								
WW7430	Construct pile cap P52 - 2 nos.	30	0	100%	05/07/14 A	26/08/14 A	03/07/14	13/08/14
ML08L/R 70mx6 - Stage 4 of Works								
Pier P54L/R								
Foundation - Bored Pile								



DWP_01d Programme
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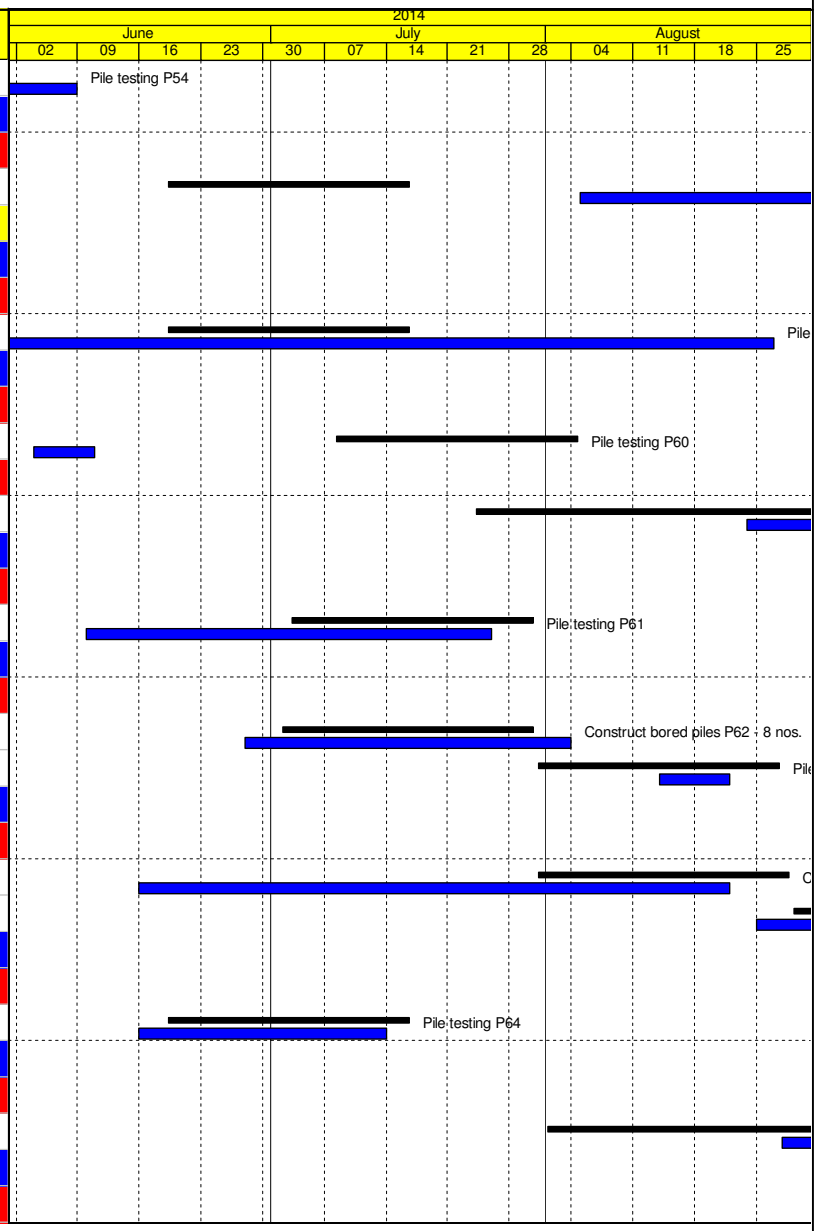
Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
WW7570	Pile testing P54	28	0	100%	29/10/13 A	09/06/14 A	30/11/13	27/12/13
Pier P58L/R								
Foundation - Bored Pile								
WW7890	Pile testing P58	28	0	100%	05/08/14 A	05/09/14 A	19/06/14	16/07/14
ML09L/R 73.396Mx8 - Stage 4 of Works								
Pier P59L/R (M.J.)								
Foundation - Bored Pile								
WW7970	Pile testing P59	28	0	100%	13/03/14 A	27/08/14 A	19/06/14	16/07/14
Pier P60L/R								
Foundation - Bored Pile								
WW8040	Pile testing P60	28	0	100%	04/06/14 A	11/06/14 A	08/07/14	04/08/14
Pile Cap Construction								
WW8050	Construct pile cap P60 - 2 nos.	30	9	70%	24/08/14 A	13/10/14	24/07/14	03/09/14
Pier P61L/R								
Foundation - Bored Pile								
WW8120	Pile testing P61	28	0	100%	10/06/14 A	26/07/14 A	03/07/14	30/07/14
Pier P62L/R								
Foundation - Bored Pile								
WW8180	Construct bored piles P62 - 8 nos.	21	0	100%	28/06/14 A	04/08/14 A	02/07/14	30/07/14
WW8190	Pile testing P62	28	0	100%	14/08/14 A	22/08/14 A	31/07/14	27/08/14
Pier P63L/R								
Foundation - Bored Pile								
WW8280	Construct bored piles P63 - 6 nos.	21	0	100%	16/06/14 A	22/08/14 A	31/07/14	28/08/14
WW8290	Pile testing P63	28	0	100%	25/08/14 A	12/09/14 A	29/08/14	25/09/14
Pier P64L/R								
Foundation - Bored Pile								
WW8370	Pile testing P64	28	0	100%	16/06/14 A	14/07/14 A	19/06/14	16/07/14
Pier P65L/R								
Pile Cap Construction								
WW8460	Construct pile cap P65 - 2 nos.	30	9	70%	28/08/14 A	13/10/14	01/08/14	12/09/14
Pier P66L/R								
Pile Cap Construction								



DWP_01d Programme
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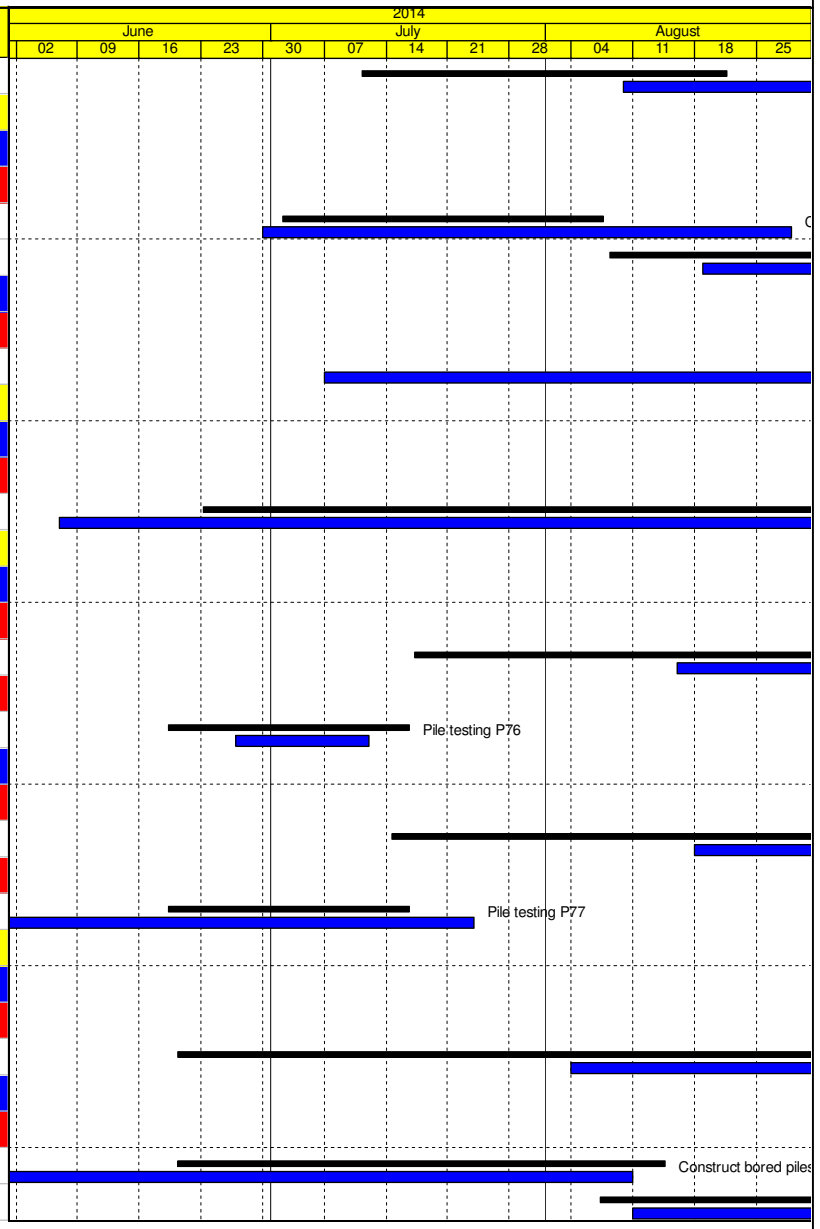
Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
WW8540	Construct pile cap P66 - 2 nos.	30	9	70%	10/08/14 A	13/10/14	11/07/14	21/08/14
ML10L/R 115m+180m+115m - Stage 4 of Works								
Pier P67L/R (M.J.)								
Foundation - Bored Pile								
AC1020	Construct bored piles P67 - 6 nos.	27	0	100%	30/06/14 A	29/08/14 A	02/07/14	07/08/14
AC1030	Pile testing P67	28	8	70%	19/08/14 A	06/10/14	08/08/14	04/09/14
Pier P68L/R								
Temporary Works								
AC1012	Remove rockfill platform for pier P68	44	0	100%	07/07/14 A	25/09/14 A		
ML11L/R 109m+165mx2+109m - Stage 4 of Works								
Pier P70L/R (M.J.)								
Temporary Works								
AC1170	Install cofferdem for pile cap construction - P70 - 2 nos.	90	29	68%	07/06/14 A	06/11/14	23/06/14	29/10/14
ML12L/R 109m+165mx2+109m - Stage 4 of Works								
Pier P76L/R								
Temporary Works								
AC1680	Install cofferdem for pile cap construction - P76 - 2 nos.	110	80	27.27%	16/08/14 A	08/01/15	17/07/14	11/12/14
Foundation - Bored Pile								
AC1730	Pile testing P76	28	0	100%	27/06/14 A	12/07/14 A	19/06/14	16/07/14
Pier P77L/R								
Temporary Works								
AC1770	Install cofferdem for pile cap construction - P77 - 2 nos.	80	48	40%	18/08/14 A	28/11/14	14/07/14	04/11/14
Foundation - Bored Pile								
AC1810	Pile testing P77	28	0	100%	16/05/14 A	24/07/14 A	19/06/14	16/07/14
ML13L/R 115m+180m+115m - Stage 4 of Works								
Pier P78L/R (M.J.)								
Temporary Works								
AC1850	Install cofferdem for pile cap construction - P78 - 2 nos.	100	50	49.63%	04/08/14 A	03/12/14	20/06/14	07/11/14
Pier P79L/R								
Foundation - Bored Pile								
AC1970	Construct bored piles P79 - 12 nos.	40	0	100%	29/05/14 A	11/08/14 A	20/06/14	14/08/14
AC1980	Pile testing P79	28	7	75%	11/08/14 A	04/10/14	07/08/14	03/09/14



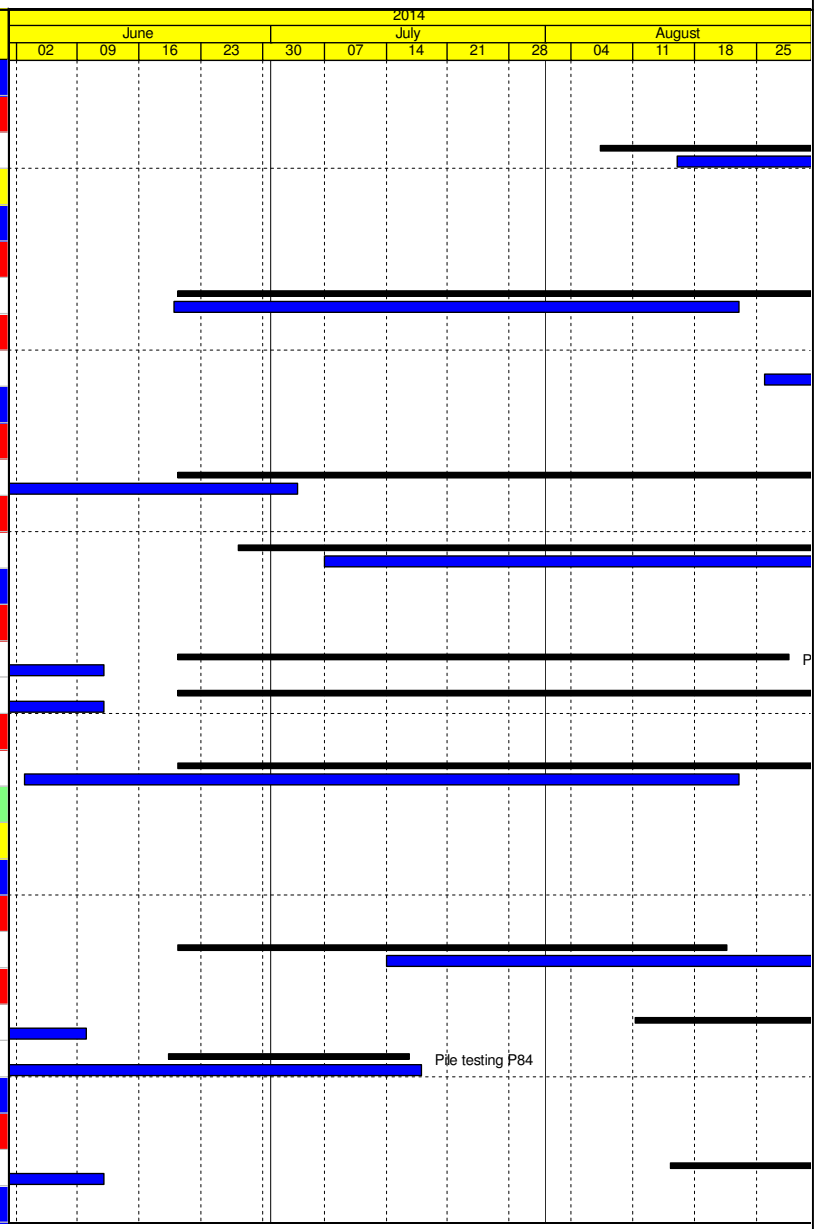
DWP_01d Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone

3MRP DWP_01d 1409

Date	Revision	Checked	Approved
06/10/14	1409 rolling based on DWP01d R1	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Pier P80L/R								
Foundation - Bored Pile								
AC2050	Construct bored piles P80 - 12 nos.	40	20	50%	16/08/14 A	27/10/14	07/08/14	06/10/14
ML14L/R 115m+180m+100.561m - Stage 4 of Works								
Pier P81L/R (M.J.)								
Temporary Works								
AC2098	Prepare piling platform for P81	80	0	100%	20/06/14 A	23/08/14 A	20/06/14	14/10/14
Foundation - Bored Pile								
AC2140	Construct bored piles P81 - 6 nos.	90	59	35%	26/08/14 A	11/12/14	15/10/14	31/01/15
Pier P82L/R								
Temporary Works								
AC2195	Construct temporary piling platform for bored pile P82 (Marine side)	80	0	100%	07/05/14 A	04/07/14 A	20/06/14	14/10/14
Foundation - Bored Pile								
AC2240	Construct bored piles P82 - 6 nos. (Marine)	75	0	100%	07/07/14 A	18/09/14 A	27/06/14	14/10/14
Pier P83L/R								
Temporary Works								
AC2290	Prepare platform for P83 land side piles	50	0	100%	30/04/14 A	12/06/14 A	20/06/14	28/08/14
AC2295	Construct temporary piling platform for bored pile P83 (Marine side)	80	0	100%	12/05/14 A	12/06/14 A	20/06/14	14/10/14
Foundation - Bored Pile								
AC2340	Construct bored piles P83 - 6 nos. (Marine)	75	0	100%	03/06/14 A	23/08/14 A	20/06/14	07/10/14
Viaduct between Landing Point on Airport Island and Scenic Hill								
ML15L/R 43m+65mx6+37m - Stage 5 of Works								
Pier P84L/R (M.J.)								
Temporary Works								
AI1000	Install cofferdem for pile cap construction - P84	45	29	35%	14/07/14 A	07/11/14	20/06/14	21/08/14
Foundation - Bored Pile								
AI1030	Construct bored piles P84 - 6 nos.	60	0	100%	17/03/14 A	10/06/14 A	11/08/14	03/11/14
AI1040	Pile testing P84	28	0	100%	21/03/14 A	18/07/14 A	19/06/14	16/07/14
Pier P86L/R								
Foundation - Bored Pile								
AI1190	Pile testing P86	28	0	100%	14/04/14 A	12/06/14 A	15/08/14	11/09/14
Pier P87L/R								



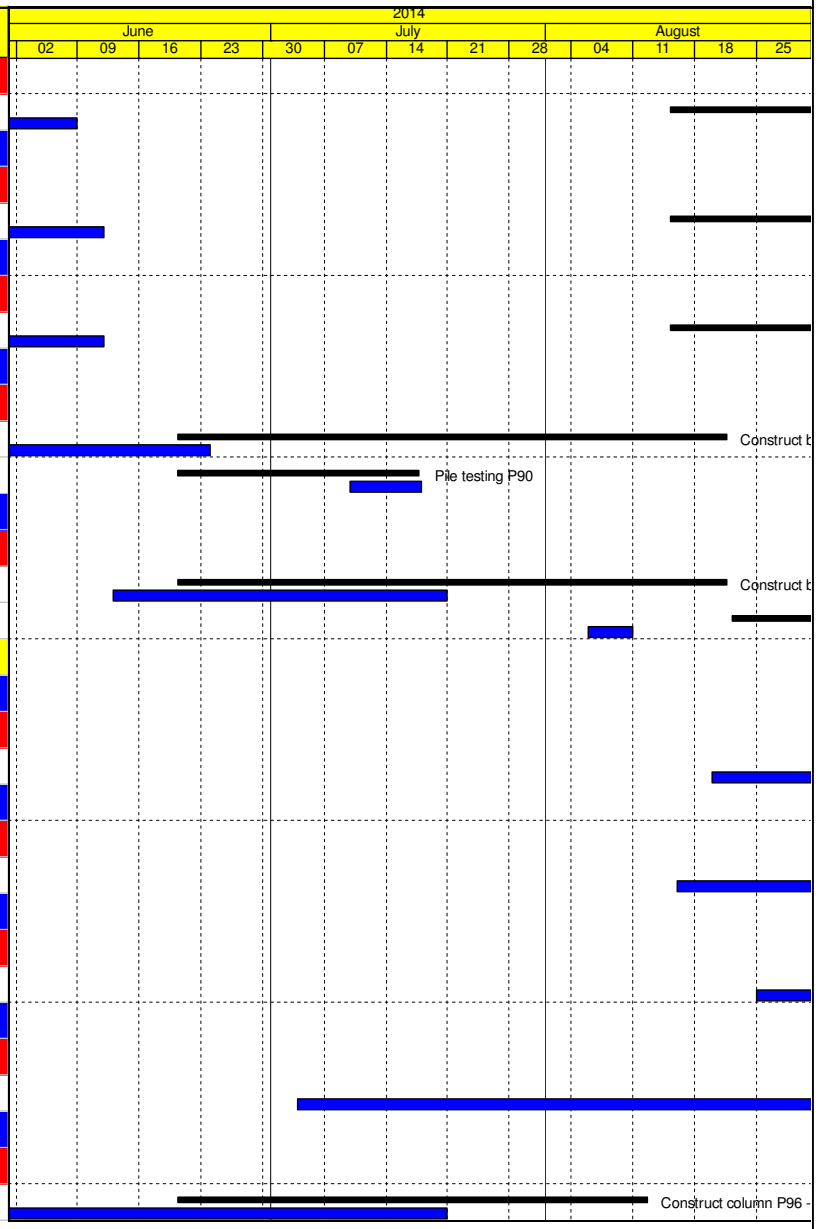
DWP_01d Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone

3MRP DWP_01d 1409

Date	Revision	Checked	Approved
06/10/14	1409 rolling based on DWP01d R1	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Foundation - Bored Pile								
AI1260	Pile testing P87	28	0	100%	09/04/14 A	09/06/14 A	15/08/14	11/09/14
Pier P88L/R								
Foundation - Bored Pile								
AI1330	Pile testing P88	28	0	100%	24/04/14 A	12/06/14 A	15/08/14	11/09/14
Pier P89L/R								
Foundation - Bored Pile								
AI1400	Pile testing P89	28	0	100%	15/04/14 A	12/06/14 A	15/08/14	11/09/14
Pier P90L/R								
Foundation - Bored Pile								
AI1460	Construct bored piles P90 - 2 nos.	45	0	100%	23/05/14 A	24/06/14 A	20/06/14	21/08/14
AI1470	Pile testing P90	28	0	100%	10/07/14 A	18/07/14 A	20/06/14	17/07/14
Pier P91L/R								
Foundation - Bored Pile								
AI1530	Construct bored piles P91 - 2 nos.	45	0	100%	13/06/14 A	21/07/14 A	20/06/14	21/08/14
AI1540	Pile testing P91	28	0	100%	06/08/14 A	11/08/14 A	22/08/14	18/09/14
MI16L/R 37m+65mx5+43m - Stage 5 of Works								
Pier P92L/R (M.J.)								
Column Construction								
AI1630	Construct column P92 - 2 nos.	60	45	25%	20/08/14 A	02/01/15	13/11/14	24/01/15
Pier P93L/R								
Column Construction								
AI1700	Construct column P93 - 2 nos.	60	15	75%	16/08/14 A	21/10/14	01/11/14	14/01/15
Pier P94L/R								
Column Construction								
AI1770	Construct column P94 - 2 nos.	38	23	40%	25/08/14 A	07/11/14	23/09/14	12/11/14
Pier P95L/R								
Column Construction								
AI1840	Construct column P95 - 2 nos.	38	0	100%	04/07/14 A	22/09/14 A	09/09/14	01/11/14
Pier P96L/R								
Column Construction								
AI1910	Construct column P96 - 2 nos.	38	0	100%	07/12/13 A	21/07/14 A	20/06/14	12/08/14



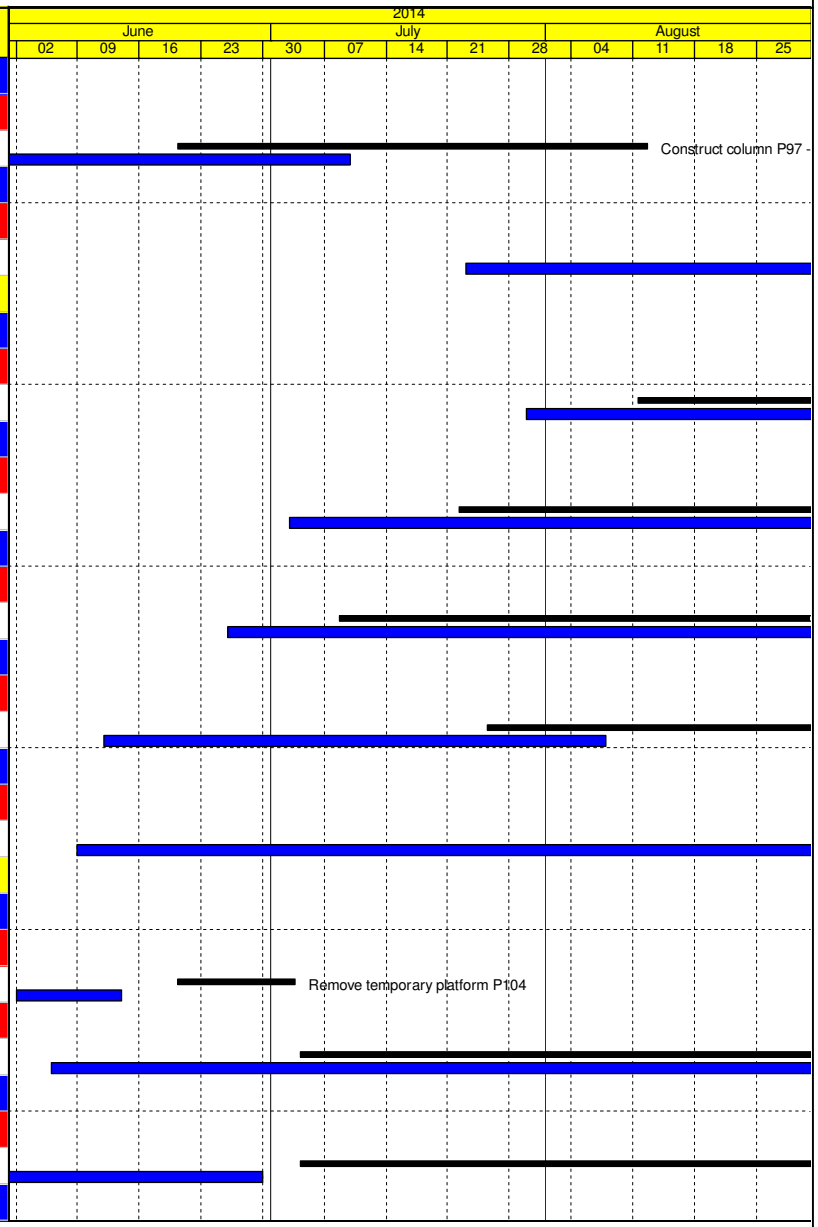
DWP_01d Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone

3MRP DWP_01d 1409

Date	Revision	Checked	Approved
06/10/14	1409 rolling based on DWP01d R1	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Pier P97L/R								
Column Construction								
AI1980	Construct column P97 - 2 nos.	38	0	100%	28/04/14 A	10/07/14 A	20/06/14	12/08/14
Pier P98L/R								
Column Construction								
AI2050	Construct column P98 - 2 nos.	44	22	50%	23/07/14 A	29/10/14	26/09/14	24/11/14
ML17L/R 43m+65mx3+47m - Stage 5 of Works								
Pier P99L/R (M.J.)								
Column Construction								
AI2120	Construct column P99 - 2 nos.	66	0	100%	30/07/14 A	26/09/14 A	11/08/14	11/11/14
Pier P100L/R								
Column Construction								
AI2190	Construct column P100 - 2 nos.	44	7	85%	03/07/14 A	09/10/14	22/07/14	22/09/14
Pier P101L/R								
Column Construction								
AI2260	Construct column P101 - 2 nos.	44	0	100%	26/06/14 A	03/09/14 A	08/07/14	09/09/14
Pier P102L/R								
Column Construction								
AI2330	Construct column P102 - 2 nos.	44	0	100%	12/06/14 A	08/08/14 A	25/07/14	26/09/14
Pier P103L/R								
In-situ Portal/T-pier Construction								
AI2410	In-situ portal P103 - 1 nos.	60	36	40%	09/06/14 A	26/11/14	29/09/14	12/12/14
ML18L/R 47m+55mx5+35m - Stage 5 of Works								
Pier P104L/R (M.J.)								
Temporary Works								
AI3490	Remove temporary platform P104	10	0	100%	02/06/14 A	14/06/14 A	20/06/14	03/07/14
In-situ Portal/T-pier Construction								
AI2480	In-situ portal P104 - 1 nos.	60	9	85%	06/06/14 A	25/10/14	04/07/14	26/09/14
Pier P105L/R								
In-situ Portal/T-pier Construction								
AI2550	In-situ portal P105 - 1 nos.	60	0	100%	28/03/14 A	30/06/14 A	04/07/14	26/09/14
Pier P106L/R								

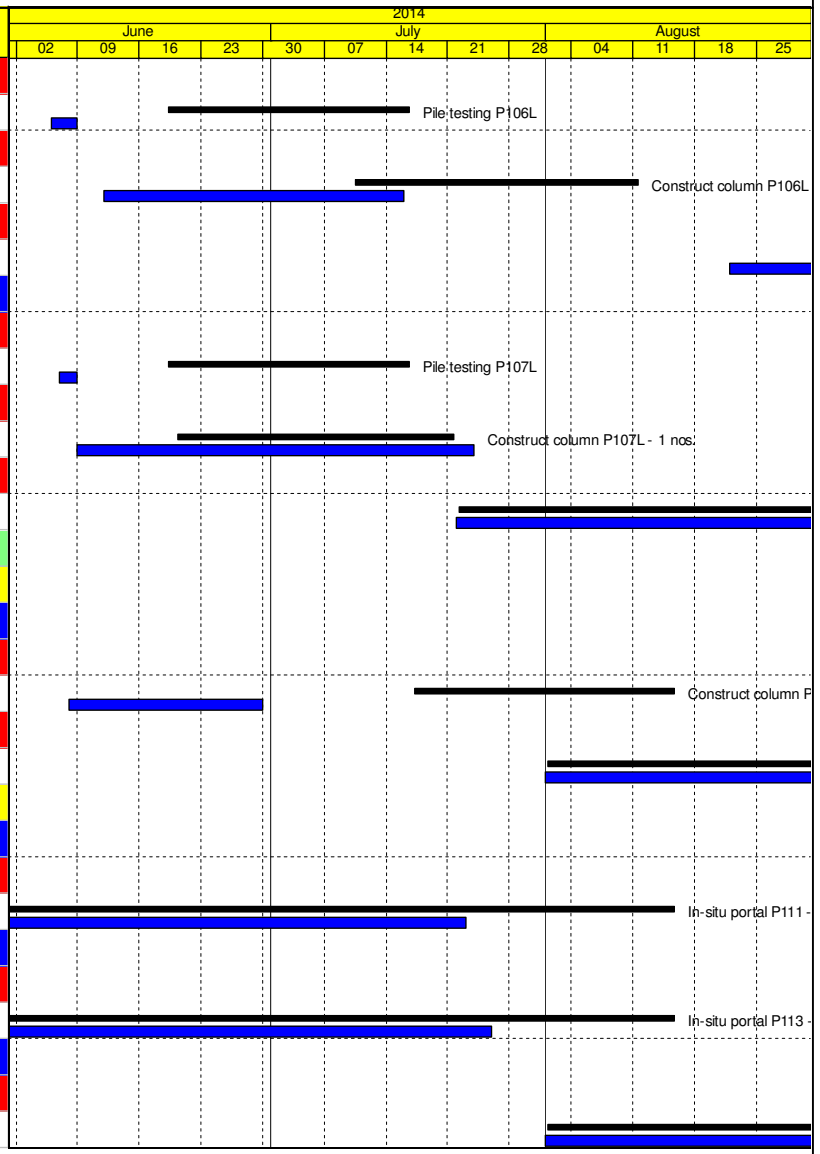


DWP_01d Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Date	Revision	Checked	Approved
06/10/14	1409 rolling based on DWP01d R1	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Activity % Complete	Start	Finish	DWP01d OP1 Start	DWP01d OP1 Finish
Foundation - Bored Pile								
AI3180	Pile testing P106L	28	0	100%	06/06/14 A	09/06/14 A	19/06/14	16/07/14
Column Construction								
AI3210	Construct column P106L - 1 nos.	22	0	100%	12/06/14 A	16/07/14 A	10/07/14	11/08/14
In-situ Portal/T-pier Construction								
AI2630	In-situ portal P106 - 1 nos.	70	67	5%	22/08/14 A	26/02/15	28/10/14	20/01/15
Pier P107L/R								
Foundation - Bored Pile								
AI3240	Pile testing P107L	28	0	100%	07/06/14 A	09/06/14 A	19/06/14	16/07/14
Column Construction								
AI3260	Construct column P107L - 1 nos.	22	0	100%	09/06/14 A	24/07/14 A	20/06/14	21/07/14
In-situ Portal/T-pier Construction								
AI2690	In-situ portal P107 - 1 nos.	70	43	38.57%	22/07/14 A	22/11/14	22/07/14	29/10/14
Land Viaduct P108 to P114								
ML18L/R 47m+55mx5+35m - Stage 5 of Works								
Pier P108L/R								
Column Construction								
AI3150	Construct column P108R - 1 nos.	22	0	100%	08/06/14 A	30/06/14 A	17/07/14	15/08/14
In-situ Portal/T-pier Construction								
AI2760	In-situ portal P108 - 1 nos.	70	51	27.14%	01/08/14 A	02/12/14	01/08/14	07/11/14
ML19L/C/R 40m+65mx2 Stage 5 of Works								
Pier P111L/C/R								
In-situ Portal/T-pier Construction								
AI2930	In-situ portal P111 - 1 nos.	60	0	100%	01/04/14 A	23/07/14 A	26/05/14	15/08/14
Pier P113 L/C/R								
In-situ Portal/T-pier Construction								
AI3040	In-situ portal P113 - 1 nos.	60	0	100%	01/04/14 A	26/07/14 A	26/05/14	15/08/14
Pier P114 L/C/R								
In-situ Portal/T-pier Construction								
AI3090	In-situ portal P114 - 1 nos.	60	42	30%	01/08/14 A	03/12/14	01/08/14	27/10/14



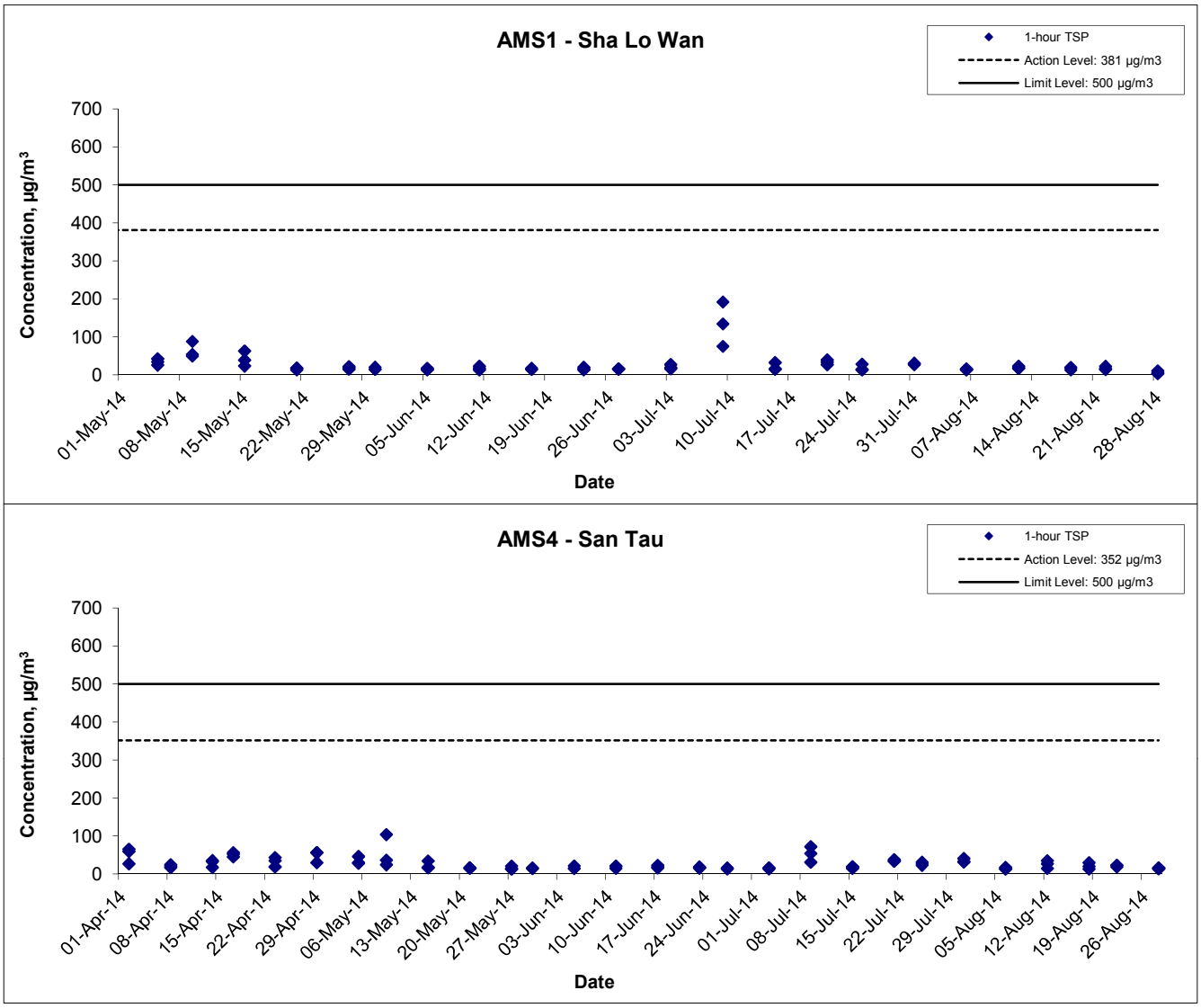
DWP_01d Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone

3MRP DWP_01d 1409

Date	Revision	Checked	Approved
06/10/14	1409 rolling based on DWP01d R1	Tim	

APPENDIX B
GRAPHICAL PRESENTATION OF 1-HOUR TSP MONITORING RESULTS

1-hour TSP Concentration Levels

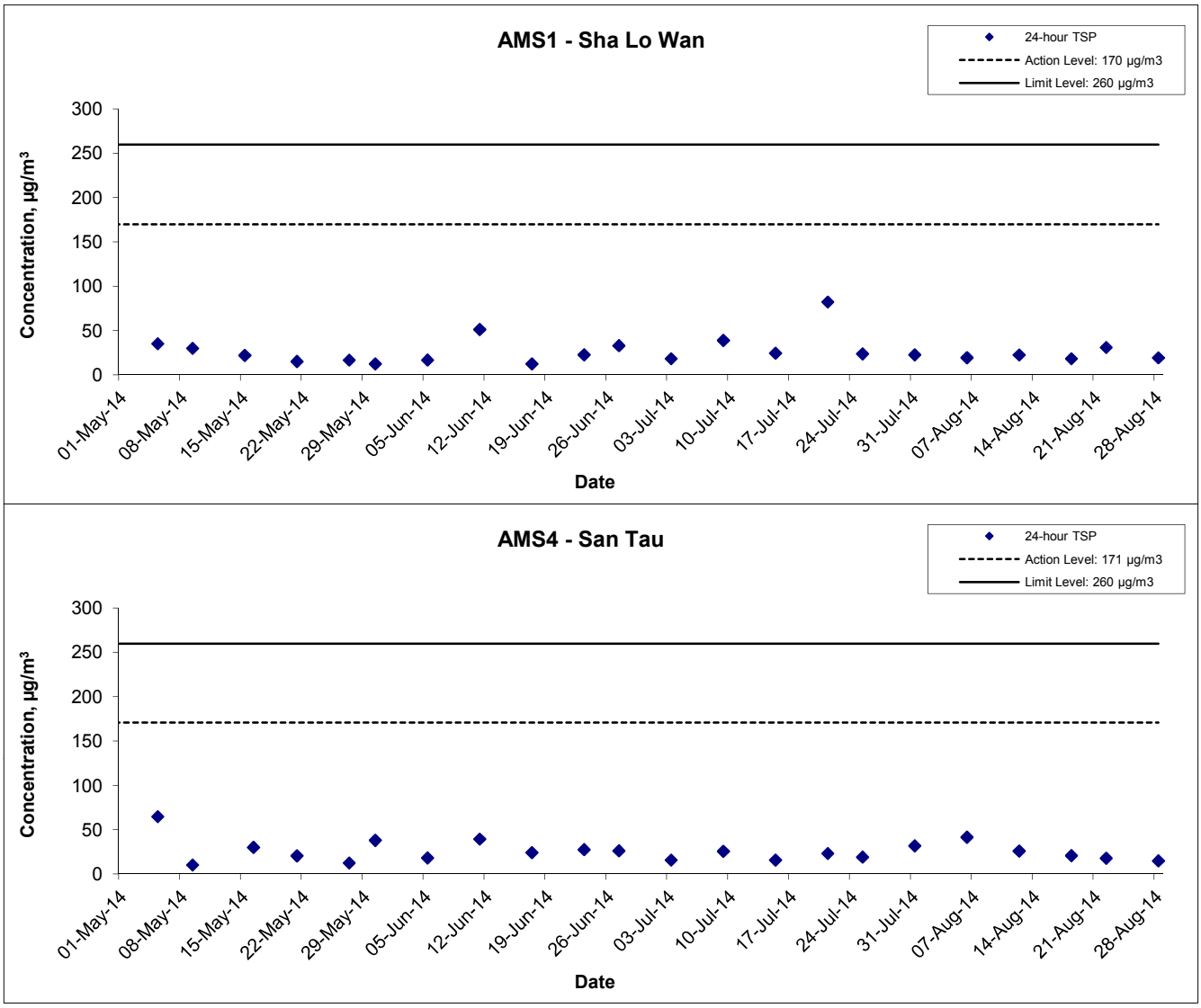


Title: Graphical Presentation of 1-hour TSP Monitoring Results	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill	Scale: N.T.S Date: Aug 14	Project No.: MA12014 Appendix: B

CINOTECH

APPENDIX C
GRAPHICAL PRESENTATION OF 24-HOUR TSP MONITORING RESULTS

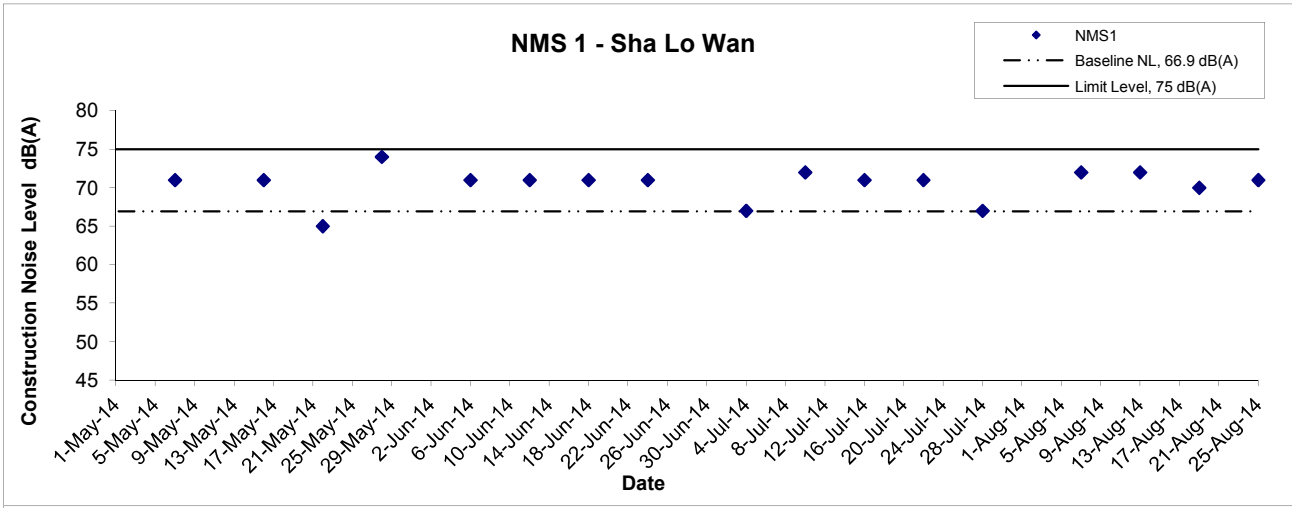
24-hour TSP Concentration Levels

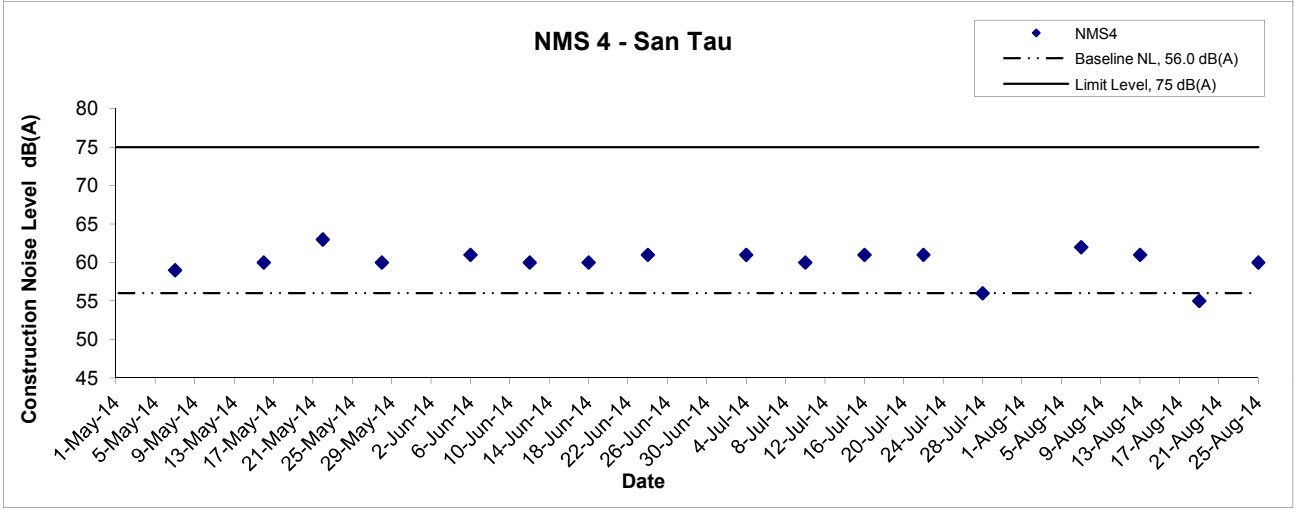


Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S Date Aug 14	Project No. MA12014 Appendix C	CINOTECH

APPENDIX D
GRAPHICAL PRESENTATION OF NOISE MONITORING RESULTS

Noise Levels

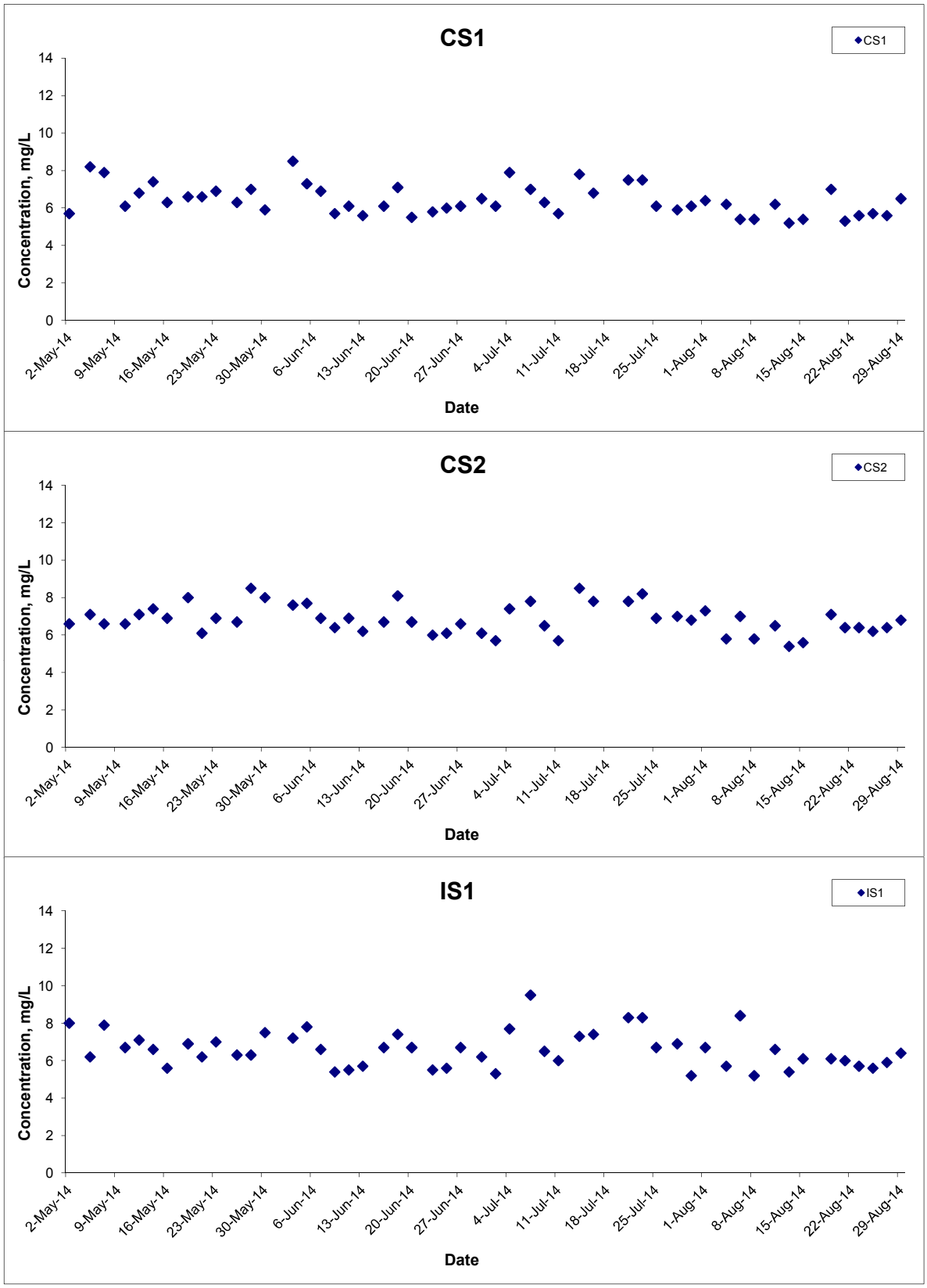




Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Aug 14	Project No.: MA12014 Appendix: D	CINOTECH

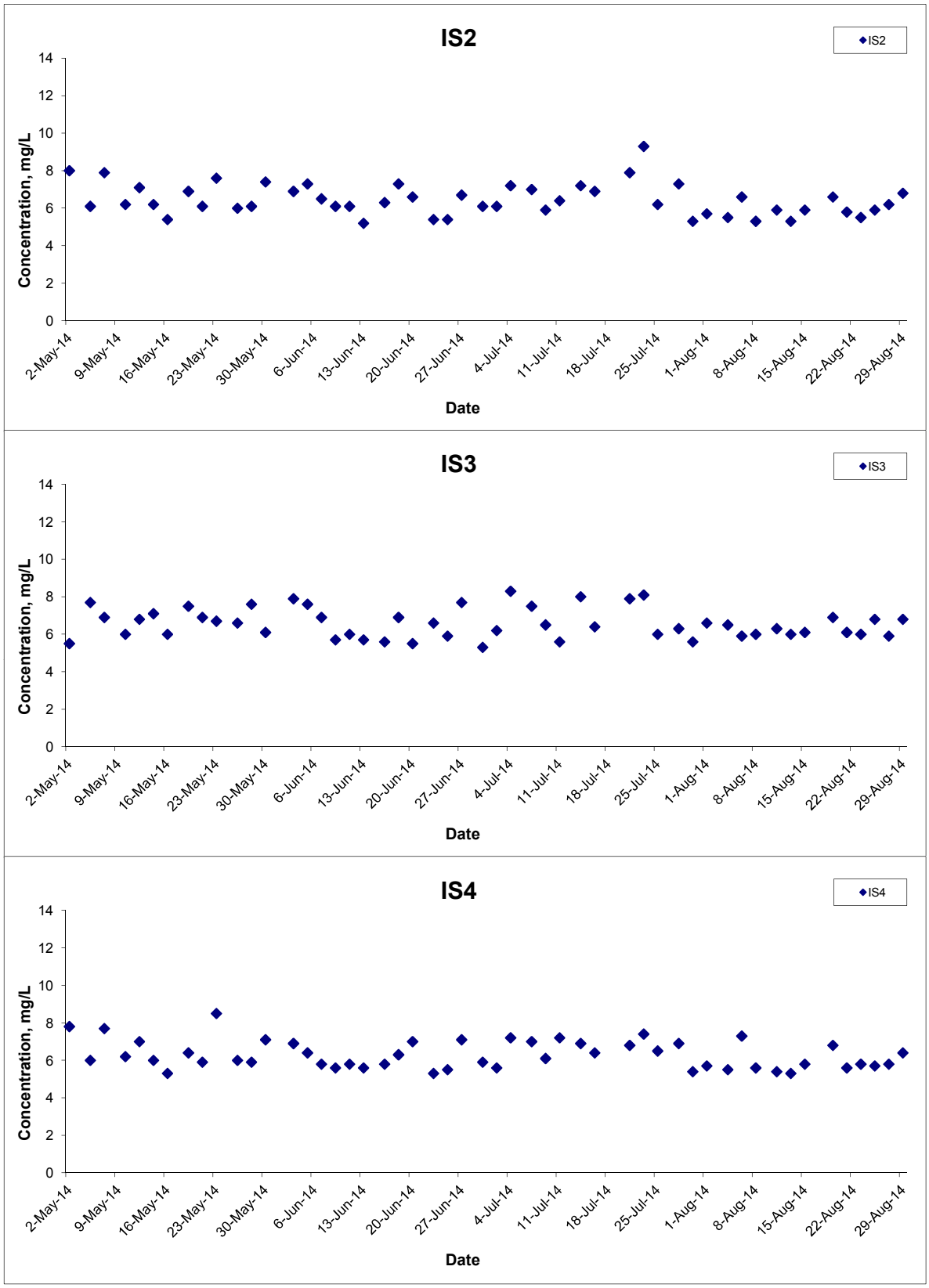
APPENDIX E
GRAPHICAL PRESENTATION OF WATER QUALITY MONITORING RESULTS

Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



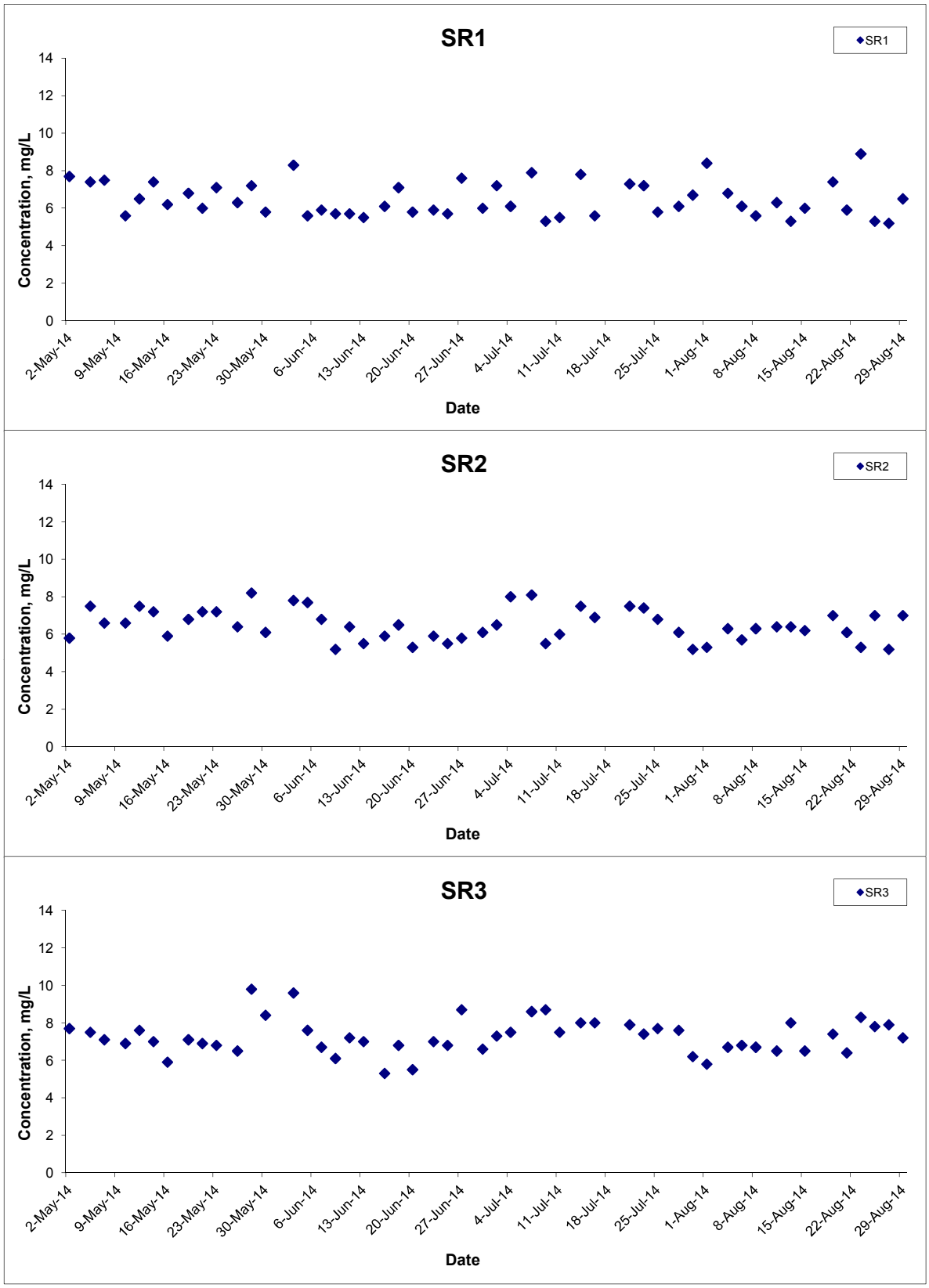
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



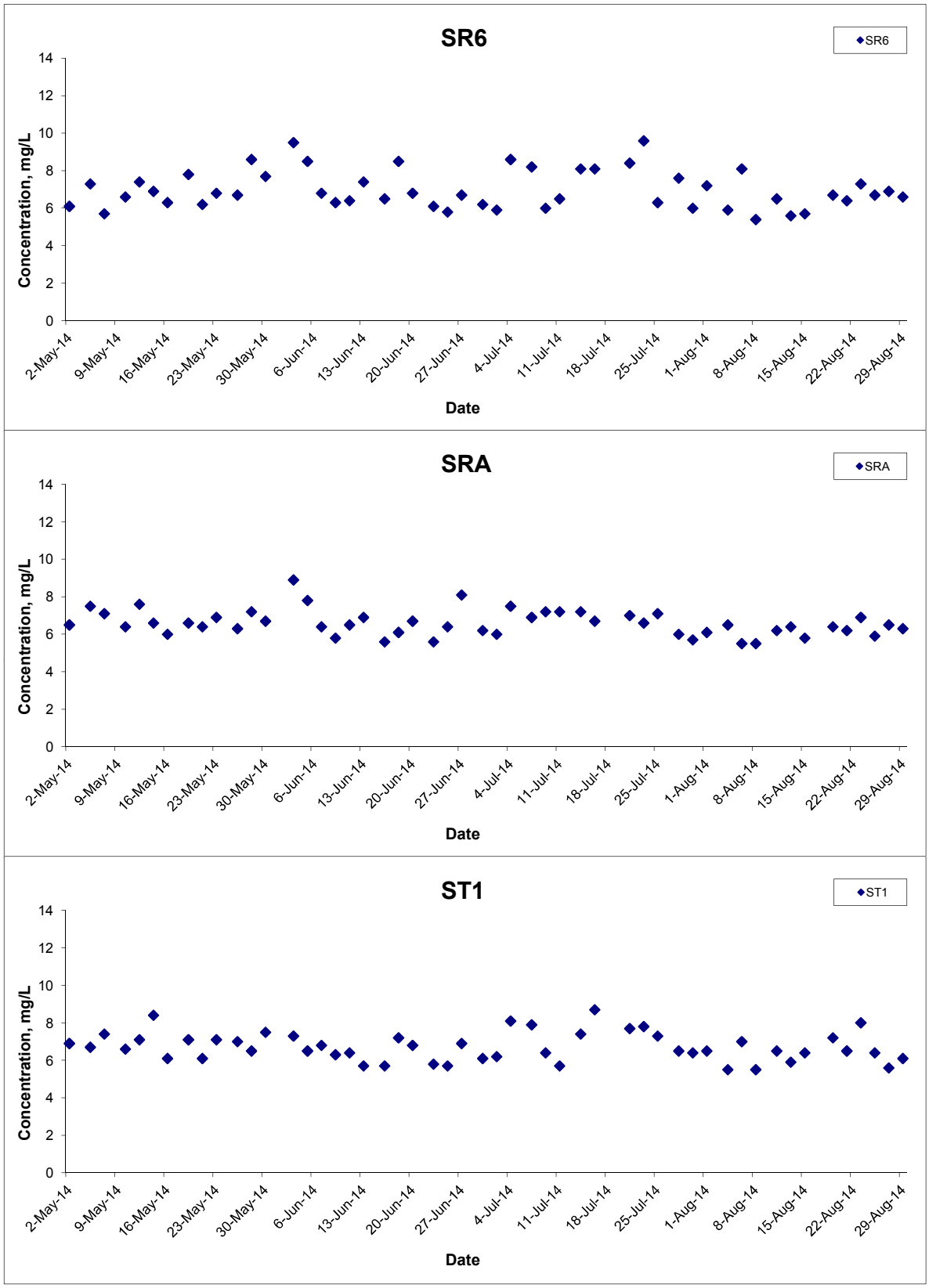
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



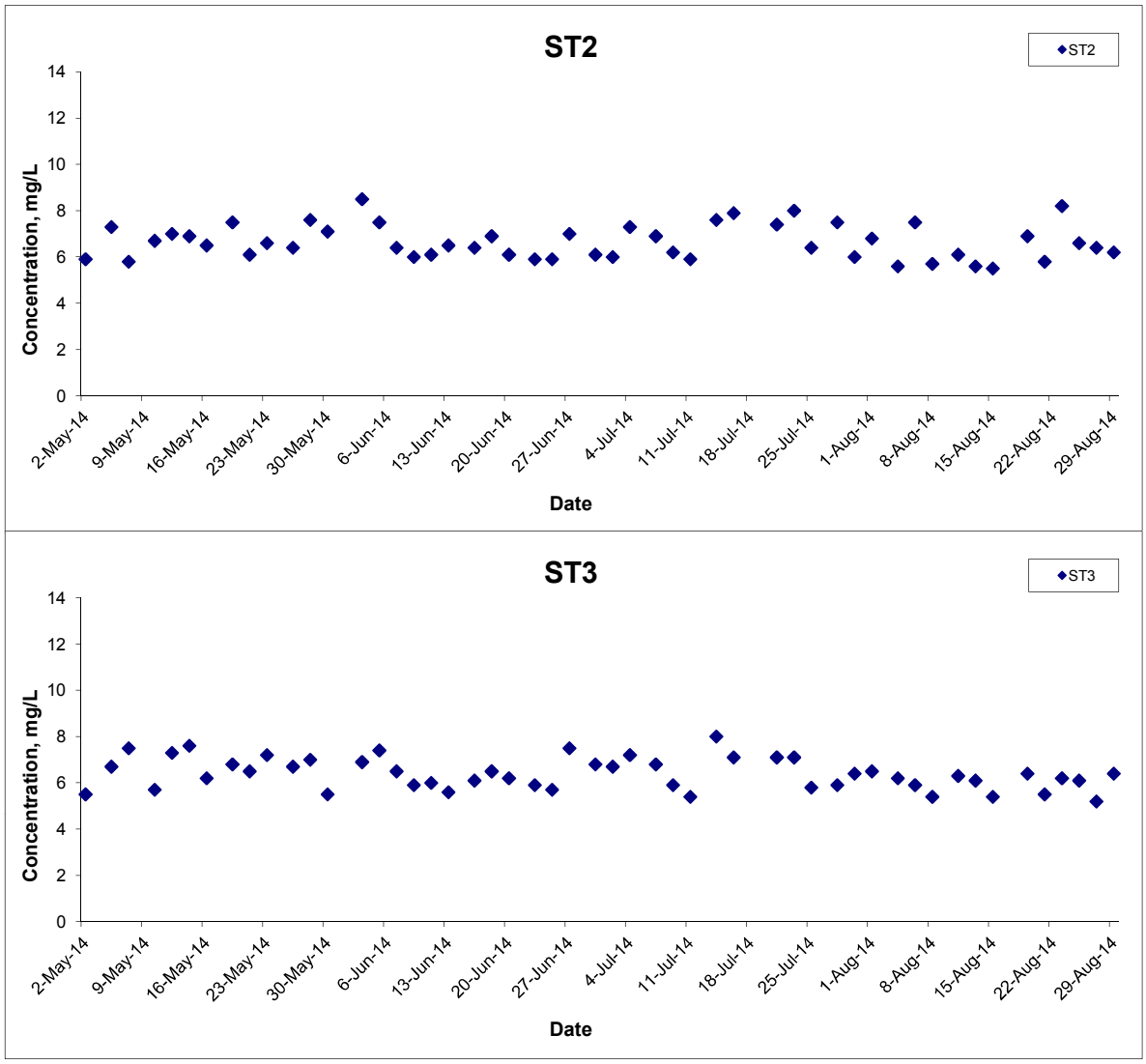
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



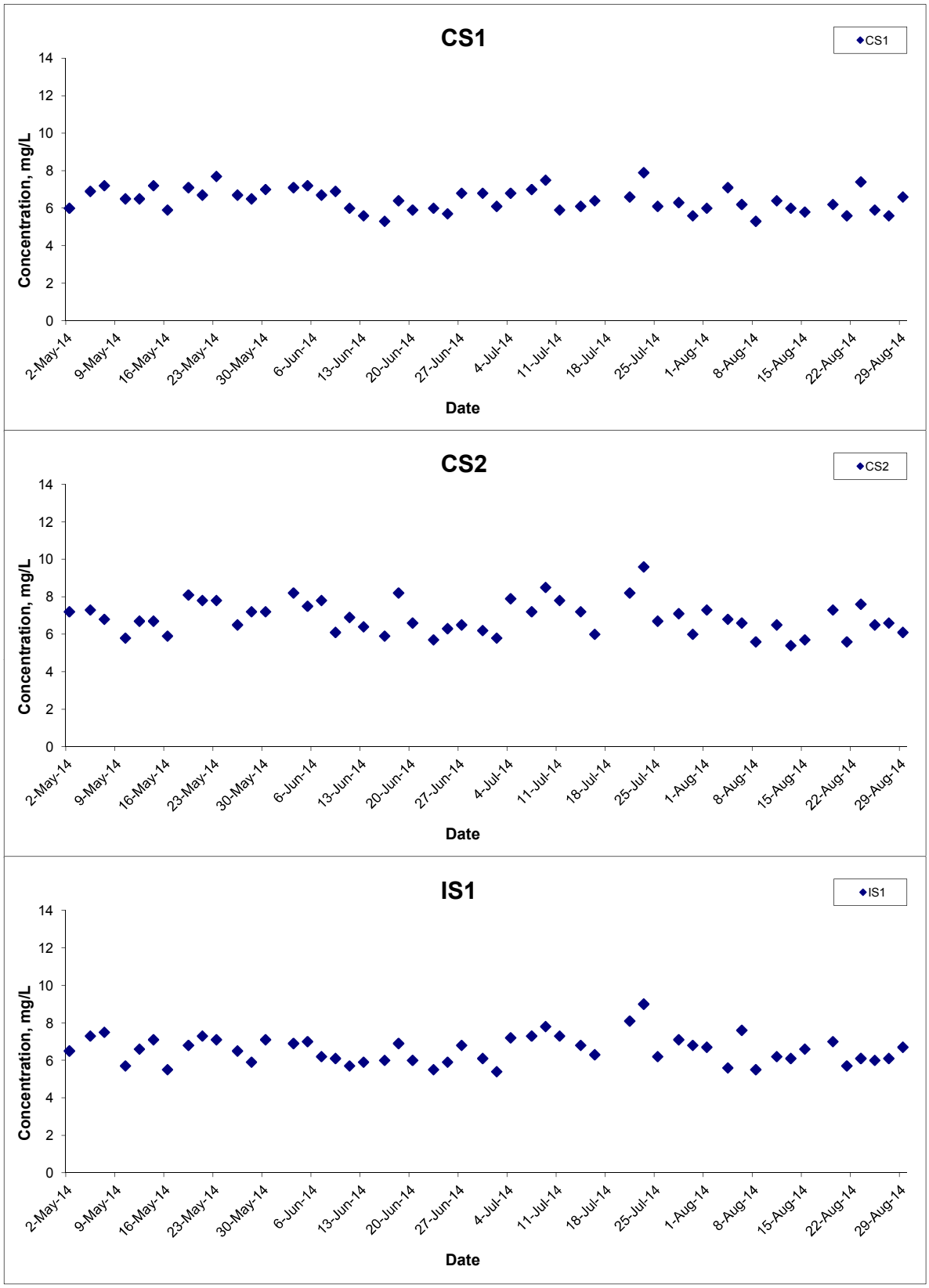
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



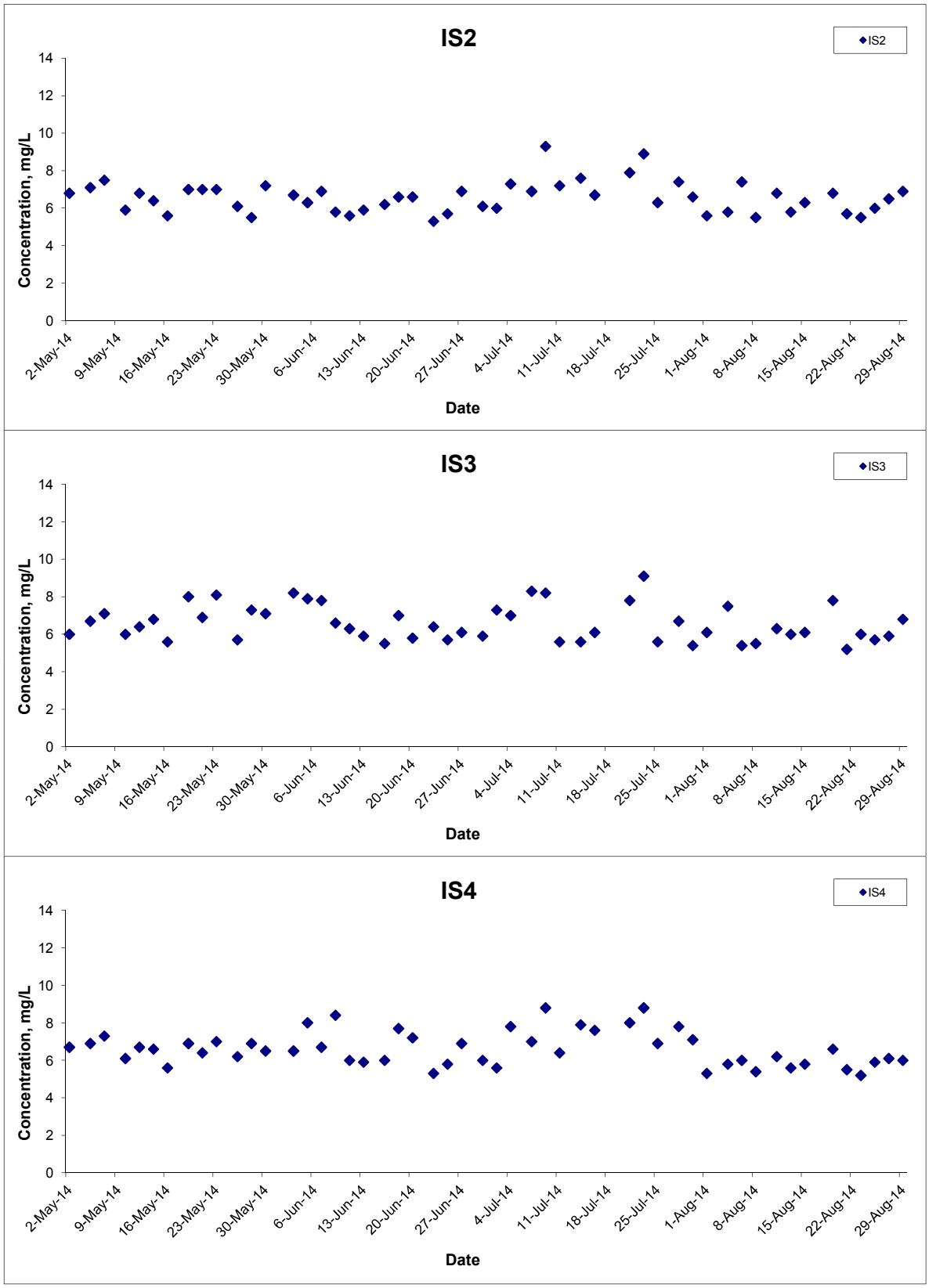
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Aug 14	Project No.: MA12014 Appendix: E	CINOTECH

Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



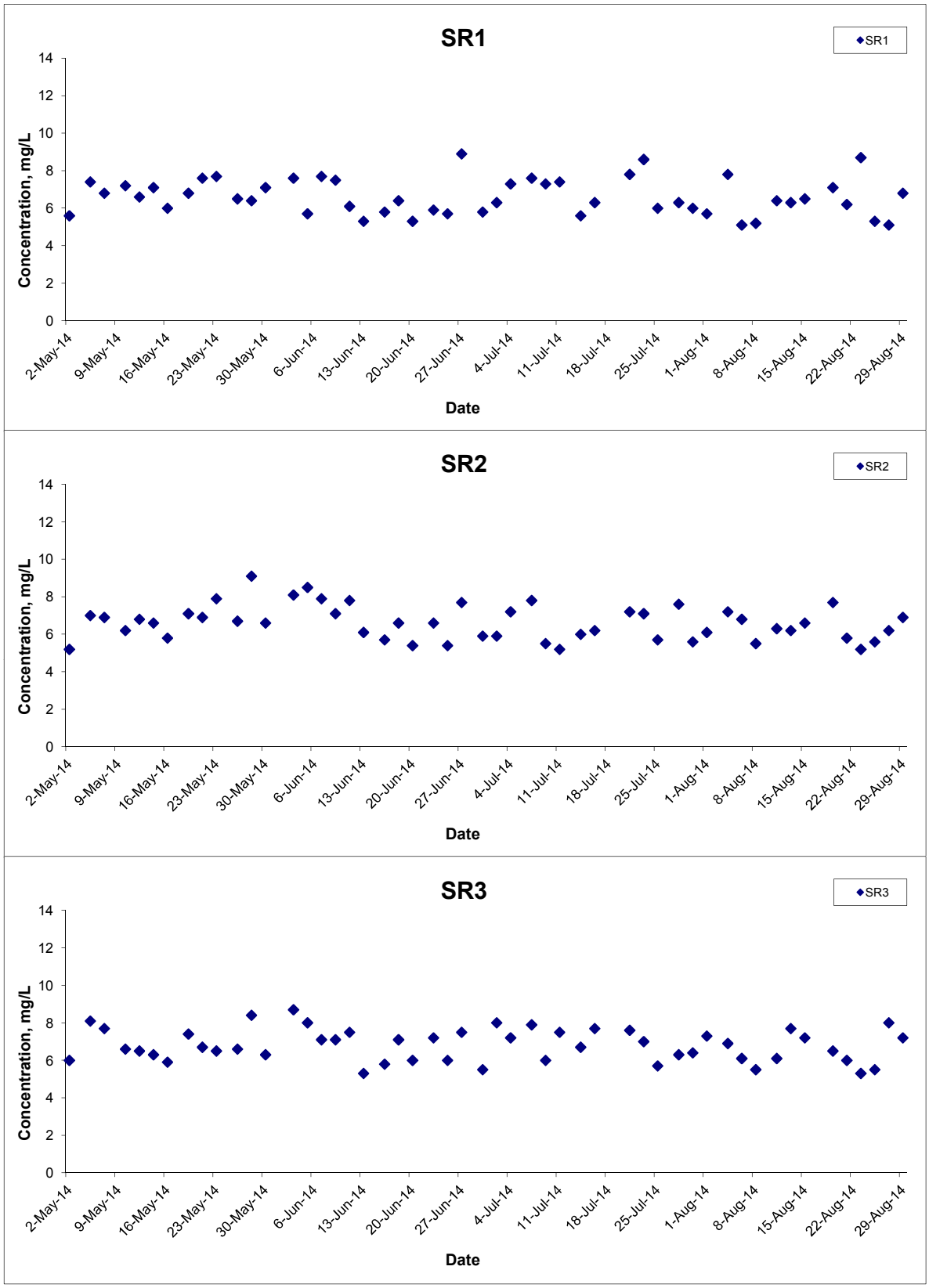
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



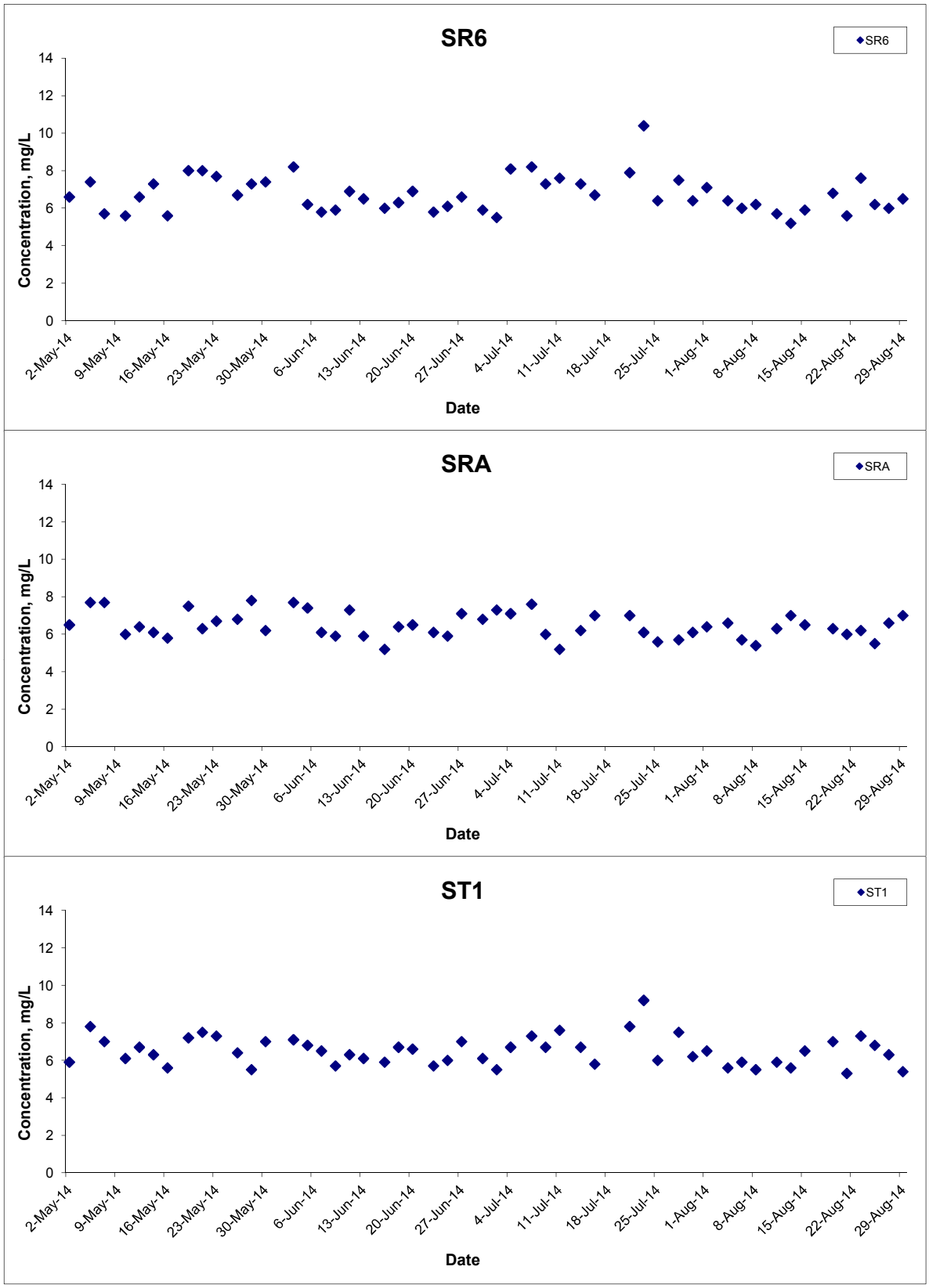
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



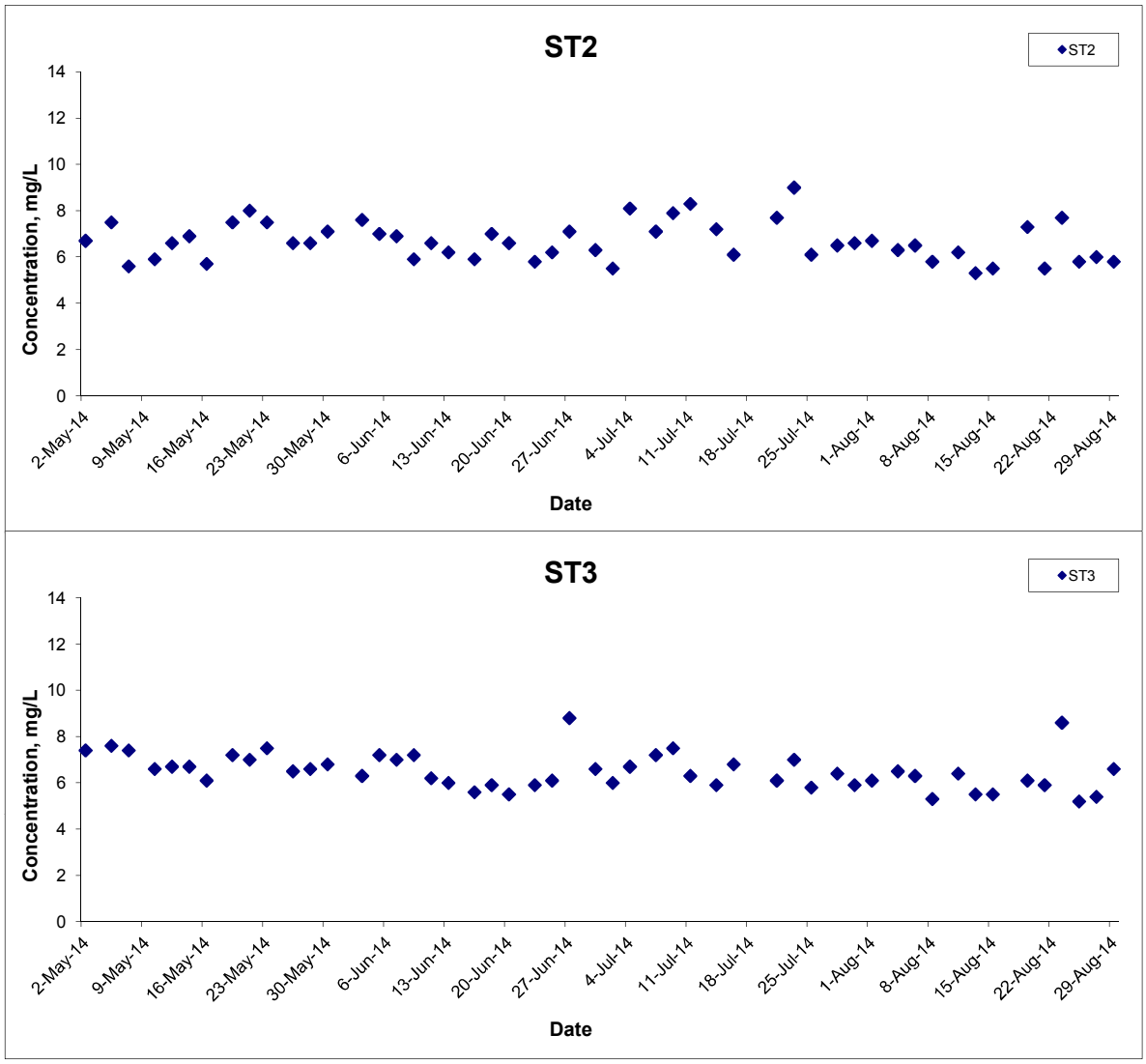
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



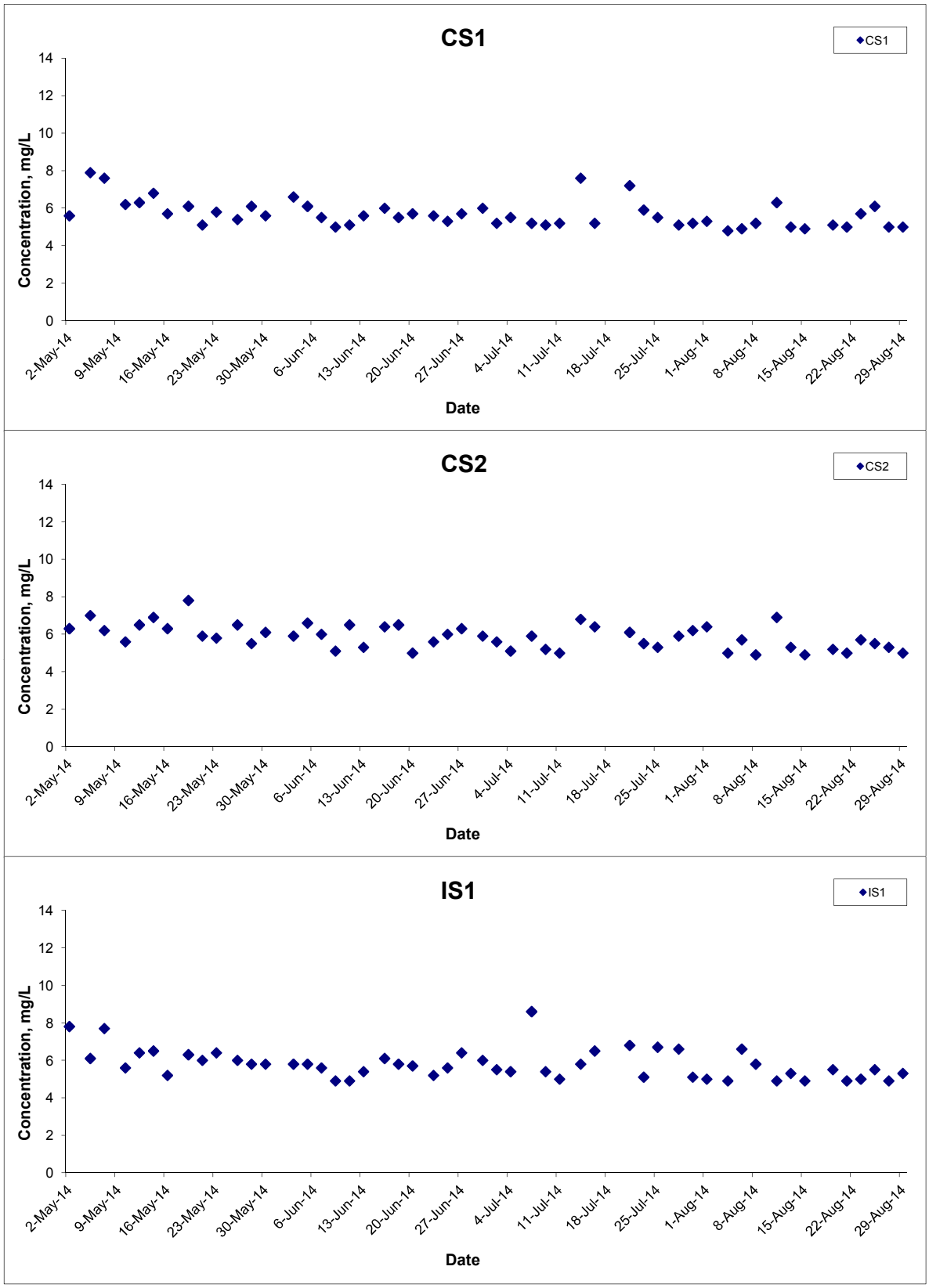
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



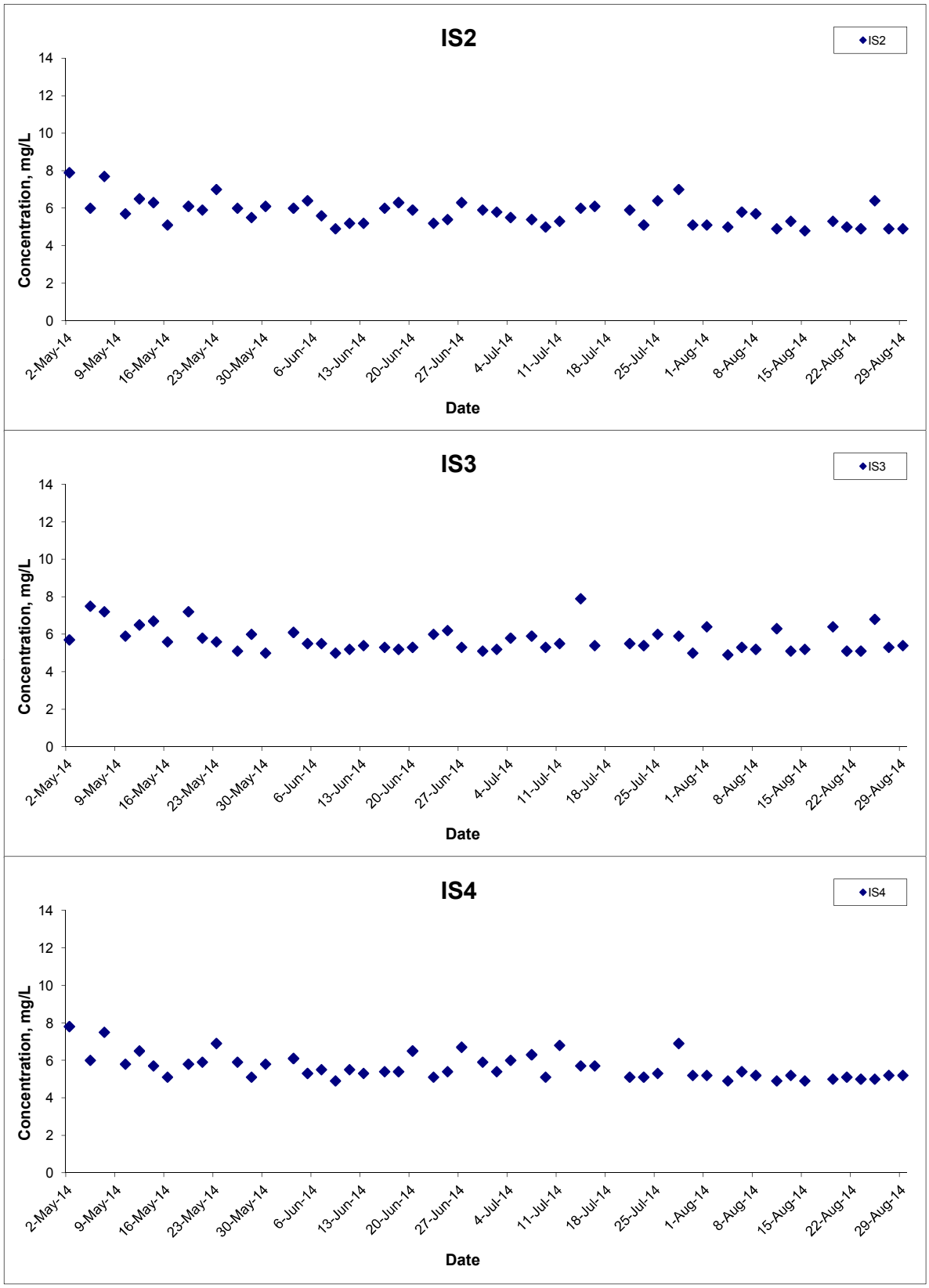
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Aug 14	Project No.: MA12014 Appendix: E	CINOTECH

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



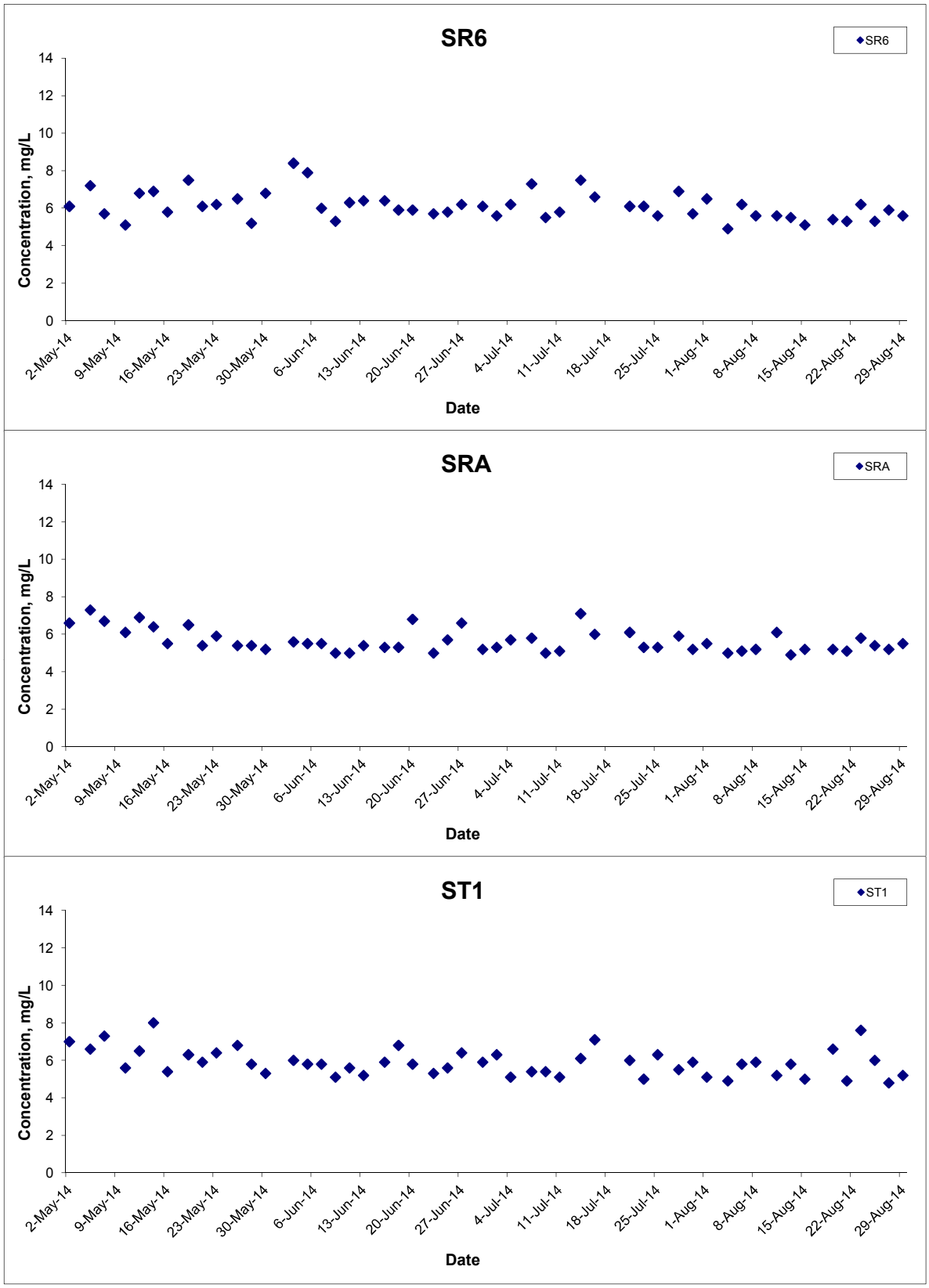
Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Aug 14	Appendix: E	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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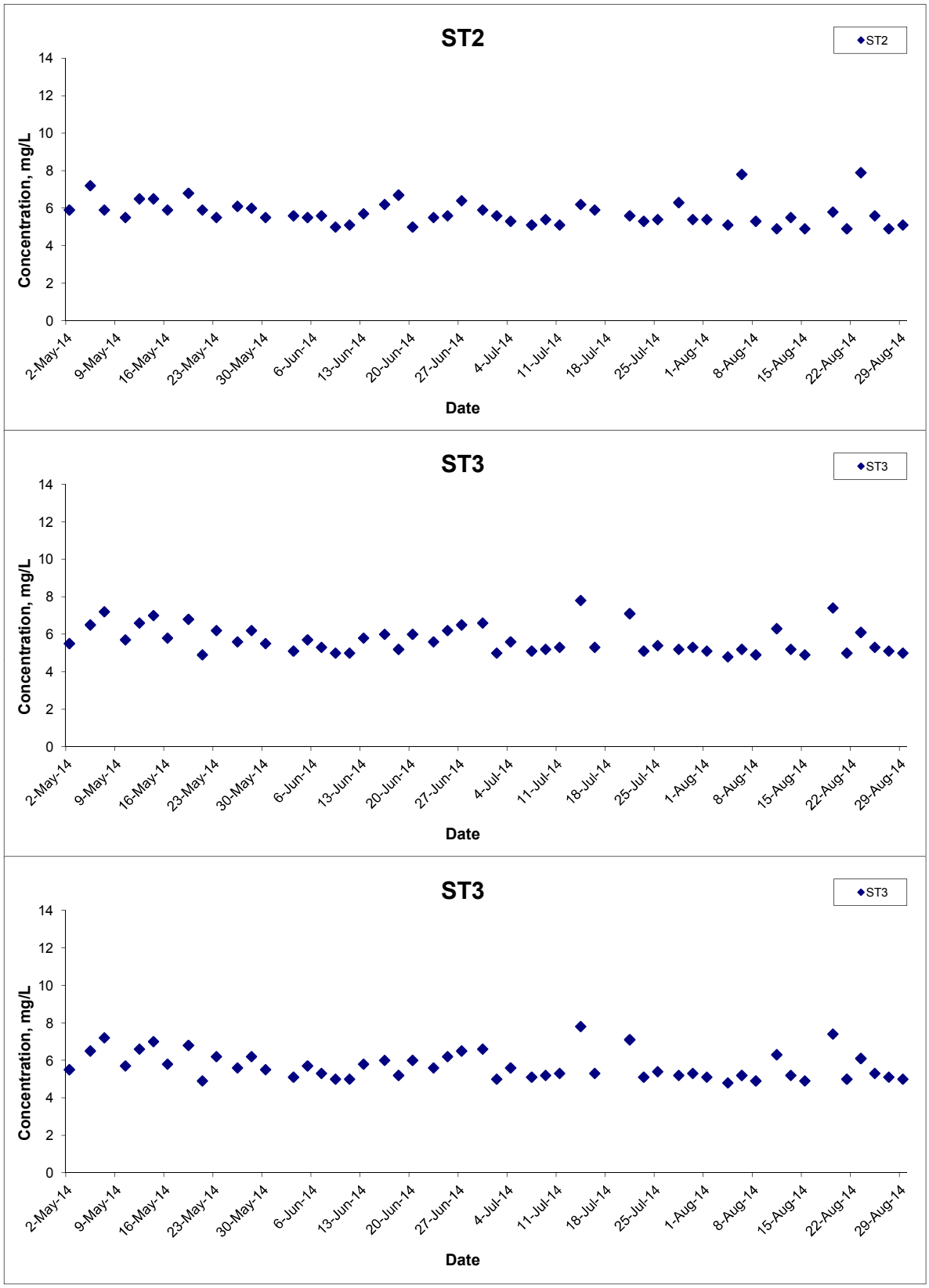
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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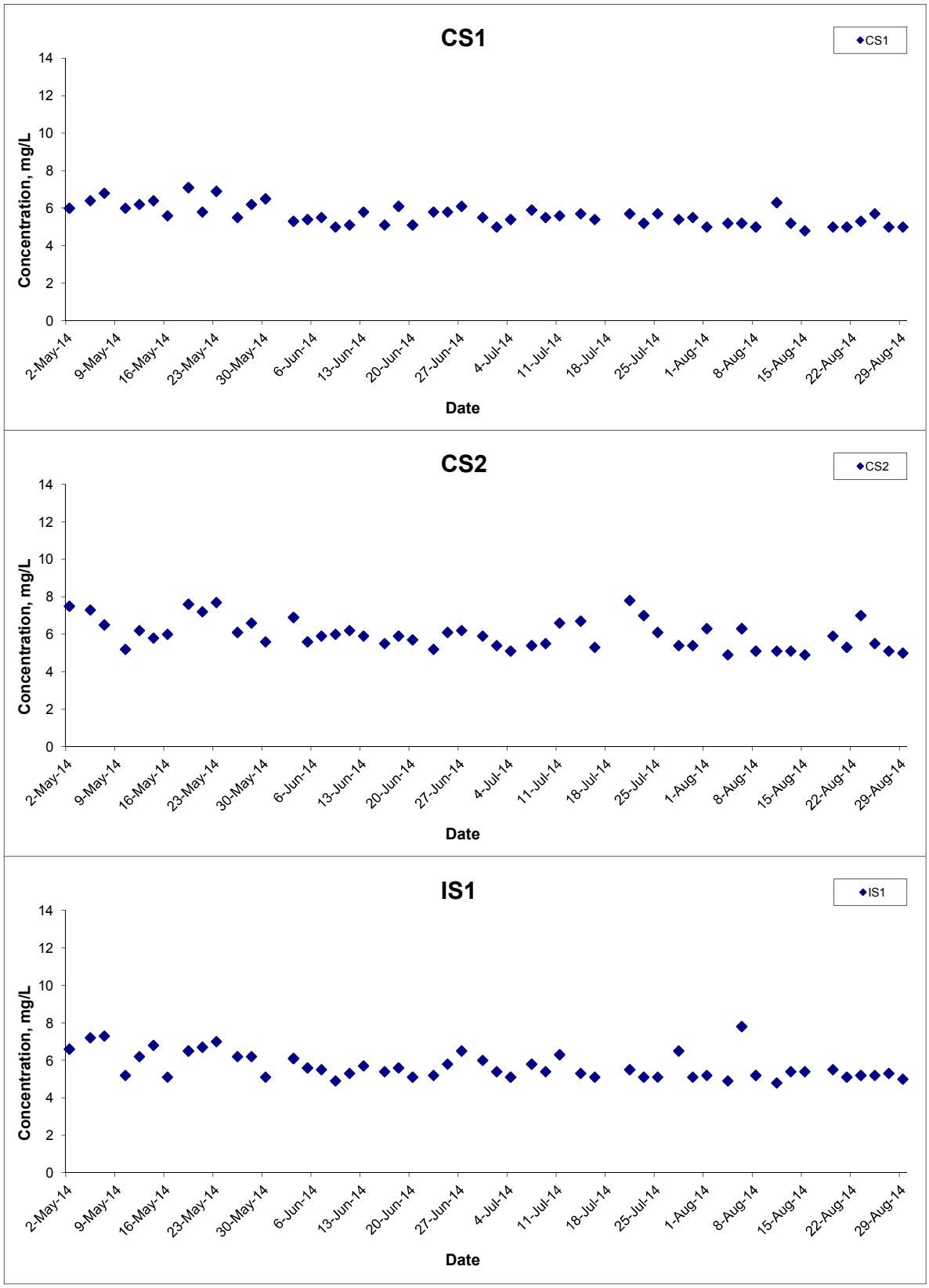
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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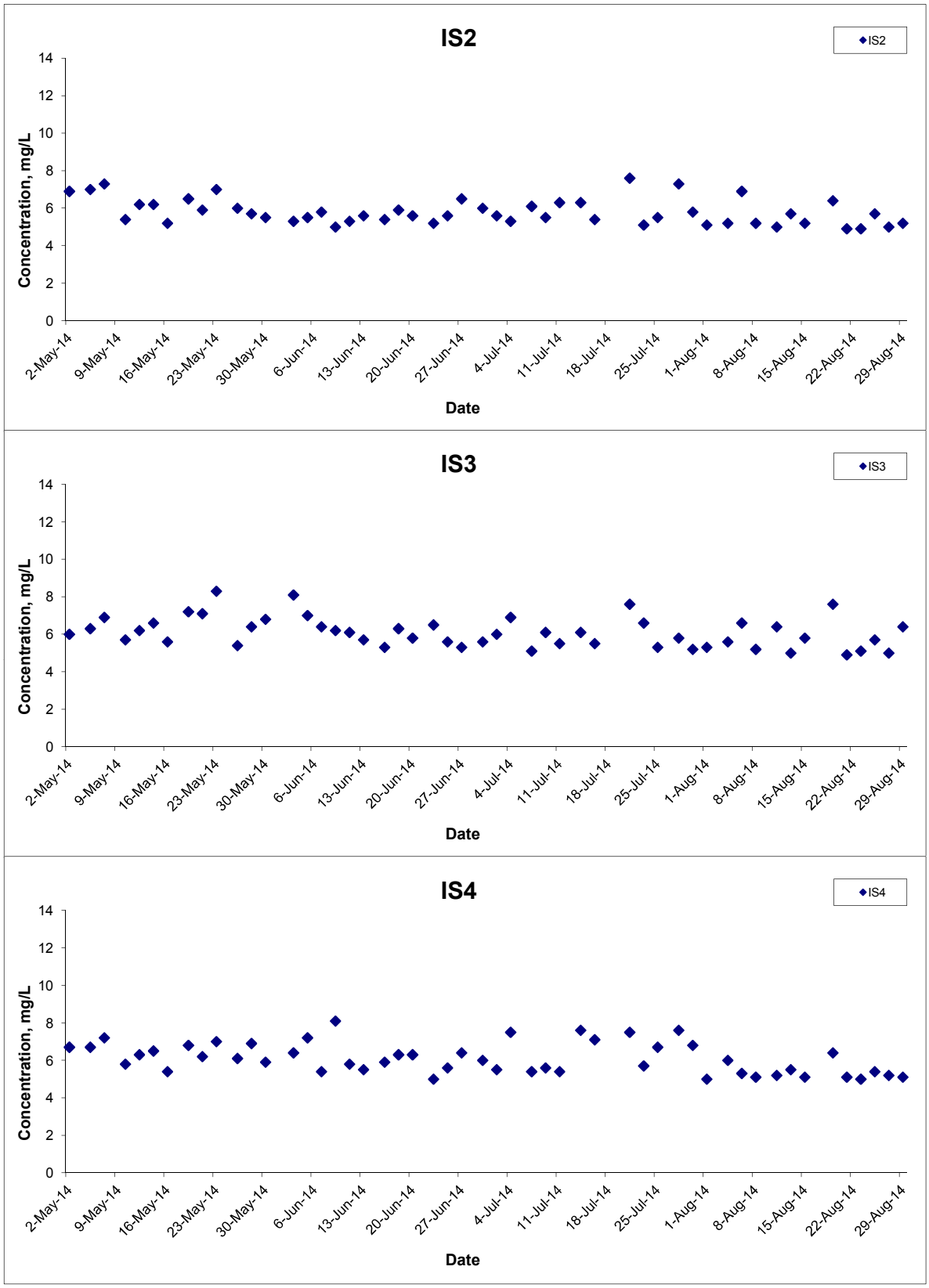
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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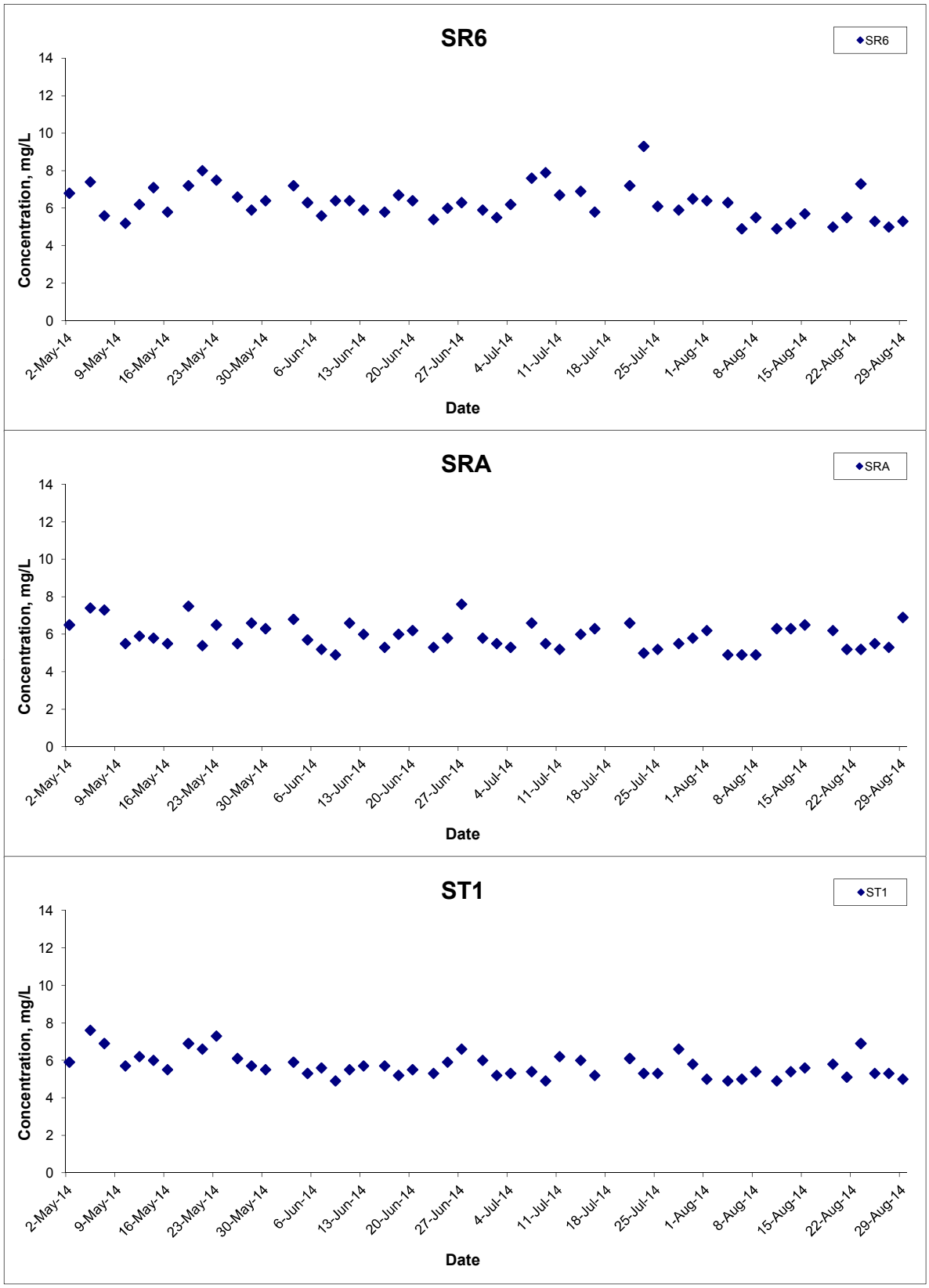
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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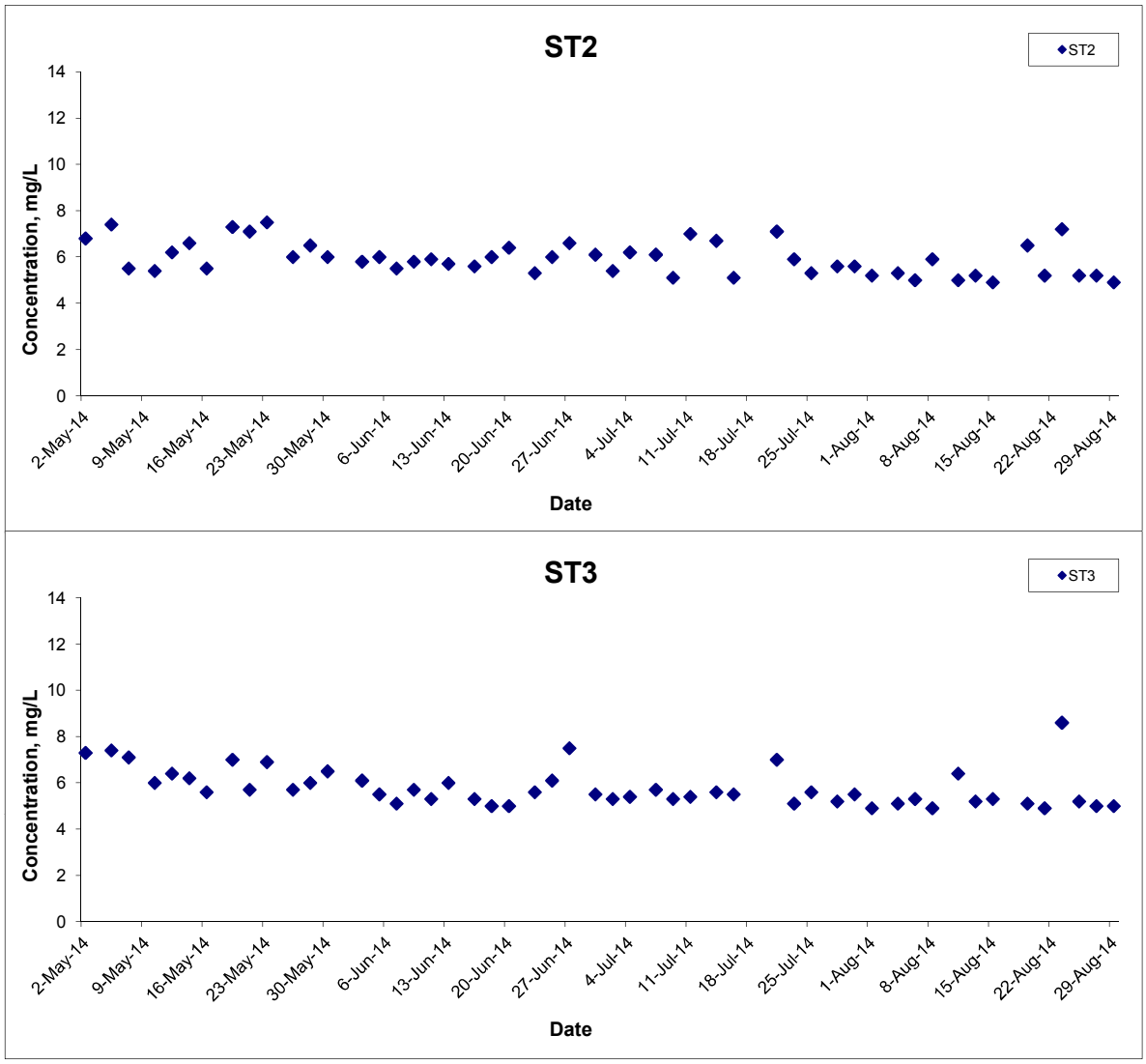
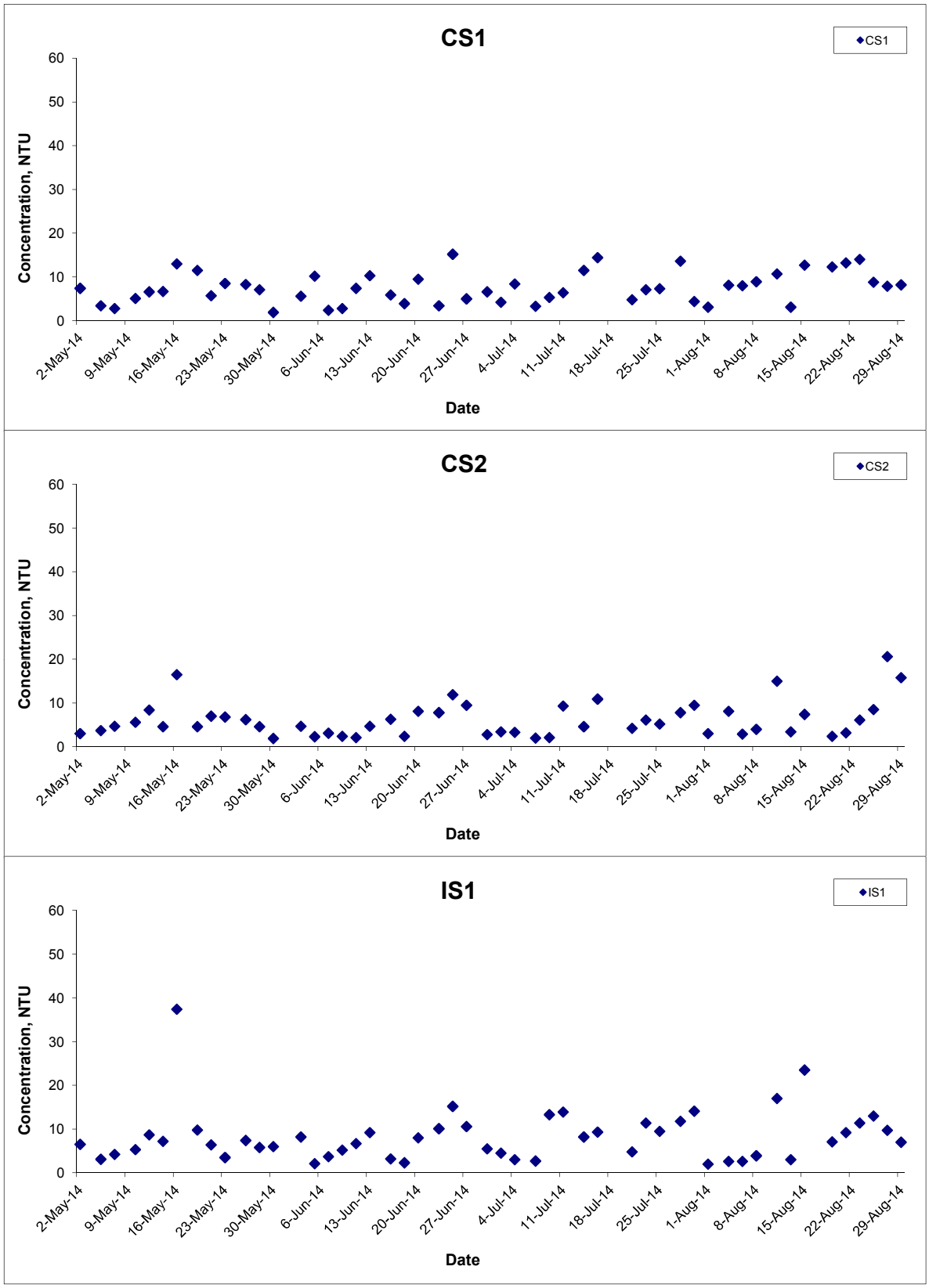
Dissolved Oxygen (Bottom) at Mid-Flood Tide



Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Aug 14	Project No.: MA12014 Appendix: E	CINOTECH

Turbidity (Depth-averaged) at Mid-Ebb Tide



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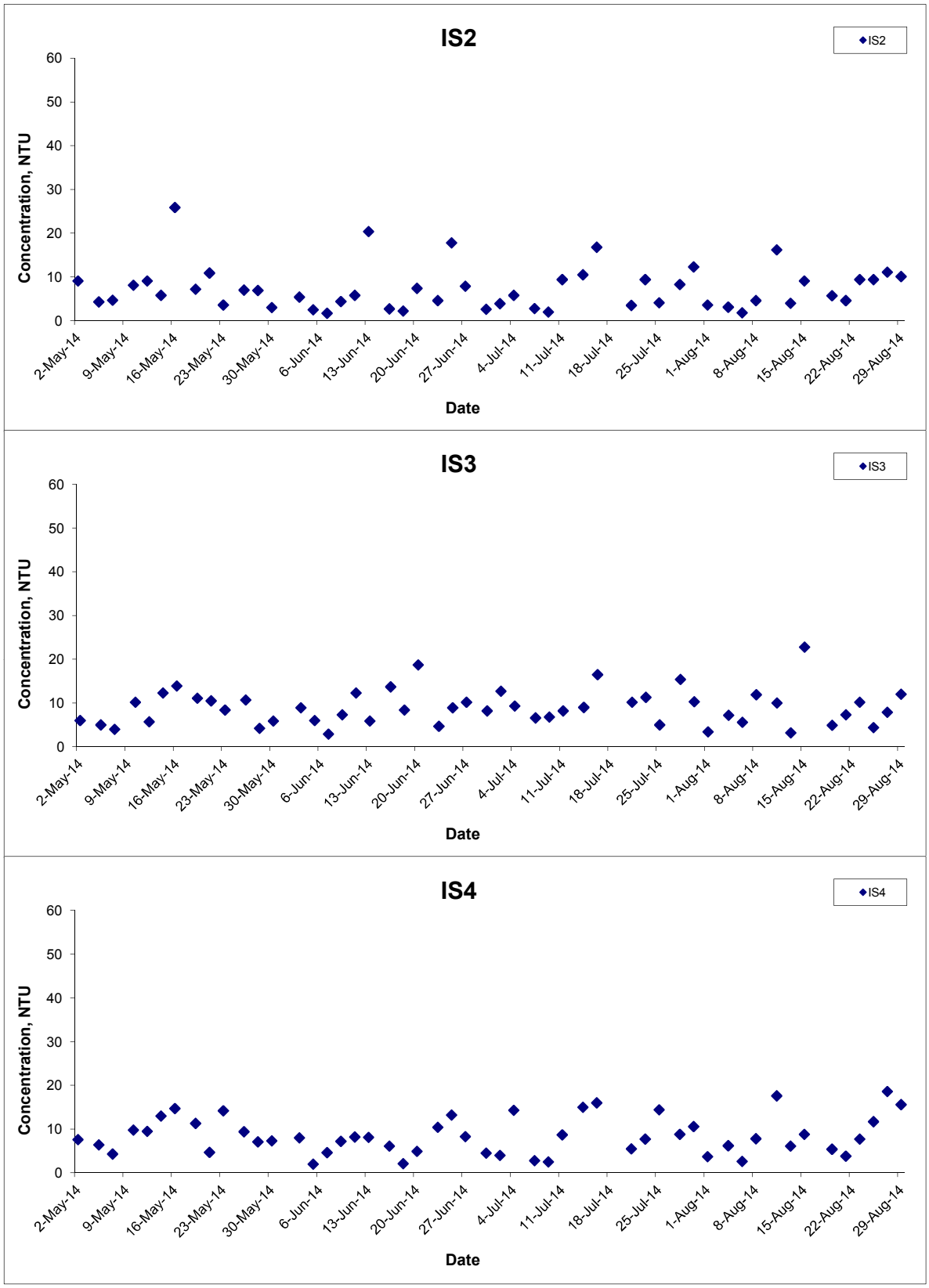

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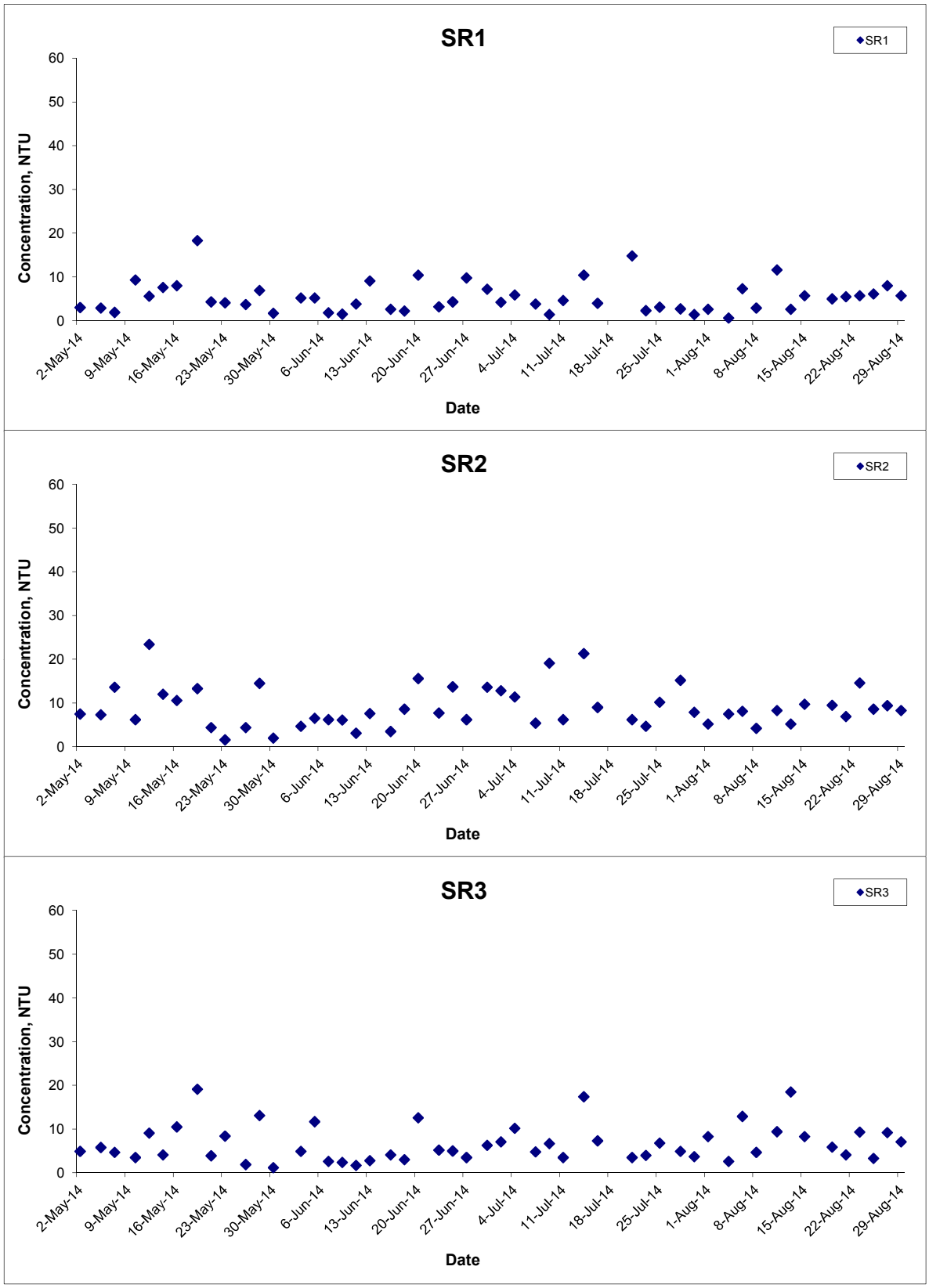
Turbidity (Depth-averaged) at Mid-Ebb Tide



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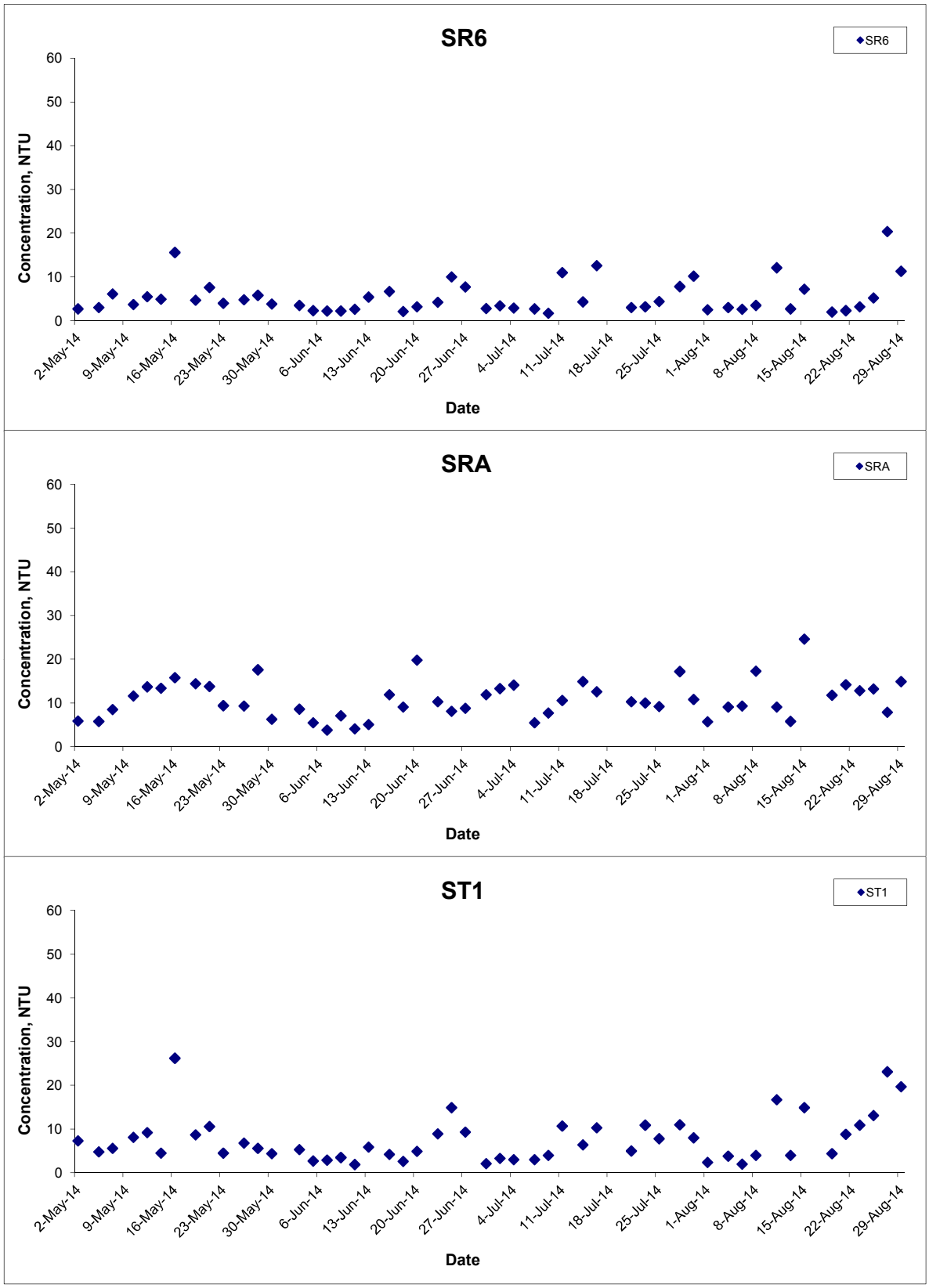
Turbidity (Depth-averaged) at Mid-Ebb Tide



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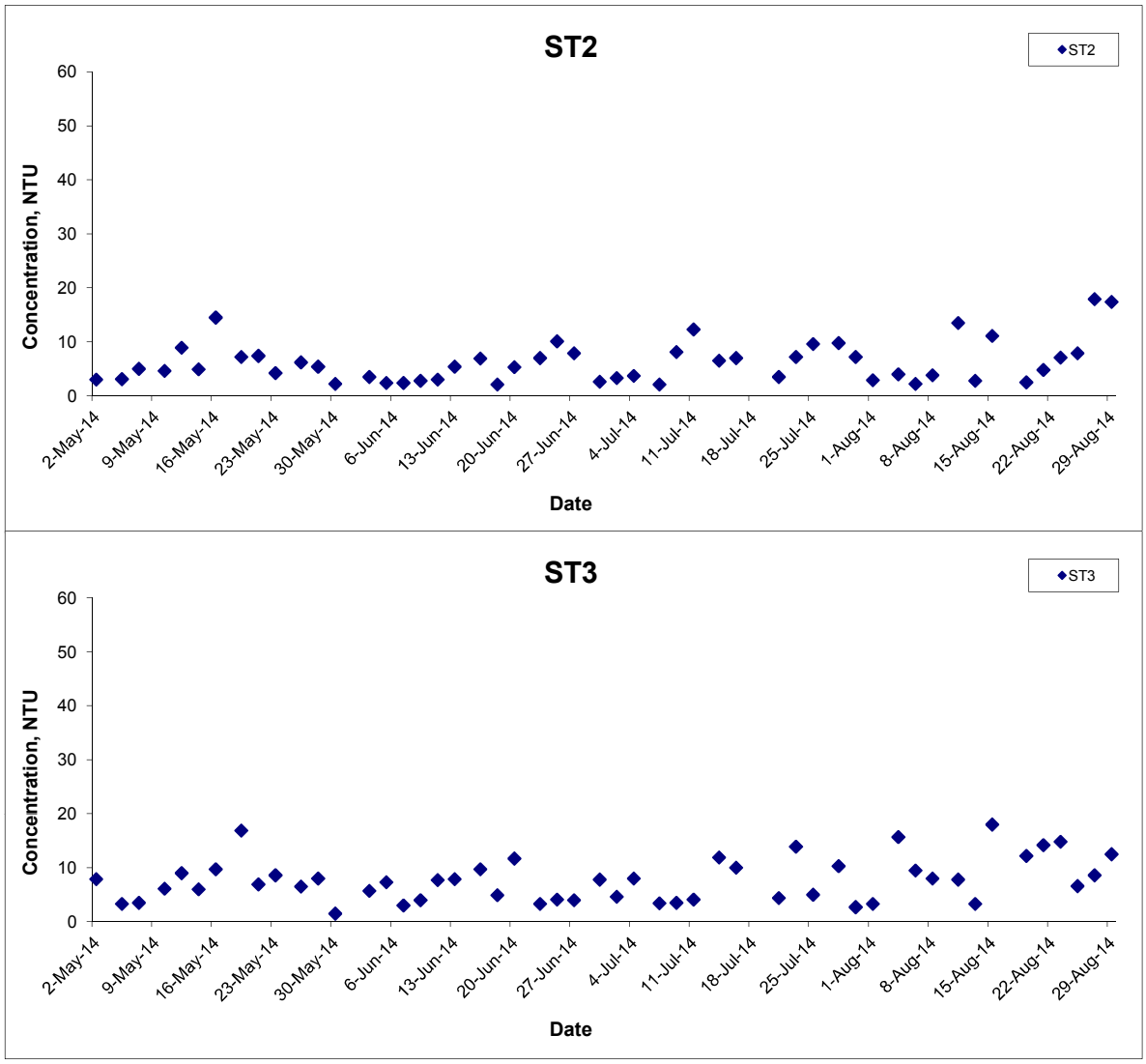
Turbidity (Depth-averaged) at Mid-Ebb Tide



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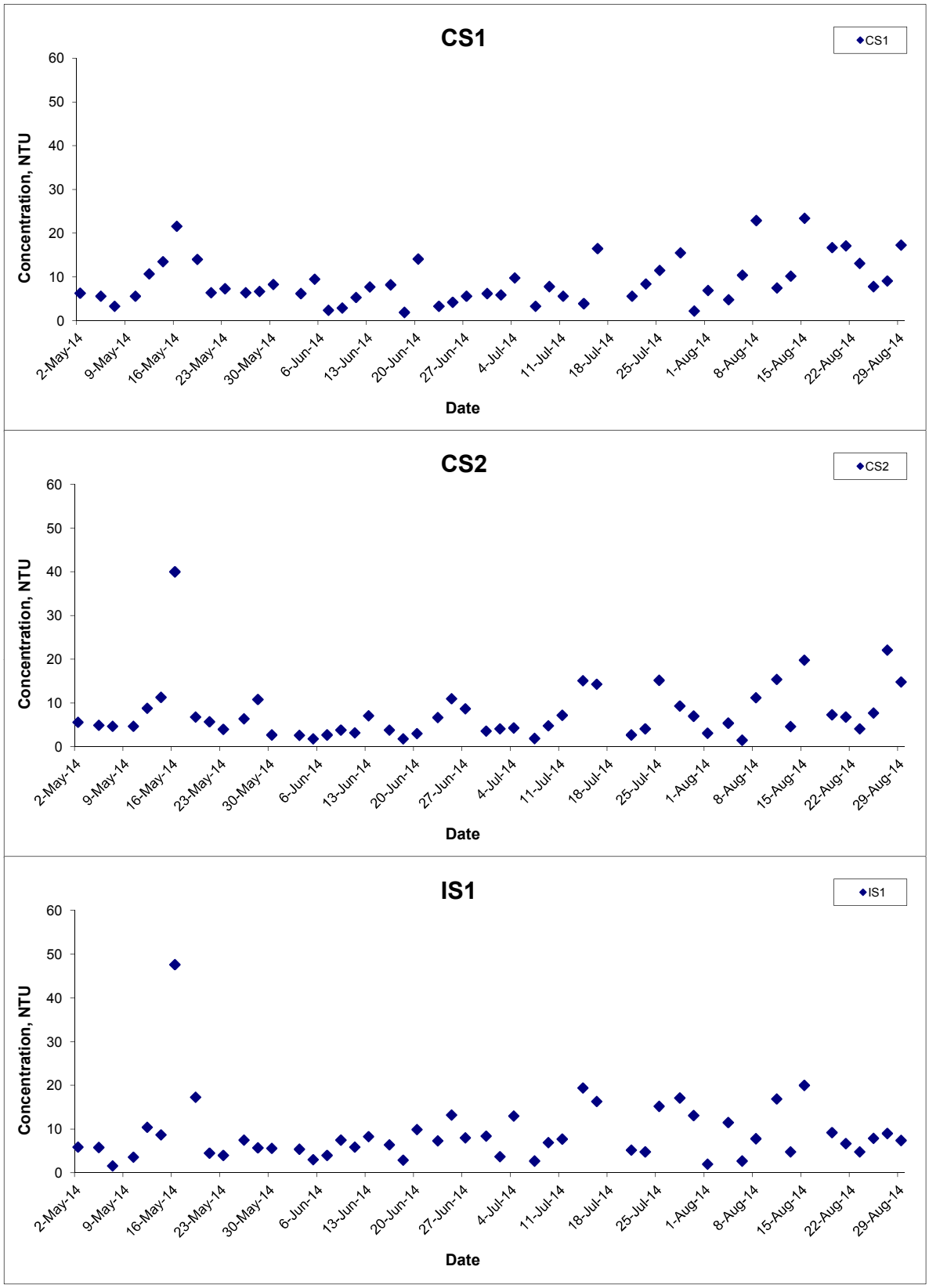
Turbidity (Depth-averaged) at Mid-Flood Tide



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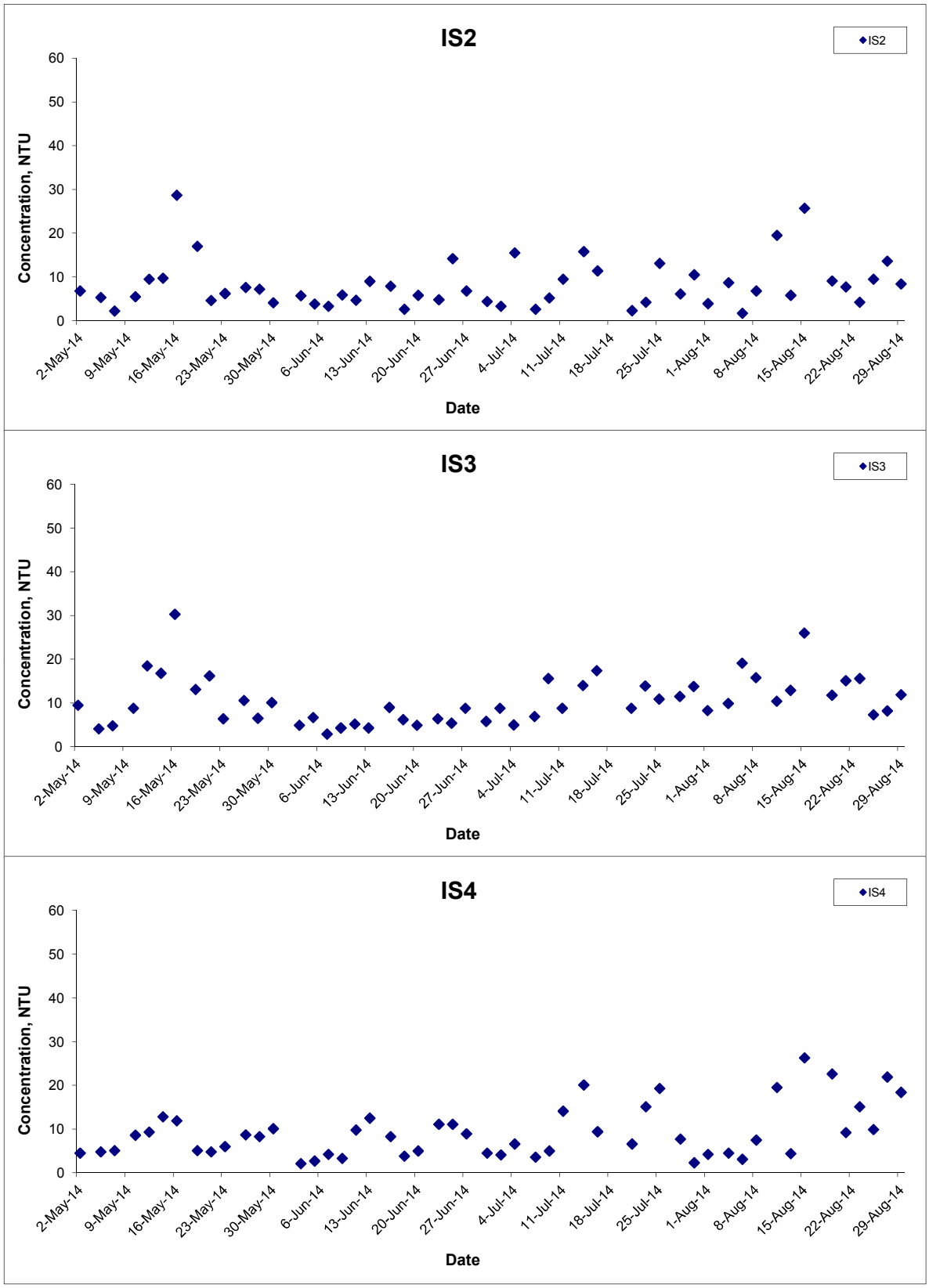
Turbidity (Depth-averaged) at Mid-Flood Tide



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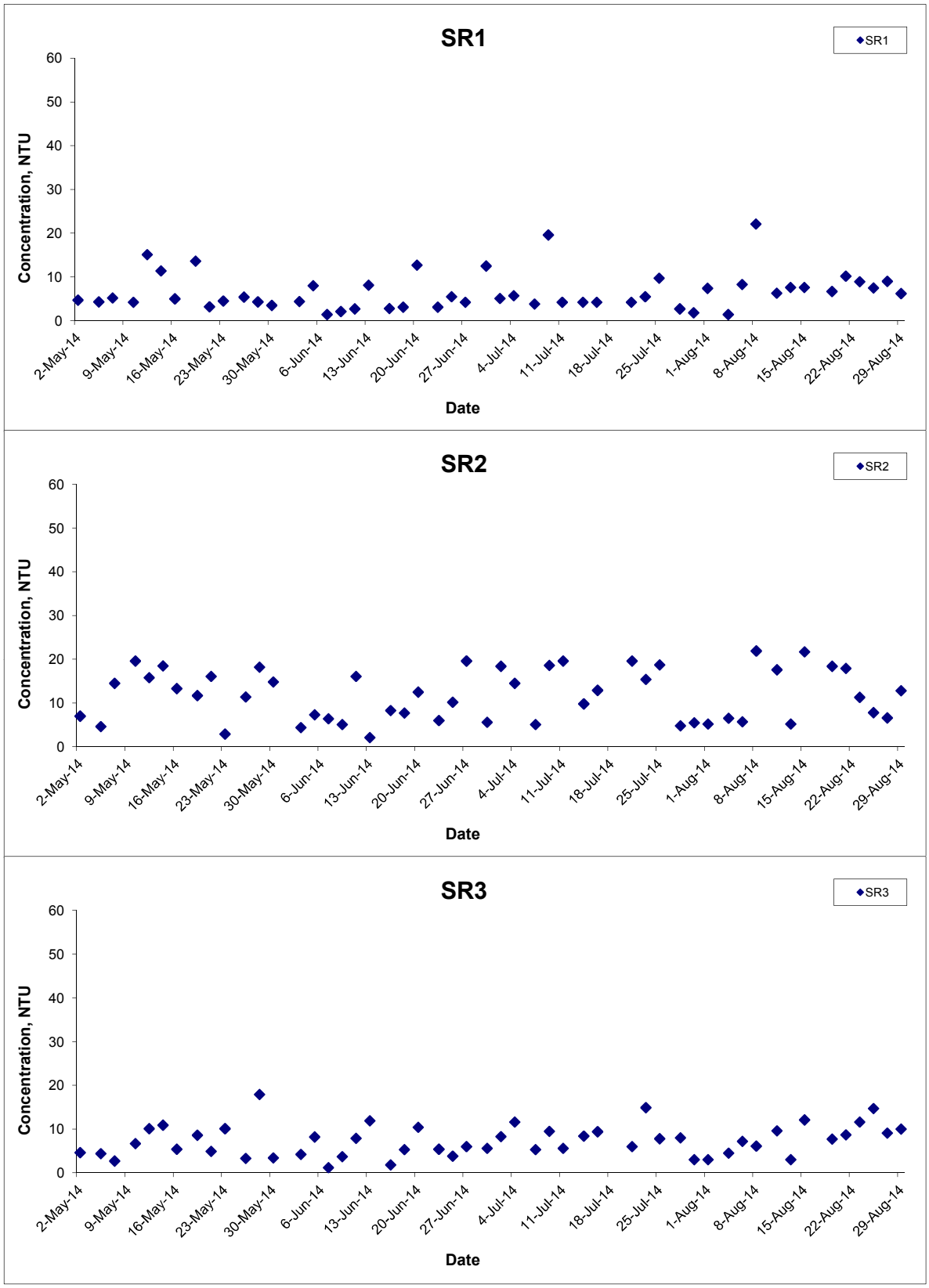
		Date: Aug 14	Appendix: E	

Turbidity (Depth-averaged) at Mid-Flood Tide



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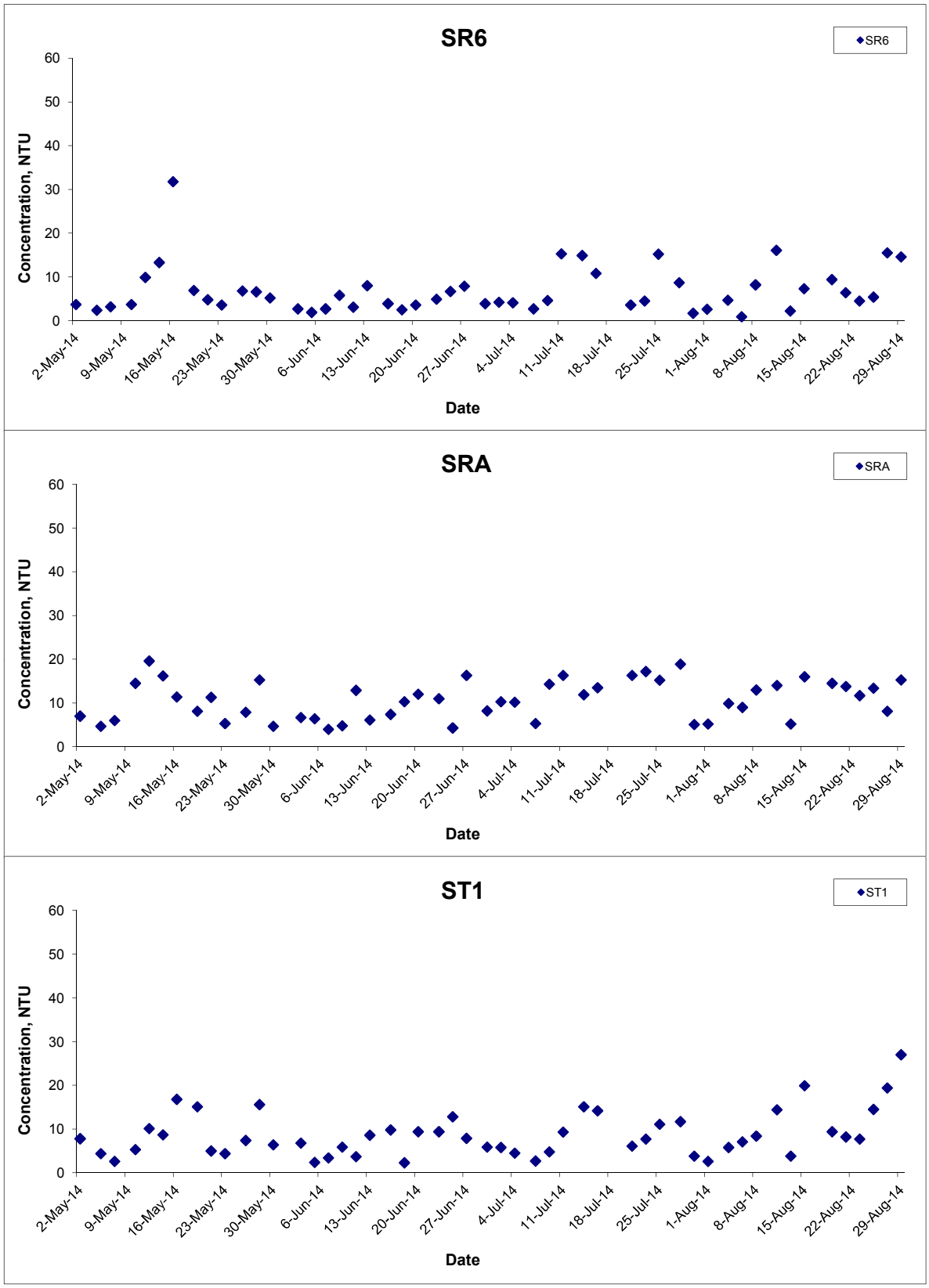
Turbidity (Depth-averaged) at Mid-Flood Tide



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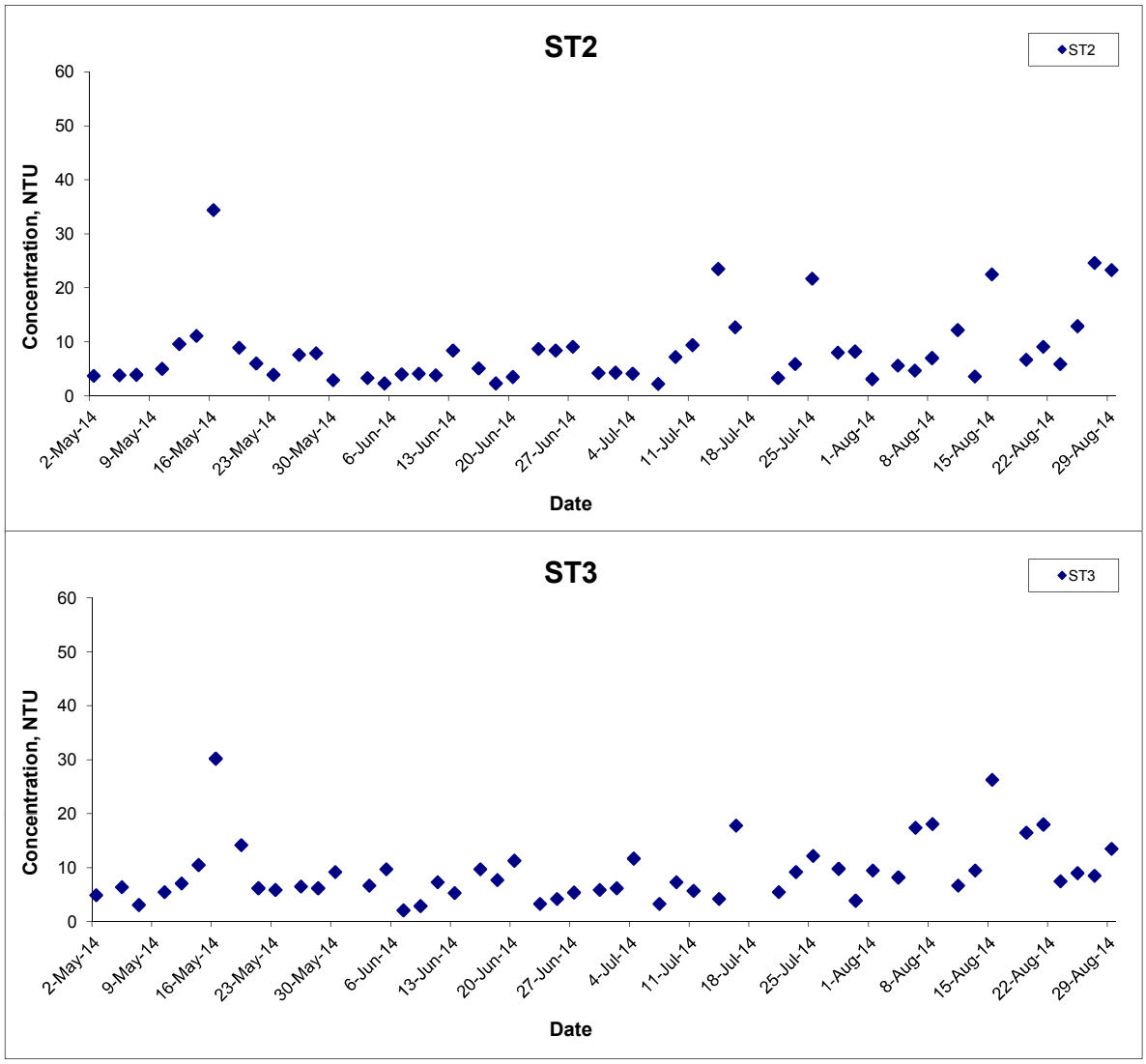
Turbidity (Depth-averaged) at Mid-Flood Tide



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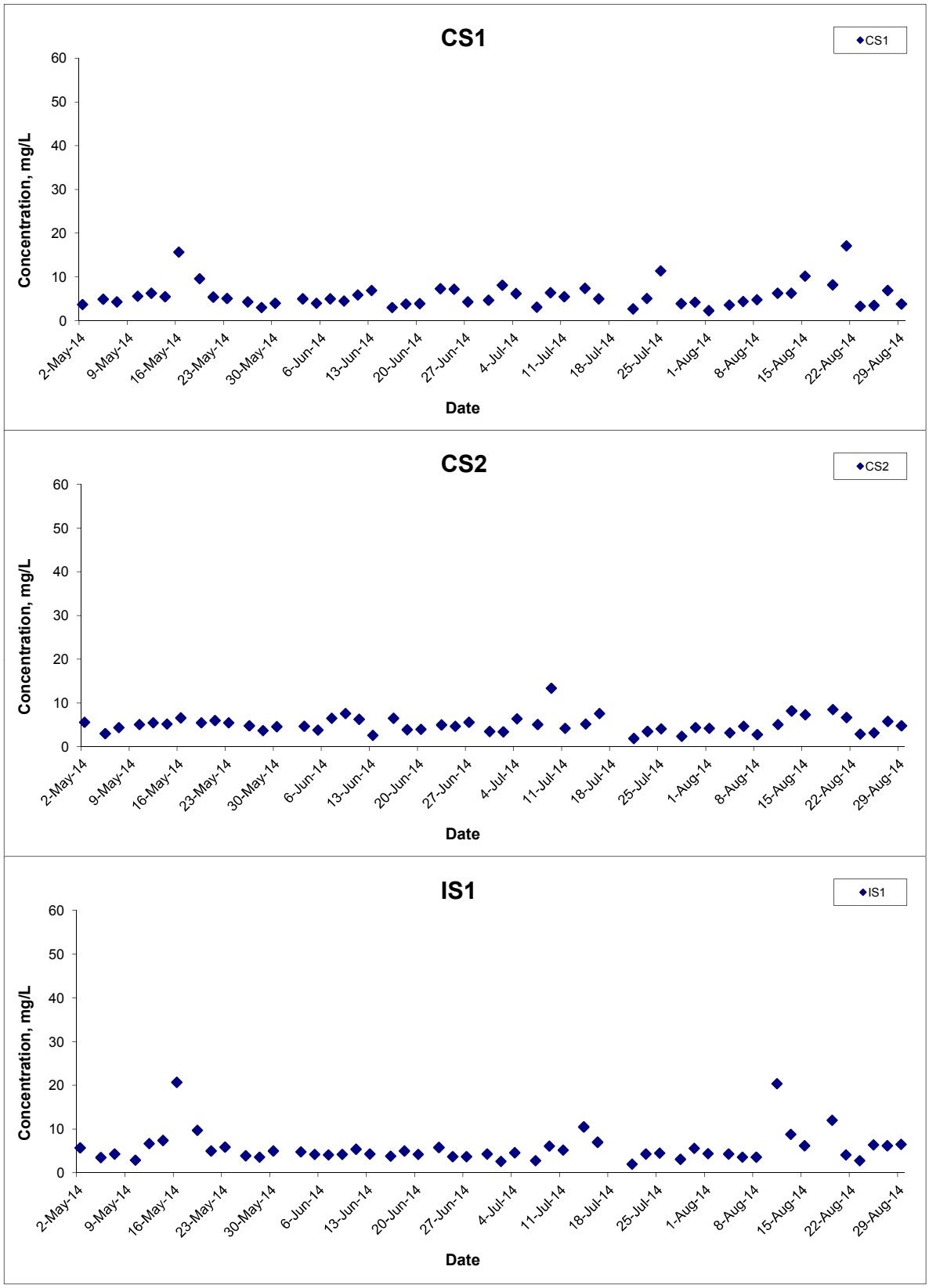
		Date: Aug 14	Appendix: E	

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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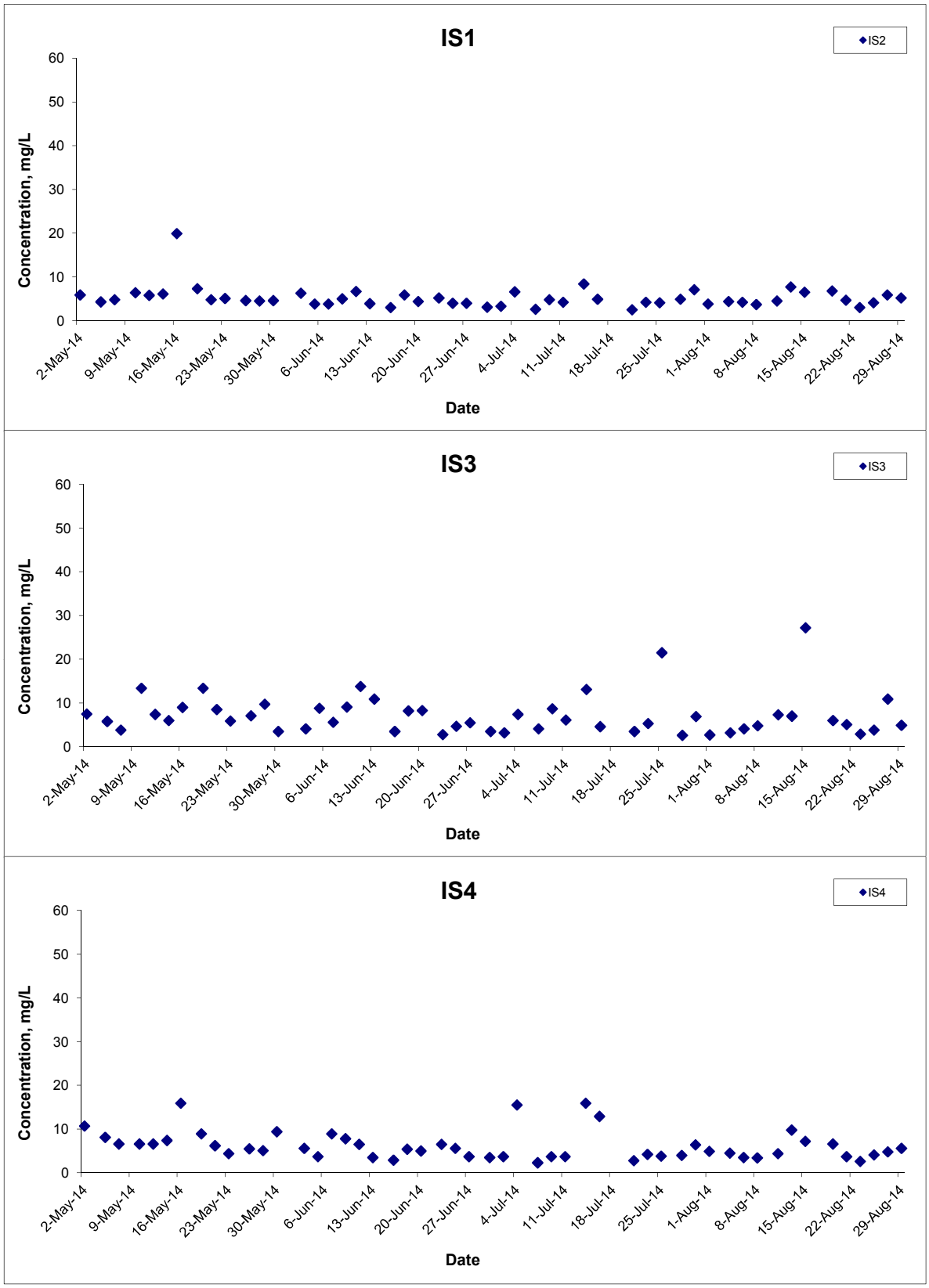

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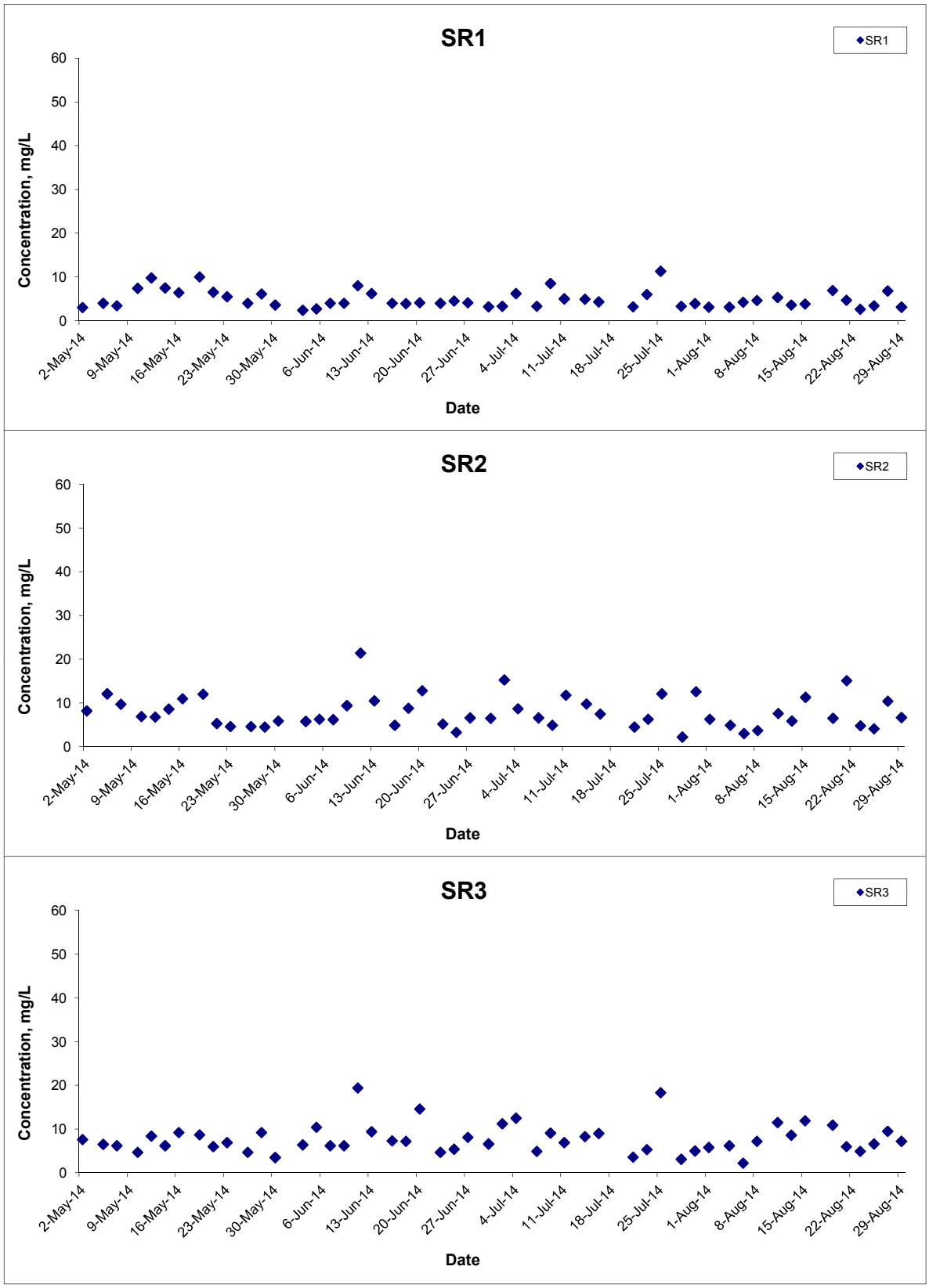
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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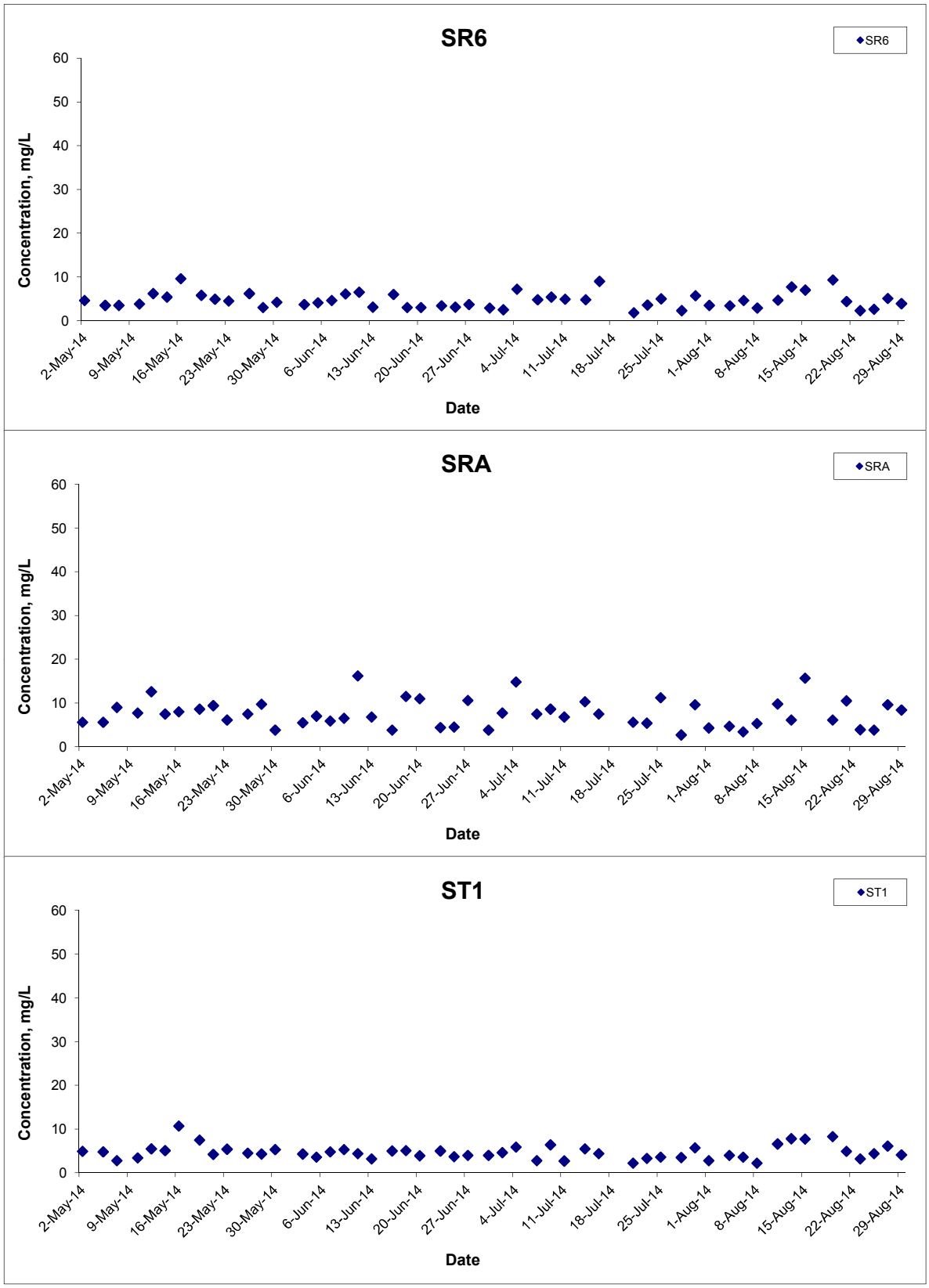

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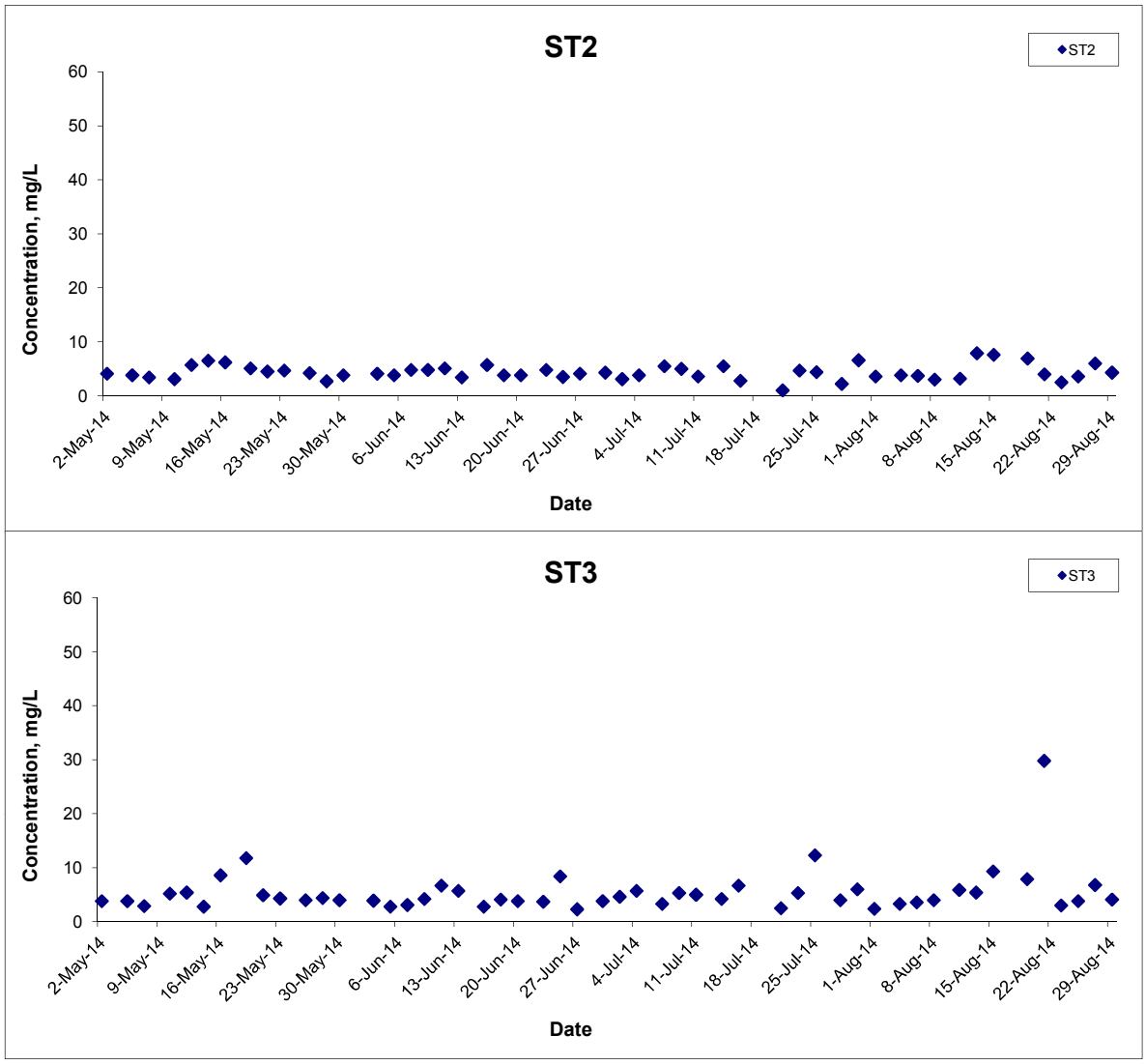
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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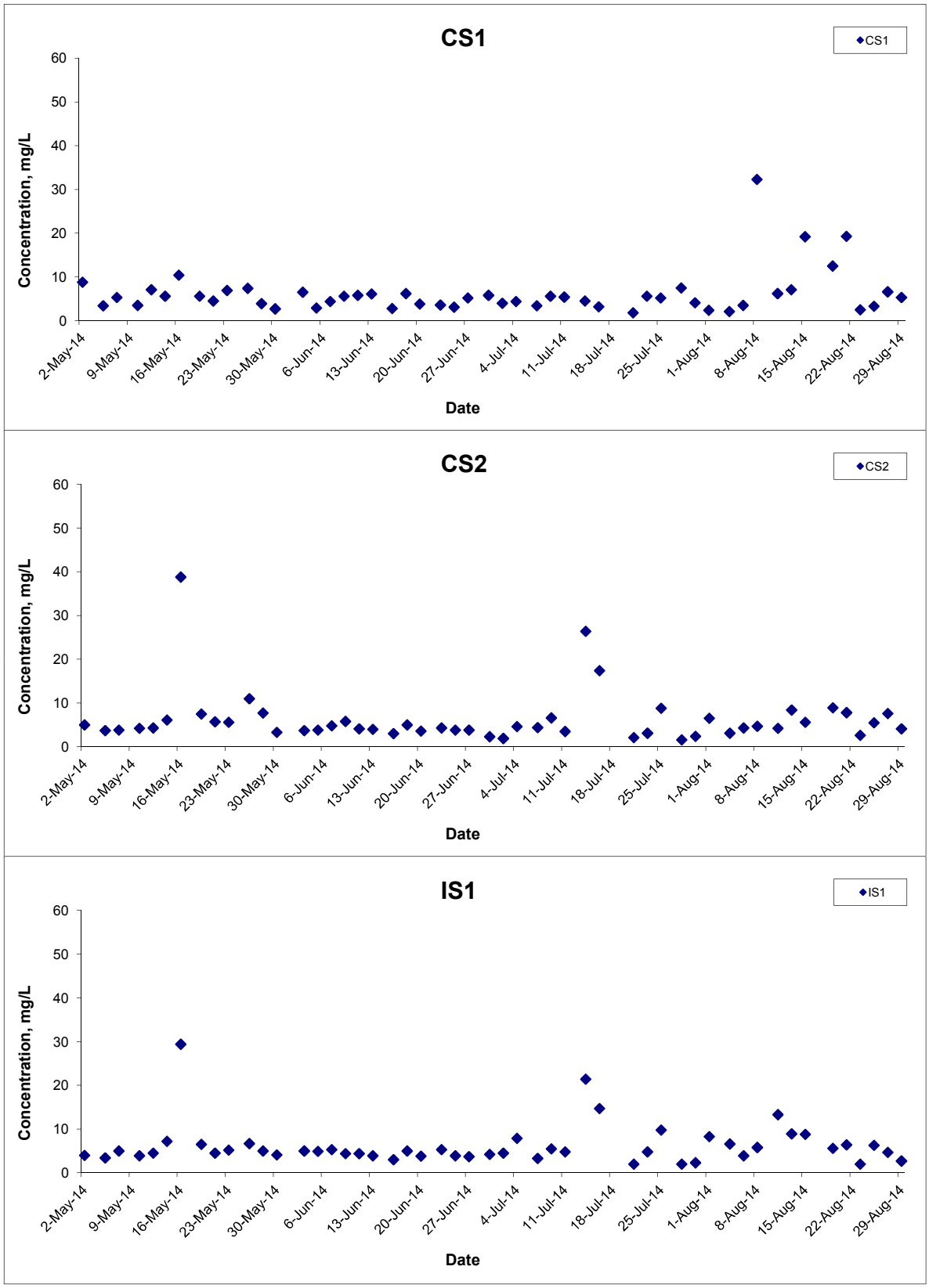
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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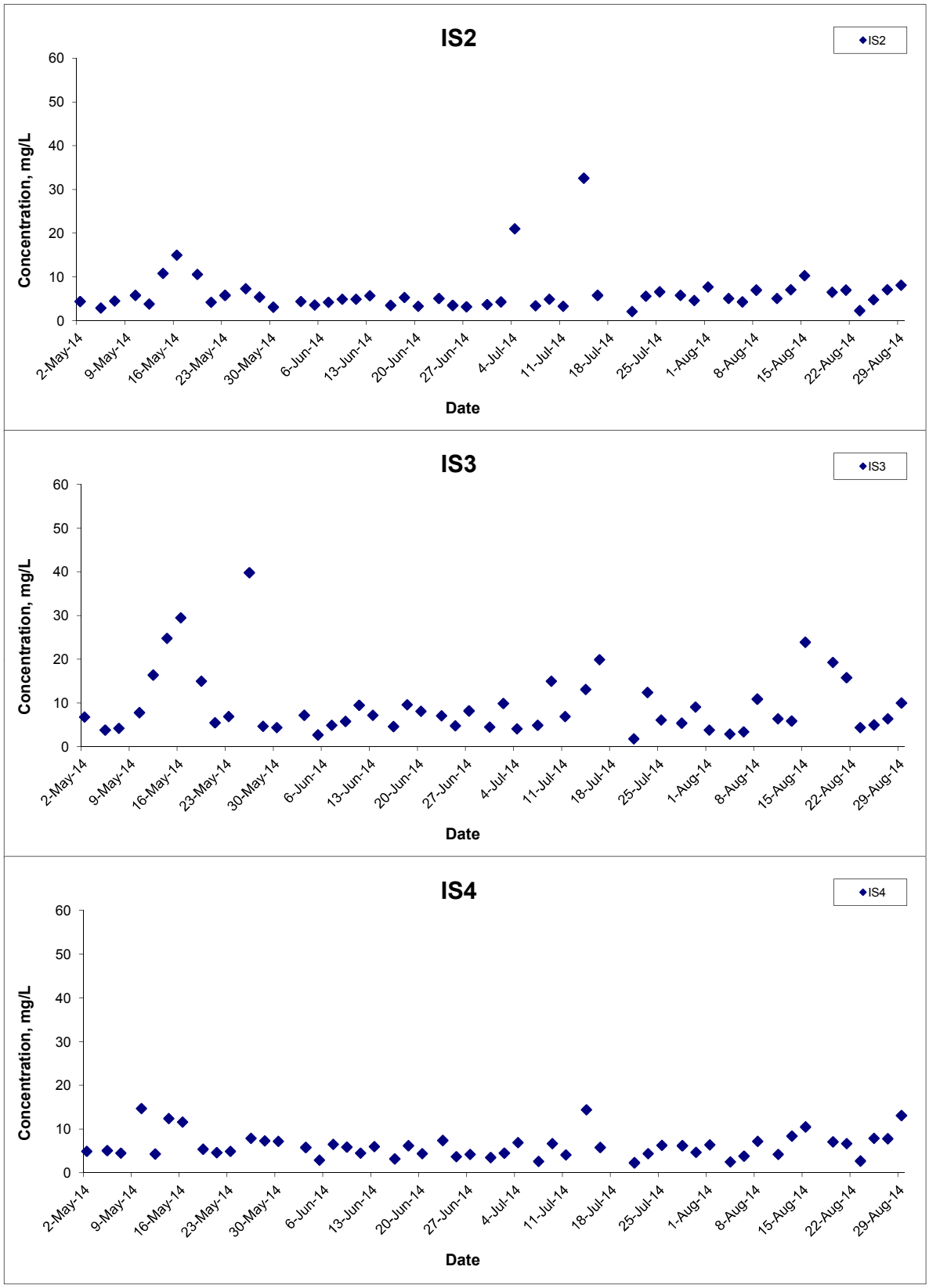
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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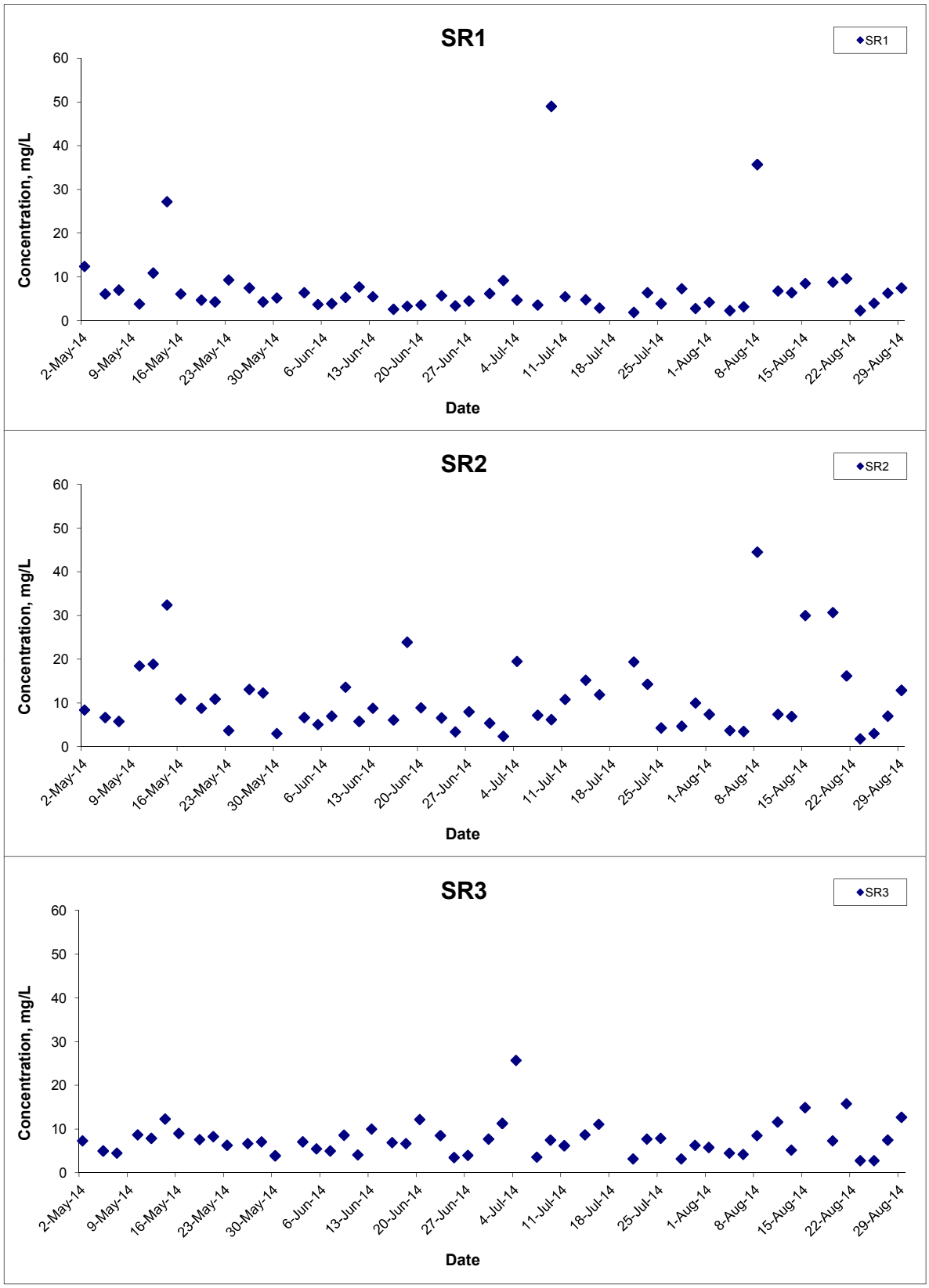
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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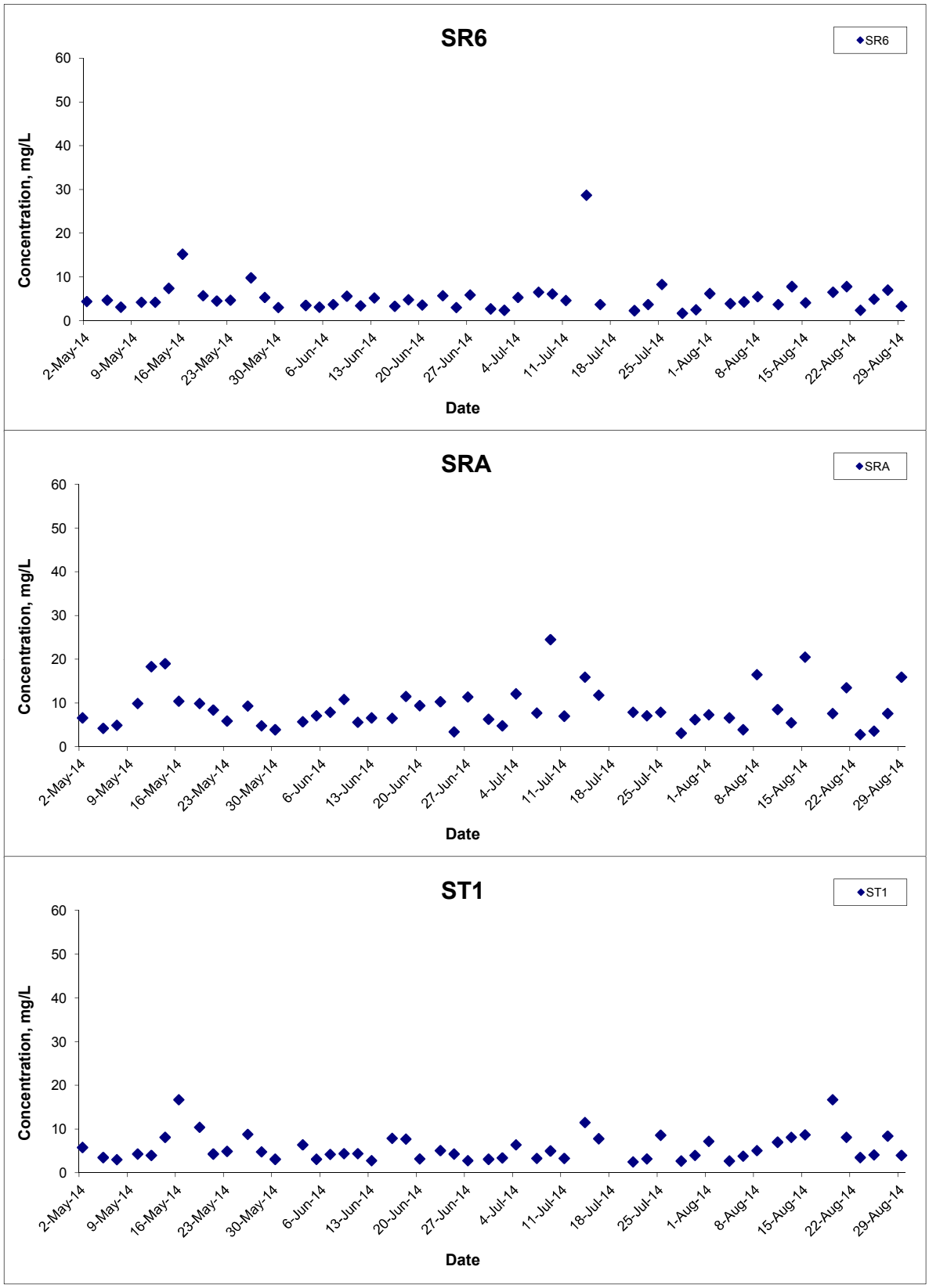

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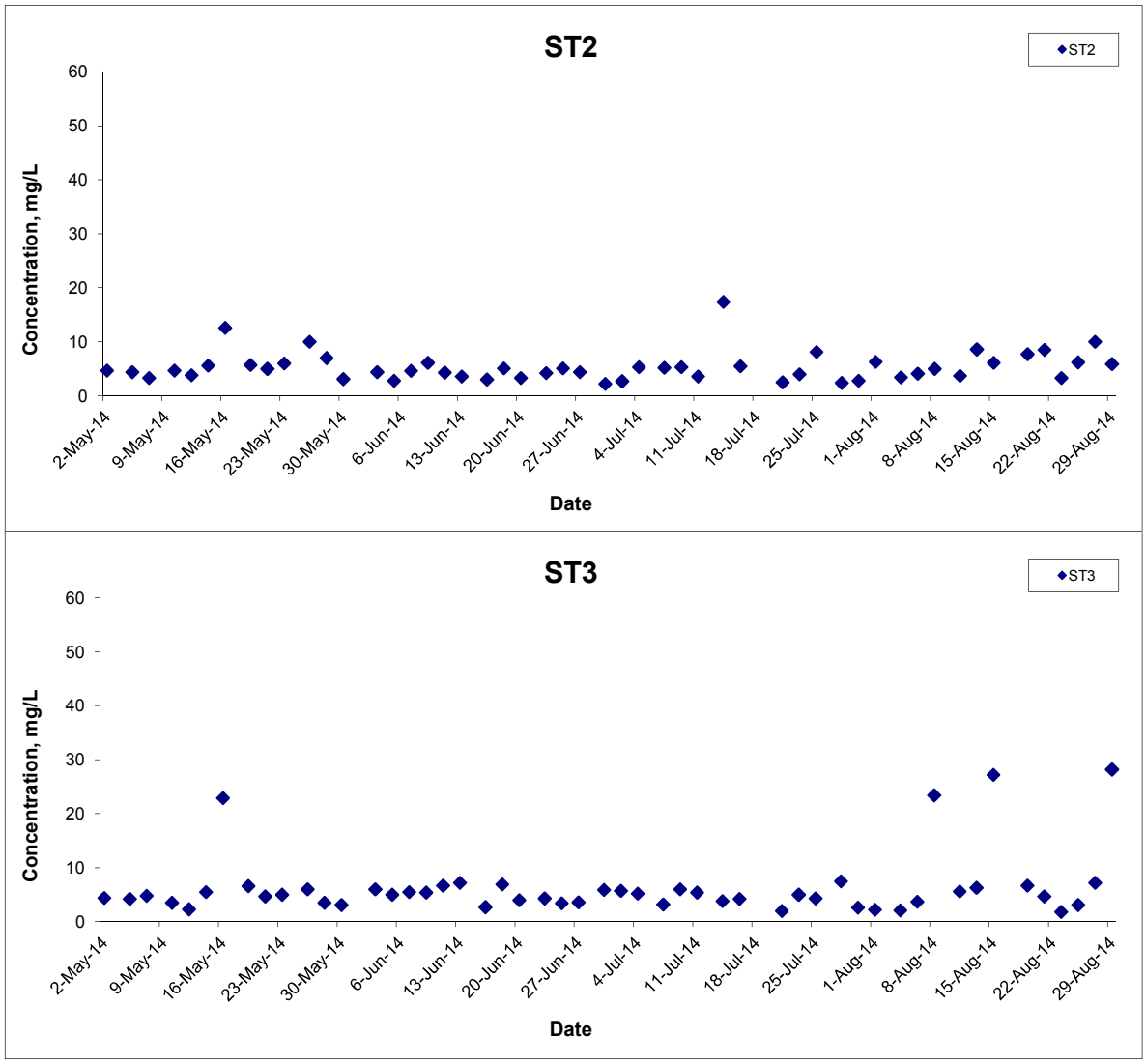
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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APPENDIX F
DOLPHIN MONITORING REPORT
(LINE TRANSECT)

Contract No. HY/2011/09
Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Dolphin Monthly Monitoring

Quarterly Progress Report (June – August 2014)

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

20 September, 2014

1. Introduction

1.1. The Hong Kong Link Road (HKLR) serves to connect the Hong Kong-Zhuhai-Macao Bridge (HZMB) Main Bridge at the Hong Kong Special Administrative Region (HKSAR) Boundary and the HZMB Hong Kong Boundary Crossing Facilities (HKBCF) located at the northeastern waters of the Hong Kong International Airport.

1.2. According to the updated Environmental Monitoring and Audit (EM&A) Manual (for HKLR), monthly line-transect vessel surveys for Chinese White Dolphin should be conducted to cover the West Lantau survey area as in AFCD annual marine mammal monitoring programme.

1.3. Since November 2012, Hong Kong Cetacean Research Project (HKCRP) has been commissioned by Dragages – China Harbour – VSL JV (DCVJV) to conduct this 34-month dolphin monitoring study in order to collect data on Chinese White Dolphins during the construction phase (i.e. impact period) of the HKLR09 project in West Lantau (WL) survey area, and to analyze the collected survey data to monitor distribution, encounter rate, abundance, activities and occurrence of dolphin calves. Photo-identification will also be collected from individual Chinese White Dolphins to examine their individual range patterns and core area use.

1.4. 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.

1.5. This report is the sixth quarterly progress report under the HKLR09 construction phase dolphin monitoring programme submitted to DCVJV, summarizing the results of the surveys findings during the period of June to August 2014.

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 WL survey area (see Figure 1) twice per month throughout the entire construction period. The co-ordinates of all transect lines are shown in Table 1.

Table 1. Co-ordinates of transect lines in WL survey area

Line No.		Easting	Northing		Line No.		Easting	Northing
1	Start Point	803750	818500		7	Start Point	800200	810450
1	End Point	803750	815500		7	End Point	801400	810450
2	Start Point	803750	815500		8	Start Point	801300	809450
2	End Point	802940	815500		8	End Point	799750	809450
3	Start Point	802550	814500		9	Start Point	799400	808450
3	End Point	803700	814500		9	End Point	801430	808450
4	Start Point	803120	813600		10	Start Point	801500	807450
4	End Point	801640	813600		10	End Point	799600	807450
5	Start Point	801100	812450		11	Start Point	800300	806500
5	End Point	802900	812450		11	End Point	801750	806500
6	Start Point	802400	811500		12	Start Point	801760	805450
6	End Point	800660	811500		12	End Point	800700	805450

2.1.2. The 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 17 years of marine mammal monitoring surveys in Hong Kong developed by HKCRP (see Hung 2013). 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^{o} and 90^{o} (in relation to the bow, which is defined as 0^{o}). 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, position (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 being 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 survey areas around Lantau Island (Hung 2013). Therefore, primary and secondary survey effort were both 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 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. One to two professional digital cameras (*Canon* EOS 7D and/or 60D models), each 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 West Lantau (WL) survey area in relation to the amount of survey effort conducted during each month of monitoring survey. 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, and only data collected under Beaufort 3 or below condition would be used for encounter rate analysis. 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 West 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 West 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 entire quarterly period (i.e. June – August 2014).

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-km^2 grids in WL survey area on GIS. Sighting densities (number of on-effort

sightings per km^2) and dolphin densities (total number of dolphins from on-effort sightings per km^2) 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 **s**ightings **p**er 100 units of **s**urvey **e**ffort. In addition, the derived unit for actual dolphin density was termed DPSE, representing the number of **d**olphins **p**er 100 units of **s**urvey **e**ffort. Among the 1-km^2 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-km^2 grid within the study area:

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

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, milling/resting, traveling, socializing) 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 three-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 2014, six sets of systematic line-transect vessel surveys were conducted to cover all transect lines in WL survey area twice per month.

3.1.2. From these surveys, a total of 189.86 km of survey effort was collected, with 90.5% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). The total survey effort conducted on primary lines was 126.24 km, while the effort on secondary lines was 63.62 km. Survey effort conducted on primary and secondary lines were both considered as on-effort survey data. Summary table of the survey effort is shown in Appendix I.

3.1.3. During the six sets of monitoring surveys in June to August 2014, a total of 43 groups of 188 Chinese White Dolphins were sighted. All except three sightings were made during on-effort search. Twenty-five on-effort sightings were made on primary lines, while another 15 on-effort sightings were made on secondary lines. 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 2014 is shown in Figure 1. The dolphin groups were evenly distributed throughout the WL survey area, with higher concentrations near Fan Lau (Figure 1).

3.2.2. Sighting distribution of dolphins in the present quarter was similar to the one during the baseline period, with some subtle differences. There appeared to be fewer dolphins sighted near Kai Kung Shan and more dolphins sighted near

Fan Lau during the present monitoring quarter when compared to the one during the baseline period (Figure 1).

3.2.3. Only one dolphin sighting was made close to the HKLR09 alignment in WL survey area during the present quarter (Figure 1). In fact, when pooling the data from HKLR03 monitoring surveys in the same summer quarter of 2014, dolphins seldom occurred near the HKLR09 alignment in the present quarter as compared to the baseline monitoring period (Figure 2).

3.3. Encounter rate

3.3.1. During the three-month impact phase monitoring 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) from West Lantau survey area are shown in Table 2. The average encounter rates deduced from the six sets of surveys from June to August 2014 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 the impact monitoring period (June to August 2014)

Survey Area	**Dolphin Monitoring**	**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**
West Lantau	Set 1 (June 6)	28.9	115.7
	Set 2 (June 9)	4.7	9.5
	Set 3 (July 4)	50.0	272.1
	Set 4 (July 9)	24.4	131.5
	Set 5 (August 22)	18.3	68.6
	Set 6 (August 27)	11.1	11.1

Table 3. Comparison of average dolphin encounter rates from impact monitoring period (June to August 2014) and baseline monitoring period (September to November 2011) (Note: the encounter rates deduced from the baseline monitroing period have been recalculated based only on the survey effort and on-effort sighting data made along the primary transect lines under favourable conditions)

	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 2014	**September-November 2011**	**June-August 2014**	**September-November 2011**
West Lantau	22.90 ± 15.88	16.43 ± 7.70	101.41 ± 97.90	60.50 ± 38.47

3.3.2. In WL survey area, the average dolphin encounter rates (ER(STG) and ER(ANI)) in the present three-month study period were both higher than the ones recorded in the three-month baseline period (Table 3), indicating the dolphin usage during this impact phase monitoring period in this survey area were more intensive when compared to the baseline phase.

3.3.3. A one-way ANOVA was conducted to examine whether there were any significant differences in the average encounter rates between the baseline and impact monitoring periods. For the comparison between the baseline period and the present quarter (sixth quarter of the impact phase), the p-value for the differences in average dolphin encounter rates of STG and ANI were 0.391 and 0.363 respectively. Therefore, no significant difference in dolphin encounter rate was detected between the baseline period and the present quarter.

3.3.4. Another comparison was made between the baseline period and the cumulative quarters in the impact phase (i.e. first six quarters of the impact phase), and the p-value for the differences in average dolphin encounter rates of STG and ANI were 0.744 and 0.784 respectively. As a result, no significant difference was found in the dolphin encounter rates between the baseline period and the cumulative quarters in the impact phase.

3.3.5. To facilitate the comparison with the AFCD long-term monitoring results, the encounter rates were also calculated for the present quarter (June to August 2014) using both primary and secondary survey effort. The encounter rates of sightings (STG) and dolphins (ANI) in WL were 22.7 sightings and 104.2 dolphins per 100 km of survey effort respectively.

3.4. Group size

3.4.1. Group size of Chinese White Dolphins ranged from 1-12 individuals per group in WL survey area between June and August 2014. The average dolphin group sizes from these three months were compared with the one deduced from the baseline period in September to November 2011, as shown in Table 4.

Table 4. Comparison of average dolphin group sizes from impact monitoring period (June to August 2014) and baseline monitoring period (September-November 2011)

	Average Dolphin Group Size	
	June – August 2014	**September – November 2011**
West Lantau	4.37 ± 2.78 (n = 43)	3.63 ± 2.97 (n = 46)

3.4.2. The average dolphin group size in the WL region during June to August 2014 was higher than the ones recorded in the three-month baseline period (Table 4). About half of the dolphin groups were composed of 1-3 dolphins, but there were also nine groups with more than 5 animals per group, and two groups with 10 animals or more per group.

3.4.3. Distribution of dolphins with the larger groups during June to August 2014 is shown in Figure 3. These groups were evenly distributed between Tai O Peninsula and Fan Lau, but were generally far away from the HKLR09 alignment. This was quite different from the baseline period, when some of the larger dolphin groups also occurred near Tai O Peninsula closer to the bridge alignment (Figure 3).

3.5. Habitat use

3.5.1. From June to August 2014, the most heavily utilized habitats by the dolphins mainly concentrated near Tai O Peninsula and Fan Lau (Figures 4a & 4b). However, it should be noted that the amount of survey effort collected in each grid during the three-month period was fairly low (6 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 will be presented when more survey effort for each grid will be collected throughout the impact phase monitoring programme.

3.5.2. When compared with the habitat use pattern recorded during the baseline period, it appears that dolphin densities were more evenly spread during the baseline period than in the present impact phase monitoring period (Figure 5). Moreover, dolphin densities appeared to be much higher near Fan Lau during the present quarter than in the baseline period.

3.6. Mother-calf pairs

3.6.1. During the three-month impact phase monitoring period, only two unspotted calves and two unspotted juveniles (UJ) were sighted in WL survey area. These young calves comprised 2.1% of all animals sighted, which was only one third of the percentage recorded during the baseline monitoring period (6.6%).

3.6.2. The rare occurrence of these young calves were located near Tai O Peninsula, off Peaked Hill and near Fan Lau, which was in stark contrast to the baseline period when calf occurrence was more concentrated near Tai O Peninsula (Figure 6).

3.7. Activities and associations with fishing boats

3.7.1. During the three-month impact monitoring period, only three dolphin sightings

were associated with feeding activities near Tai O and Fan Lau (Figure 7), comprising 7.0% of the total number of dolphin sightings. This percentage was much lower than the percentage recorded during the baseline period (13.0%). Only two of the 43 sightings were associated with socializing activity near Peaked Hill, while one group of five dolphins were engaged in traveling activity during the present quarter (Figure 7).

3.7.2. Apparently, the distribution of these activities during the present impact phase monitoring period was different from the one during the baseline period, with higher concentration of these activities occurred between Tai O and Peaked Hill during the baseline period (Figure 7).

3.7.3. During the three-month monitoring period, none of the dolphin groups was associated with an operating fishing vessel.

3.8. Summary of photo-identification works

3.8.1. From June to August 2014, over 3,000 digital photographs of Chinese White Dolphins were taken during the impact phase monitoring surveys for the photo-identification work.

3.8.2. In total, 62 individuals sighted 81 times altogether were identified (see summary table in Appendix III and photographs of identified individuals in Appendix IV). The majority of identified individuals were sighted only once or twice during the three-month period, but two individuals (WL46 and WL114) were sighted thrice.

3.8.3. Notably, 11 of these 62 individuals were also sighted in North Lantau waters during the HKLR03 monitoring surveys in the same three-month period, showing their extensive movement across the HKLR09 bridge alignment. Moreover, many individuals that were consistently sighted in North Lantau waters in the past were identified in West Lantau waters (e.g. NL37, NL46, NL98, NL262). It is possible that some of these identified dolphins have shifted their range use into West Lantau due to the increased disturbance of HZMB-related construction works in North Lantau region, as documented in Hung (2014).

3.8.4. During the three-month period, five recognizable females, including NL212, WL94, WL118, WL207 and WL224, were sighted to be accompanied with their calves during their re-sightings.

3.9. Individual range use

3.9.1. Ranging patterns of the 62 individuals identified during the three-month study period were determined by fixed kernel method, and are shown in Appendix V.

3.9.2. Among these 62 individuals, 17 of them (CH34, NL37, NL46, NL49, NL98, NL136, NL139, NL150, NL213, NL261, NL262, NL295, NL300, NL308, WL04, WL05, WL188) occurred primarily in North Lantau but ventured into West Lantau during the three-month period, while a few other individuals (e.g. NL212, NL249, NL279 and WL46) split their time between North and West Lantau waters. The other individuals centered their range use primarily in West Lantau waters (Appendix V).

3.9.3. For those that regularly occurred in North Lantau waters, they have extended their range use from there to West Lantau waters, which could be a result of a range shift from North Lantau waters. Such range shifts should be continuously monitored in the upcoming quarters to determine whether these range shifts are consistent for North Lantau individuals and possibly related to the negative impacts of the HZMB-related construction activities.

3.9.4. On the other hand, for those that primarily used West Lantau waters as their home ranges, it was apparent that almost all of them utilized the southern part of their ranges, but seldom in the northern part of West Lantau, especially near the HKLR09 alignment where they frequently occurred in the past. It is possible that their range use in West Lantau waters have been affected by the HKLR09 construction activities, and it will be crucial to examine whether such shift is temporary in nature or not, as a result of disturbance from the HKLR09-related works.

4. Conclusion

4.1. During this quarter of dolphin monitoring, no adverse impact from the activities of the HKLR09 construction project on Chinese White Dolphins was noticeable from general observations. However, there is some apparent fine-scale change in dolphin occurrence in West Lantau survey area, with individual dolphins mostly utilizing the southern part of their ranges but not in the northern portion where HKLR09 construction activities occur.

4.2. Therefore, dolphin usage in WL region should be continuously monitored, to

further examine whether it has been affected by the on-going construction activities in relation to the HZMB works.

5. References

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Hung, S. K. 2013. Monitoring of marine mammals in Hong Kong waters – data collection: final report (2012-13). An unpublished report submitted to the Agriculture, Fisheries and Conservation Department of Hong Kong SAR Government, 168 pp.

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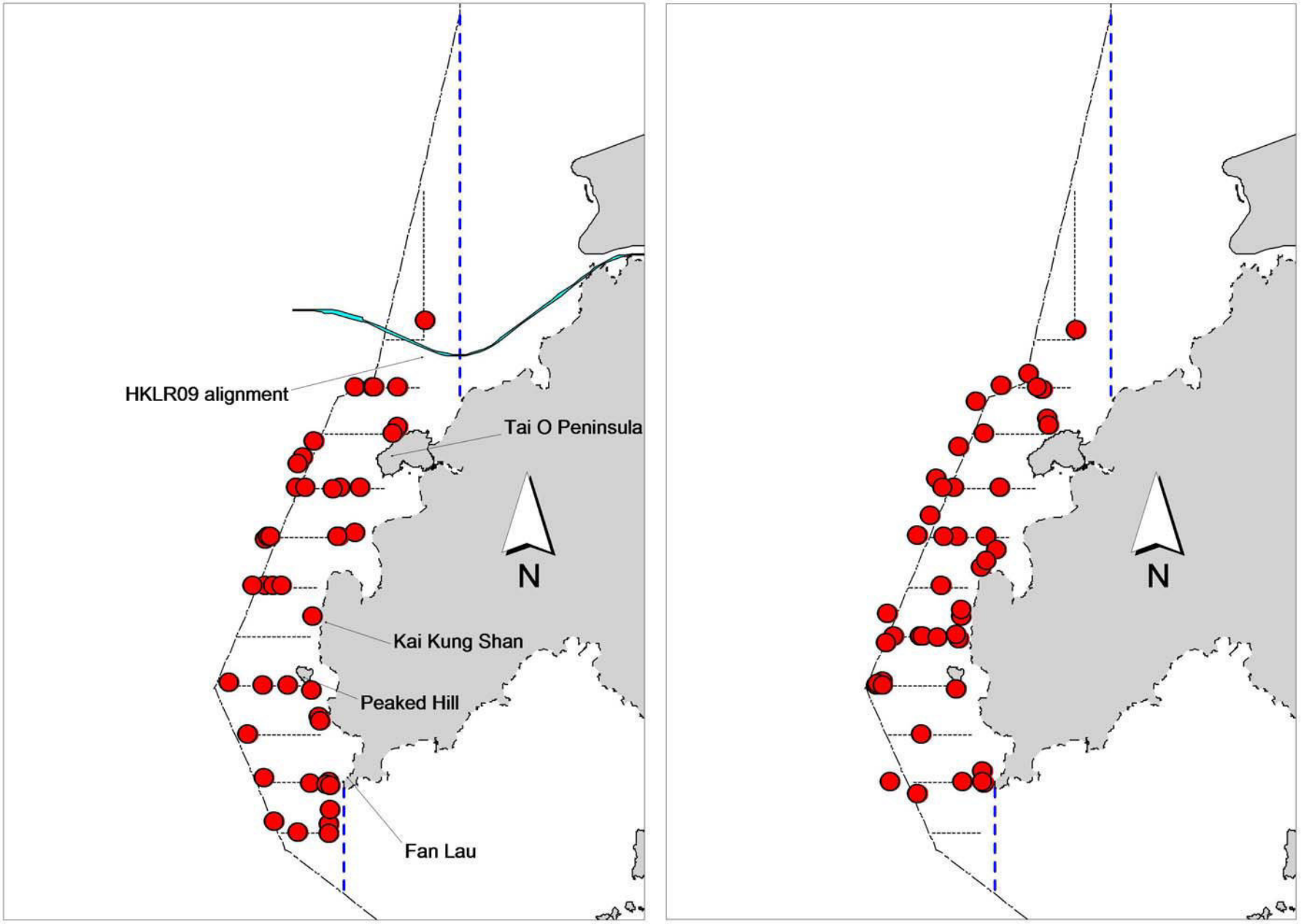


Figure 1. Distribution of Chinese white dolphin sightings in West Lantau during HKLR09 impact phase (left: June – August 2014) and baseline monitoring surveys (right: September – November 2011)

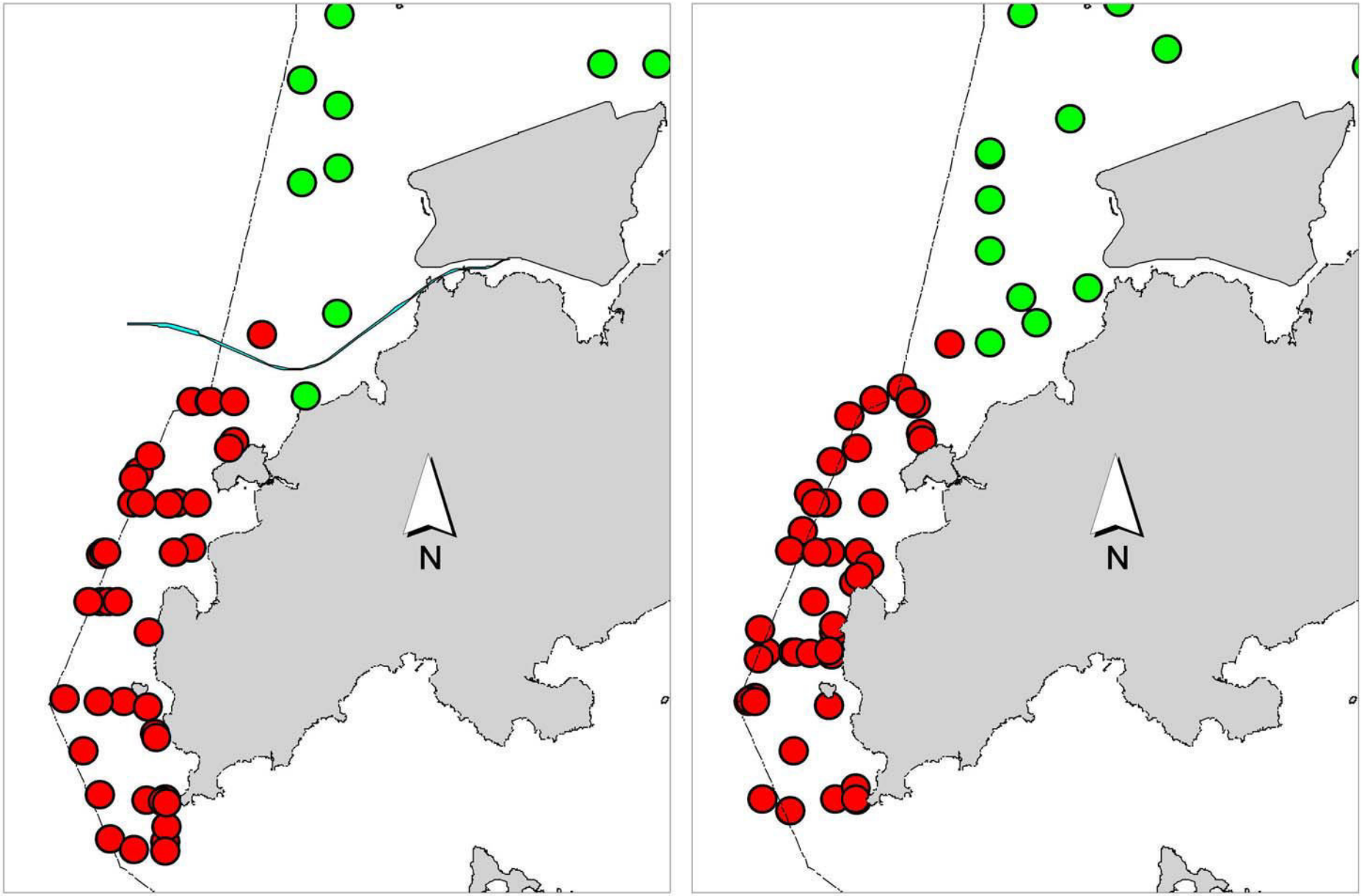


Figure 2. Distribution of Chinese white dolphin sightings from HKLR03 (in green) and HKLR09 surveys (in red) near the HKLR09 alignment during impact phase (left: June – August 2014) and baseline monitoring surveys (right: September – November 2011)

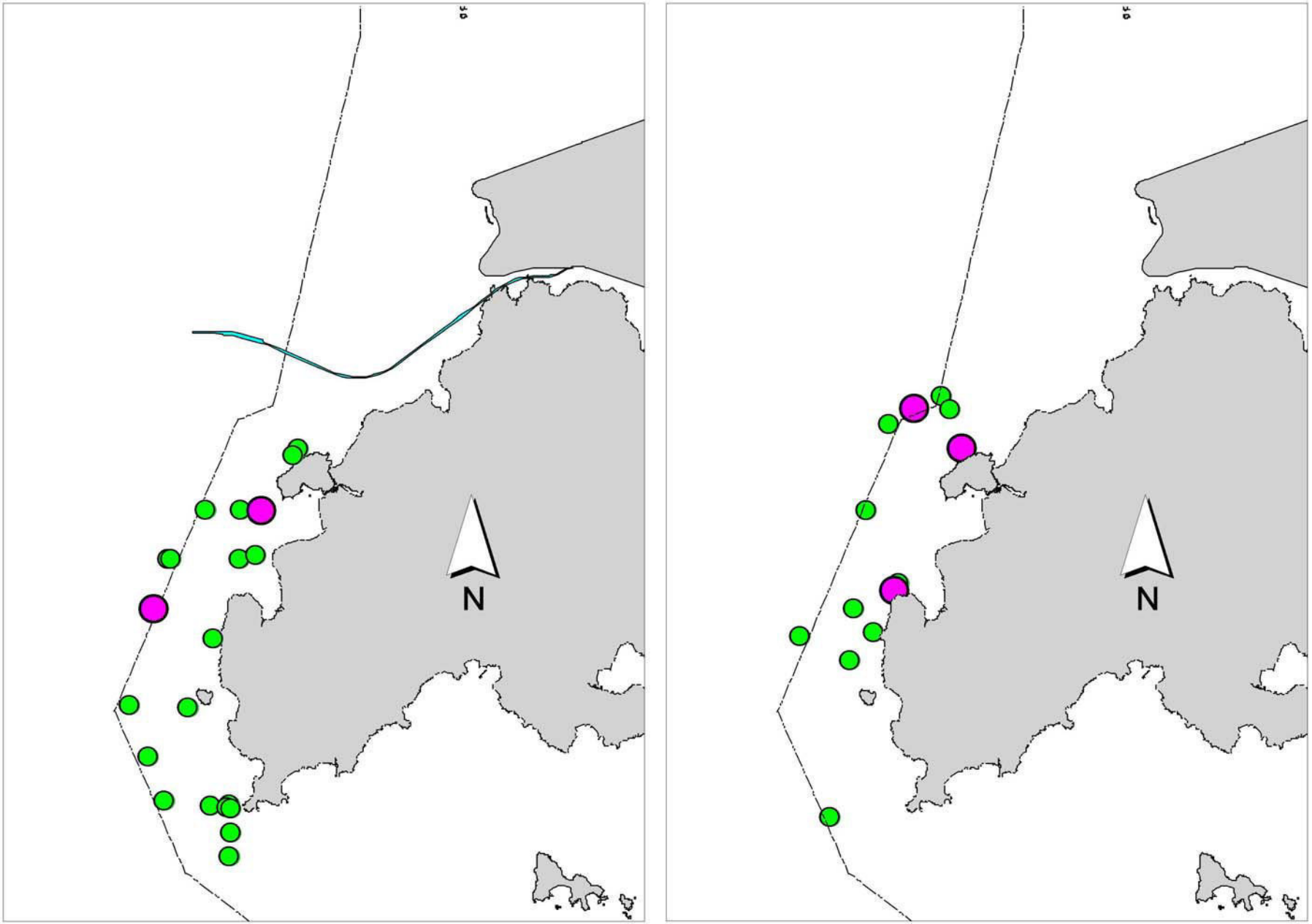


Figure 3. Distribution of Chinese white dolphins with larger group sizes during HKLR09 impact phase (left: June – August 2014) and baseline monitoring surveys (right: September – November 2011) (green dots: group sizes of 5 or more; purple dots: group sizes of 10 or more)

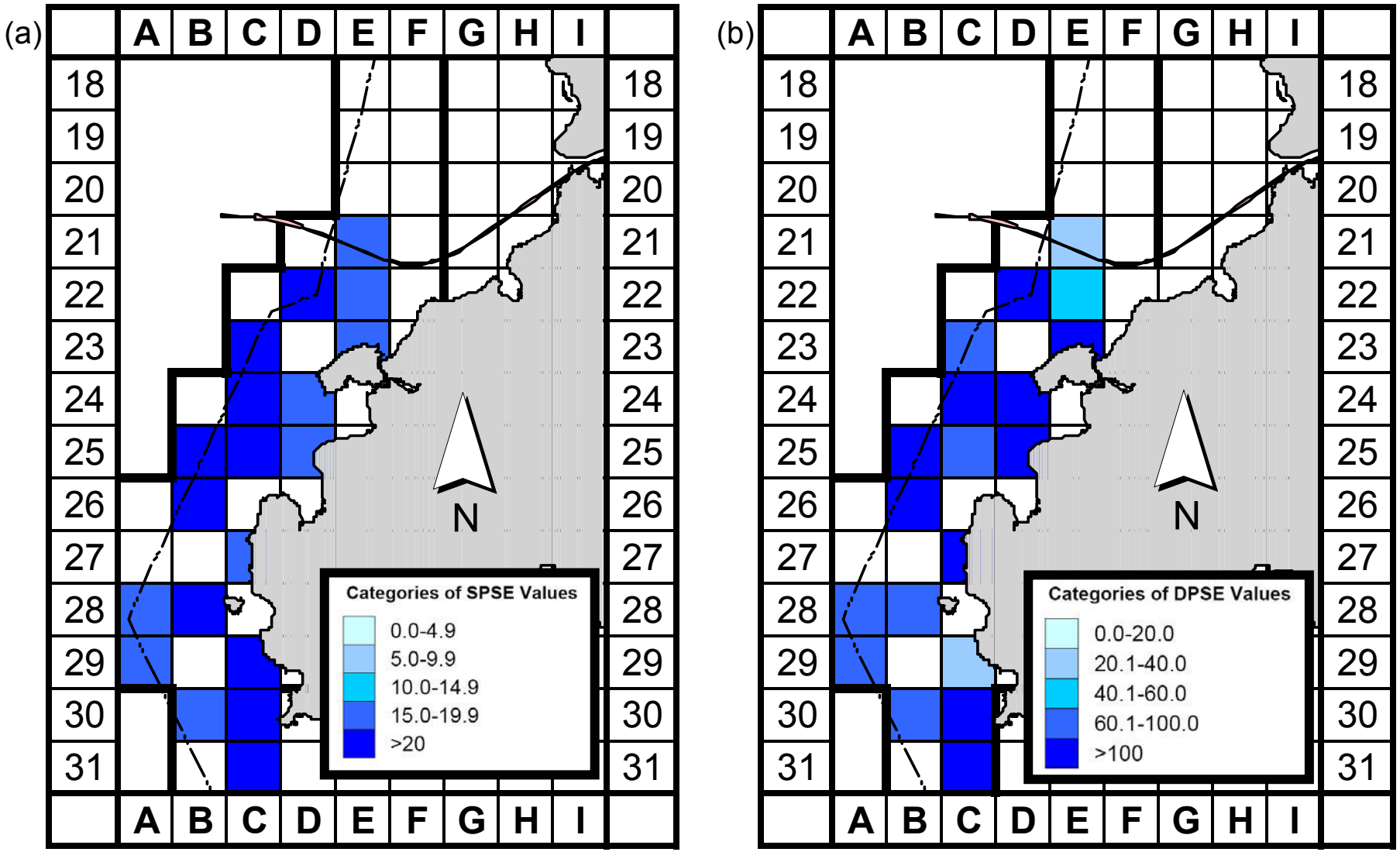


Figure 4a. Sighting density of Chinese white dolphins with corrected survey effort per km^2 in West Lantau survey area, using data collected during HKLR09 impact monitoring period (Jun-Aug 14) (SPSE = no. of on-effort sightings per 100 units of survey effort)

Figure 4b. Density of Chinese white dolphins with corrected survey effort per km^2 in West Lantau survey area, using data collected during HKLR09 impact monitoring period (Jun-Aug 14) (DPSE = no. of dolphins per 100 units of survey effort)

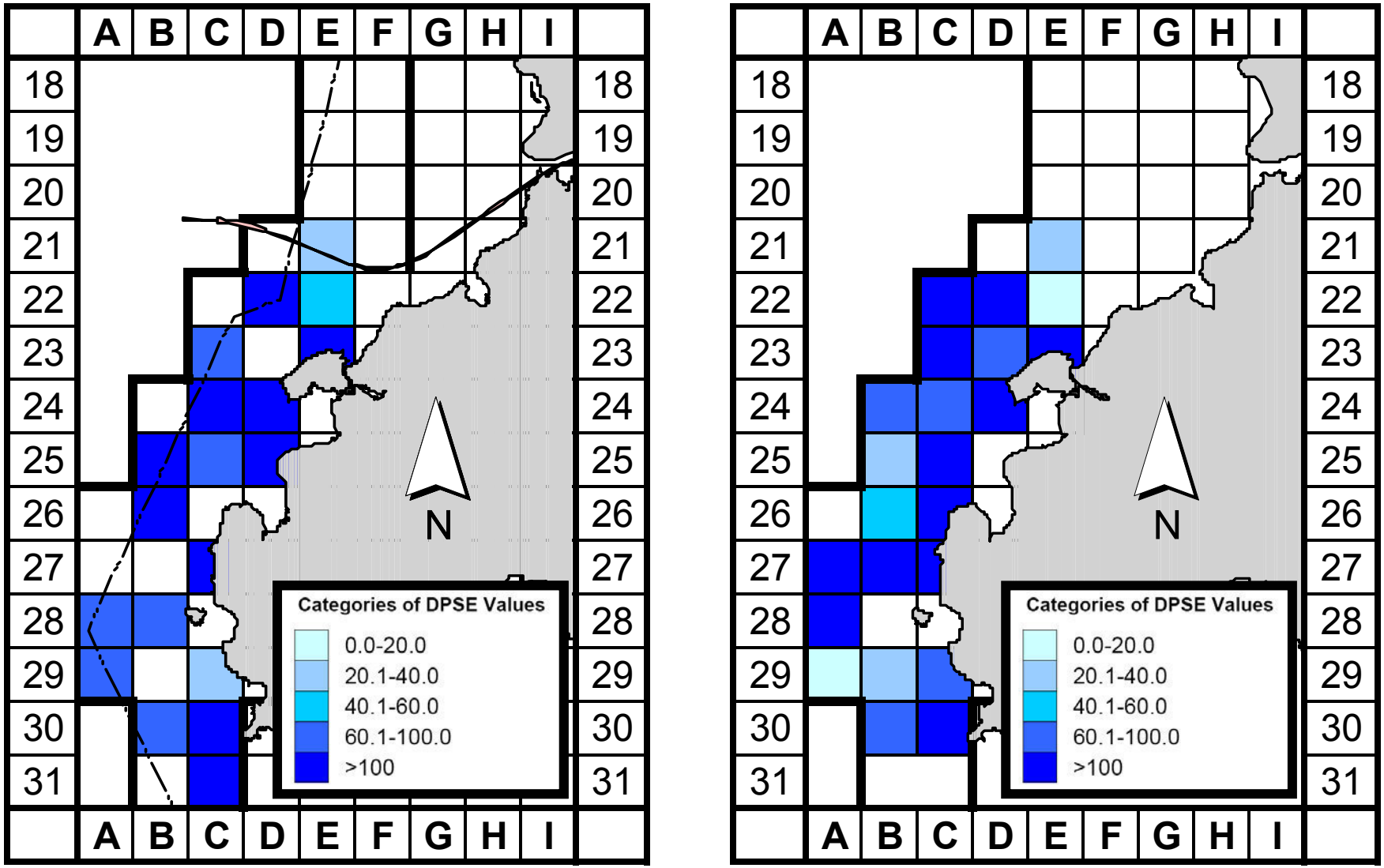


Figure 5. Comparison of density of Chinese white dolphins with corrected survey effort per km^2 in West Lantau survey area between the impact monitoring period (June-August 2014; left) and baseline monitoring period (September-November 2011; right)
(DPSE = no. of dolphins per 100 units of survey effort)

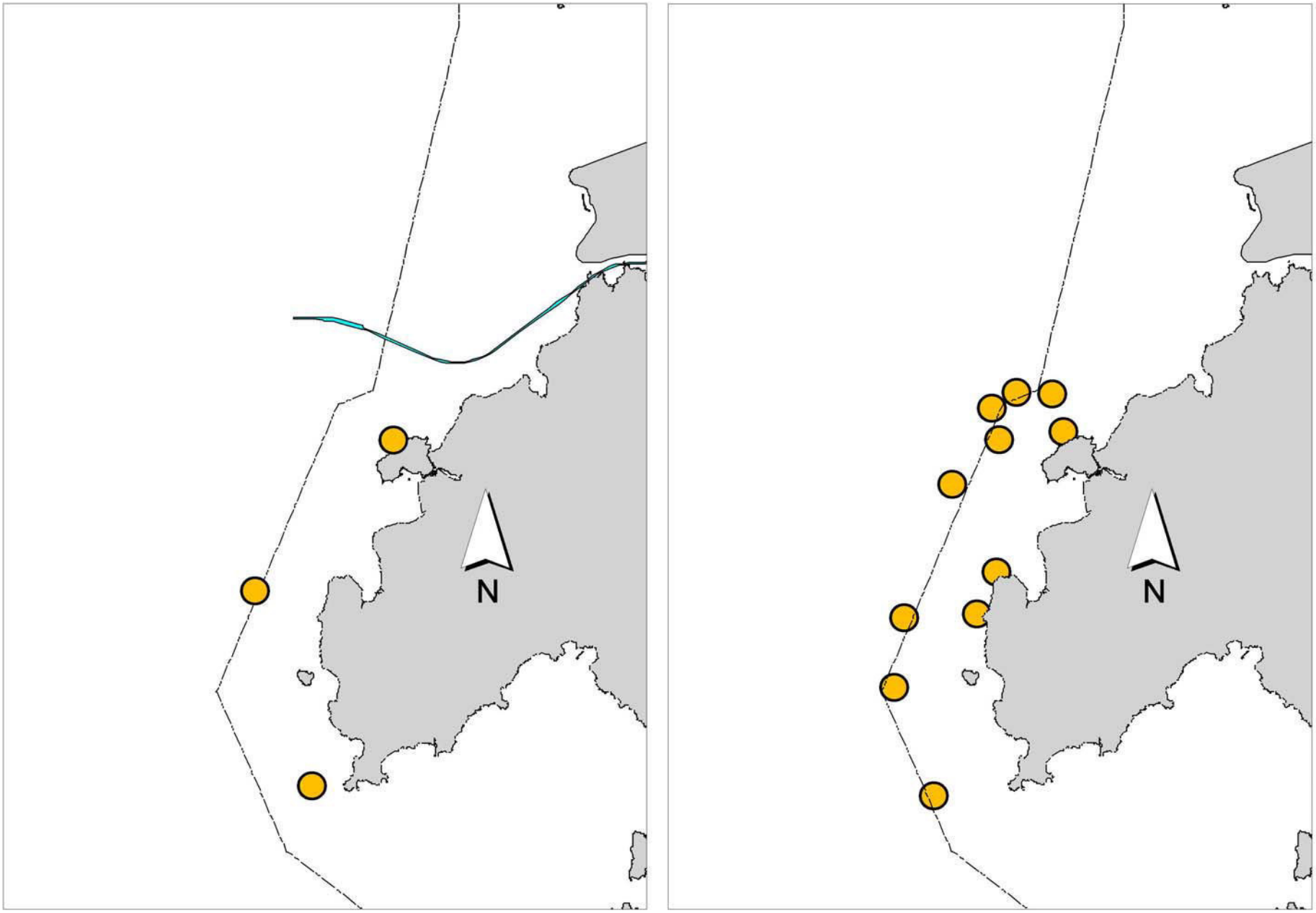


Figure 6. Distribution of young calves of Chinese white dolphins during HKLR09 impact phase (left: June – August 2014) and baseline monitoring surveys (right: September – November 2011)

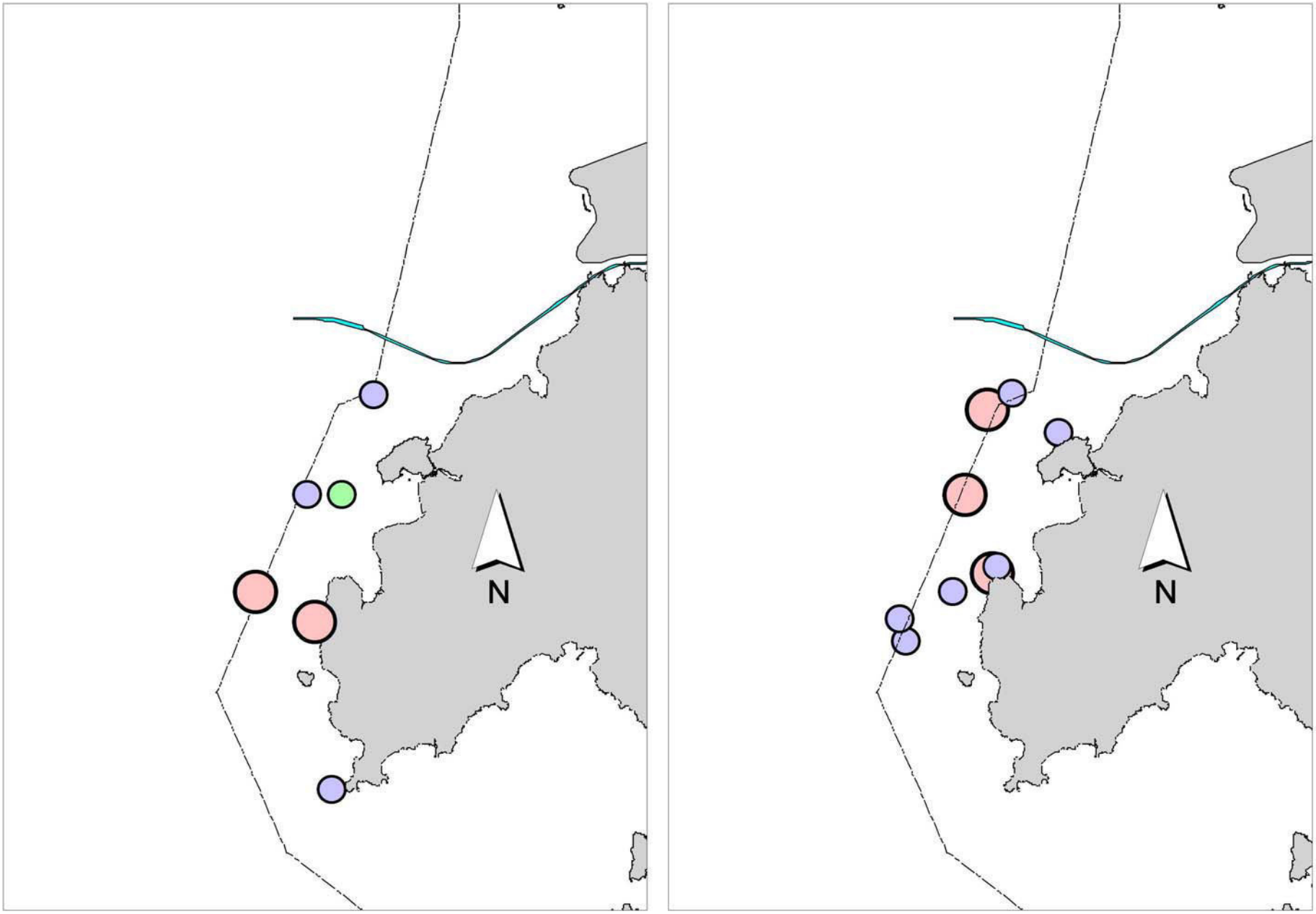


Figure 7. Distribution of dolphins engaged in feeding (in blue), socializing (in pink) and traveling (in green) activities during HKLR09 impact phase (left: June – August 2014) and baseline monitoring surveys (right: September – November 2011)

Appendix I. HKLR09 Survey Effort Database (June-August 2014)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
6-Jun-14	W LANTAU	2	6.09	SUMMER	STANDARD31516	HKLR	P
6-Jun-14	W LANTAU	3	7.74	SUMMER	STANDARD31516	HKLR	P
6-Jun-14	W LANTAU	4	5.87	SUMMER	STANDARD31516	HKLR	P
6-Jun-14	W LANTAU	5	1.25	SUMMER	STANDARD31516	HKLR	P
6-Jun-14	W LANTAU	2	0.49	SUMMER	STANDARD31516	HKLR	S
6-Jun-14	W LANTAU	3	8.68	SUMMER	STANDARD31516	HKLR	S
6-Jun-14	W LANTAU	5	1.82	SUMMER	STANDARD31516	HKLR	S
9-Jun-14	W LANTAU	1	2.50	SUMMER	STANDARD31516	HKLR	P
9-Jun-14	W LANTAU	2	5.71	SUMMER	STANDARD31516	HKLR	P
9-Jun-14	W LANTAU	3	12.91	SUMMER	STANDARD31516	HKLR	P
9-Jun-14	W LANTAU	4	1.21	SUMMER	STANDARD31516	HKLR	P
9-Jun-14	W LANTAU	2	1.62	SUMMER	STANDARD31516	HKLR	S
9-Jun-14	W LANTAU	3	8.68	SUMMER	STANDARD31516	HKLR	S
9-Jun-14	W LANTAU	4	0.76	SUMMER	STANDARD31516	HKLR	S
4-Jul-14	W LANTAU	2	14.32	SUMMER	STANDARD31516	HKLR	P
4-Jul-14	W LANTAU	3	3.69	SUMMER	STANDARD31516	HKLR	P
4-Jul-14	W LANTAU	2	6.59	SUMMER	STANDARD31516	HKLR	S
4-Jul-14	W LANTAU	3	2.38	SUMMER	STANDARD31516	HKLR	S
9-Jul-14	W LANTAU	1	2.59	SUMMER	STANDARD31516	HKLR	P
9-Jul-14	W LANTAU	2	11.69	SUMMER	STANDARD31516	HKLR	P
9-Jul-14	W LANTAU	3	6.25	SUMMER	STANDARD31516	HKLR	P
9-Jul-14	W LANTAU	4	0.79	SUMMER	STANDARD31516	HKLR	P
9-Jul-14	W LANTAU	1	1.96	SUMMER	STANDARD31516	HKLR	S
9-Jul-14	W LANTAU	2	7.13	SUMMER	STANDARD31516	HKLR	S
9-Jul-14	W LANTAU	3	0.39	SUMMER	STANDARD31516	HKLR	S
9-Jul-14	W LANTAU	4	1.41	SUMMER	STANDARD31516	HKLR	S
22-Aug-14	W LANTAU	1	1.01	SUMMER	STANDARD31516	HKLR	P
22-Aug-14	W LANTAU	2	11.35	SUMMER	STANDARD31516	HKLR	P
22-Aug-14	W LANTAU	3	9.50	SUMMER	STANDARD31516	HKLR	P
22-Aug-14	W LANTAU	2	8.15	SUMMER	STANDARD31516	HKLR	S
22-Aug-14	W LANTAU	3	2.60	SUMMER	STANDARD31516	HKLR	S
27-Aug-14	W LANTAU	1	0.85	SUMMER	STANDARD31516	HKLR	P
27-Aug-14	W LANTAU	2	5.50	SUMMER	STANDARD31516	HKLR	P
27-Aug-14	W LANTAU	3	11.66	SUMMER	STANDARD31516	HKLR	P
27-Aug-14	W LANTAU	4	3.76	SUMMER	STANDARD31516	HKLR	P
27-Aug-14	W LANTAU	1	0.28	SUMMER	STANDARD31516	HKLR	S
27-Aug-14	W LANTAU	2	2.13	SUMMER	STANDARD31516	HKLR	S
27-Aug-14	W LANTAU	3	7.41	SUMMER	STANDARD31516	HKLR	S
27-Aug-14	W LANTAU	4	1.14	SUMMER	STANDARD31516	HKLR	S

Appendix II. HKLR09 Chinese White Dolphin Sighting Database (June-August 2014)

(Abberviations: 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 Lines)

DATE	STG #	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
6-Jun-14	1	1043	3	W LANTAU	2	75	ON	HKLR	814500	802278	SUMMER	NONE	P
6-Jun-14	2	1110	2	W LANTAU	3	216	ON	HKLR	813085	801152	SUMMER	NONE	S
6-Jun-14	3	1122	3	W LANTAU	3	211	ON	HKLR	812465	801006	SUMMER	NONE	S
6-Jun-14	4	1139	5	W LANTAU	3	203	ON	HKLR	812463	801944	SUMMER	NONE	P
6-Jun-14	5	1209	5	W LANTAU	3	87	ON	HKLR	811456	801932	SUMMER	NONE	P
6-Jun-14	6	1232	3	W LANTAU	3	92	ON	HKLR	810463	800331	SUMMER	NONE	P
9-Jun-14	1	1104	1	W LANTAU	4	619	ON	HKLR	805631	801723	SUMMER	NONE	S
9-Jun-14	2	1117	8	W LANTAU	3	20	ON	HKLR	806473	801714	SUMMER	NONE	S
9-Jun-14	3	1229	2	W LANTAU	3	637	ON	HKLR	810473	800496	SUMMER	NONE	P
9-Jun-14	4	1248	3	W LANTAU	3	322	ON	HKLR	811404	800344	SUMMER	NONE	S
9-Jun-14	5	1326	4	W LANTAU	3	30	ON	HKLR	812941	801048	SUMMER	NONE	S
4-Jul-14	1	1122	3	W LANTAU	2	189	ON	HKLR	814499	802650	SUMMER	NONE	P
4-Jul-14	2	1148	7	W LANTAU	2	137	ON	HKLR	813690	803194	SUMMER	NONE	S
4-Jul-14	3	1222	7	W LANTAU	2	330	ON	HKLR	812454	801202	SUMMER	NONE	P
4-Jul-14	4	1251	9	W LANTAU	2	241	ON	HKLR	811554	802272	SUMMER	NONE	S
4-Jul-14	5	1309	5	W LANTAU	3	117	ON	HKLR	811459	800385	SUMMER	NONE	P
4-Jul-14	6	1319	10	W LANTAU	3	150	ON	HKLR	810463	800063	SUMMER	NONE	P
4-Jul-14	7	1342	3	W LANTAU	2	117	ON	HKLR	810462	800682	SUMMER	NONE	P
4-Jul-14	8	1359	5	W LANTAU	2	777	ON	HKLR	808504	799564	SUMMER	NONE	P
4-Jul-14	9	1415	5	W LANTAU	2	83	ON	HKLR	808446	800832	SUMMER	NONE	P
4-Jul-14	10	1435	6	W LANTAU	3	190	ON	HKLR	807440	799974	SUMMER	NONE	P
4-Jul-14	11	1449	5	W LANTAU	2	442	ON	HKLR	806565	800302	SUMMER	NONE	P
4-Jul-14	12	1508	1	W LANTAU	2	ND	OFF	HKLR	805678	800516	SUMMER	NONE	
9-Jul-14	1	1116	6	W LANTAU	3	58	ON	HKLR	805908	801733	SUMMER	NONE	S
9-Jul-14	2	1135	5	W LANTAU	2	57	ON	HKLR	806452	801302	SUMMER	NONE	P
9-Jul-14	3	1201	1	W LANTAU	1	190	ON	HKLR	807813	801490	SUMMER	NONE	S
9-Jul-14	4	1211	1	W LANTAU	1	243	ON	HKLR	808436	800275	SUMMER	NONE	P
9-Jul-14	5	1253	6	W LANTAU	2	189	ON	HKLR	811459	800437	SUMMER	NONE	P
9-Jul-14	6	1317	12	W LANTAU	2	673	ON	HKLR	812462	802398	SUMMER	NONE	P
9-Jul-14	7	1354	2	W LANTAU	2	92	ON	HKLR	813406	801390	SUMMER	NONE	S
9-Jul-14	8	1419	3	W LANTAU	3	51	ON	HKLR	814510	802680	SUMMER	NONE	P

Appendix II. HKLR09 Chinese White Dolphin Sighting Database (June-August 2014)

DATE	STG #	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
22-Aug-14	1	1033	2	W LANTAU	2	516	ON	HKLR	815859	803786	SUMMER	NONE	P
22-Aug-14	2	1107	3	W LANTAU	2	265	ON	HKLR	814498	803185	SUMMER	NONE	P
22-Aug-14	3	1127	6	W LANTAU	2	ND	OFF	HKLR	813557	803080	SUMMER	NONE	
22-Aug-14	4	1214	3	W LANTAU	2	87	ON	HKLR	812441	801789	SUMMER	NONE	P
22-Aug-14	5	1332	1	W LANTAU	2	ND	OFF	HKLR	808334	801337	SUMMER	NONE	
22-Aug-14	6	1356	7	W LANTAU	3	99	ON	HKLR	806440	801662	SUMMER	NONE	P
22-Aug-14	7	1422	5	W LANTAU	3	9	ON	HKLR	805432	801701	SUMMER	NONE	S
27-Aug-14	1	1128	1	W LANTAU	3	180	ON	HKLR	805445	801041	SUMMER	NONE	P
27-Aug-14	2	1143	8	W LANTAU	3	182	ON	HKLR	806406	801735	SUMMER	NONE	S
27-Aug-14	3	1218	1	W LANTAU	3	81	ON	HKLR	807725	801511	SUMMER	NONE	S
27-Aug-14	4	1250	9	W LANTAU	2	60	ON	HKLR	809851	801361	SUMMER	NONE	S
27-Aug-14	5	1326	1	W LANTAU	3	51	ON	HKLR	811456	801911	SUMMER	NONE	P

Appendix III. Individual dolphins identified during HKLR09 monitoring surveys in June-August 2014

ID#	DATE	STG#	AREA
CH12	04/07/14	11	W LANTAU
	27/08/14	2	W LANTAU
CH34	06/06/14	4	W LANTAU
	06/06/14	5	W LANTAU
CH105	22/08/14	6	W LANTAU
CH108	09/07/14	1	W LANTAU
	22/08/14	6	W LANTAU
CH113	06/06/14	5	W LANTAU
NL37	04/07/14	6	W LANTAU
	04/07/14	10	W LANTAU
NL46	06/06/14	4	W LANTAU
	04/07/14	3	W LANTAU
NL49	04/07/14	9	W LANTAU
NL98	04/07/14	3	W LANTAU
NL136	06/06/14	4	W LANTAU
NL139	04/07/14	9	W LANTAU
NL150	09/06/14	5	W LANTAU
NL212	22/08/14	3	W LANTAU
NL213	04/07/14	1	W LANTAU
NL247	09/07/14	6	W LANTAU
NL249	09/07/14	6	W LANTAU
NL261	06/06/14	5	W LANTAU
NL262	06/06/14	4	W LANTAU
NL276	04/07/14	2	W LANTAU
NL279	04/07/14	1	W LANTAU
NL293	09/06/14	4	W LANTAU
NL295	04/07/14	2	W LANTAU
NL300	04/07/14	4	W LANTAU
NL308	04/07/14	3	W LANTAU
SL27	27/08/14	2	W LANTAU
WL04	04/07/14	6	W LANTAU
WL05	04/07/14	3	W LANTAU
WL21	09/06/14	5	W LANTAU
	22/08/14	4	W LANTAU
WL28	22/08/14	6	W LANTAU
	22/08/14	7	W LANTAU
WL42	06/06/14	3	W LANTAU
	09/07/14	1	W LANTAU
WL46	04/07/14	2	W LANTAU
	04/07/14	3	W LANTAU
	22/08/14	1	W LANTAU

ID#	DATE	STG#	AREA
WL47	27/08/14	2	W LANTAU
WL50	09/07/14	1	W LANTAU
WL58	27/08/14	4	W LANTAU
WL61	27/08/14	2	W LANTAU
WL68	06/06/14	3	W LANTAU
	09/06/14	2	W LANTAU
WL72	09/07/14	1	W LANTAU
WL74	04/07/14	9	W LANTAU
WL79	04/07/14	5	W LANTAU
WL94	27/08/14	2	W LANTAU
WL114	09/06/14	2	W LANTAU
	04/07/14	6	W LANTAU
	04/07/14	11	W LANTAU
WL118	09/06/14	2	W LANTAU
	09/07/14	2	W LANTAU
WL120	09/07/14	6	W LANTAU
	09/07/14	7	W LANTAU
WL124	22/08/14	3	W LANTAU
WL128	22/08/14	6	W LANTAU
	27/08/14	2	W LANTAU
WL131	04/07/14	6	W LANTAU
WL159	04/07/14	6	W LANTAU
WL165	27/08/14	2	W LANTAU
WL167	22/08/14	2	W LANTAU
WL188	09/07/14	7	W LANTAU
WL191	04/07/14	6	W LANTAU
WL200	22/08/14	3	W LANTAU
WL207	09/07/14	6	W LANTAU
WL208	22/08/14	3	W LANTAU
	27/08/14	4	W LANTAU
WL209	06/06/14	5	W LANTAU
WL210	04/07/14	6	W LANTAU
	04/07/14	8	W LANTAU
WL211	04/07/14	6	W LANTAU
WL216	04/07/14	5	W LANTAU
WL217	06/06/14	5	W LANTAU
WL223	04/07/14	11	W LANTAU
WL224	09/06/14	2	W LANTAU
	04/07/14	8	W LANTAU
WL226	22/08/14	4	W LANTAU

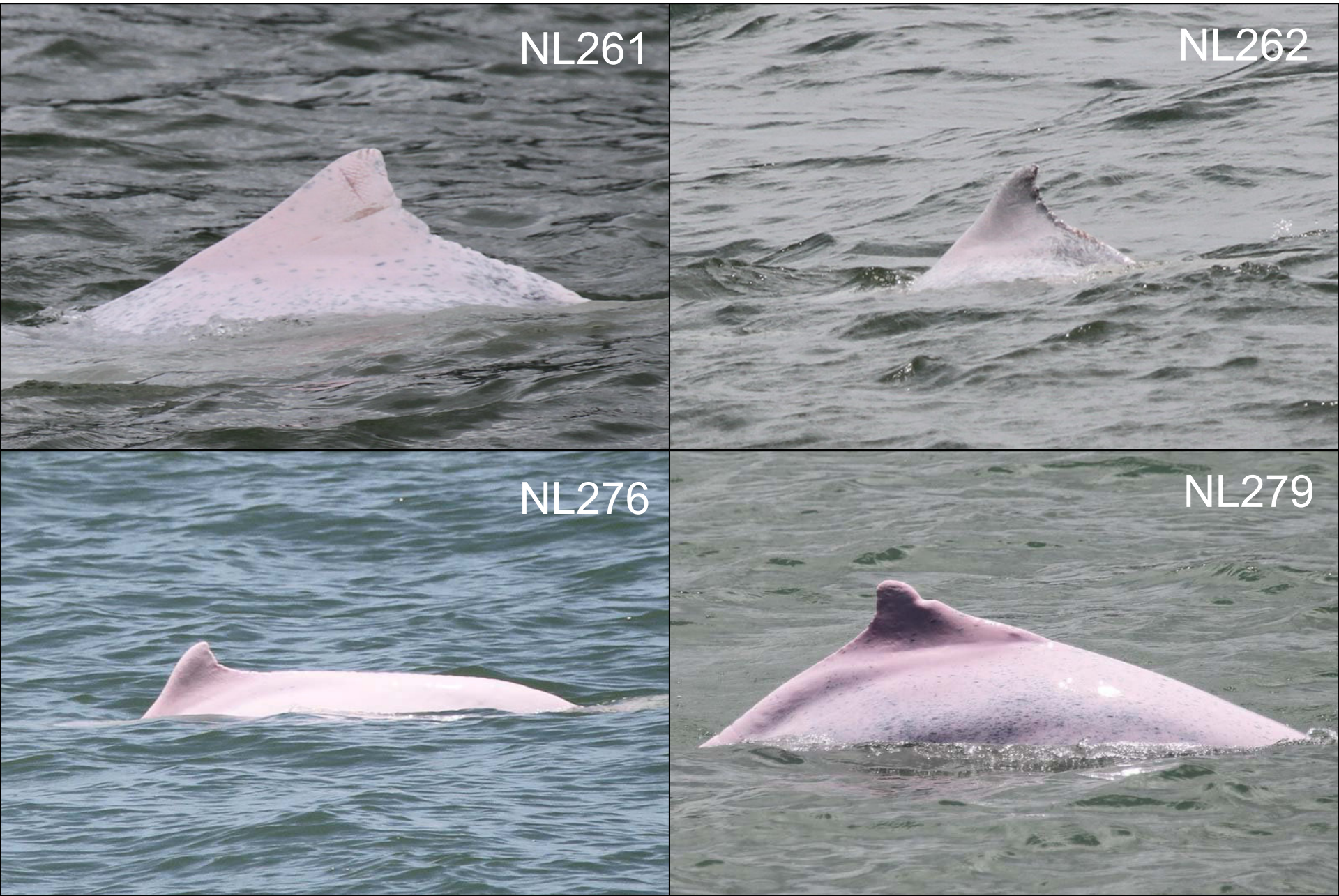
Appendix IV. Sixty-two individual dolphins that were identified during June to August 2014 under HKLR09 impact phase monitoring surveys

Appendix IV. (cont'd)

Appendix IV. (cont'd)

Appendix IV. (cont'd)

Appendix IV. (cont'd)



Appendix IV. (cont'd)

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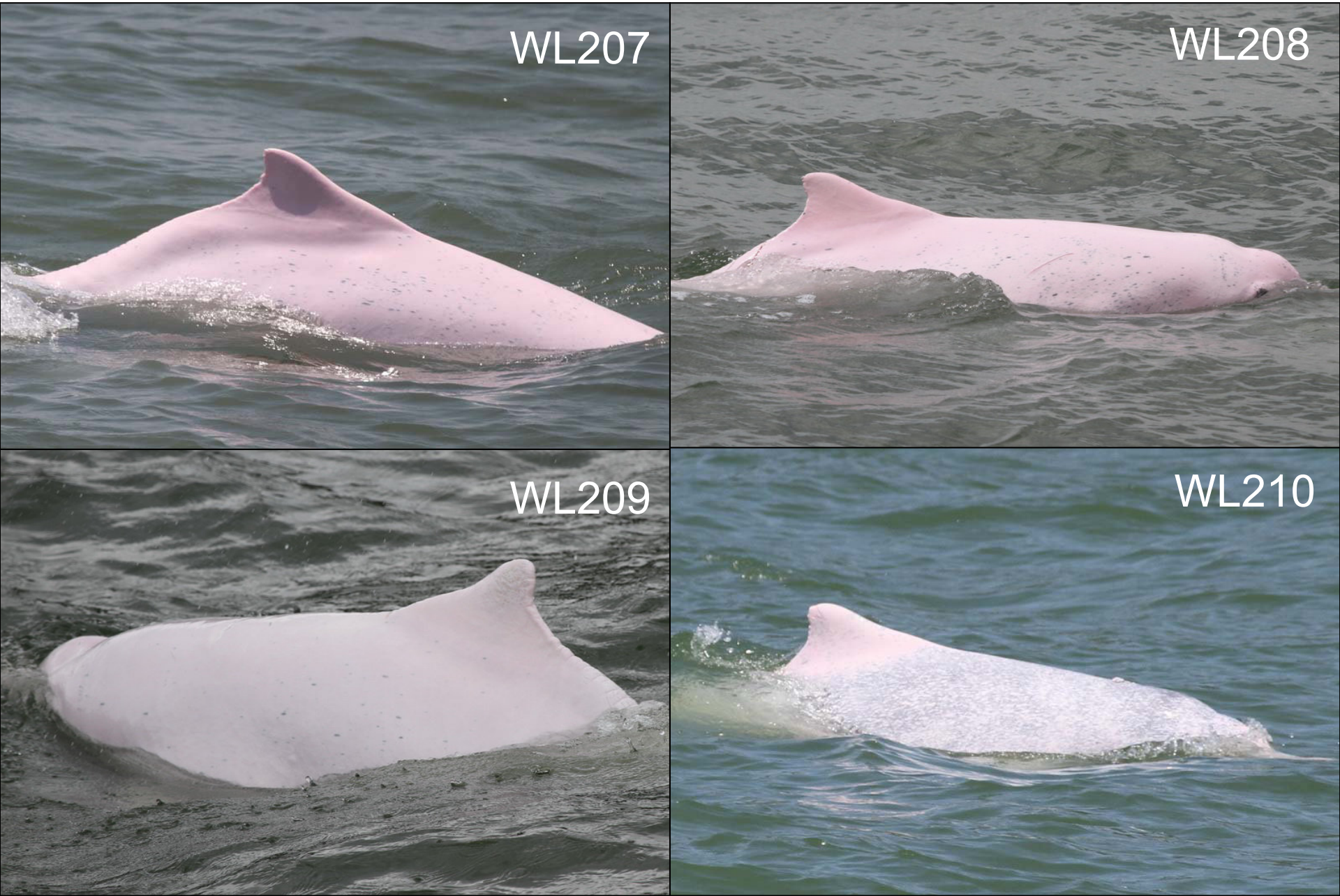
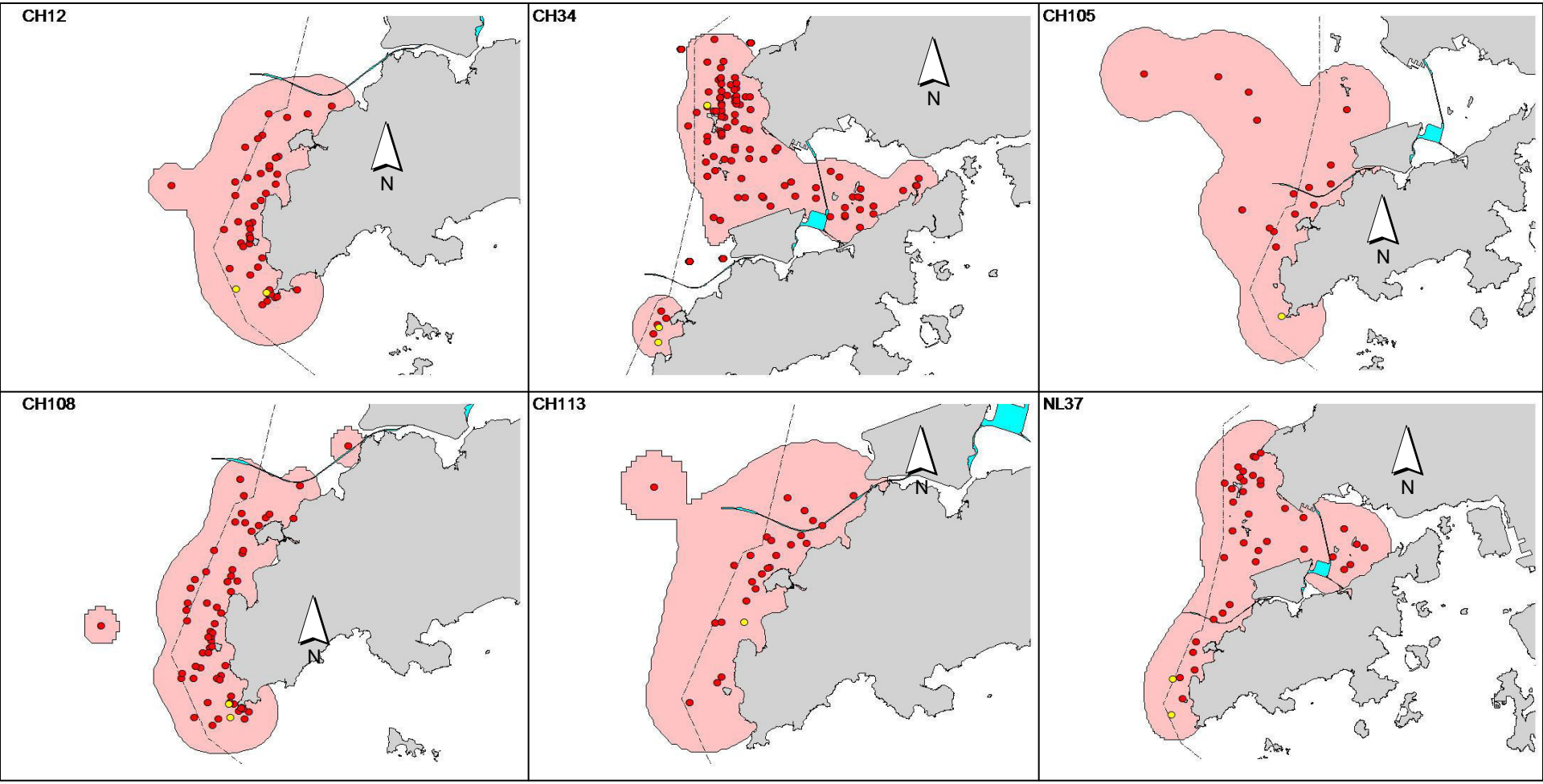


Appendix IV. (cont'd)

Appendix IV. (cont'd)

Appendix V. Ranging patterns (95% kernel ranges) of 62 individual dolphins that were sighted during HKLR09 impact phase monitoring period (note: yellow dots indicates sightings made in June-August 2014)



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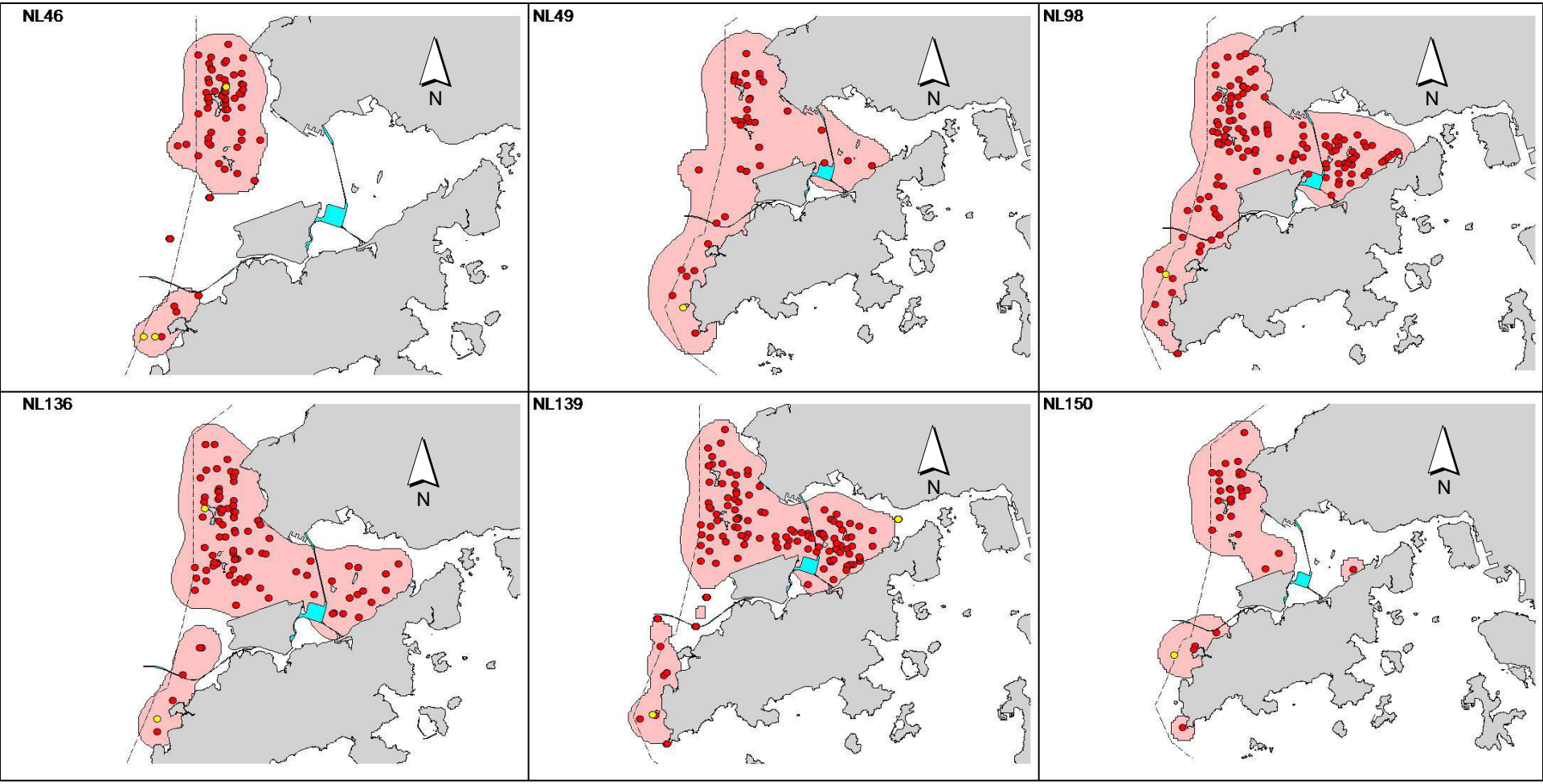

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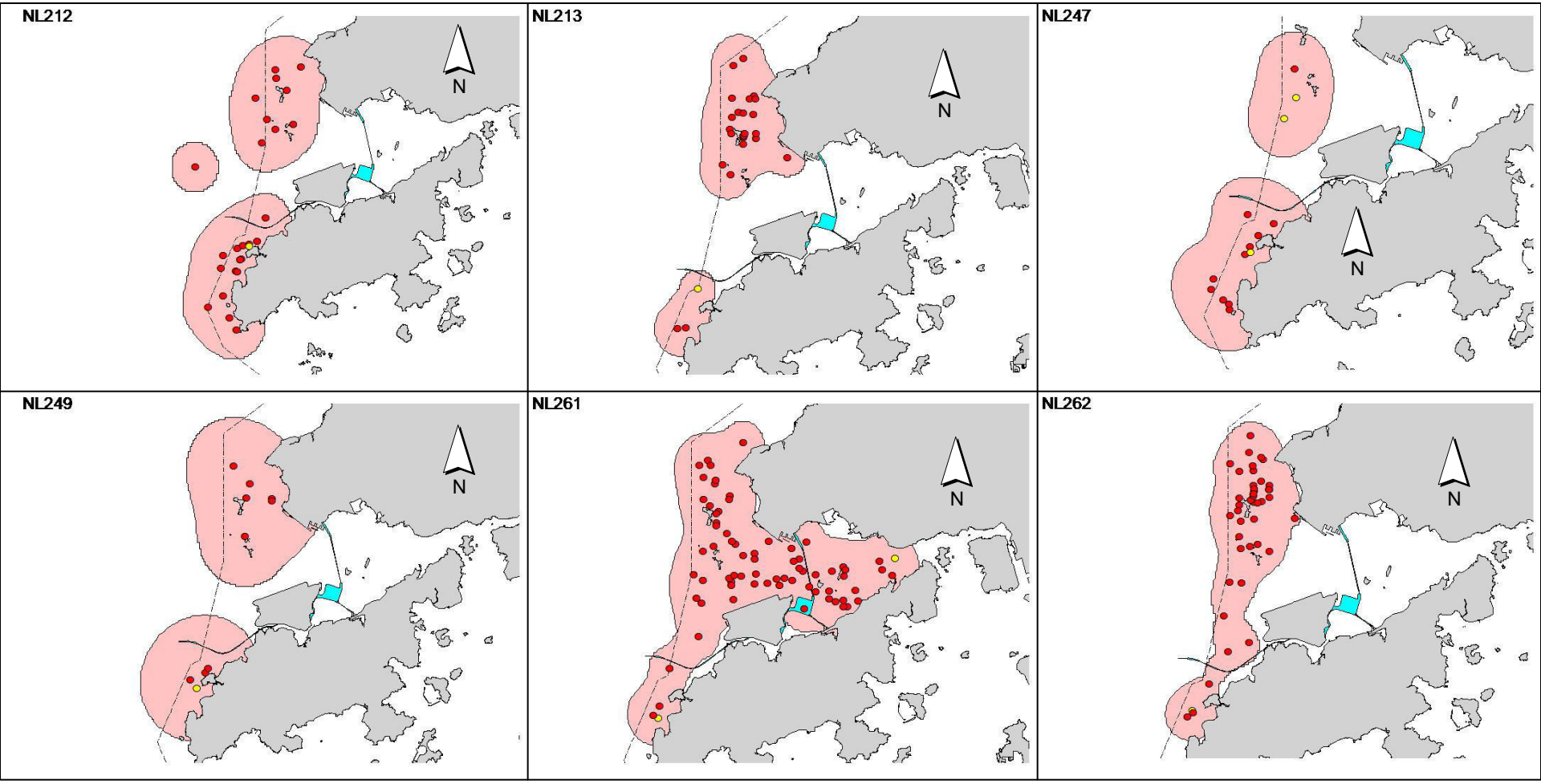

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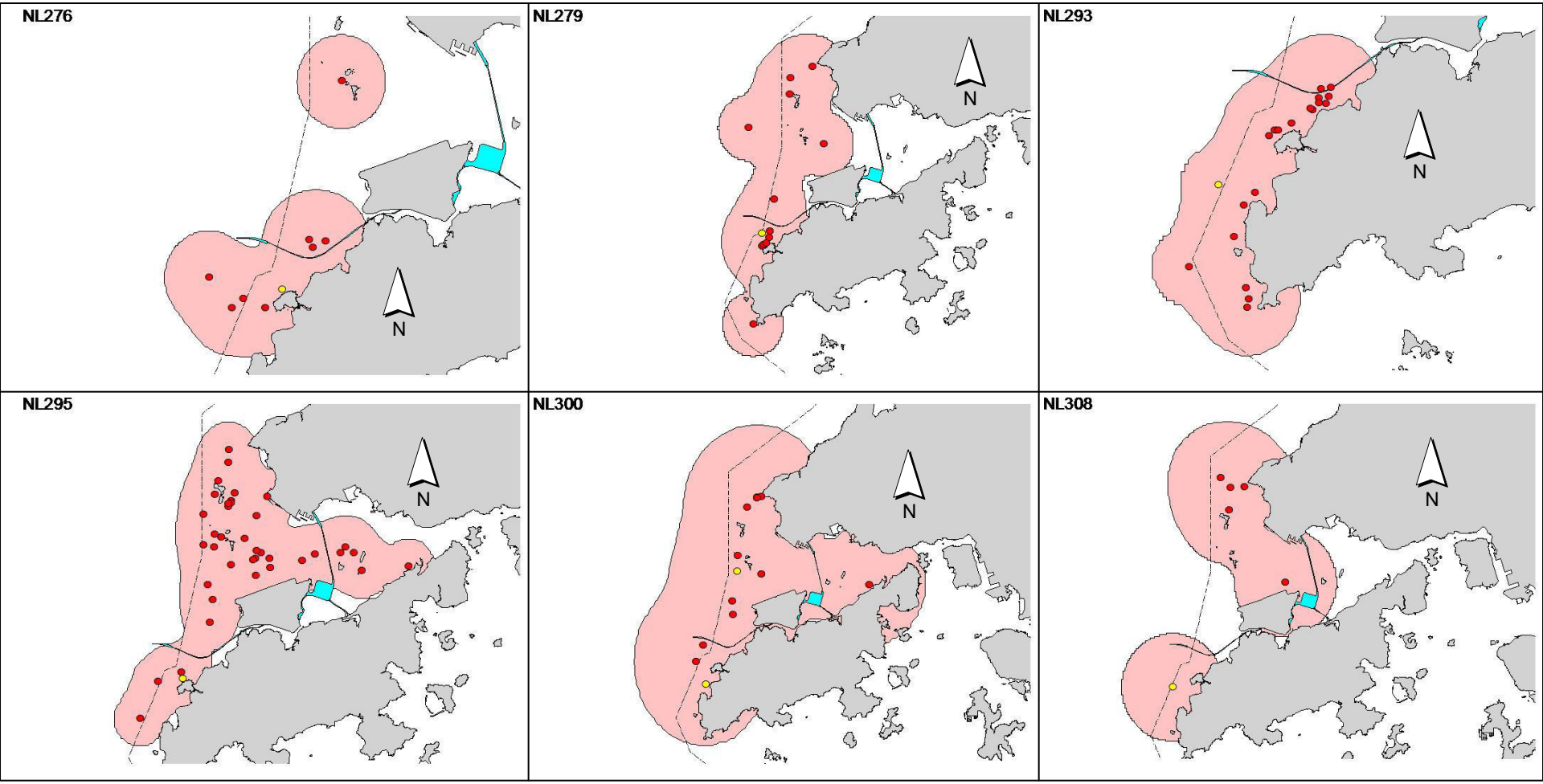

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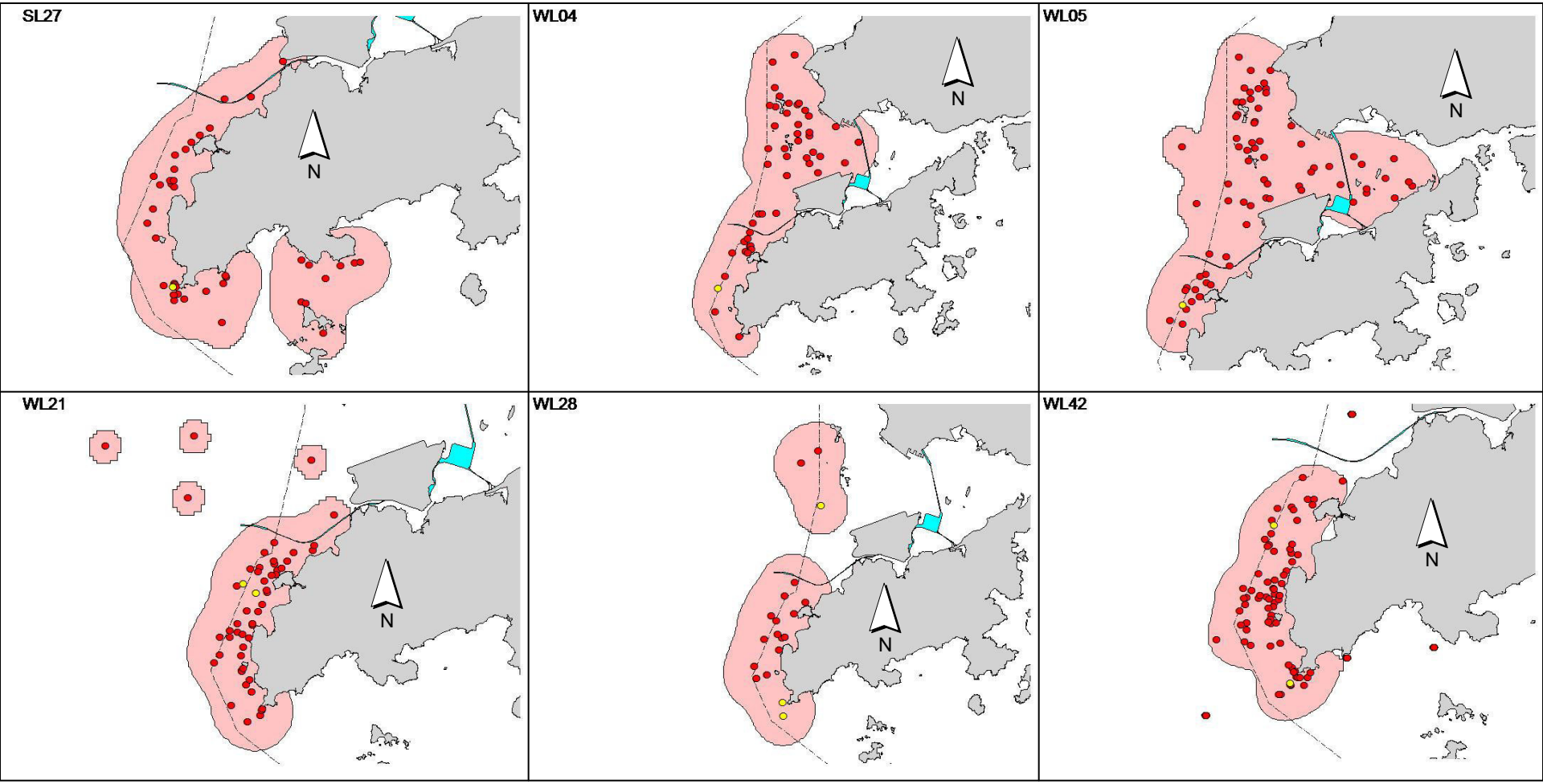

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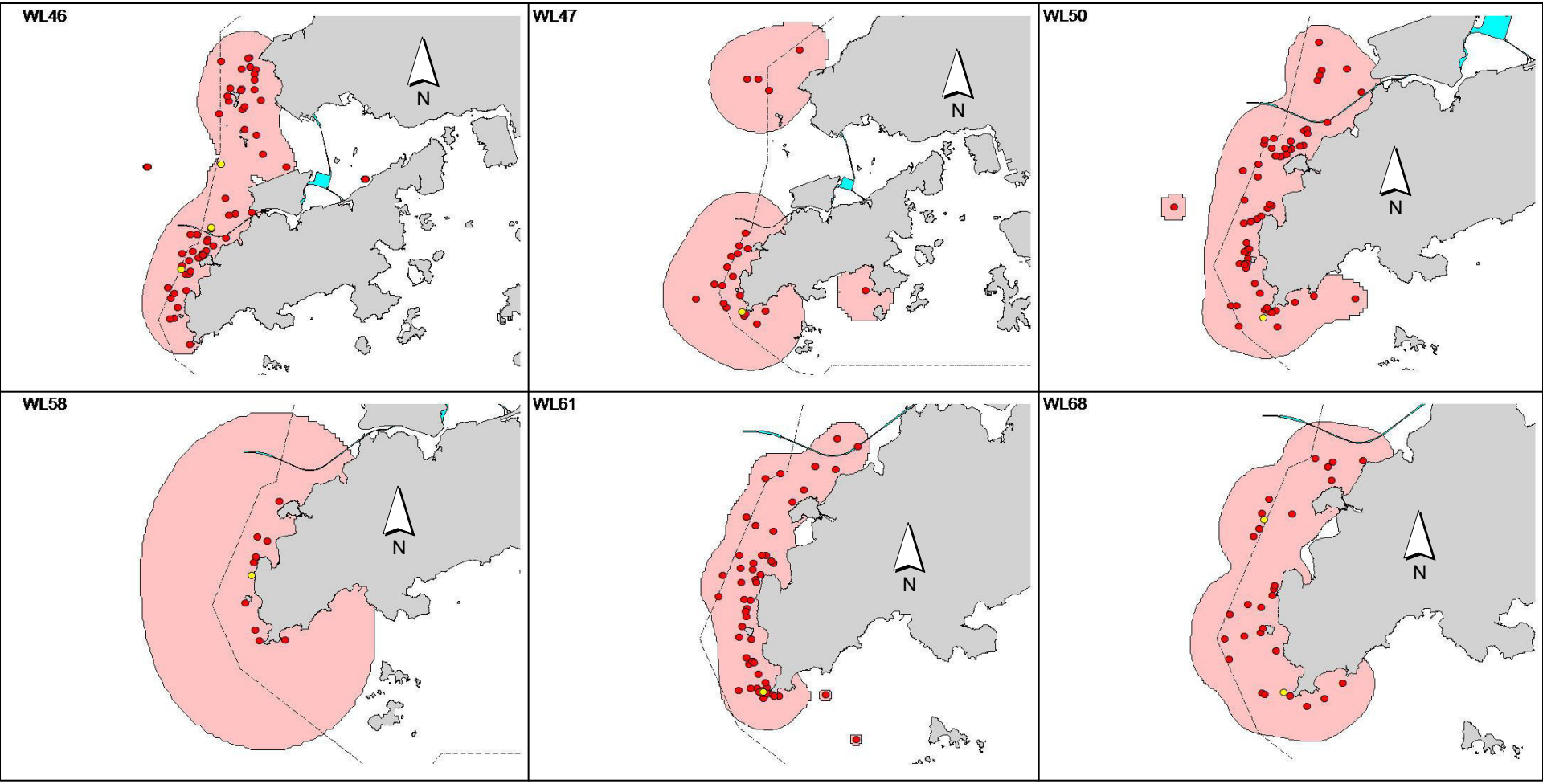

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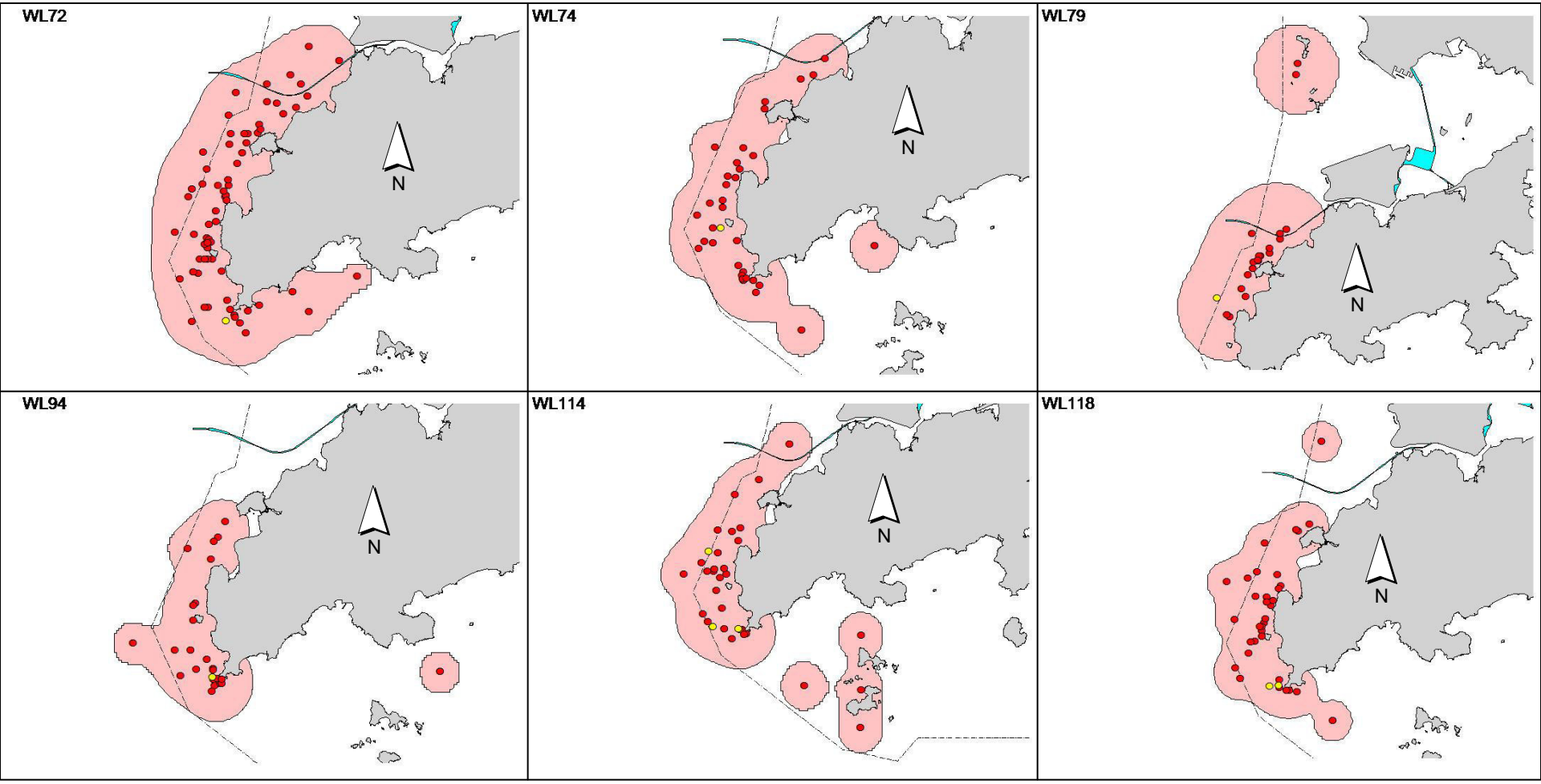

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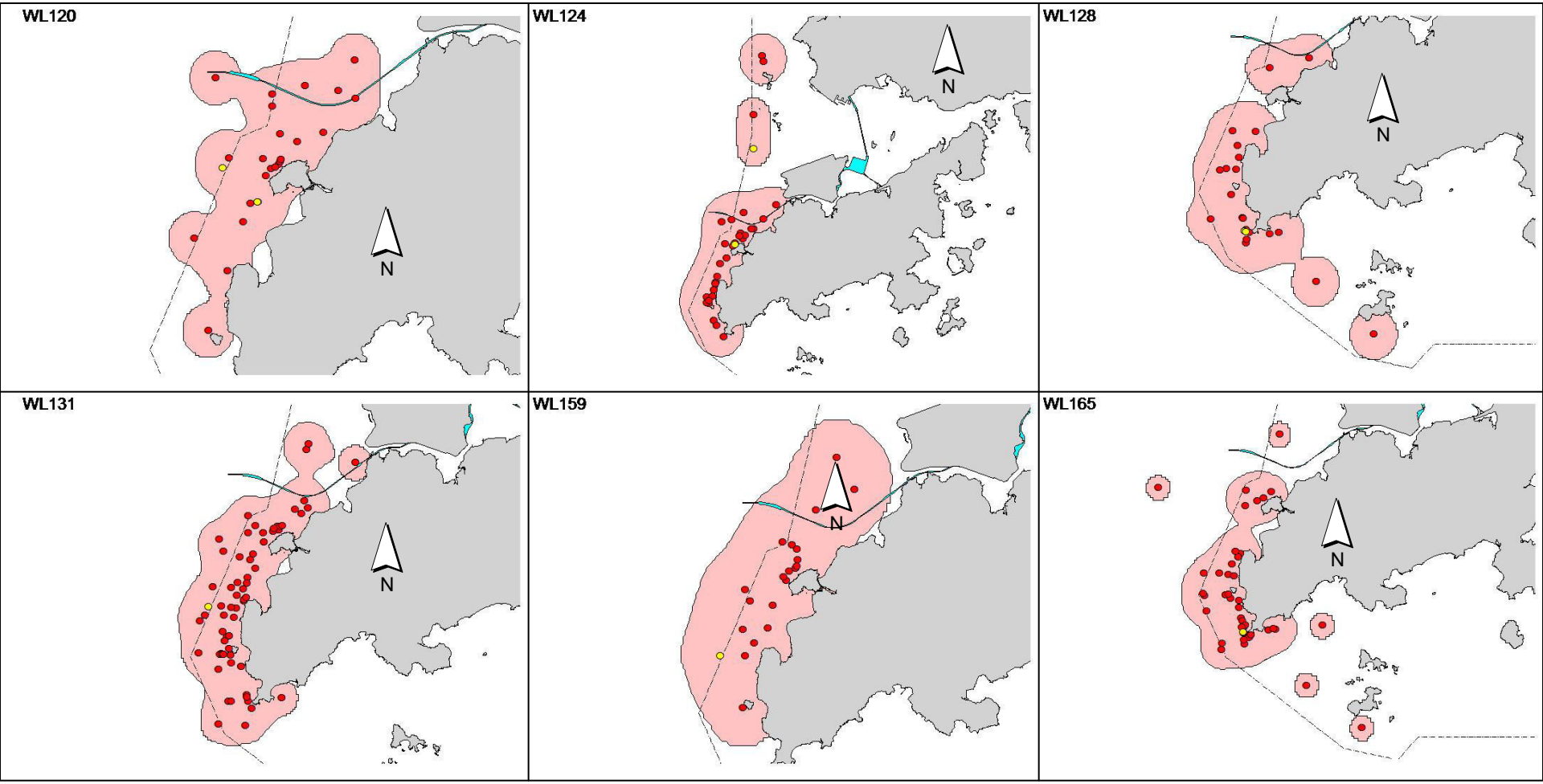

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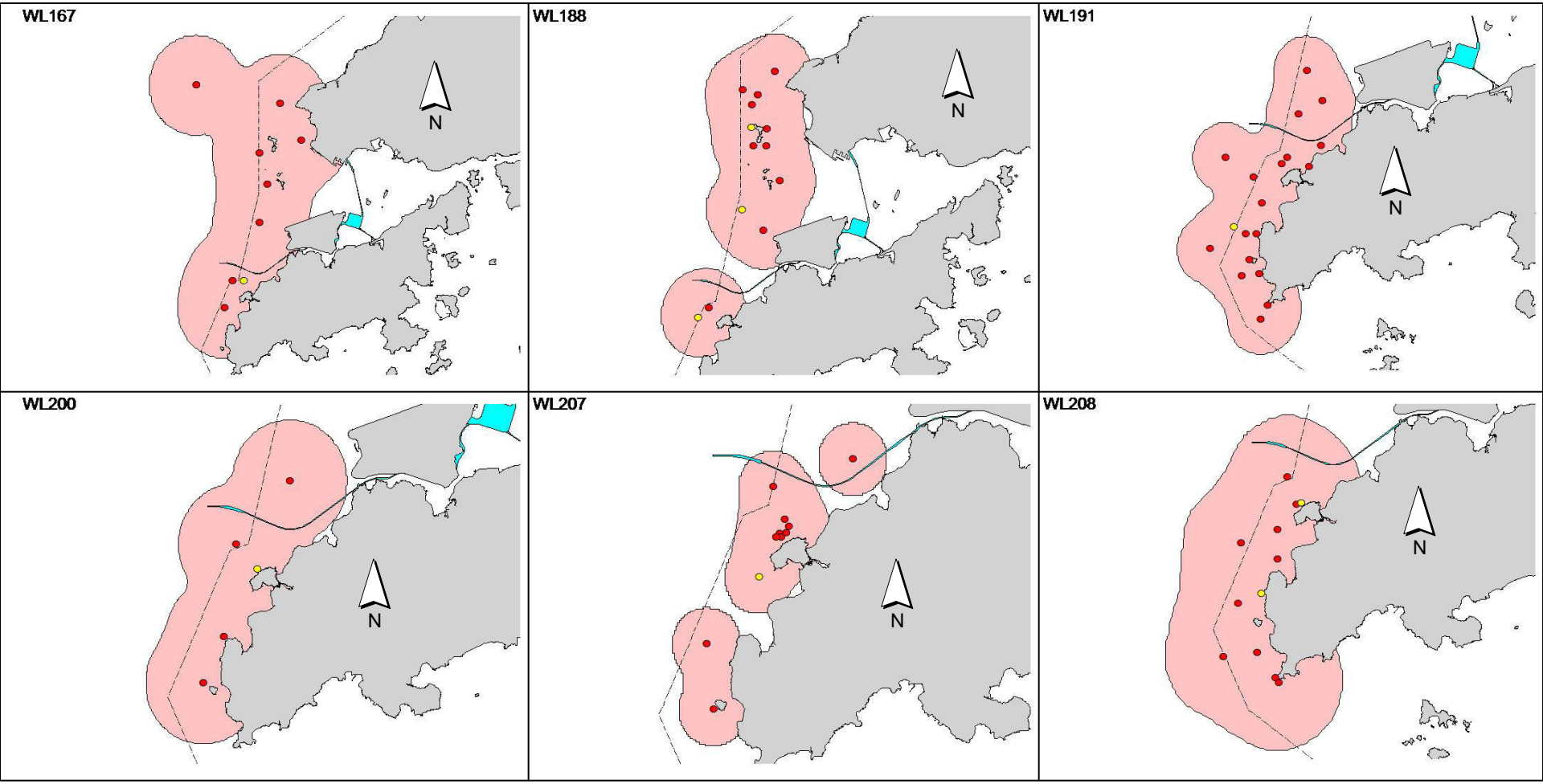
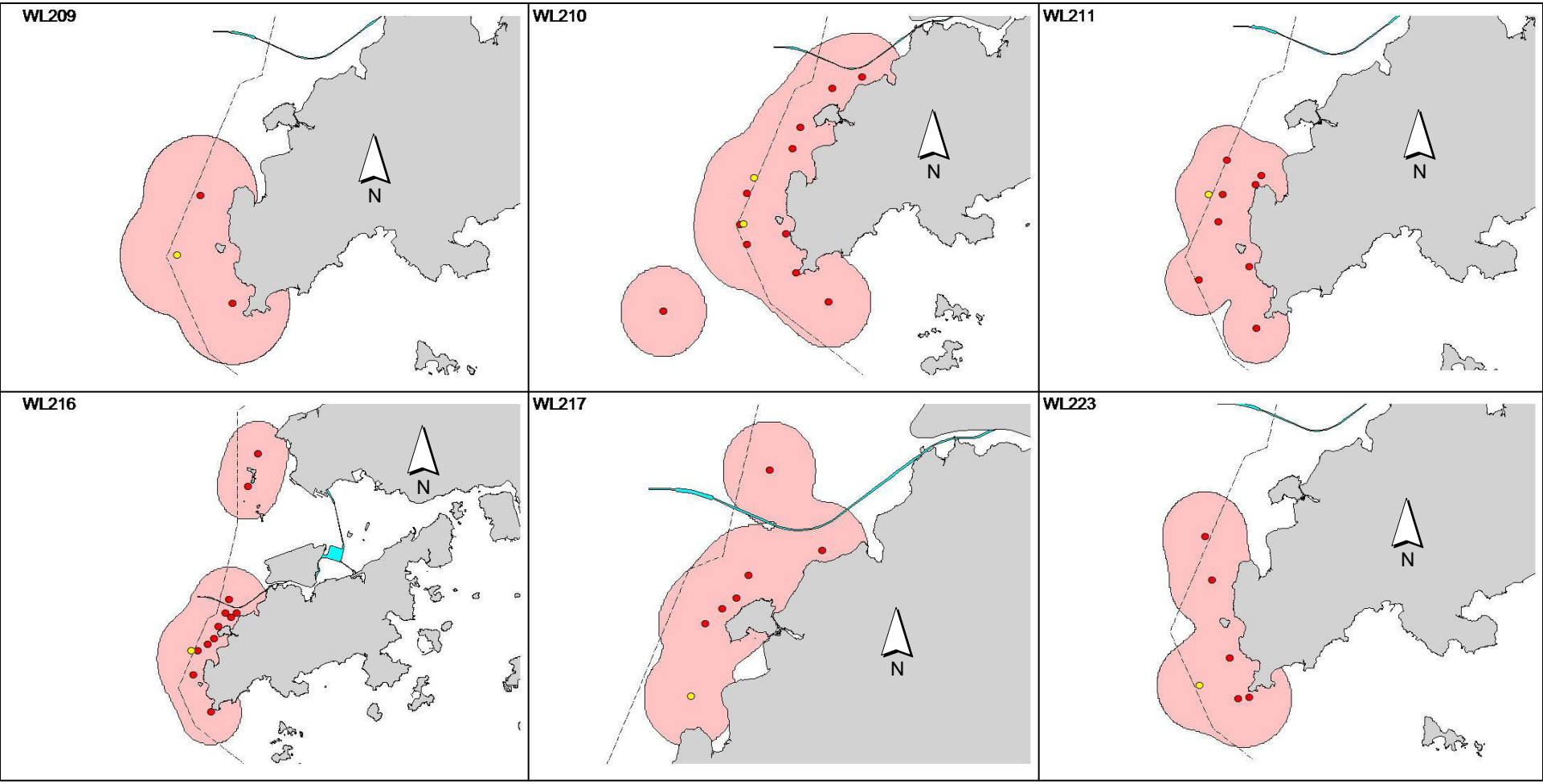
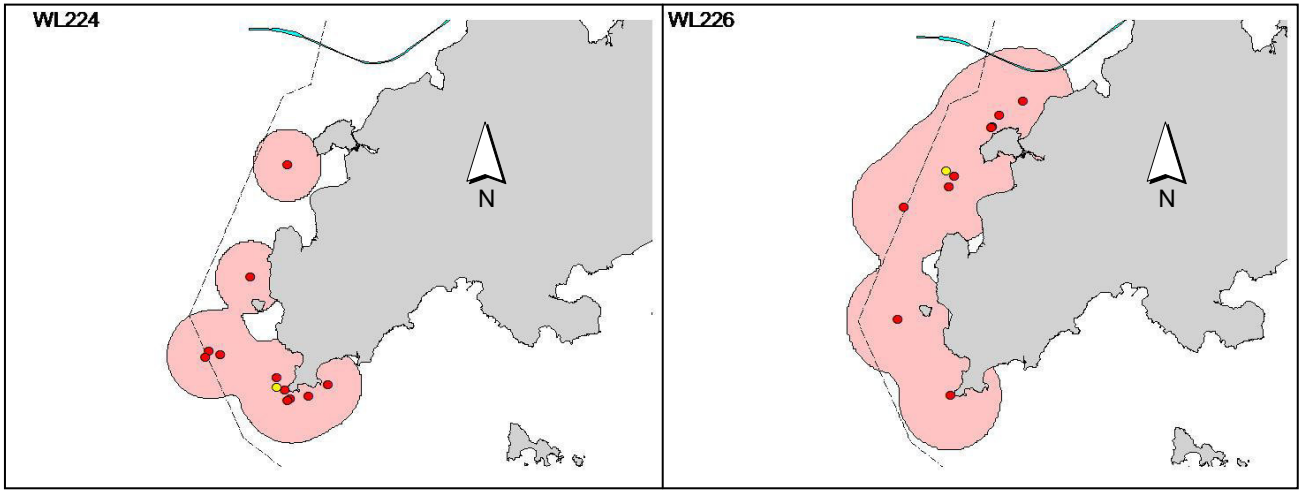


Appendix V. (cont'd)



Appendix V. (cont'd)



APPENDIX G
EVENT ACTION PLANS

Event / Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	SO	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and SO; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2.Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and SO; 3. Advise the SO on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and SO; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor;	1. Submit proposals for remedial to SO within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

LIMIT LEVEL				
1.Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform SO, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SO informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the SO on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures 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 IEC, SO, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and SO to discuss	1. Discuss amongst SO, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the SO accordingly; 3. Supervise the implementation of	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures 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. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the SO until the exceedance

	the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SO informed of the results; 8. If exceedance stops, cease additional monitoring.	remedial measures.	5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	is abated.

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, SO – Supervising Office

Event / Action Plan for Construction Noise

EVENT	ACTION			
	ET	**IEC**	**SO**	**CONTRACTOR**
Action Level	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Notify IEC and Contractor; 3. Report the results of investigation to the IEC, SO and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the SO accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, SO, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;	1. Discuss amongst SO, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the SO accordingly; 3. Supervise the implementation of	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed	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;

EVENT	ACTION			
	ET	**IEC**	**SO**	**CONTRACTOR**
	6. Inform IEC, SO and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SO informed of the results; 8. If exceedance stops, cease additional monitoring.	remedial measures.	noise problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the SO until the exceedance is abated.

Event and Action Plan for Water Quality

Event	ET Leader	IEC	SO	Contractor
Action level being exceeded by one sampling day	Repeat *in situ* measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor and SO; Check monitoring data, all plant, equipment and Contractor's working methods.	Check monitoring data submitted by ET and Contractor's working methods.	Confirm receipt of notification of non-compliance in writing; Notify Contractor.	Inform the SO 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	Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, SO and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Action level;	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 SO accordingly; Supervise the implementation of mitigation measures.	Discuss with IEC on the proposed mitigation measures; Ensure mitigation measures are properly implemented; Assess the effectiveness of the implemented mitigation measures.	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 SO within 3 working days of notification and discuss with ET, IEC and SO; Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day	Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, SO and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, SO and Contractor;	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 SO accordingly.	Confirm receipt of notification of failure in writing; Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to review the working methods.	Inform the SO 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 mitigation measures to SO within 3 working days of notification and discuss with ET,

Event	ET Leader	IEC	SO	Contractor
				IEC and SO.
Limit level being exceeded by two or more consecutive sampling days	Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, SO and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, SO and Contractor; Ensure mitigation measures are implemented;	Check monitoring data submitted by ET and Contractor's working method; Discuss with ET and Contractor on possible remedial actions; Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the SO accordingly; Supervise the implementation of mitigation measures.	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Ensure mitigation measures are properly implemented; 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.	Take immediate action to avoid further exceedance; Submit proposal of mitigation measures to SO within 3 working days of notification and discuss with ET, IEC and SO; Implement the agreed mitigation measures; Resubmit proposals of mitigation measures if problem still not under control; 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.

Event Action Plan for Dolphin Monitoring

Event	ET Leader	IEC	ER / SOR	Contractor
Action Level	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, 5. Check monitoring data. 6. Review to ensure all the dolphin protective measure are fully and properly implemented and advise on additional measures if necessary.	1. Check monitoring data submitted by ET and Contractor. 2. Discuss monitoring results and findings with the ET and the Contractor.	1. Discuss monitoring data with the IEC and any other measures proposed by the ET. 2. If ER/SOR is satisfied with the proposal of any other measures, ER/SOR to signify the agreement in writing on the measures to be implemented.	1. Inform the ER/SOR and confirm notification of the non-compliance in writing. 2. Discuss with the ET and the IEC to propose measures to the IEC and the ER/SOR. 3. Implement the agreed measures.

Event	ET Leader	IEC	ER / SOR	Contractor
Limit Level	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 reviewing to ensure all the dolphin protective measure are fully and properly implemented and advise on additional measures if necessary. 7. If the ET proves that the source of impact is caused by any of the construction activity by the works contract, the ET to arrange a meeting to discuss with IEC, ER/SOR and Contractor for necessity of additional dolphin monitoring, and/or any other potential mitigation measures (eg, consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activities…etc), and submit to the IEC a proposal of additional dolphin monitoring and/or	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 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 of the results and findings accordingly.	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 proposals for additional dolphin monitoring and/or any other mitigation measures submitted by the ET and Contractor and verified by the 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.	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.

	mitigation measures where necessary.			

APPENDIX H
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
Air Quality							
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	^
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	* ^ ^ ^ ^
S5.5.6.2	A2	• When there are open excavation and reinstatement works, hoarding	Good construction site	Contractor	All construction	Construction	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;	practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.		sites	stage	^ * ^ N/A ^ *

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
S5.5.6.2	A2	• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	N/A ^ N/A
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	Control construction dust	Contractor	All construction sites	Construction stage	^
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Monitor the 24 hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period.	Contractor	Selected representative dust monitoring station	Construction stage	^
S5.5.7.1	A6	The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant: • Loading, unloading, handling, transfer or storage of any dusty	Monitor the 24 hr and 1hr TSP levels at the representative dust	Contractor	Selected representative dust	Construction stage	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		materials should be carried out in totally enclosed system; • All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP; • Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system; • The materials which may generate airborne dusty emissions should be wetted by water spray system; • All receiving hoppers should be enclosed on three sides up to 3m above unloading point; • All conveyor transfer points should be totally enclosed; • All access and route roads within the premises should be paved and wetted; and • Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body.	monitoring stations to ensure compliance with relevant criteria throughout the construction period.		monitoring station		N/A N/A N/A N/A N/A N/A N/A N/A
S5.5.2.7	A7	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points.	Control construction dust	Contractor	All construction sites	Construction stage	N/A N/A N/A N/A
Construction Noise (Air borne)							
S6.4.10	N1	1) Use of good site practices to limit noise emissions by considering the	Control construction airborne	Contractor	All construction	Construction	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		following: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site officer and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	noise by means of good site practices		sites	stage	^ ^ ^ ^ ^ ^
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	^
S6.4.12	N3	3) Install movable noise barriers (typically density @14kg/m^2), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw.	Screen the noisy plant items to be used at all construction sites	Contractor	For plant items listed in Appendix 6D of the EIA report at all construction sites	Construction stage	*
S6.4.13	N4	4) Select “Quiet plants” which comply with the BS 5228 Part 1 or TM	Reduce the noise levels of	Contractor	For plant items	Construction	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		standards.	plant items		listed in Appendix 6D of the EIA report at all construction sites	stage	
S6.4.14	N5	5) Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	^
	N6	6) Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	^
Waste Management (Construction Waste)							
S8.3.8	WM1	*Construction and Demolition Material* The following mitigation measures should be implemented in handling the waste: • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation					^ ^
S8.3.9 - S8.3.11	WM2	*C&D Waste* • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	^ *

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		areas of the sites should be considered for such segregation and storage.					
S8.2.12-S8.3.15	WM3	<u>*Chemical Waste*</u> • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.					
S8.3.16	WM4	*Sewage* • Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly.	Proper handling of sewage from worker to avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	^
S8.3.17	WM5	*General Refuse* • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans,	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	* ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		plastic bottles etc., should be provided. • Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.					*
Water Quality (Construction Phase)							
S9.11.1 – S9.11.1.2	W1	• Mitigation during the marine works to reduce impacts to within acceptable levels have been recommended and will comprise a series of measures that restrict the method and sequencing of dredging/backfilling, as well as protection measures. Details of the measures are provided below and summarised in the Environmental Mitigation Implementation Schedule in EM&A Manual. • Export for dredged spoils from NWWCZ avoiding exerting high demand on the disposal facilities in the NWWCZ and, hence, minimise potential cumulative impacts; • For the marine viaducts of HKLR, the bored piling will be undertaken within a metal casing; • where public fill is proposed for filling below -2.5mPD, the fine content in the public fill will be controlled to 25%; • single layer silt curtains will be applied around all works; • during the first two months of dredging work for HKLR, the silt-removal efficiency of the silt-curtains shall be verified by examining the results of water quality monitoring points. The water quality monitoring points to be selected for the above shall be those close to the locations of the initial period of dredging work. Details in this regard shall be determined by the ENPO to be established,	To control construction water quality	Contractor	During seawall dredging and filling	Construction stage	^ ^ ^ N/A ^ N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		taking account of the Contractor's proposed actual locations of his initial period of dredging work. • silt curtain shall be fully maintained throughout the works. In addition, dredging operations should be undertaken in such a manner as to minimise resuspension of sediments. Standard good dredging practice measures should, therefore, be implemented including the following requirements which should be written into the dredging contract. • trailer suction hopper dredgers shall not allow mud to overflow; • use of Lean Material Overboard (LMOB) systems shall be prohibited; • mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted; • barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material; • any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; • 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; • excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved; • adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;					* N/A N/A ^ ^ ^ ^ * ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• 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; and • 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.					^ ^
S9.11.1.3	W2	*Land Works* General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include: • wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; • 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; • 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; • silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including	To control construction water quality	Contractor	During seawall dredging and filling	Construction stage	* N/A ^ *

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		specifically at the onset of and after each rainstorm; • temporary access roads should be surfaced with crushed stone or gravel; • rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; • measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; • open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; • 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; • discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; • 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; • wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain; • the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel;					^ ^ ^ ^ ^ ^ * * ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects; • 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; • the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately; • waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance; • 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; and • surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.					^ N/A * ^ ^ ^
S9.14	W3	Implement a water quality monitoring programme	Control water quality	Contractor	At identified monitoring location	During construction period	^
Ecology (Construction Phase)							
S10.7	E1	• Good site practices to avoid runoff entering woodland habitats in Scenic Hill	Avoid potential disturbance on habitat of Romer's Tree	Designer; Contractor	Scenic Hill	During construction	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• Reinstate works areas in Scenic Hill • Avoid stream modification in Scenic Hill	Frog in Scenic Hill				N/A ^
S10.7	E2	• Use closed grab in dredging works. • Install silt curtain during the construction. • Limit dredging and works fronts. • Good site practices • Strict enforcement of no marine dumping. • Site runoff control • Spill response plan	Minimise marine water quality impacts	Contractor	Seawall,	During construction	^ ^ ^ ^ ^ ^ ^
S10.7	E3	• Reprovision of replacement Artificial Reefs (of the same volume as the existing ARs inside Marine Exclusion Zone)	Mitigate water quality impacts on the existing ARs	Project proponent	To be determined	Construction phase or operation phase	N/A
S10.7	E4	Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater	Prevent Sedimentation from Land-based works areas	Contractor	Land-based works areas	During construction	^
S10.7	E5	Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time	Prevent disturbance to terrestrial fauna and habitats	Contractor	Land-based works areas	During construction	^
S10.7	E6	• Dolphin Exclusion Zone; • Dolphin watching plan	Minimize temporary marine habitat loss impact to dolphins	Contractor	Marine works	During marine works	^ ^
S10.7	E7	• Decouple compressors and other equipment on working vessels • Avoidance of percussive piling • Marine underwater noise monitoring	Minimise marine noise impacts on dolphins	Contractor	Marine works	During marine works	^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• Temporal suspension of drilling bored pile casing in rock during peak dolphin calving season in May and June					N/A
S10.7	E8	• Control vessel speed • Skipper training. • Predefined and regular routes for working vessels; avoid Brothers Islands.	Minimise marine traffic disturbance on dolphins	Contractor	Marine traffic	During marine works	^ ^ ^
S10.10	E9	• Dolphin vessel monitoring	Minimise marine traffic disturbance on dolphins	Contractor	North Lantau and West Lantau	Prior to construction, during construction, and 1 year after operation	^
Fisheries							
S11.7	F1	• Reprovision of replacement Artificial Reefs(of the same volume as the existing ARs inside Marine Exclusion Zone)	Mitigate water quality impacts on the existing ARs	Project proponent	To be determined	Construction phase or operation phase	N/A
S11.7	F2	• Reduce re-suspension of sediments • Limit dredging and works fronts. • Good site practices • Strict enforcement of no marine dumping • Spill response plan	Minimise marine water quality impacts	Contractor	Seawall,	During construction	^ ^ ^ ^ ^
Landscape & Visual (Construction Phase)							
S14.3.3.3	LV2	Mitigate both Landscape and Visual Impacts • G1. Grass-hydroseed bare soil surface and stock pile areas.	Minimise visual & landscape impact	Contractor	HKLR	Construction stage	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge or footbridge to screen bridge and traffic. • G3. For HKLR, providing aesthetic design on the viaduct, tunnel portals, at-grade roads (e.g. subtle colour tone and slim form for viaduct, featured form of tunnel portals, roadside planting along at-grade roads and landscape berm on) to beautify the HKLR alignment. • G5. Vegetation reinstatement and upgrading to disturbed areas. • G6. Maximize new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed. • G7. Provide planting area around peripheral of and within HKLR for tree screening buffer effect. • G8. Plant salt tolerant native tree and shrubs etc along the planter strip at affected seawall. • G9. Reserve of loose natural granite rocks for re-use. Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of the new coastline (see Figure 14.4.2 for example).					N/A N/A N/A N/A N/A N/A N/A
S14.3.3.3	LV3	<u>Mitigate Visual Impacts</u> • V1.Minimize time for construction activities during construction period. • V2.Provide screen hoarding at the portion of the project site / works areas / storage areas near VSRs who have close low-level views to the Project during HKLR construction.					^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
EM&A							
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	Project Proponent	All construction sites	Construction stage	^
S15.5 - S15.6	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	^ ^ ^

Remarks: ^ Compliance of mitigation measure

* Recommendation was made during site audit but improved/rectified by the contractor

N/A Not Applicable at this stage as no such site activities were conducted in the reporting month (e.g. concrete batching plan, barging point, seawall dredging and filling, bored piling, landscaping works etc)

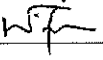
APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140603
Date	3 June 2014 (Tuesday)
Time	9:30-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140603-R06	• Properly deploy the silt curtain to avoid the gap at P102 and P90.	B25
140603-R07	• Clear the floating refuse within the silt curtain at P90.	B21
	B. Ecology	
140603-R03	• Properly erect the fencing for protecting the trees at P104.	C30
140603-R05	• Provide tree protection area for the tree at P102-P100 and P97-P95.	C30
	C. Air Quality	
140603-R04	• Clear the stockpile of dust materials at near P104.	D7
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
140603-R01	• To remove the construction materials within the tree protection area at Portion C.	F4ii.
140603-R02	• To clear the accumulated waste materials at the site exit of Portion A.	F1i. & iii.
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140530), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

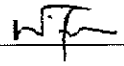
	Name	Signature	Date
Recorded by	Ivy Tam		3 June 2014
Checked by	Dr. Priscilla Choy		3 June 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140610
Date	10 June 2014 (Tuesday)
Time	9:30-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140610-O01	• The wheel washing bay at Portion C was filled with soil. The Contractor was reminded to rectify it as soon as possible.	B9, B10i
140610-O02	• Muddy water was observed discharging to the public road at Portion C. The Contractor was reminded to direct the muddy water for treatment properly.	B3
140610-O03	• Muddy water due to the wheel washing was observed discharging to the public road, drain and gullies at S10 out. The Contractor was reminded to provide proper wheel washing bay and rectify the deficiency as soon as possible.	B1, B2i, B2ii, B10ii
140610-R09	• Properly deploy the silt curtain at P98 and P92.	B25
	B. Ecology	
140610-R07	• Remove the construction materials within the tree protection zone at P104.	C30
140610-R08	• Properly provide tree protection zone for the tree at P102 to P99.	C30
	C. Air Quality	
140610-R04	• Properly provide dust mitigation measures for the cement grouting works at Portion C.	D13, D20
140610-R05	• Clear the accumulated waste at the site exit of Portion A.	D3
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
140610-O03	• Muddy water due to the wheel washing was observed discharging to the public road, drain and gullies at S10 out. The Contractor was reminded to provide proper wheel washing bay and rectify the deficiency as soon as possible.	F6
140610-R05	• Clear the accumulated waste at the site exit of Portion A.	F1i, F1iii, F4ii
140610-R06	• Clear the construction waste at near the sea area at P104 and P96.	F4ii
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140603), follow up action is required for the item(s) 140603-R02, R05 and R06 which are renamed as 140610-R05, R08 & R09 respectively.	

	Name	Signature	Date
Recorded by	Ivy Tam		10 June 2014
Checked by	Dr. Priscilla Choy		10 June 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140617
Date	17 June 2014 (Tuesday)
Time	9:15-11:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140617-R01	• To clear the silt and mud in the U-Channel at WA7.	B4
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
140617-R02	• To provide drip tray for chemical containers at WA4.	F3i. & F9
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140610), follow up action is required for the item(s) 140610-R08 and R09.	

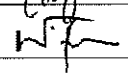
	Name	Signature	Date
Recorded by	Ivy Tam		17 June 2014
Checked by	Dr. Priscilla Choy		17 June 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140627
Date	27 June 2014 (Friday)
Time	13:15-16:05

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140627-R03	• Clear the residual silt and sand at platform at P74.	B20
140627-R06	• Properly deploy the silt curtain at P98.	B25
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
140627-R01	• Provide acoustic decoupling measure for the generator at barge of P37.	E7
	E. Waste / Chemical Management	
140627-R02	• Provide drip tray for chemical containers at barge of P37.	F9
140627-R04	• To plug the drip tray for generator at P74.	F9
140627-R05	• Provide spill kit at the platform at P74.	F8
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140617), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

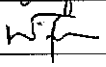
	Name	Signature	Date
Recorded by	Ivy Tam		27 June 2014
Checked by	Dr. Priscilla Choy		27 June 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140702
Date	2 July 2014 (Wednesday)
Time	9:30-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140702-R02	• Properly deploy the silt curtain at P99 and P98.	B25
140702-R03	• Clear the waste materials within the silt curtain at P90.	B21
	B. Ecology	
140702-R01	• Remove the construction materials / wastes at near the trees at Portion C, P101, P99 and P88.	C30
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140627), follow up action is required for an item 140627-R06 which is renamed as 140702-R02.	

	Name	Signature	Date
Recorded by	Ivy Tam		2 July 2014
Checked by	Dr. Priscilla Choy		2 July 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140708
Date	8 July 2014 (Tuesday)
Time	9:30-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140708-O01	• The muddy water was observed discharging to the public road and gully at S8 OUT. The Contractor was reminded to rectify it ASAP.	B3i.
140708-R04	• To check the designated discharging point in the wastewater discharge license at Portion C.	B3
140708-R07	• Clear the discarded silt curtain at seawall area at P104.	B21
140708-R08	• Properly deploy the silt curtain at P101, P98 and P90.	B25
	B. Ecology	
140708-R02	• To avoid the disturbance on trees at Portion C.	C30
140708-R06	• Remove the construction materials at near the trees at Portion C, P88 and P101.	C30
	C. Air Quality	
140708-R09	• Provide dust mitigation measures for the stockpile of soil at P84.	D7
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
140708-R03	• Clear the general refuse at near office container at Portion C.	F1iii.
140708-R05	• Clear the oil leakage and provide drip tray for the oil container at Portion C.	F8 and F9
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140702), follow up action is required for the items 140702-R01 and 140702-R02 which are renamed as 140708-R06 and 140708-R08 respectively.	

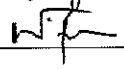
	Name	Signature	Date
Recorded by	Ivy Tam		8 July 2014
Checked by	Dr. Priscilla Choy		8 July 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140717
Date	17 July 2014 (Thursday)
Time	9:30-11:50

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140717-O01	• Broken silt curtain was observed at P26. The Contractor was reminded to clear the damage part and re-deploy the silt curtain accordingly.	B25
140717-R03	• Clear the residual marine mud at the barge near P2.	B20
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
140717-R02	• Clear the oil spillage at the barge near P2.	F8
	F. Permits/Licences	
140717-R04	• To display the environmental permit and construction noise permit, if any at P2 and P26.	G1 and G5
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140708), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

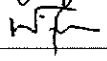
	Name	Signature	Date
Recorded by	Ivy Tam		17 July 2014
Checked by	Dr. Priscilla Choy		17 July 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140725
Date	25 July 2014 (Friday)
Time	13:30-15:00

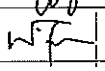
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140725-R01	• Provide silt curtain to surround the cofferdam at P72.	B24
140725-R02	• To repair the damage silt curtain at P16.	B25
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140717), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		25 July 2014
Checked by	Dr. Priscilla Choy		25 July 2014

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	140729
Date	29 July 2014 (Tuesday)
Time	9:30-12:05

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140729-R01	• Properly deploy the silt curtain at P19.	B25
140729-R03	• Clear the accumulated broken concrete materials regularly and avoid disposing these materials into the sea at P61.	B20
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
140729-R02	• Provide acoustic decoupling measure for the water pump at the barge near P19.	E7
140729-R04	• Provide noise emission labels for the hand-held breaker at P61.	E8
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140725), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

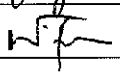
	Name	Signature	Date
Recorded by	Ivy Tam		29 July 2014
Checked by	Dr. Priscilla Choy		29 July 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140805
Date	5 August 2014 (Tuesday)
Time	9:30-11:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140805-R02	• Properly deploy the silt curtain at P98.	B25
140805-R04	• To avoid discharging the muddy water to the sea at S8.	B3
	B. Ecology	
140805-R05	• Clear the construction materials at near the tree at P101.	C30
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
140805-R01	• Clear the waste materials at the roadside of Portion C.	F1iii. & 4ii.
140805-R03	• Remove the discarded silt curtain at near P103 and P82.	F4ii.
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140729), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		5 August 2014
Checked by	Dr. Priscilla Choy		5 August 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140812
Date	12 August 2014 (Tuesday)
Time	9:30-11:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140812-R03	• Properly deploy the silt curtain at P98 and P82.	B25
140812-R04	• Clear the waste materials at near silt curtain at P90.	B21
140812-R05	• To block the temporary drain which direct surface runoff to the sea at P86.	B3
	B. Ecology	
140812-R02	• Clear the construction materials at near the tree at S4 & P94.	C30
	C. Air Quality	
140812-R01	• Properly provide water spray for the exposed soil surface at Portion C.	D5, D6, D14
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
140812-R06	• Remove the discarded silt curtain at near P103 and P92.	F4ii.
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140805), Follow-up action is required for item 140805-R02, R03, R04 which are renamed as 140812-R03, R06 and R05 respectively..	

	Name	Signature	Date
Recorded by	Ivy Tam		12 August 2014
Checked by	Dr. Priscilla Choy		12 August 2014

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140819
Date	19 August 2014 (Tuesday)
Time	9:45-11:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
140819-O01	• Damage silt curtain was observed at P97-99. The Contractor was reminded to re-deploy the new silt curtain which can function properly as soon as possible.	B25
140819-R05	• Properly deploy the silt curtain at P102.	B25
	B. Ecology	
140819-R02	• To remove the construction materials / wastes at near the trees at Portion C, P95 and 94.	C30
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
140819-R03	• Properly store the chemical containers at Portion C.	F3i.
140819-R06	• To clear the discarded silt curtain at seawall area at P93 and P82.	F4ii.
	F. Permits/Licences	
140819-R04	• To display the Environmental Permit at S4.	G5
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140812), Follow-up action is required for item 140812-R02, R03, R06 which are renamed as 140819-R02, O01 and R06 respectively..	

	Name	Signature	Date
Recorded by	Ivy Tam		19 August 2014
Checked by	Dr. Priscilla Choy		19 August 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140829
Date	29 August 2014 (Friday)
Time	15:00-15:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	B. Ecology	
140829-R02	• To remove the construction materials / wastes at near the trees at Portion C.	C30
	C. Air Quality	
140829-O01	• Dust generation was observed from the drilling works at near P82. The Contractor was reminded to provide appropriate dust mitigation measures as soon as possible.	D13
140829-R04	• The air compressor should be checked to avoid emitting heavy smoke.	D19
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
140829-R03	• Properly store the chemical containers at Portion C.	F3i. and F9
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140819), follow-up action is required for items 140819-R02, R03 which are renamed as 140829-R02 and R03 respectively.	

	Name	Signature	Date
Recorded by	Ivy Tam		29 August 2014
Checked by	Dr. Priscilla Choy		29 August 2014

APPENDIX J
WASTE GENERATION IN THE REPORTING PERIOD

Appendix: C6 Monthly Summary Waste Flow Table

Name of Department: HyD

Contract No.: HY/2011/09

Monthly Summary Waste Flow Table for 2014 (Year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated[11]	Hard Rock and Large Broken Concrete[6]	Reused in the Contract[8,9]	Reused in other Projects[5,8,9]	Disposed as Public Fill[7]	Imported Fill[6,7,8,9]	Metals[12]	Paper/ cardboard packaging	Plastics[3]	Chemical Waste	Others, e.g. general refuse[8,9]
	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 m^3)
Jan	2.592	0.000	0.124	0.449	2.020	0.000	0.000	0.272	0.000	0.000	0.169
Feb	3.843	0.000	0.000	2.373	1.470	0.000	0.000	0.756	0.000	0.000	0.117
Mar	2.376	0.000	0.000	0.000	2.376	0.000	0.189	0.764	0.000	0.595	0.260
Apr	7.401	0.000	0.052	2.210	2.129	3.010	0.030	1.150	0.000	0.000	0.189
May	18.789	0.000	0.169	6.938	2.110	9.572	0.025	1.056	0.000	0.000	0.221
Jun	21.904	0.000	0.000	10.666	0.962	10.276	0.033	0.948	0.000	0.000	0.195
Sub-Total	56.905	0.000	0.345	22.636	11.067	22.858	0.277	4.946	0.000	0.595	1.151
Jul	14.458	0.000	0.046	12.857	1.555	0.000	0.014	1.020	0.000	0.396	0.234
Aug	8.652	0.000	0.000	7.140	1.511	0.000	0.068	to be updated	0.000	1.982	0.273
Sep											
Oct											
Nov											
Dec											
Total	80.015	0.000	0.390	42.633	14.134	22.858	0.360	5.966	0.000	2.973	1.658

Forecast of Total Quantities of C&D Materials to be Generated from the Contract [10]										
Total Quantity Generated[11]	Hard Rock and Large Broken Concrete[6]	Reused in the Contract[8,9]	Reused in other Projects[5,8,9]	Disposed as Public Fill[7]	Imported Fill[6,7,8,9]	Metals	Paper/ cardboard packaging	Plastics[3]	Chemical Waste	Others, e.g. general refuse[8,9]
(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 m^3)
195.166	0.000	6.008	73.111	63.047	53.000	6.115	23.273	0.000	7.532	6.818

Notes:

(1) The performance targets are given in ER Appendix 8J Clause 14 and the EM&A Manual.

(2) The waste flow table shall also include C&D materials to be imported for use at the Site.

(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

(4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m^3. (ER Part 8 Clause 8.8.5 (d) (ii) refers).

(5) The materials reused in other Project shall not be treated as waste under the Waste Disposal Ordinance (CAP354).

(6) According to the EIA Appendix 8B, the density of rock (bulked) is 2.0 tonnes/m^3.

(7) According to the EIA Appendix 8B, the density of soil (bulked) is 1.8 tonnes/m^3.

(8) Assuming the loading quantities of a 30-tonne truck is 8.0m^3.

(9) Assuming the loading quantities of a 24-tonne truck is 6.5m^3.

(10) The forcast of C&D materials to be generated from the Contract is sourced from the works program in July 2014.

(11) The volume of Total Quantity Generated means the volume of Hard Rock and Large Broken Concrete+Disposed as Public Fill+Imported Fill-Reused in the Contract-Reused in other Projects

(12) The density of metal is 7,850 kg/m^3.

APPENDIX K
SUMMARY OF EXCEEDANCE

Contract No. HY/2011/09
Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road –
Section between HKSAR Boundary and Scenic Hill

Exceedance Report

(A) Exceedance Report for Air Quality

Environmental Monitoring	Parameter	No. of Exceedance		No. of Exceedance related to the Construction Activities of this Contract	
		Action Level	Limit Level	Action Level	Limit Level
Air Quality	1-hr TSP	0	0	0	0
	24-hr TSP	0	0	0	0

(B) Exceedance Report for Construction Noise
(NIL in the reporting period)

(C) Exceedance Report for Water Quality

Environmental Monitoring	Parameter	No. of Exceedance		No. of Exceedance related to the Construction Activities of this Contract	
		Action Level	Limit Level	Action Level	Limit Level
Water Quality	Dissolved Oxygen (DO) (Surface & Middle)	0	0	0	0
	Dissolved Oxygen (DO) (Bottom)	0	0	0	0
	Turbidity	0	0	0	0
	Suspended Solids (SS)	12	2	0	0

(D) Exceedance Report for Line-transect Vessel Surveys
(NIL in the reporting period)

APPENDIX L
COMPLAINT LOG

Appendix L - Complaint Log

Log Ref.	Location	Received Date	Details of Complaint	Investigation/ Mitigation Action	Status
Com-2013-04-001	Near Tung Chung New Development Pier	8 April 2013	EPD received the complaint on 8 April 2013. The complainant complained about oil was dumped from various vessels operating for Hong Kong-Zhuhai-Macao Bridge Hong Kong (HZMB HK) Projects near Tung Chung New Development Pier over the past few months.	1) The vessels photos in the complainant's photo are not the working vessels under Contract No. HK/2011/09. 2) No oil dumped from Contract No. HK/2011/09's working vessels was observed according to ET's site inspection conducted on 9 April 2013 at near Tung Chung New Development Ferry Pier. 3) Joint site inspection (DCVJV and ARUP) was conducted on 10 April 2013 and confirmed that Contract No. HY/2011/09's vessels are not involved the complaint case. 4) DCVJV will keep remind their boat crews not discharging contaminated effluent directly into the sea.	Closed
Com-2013-05-001	WA6	2 May 2013	ARUP received the complaint on 2 May 2013. The complainant alleged the noise nuisance was generated from the Works Area WA6 at around 13:00 on 1 May 2013 (Wednesday).	The site diary report was reviewed and confirmed that no works were carried out at WA6 on 1 May 2013. In addition, no noise was heard from WA6 according to the security guard who on duty at WA6 on 1 May 2013. Based on the information provided, the complaint regarding the construction noise at WA6 is not considered justifiable.	Closed

Com-2013-05-002	WA6	18 May 2013	ARUP received the complaint on 18 May 2013. The complainant advised that the noise nuisance due to loading of metal parts at barge near the seawall of Works Area WA6 early morning (around8:45a.m) on 18 May 2013 (Saturday).	Based on the record of site activities at WA6 on 18 May 2013, 4 metal plates and 2 oxygen-acetylene set were lifted onto a derrick boat "Chiu Kee" by a crane near seawall at WA6 in the morning on that day. Such operation was commenced around 8:40a.m and completed in 10 minutes during the normal construction working hour (0700 – 1900 Monday to Saturday). However, the duration of aforesaid activities is very short and infrequent. Nevertheless, the Contractor was reminded to strengthen their site supervision and provide training for the workers regularly to increase awareness of their environmental responsibilities to minimize the noise impact to the nearby residents and the specific mitigation measures for the complaint including but not limited to:- •To place wooden planks or rubber mats on ground for loading and unloading heavy or metal objects; and •To deploy professional personnel to supervise the works.	Closed
Com-2013-05-003	Near Tung Chung New Development Pier	18 May 2013	EPD received the public complaint on 18 May 2013. This complaint was a follow-up of a previous complaint received by EPD on 8 April 2013 (Com-2013-04-001).	After receiving the complaint, additional site inspection was conducted at near Tung Chung New Development Pier on 30 May 2013 to investigate whether oil dumped was due to Contract No. HY/2011/09's vessels. During the site	Closed

			The complainant complained again about the oil was dumped from various vessels operating for Hong Kong-Zhuhai-Macao Bridge Hong Kong (HZMB HK) Projects near Tung Chung New Development Pier over the past months.	inspection, three working vessels under Contract No.HY/2011/09 was anchored off near Tung Chung New Development Pier. No oil dumped from Contract No. HY/2011/09's vessels were observed and the water around the vessels was clear. The following mitigation measures have been implemented by DCVJV: • DCVJV has sent the letter to the shipping agent to remind them to ensure the vessels under Contract No. HY/2011/09 are in good condition and any oil dumped to sea should be avoided to prevent water pollution. • Provide training to the vessel skippers for prevention of pollution from ships. • DCVJV requested vessel skippers to provide engine oil disposal records The vessel skippers assured to us that all waste lubricants were sent to waste collectors regularly and no oil discharge into seawater.	
Com-2013-07-001	Southeast Quay of Chek Lap Kok near the junction of Chek Lap Kok South Road and Scenic Road	17 July 2013	The complaint was received by EPD on 17th July 2013. According to the EPD's letter, the complainant was concerned for the noise nuisance generated from the operation of concrete lorry mixers during evening and night-time period at Southeast Quay of Chek Lap Kok.	In response to the complaint, ET conducted two times site inspections at Southeast Quay at Chek Lap Kok between 18:45 and 20:30 hours on 23 July 2013 and 20:30 to 22:30 hours on 30 July 2013. During the inspections, the Ro-Ro barge was observed anchored off Southeast Quay at Chek Lap Kok but no concrete	Closed

				lorry mixer was observed throughout the inspection. On 23 July 2013, at about 19:35, one tug boat was observed travelling to Southeast Quay, Chek Lap Kok and left at about 19:40. On 30 July 2013, no tug boat and concrete lorry mixers were observed during the inspection. According to the Contractor, there was no concreting works for the pier sites on 23 July 2013 and therefore no loading and unloading operation at Southeast Quay at Chek Lap Kok. Concreting works were performed at Pier 0 on 30 July 2013. As the Contractor anticipated the arrival time of tug boat and flap-top barge at Southeast Quay will exceed 23:00 hours after the concreting works, they decided to arrange the tug boat and flap-top barge with concrete lorry mixers anchored off around Pier 66 after 23:00 hours. So, no loading and unloading operation at Southeast Quay at Chek Lap Kok was observed. Further night time site inspection was conducted on 22 August 2013 during the	

				loading and unloading operation at Southeast Quay of Chek Lap Kok, the construction works conducted under Contract No. HY/2011/09 complied with the conditions in the CNP No. GW-RS0895-13.	
Com-2013-11-001	Chek Lap Kok (CLK) South Road	16 November 2013	The complaint was received by project customer services on 16th November 2013 regarding the dust problem at Chek Lap Kok (CLK) South Road.	After receiving the complaint, ET conducted the site inspection on 19 and 29 November 2013 to check the appropriate environmental protection and pollution control measures which are properly implemented by the Contractor under HY/2011/09 (DCVJV). The observation are summarized as below:- • Dust generation works was conducted by the other Contractor at South East Quay • Proper watering of haul road to avoid dust generation during vehicle / plant equipment movement. • Vehicle washing facilities provided at every site exit at CLK South Road and South Perimeter Road. • No dark smoke was observed emitting from the plant equipments. Based on the information collected, the complaint of dust problem at Check Lap Kok South Road is considered not related to Contract No. HY/2011/09 as dust	Closed

				suppression measures has been properly implemented by the Contractor on site to prevent dust nuisance from the construction activities.	
Com-2014-01-001	Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill (Contract No. HY/2011/09	3 January 2014	The complaint was received by EPD on 3rd January 2014. According to the EPD's letter, a resident in Tai O District was concerned for the noise nuisance occasionally arising from the hammering or hitting of metals from Contract No. HY/2011/09.	In response to the complaint, ET conducted an ad hoc night time site inspection at P0, P18 and P19 on 14 January 2014 between around 23:00 and 00:30 hours of 15 January 2014. In accordance with the site activities record and site inspections, the construction works conducted under Contract No. HY/2011/09 complied with the conditions in the CNP No. GW-RS1108-13. Nevertheless, the Contractor was advised to strictly follow the conditions of the permit because any deviation from the conditions may lead to cancellation of the permit, subsequent prosecution action and the Authority's refusal to issue further permit. In addition, the following environmental mitigation measures were recommended: • Review and adjust the lighting directions of the barge, under safety consideration, to avoid potential	Closed

				visual impacts to residents in vicinities; • To ensure the equipment are maintaining in good operation condition; and • To strengthen site supervision and provide training for the workers regularly to increase awareness of their environmental responsibilities to minimize the noise impact to the nearby residents and the specific mitigation measures.	
Com-2014-01-002	Hong Kong-Zhuhai-Macao Bridge	16 January 2014	The complaint was received by HyD's PR Team on 16 January 2014 that the complainant advised that the heavy exhaust fume affecting Tung Chung Crescent.	After receiving the complaint, ET conducted the site inspection on 21 January 2014 to check all the plant equipments which were operated for the construction works and air quality mitigation measures. Based on the information collected, the complaint of heavy exhausts affecting Tung Chung Crescent is considered not related to Contract No. HY/2011/09 due to the following reason(s):- 1) The work sites at Portion C and South East Quay at Portion A under Contract No. HY/2011/09 are approximately 800m from Tung Chung Crescent. Any unpleasant smell of exhaust fume would not be	Closed

				anticipated. 2) No heavy smoke was observed emitting from plants / equipment during the site inspection on 21 January 2014. 3) The vehicles and equipments were switched off while not in use. 4) All plant and equipment were well maintained and in good operating condition. 5) Air quality mitigation measures has been properly implemented by the Contractor on site to prevent dust nuisance from the construction activities.	
Com-2014-03-001	Oil Spillage at near Sha Lo Wan	5 March 2014	The complaint was received by EPD on 5 March 2014. The complainant suspected the oil leakage from the works area of Contract No. HY/2011/09 near Sha Lo Wan	Based on ET site inspection, no oil spillage from the works area under Contract No. HY/2011/09 at near Sha Lo Wan was observed. In addition, spill kits are ready on site in order to dealing with spillage cases promptly. Nevertheless, DCVJV was also recommended the mitigation measures as below: • Provide training for the workers regularly regarding the mitigation measures on waste / chemical management. • Provide sufficient chemical spillage kit (e.g. oil absorbent) to all vessels and	Closed

				working platform. • Regular check the condition of vessels and plant equipments to ensure no leakage of oil.	
Com-2014-03-002	Construction Noise in the vicinity of the waters outside Sha Lo Wan	11 March 2014	The complaint was received by EPD on 11 March 2014. According to the EPD's letter, the complainant was concerned for the mobile crane which operating in the vicinity of the waters outside Sha Lo Wan after 23:00.	In accordance with an ad hoc site inspection on 18 March 2014, no construction works were conducted during the restricted hours. The 1st investigation report has been submitted to EPD on 21 March 2014 and the 2nd investigation report was submitted to EPD on 26 June 2014. The Contractor was advised to strictly follow the conditions of the permit because any deviation from the conditions may lead to cancellation of the permit, subsequent prosecution action and the Authority's refusal to issue further permit. Nevertheless, the Contractor was reminded to take sufficient noise mitigation measures to minimize the environmental impact on the nearby community: · To space out noisy equipment and position it as far away as possible from the sensitive receivers; · To avoid concurrent uses of noisy equipment near the sensitive area; · To ensure the equipment are maintaining in good operation condition; · To turned off any idle equipment on site;	Closed

				and · To enclose the noisy part of the machine by acoustic insulation material if feasible. · To arrange tailor-made training for the Production Team including the management and foremen to explain to them the conditions and requirements listed on the CNP. · To delegate one Engineer for ensuring that all construction activities and PMEs used are in full compliance with the CNP and legislative requirements.	
Com-2014-04-001	Construction marine works by the company Bauer Hong Kong in Tung Chung	14 April 2014	The complaint was received by Agriculture, Fisheries and Conservation Department (AFCD) on 14 April 2014, the complainant complained that the dead dolphin was found under a platform at construction marine works by the company Bauer Hong Kong in Tung Chung (Macau Bridge Piling Works)	In accordance with the photos showing a date of 27 November 2013 (08:00 – 08:25a.m.) which provided by the complainant, the dolphin was observed has been dead for some time and shows signs of decomposition. It was difficult to determine the cause of death of the deceased dolphin based on the photographs and the dead dolphin was found a few months ago. By examining the photos, it is found that the body was beside a barge, not under a working platform. In addition, the dead dolphin was found in the early morning in which the marine construction works have not been commenced. Therefore, from the above information the dead dolphin is considered to be washed to the work site.	Closed

				However, there is no significant increase of cetacean stranding were found in Hong Kong since the commencement of Contact No. HY/2011/09. In regard to the complaint, the following recommendations were made: ➢ In case stranded cetaceans are found, the AFCD shall be contacted immediately and provide the following information to facilitate AFCD's investigation: 1. Name and telephone number; 2. Date and time of discovery; 3. Location (as specific as possible); 4. Status of the stranded animal (i.e. alive, freshly dead, slightly decomposed, rotten, mummified); 5. Type and size of the stranded animal. ➢ To implement Dolphin Exclusion Zone during the installation of bored pile casing located in the waters to the west of Airport. ➢ To implement Dolphin Watching Plan after the bored piling casing is installed.	
Com-2014-05-001	At the shore of Sha	13 May 2014	The complaint was received by	After receiving the complaint from a Sha	Closed

	Lo Wan		EPD on 13 May 2014. According to the EPD's email, the complainant was concerned about the sand material that was excavated on the shore of Sha Lo Wan for the construction of Hong Kong - Zhuhai - Macao Bridge (HZMB) Project on 11 May 2014.	Lo Wan's village resident, the sub-contractor was instructed to stop the sand excavation and leave immediately. In addition, all sands excavated from the shore of Sha Lo Wan were returned back to the original area on 13 May 2014. Nevertheless, the Contractor was advised to arrange tailor-made training for Production Team including the management and foremen to explain to them the conditions and requirements listed on the Environmental Permit. In addition, indicative poles and flags are recommended to put within the site boundary to identify the extent of land areas in Sha Lo Wan / Sha Lo Wan (West) Archaeological site.	
Com-2014-05-002	At the shore of Sha Lo Wan	27 May 2014	The complaint was received by EPD on 27 May 2014. According to the EPD's email, the complainant was concerned about the dumping rubbles along the shore area of Sha Lo Wan on 27 May 2014.	The complaint investigation report for the complaint of dumping rubbles along the shore area of Sha Lo Wan was submitted to EPD on 4 June 2014. EPD and AFCD provided their comments on 5 and 9 June 2014 respectively. A meeting among DCVJV, ARUP, IEC, ET, EPD and AFCD was held on 17 June 2014. According to the meeting, further information is required to include in the	Complaint Investigation Report is under finalization

				complaint investigation report and this report is under finalization at this stage.	
Com-2014-05-003	Pier 39 to 50	29 May 2014	ARUP received the complaint on 29 May 2013. The complainant advised that the workers disposed hundreds of kg of waste spoils (concrete and earth) into the sea every day in the existing locations of HZMB site area.	Based on the investigation findings, the waste spoils (concrete and earth) were disposed to HY/2010/02 Project according to approved WMP. The following recommendations were made: • To check for any accumulation of waste spoils (concrete and earth) on site. • To cover the wastes skip with waste spoils before removing from site. • To carry out inspection of pier(s) regularly to ensure the frontline staff loads inert materials to approved barge properly. • To clean the waste storage areas regularly and do not cause dust nuisance.	Closed
Com-2014-08-001	Near Sha Lo Wan	27 August 2014	ARUP received the complaint on 27 August 2013. The complainant was concerned about the dust on the surface of the roro-barge.	Under Investigation.	