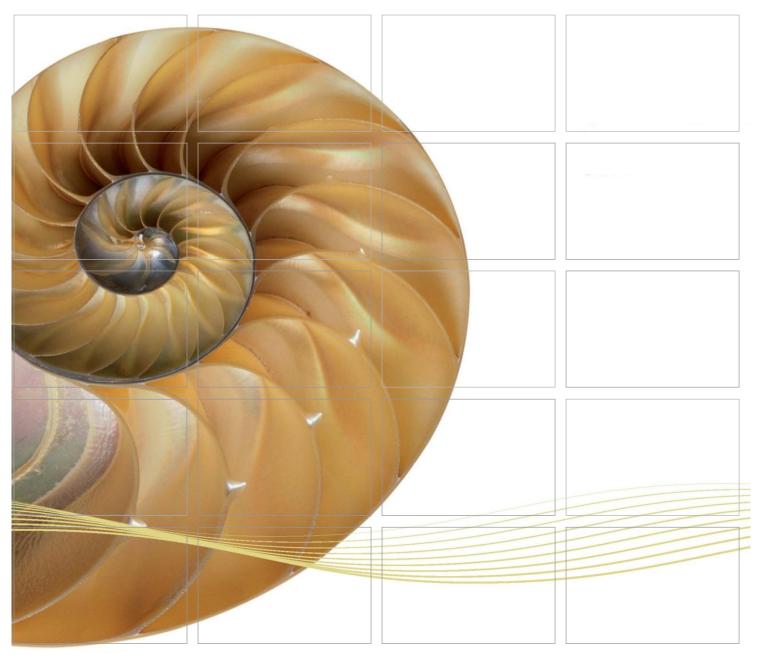
#### Report



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

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

13 July 2015

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

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

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

## Document Code: 0215660 5th Qtr EM&A 20150703.doc

# **Environmental Resources Management**

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

Client:		Project	No:		
Gammo	n	02156	660		
Summary:  This document presents the Fifth Quarterly EM&A Report for Tuen  Mun – Chek Lap Kok Link Southern Connection Viaduct Section.		Date: 13 July 2015 Approved by:  Mr Craig Reid Partner Certified by:  Mr Jovy Tam			
	5 <sup>th</sup> Quarterly EM&A Report	VAR	JT	CAR	13/07/15
Revision	Description	Ву	Checked	Approved	Date
This report has been prepared by Environmental Resources Management the trading name of 'ERM Hong-Kong, Limited', with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.  We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.		  ⊠ F	ution nternal Public Confidential	Certificate	8 18001:2007 No. OHS 515956 BSI ™ 001 : 2008 ≥ No. FS 32515





Ref.: HYDHZMBEEM00\_0\_3187L.15

17 July 2015

**AECOM** 

By Fax (3691 2899) and By Post

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

Attention: Mr. Daniel Ip

Dear Mr. Ip,

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

Contract No. HY/2012/07 TM-CLKL Southern Connection Viaduct Section

Fifth Quarterly EM&A Report (Dec 2014 – Feb 2015) (EP-354/2009/D)

Reference is made to the Fifth Quarterly Environmental Monitoring and Audit (EM&A) Report (ET's ref.: "0215660\_5th Qtr EM&A\_20150703.doc" dated 13 July 2015) certified by the ET Leader and provided to us via e-mail on 13 July 2015.

We are pleased to inform you that we have no adverse comments on the captioned EM&A Report.

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

Yours sincerely,

F. C. Tsang

Independent Environmental Checker

Tuen Mun - Chek Lap Kok Link

Laftablesof

C.C.

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

Internal: DY, YH, SLUI, ENPO Site

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#### **EXECUTIVE SUMMARY**

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

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

This is the fifth quarterly EM&A report presenting the EM&A works carried out during the period from 1 December 2014 to 28 February 2015 for the Southern Connection Viaduct Section in accordance with the Updated EM&A Manual of the TM-CLK Link Project. As informed by the Contractor, major activities in the reporting period included:

#### December 2014

#### Marine-based Works

- Construction of Pile caps at Viaducts B & E;
- Marine piling platform installation for Viaducts A, B, C, D & E;
- Marine Piling at Viaducts B, C, D & E; and
- Additional marine ground investigation (GI) and laboratory testing.

#### Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Channel re-construction at Area 1;
- Land Piling at Viaducts B, C & D;
- Pre-drilling works at Viaduct A;
- Construction of pile cap at Viaducts B & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

#### January 2015

#### Marine-based Works

- Construction of Pile caps at Viaducts B, C & E;
- Marine piling platform installation for Viaducts A, B, C, D & E;
- Marine Piling at Viaducts B, C, D & E; and
- Additional marine ground investigation (GI) and laboratory testing.

#### Land-based Works

- Construction of pile cap superstructure of Viaduct B & C;
- Channel re-construction at Area 1;
- Land Piling at Viaducts B, C & D;
- Pre-drilling works at Viaduct A;
- Construction of pile cap at Viaducts B & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

#### February 2015

#### Marine-based Works

- Construction of Pile caps at Viaducts B, C & E;
- Marine piling platform installation & uninstallation;
- Marine Piling at Viaducts C & E; and
- Additional marine ground investigation (GI) and laboratory testing.

#### Land-based Works

- Construction of pile cap superstructure of Viaduct B & C;
- Channel re-construction at Area 1;
- Land Piling at Viaducts B, C & D;
- Pre-drilling works at Viaduct A;
- Construction of pile cap at Viaducts B & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

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

24-hour TSP monitoring 17 sessions at ASR9;

18 sessions at ASR8A

1-hour TSP monitoring 17 sessions at ASR9;

18 sessions at ASR8A

Noise monitoring 17 sessions

Water quality monitoring 37 sessions

Dolphin monitoring 6 sessions

#### Breaches of Action and Limit Levels for Air Quality

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

#### Breaches of Action and Limit Levels for Noise

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

#### **Breaches of Action and Limit Levels for Water Quality**

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

#### **Impact Dolphin Monitoring**

Whilst one (1) Limit Level exceedance was observed for the quarterly dolphin monitoring data between December 2014 and February 2015, no unacceptable impact from the construction activities of the TM-CLKL Southern Connection Viaduct Section on Chinese White Dolphins was noticeable from general observations during the dolphin monitoring in this reporting quarter. The exceedance is considered unlikely due to the works of this Project upon further investigation.

Daily marine mammal exclusion zone monitoring was undertaken during the period of marine works under this Contract. Passive Acoustic Monitoring (PAM) was also implemented for the detection of marine mammal when marine works were carried out outside the daylight hours under this Contract. No sighting of the Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese White Dolphin) was recorded in the monitoring period during the exclusion zone monitoring.

#### **Environmental Complaints, Non-compliance & Summons**

No environmental complaint, notification of summons and successful prosecution was received in the reporting period.

#### **Reporting Change**

There was no reporting change required in the reporting period.

#### Upcoming Works for the Next Reporting Period

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

#### March 2015

#### Marine Works

- Construction of Pile caps at Viaducts B, C, D & E;
- Marine piling platform installation & uninstallation;
- Marine Piling at Viaducts C & E; and

Additional marine ground investigation (GI) and laboratory testing.

#### Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Channel re-construction at Area 1;
- Land Piling at Viaducts B, C & D;
- Pre-drilling works at Viaduct A;
- Construction of pile cap at Viaducts B, C, D & E;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

#### April 2015

#### Marine Works

- Construction and installation of pile caps;
- Marine piling platform installation & uninstallation;
- Pier construction;
- Installation of launching gantry;
- Marine piling; and,
- Installation of pier head segment.

#### Land-based Works

- Construction and installation of pile caps;
- Pier construction;
- Drainage works;
- Land piling;
- Pre-drilling works;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Tree survey, felling and transplanting;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

#### May 2015

#### Marine Works

- Construction and installation of pile caps;
- Marine piling platform installation & uninstallation;

IV

- Pier construction;
- Installation of launching gantry;
- Marine piling and
- Installation of pier head segment.

#### Land-based Works

- Construction and installation of pile caps;
- Pier construction;
- Drainage works;

- Land piling;
- Pre-drilling works;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Tree survey, felling and transplanting;
- Relocation of MTRC fence; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

#### **Future Key Issues**

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

#### 1.1 BACKGROUND

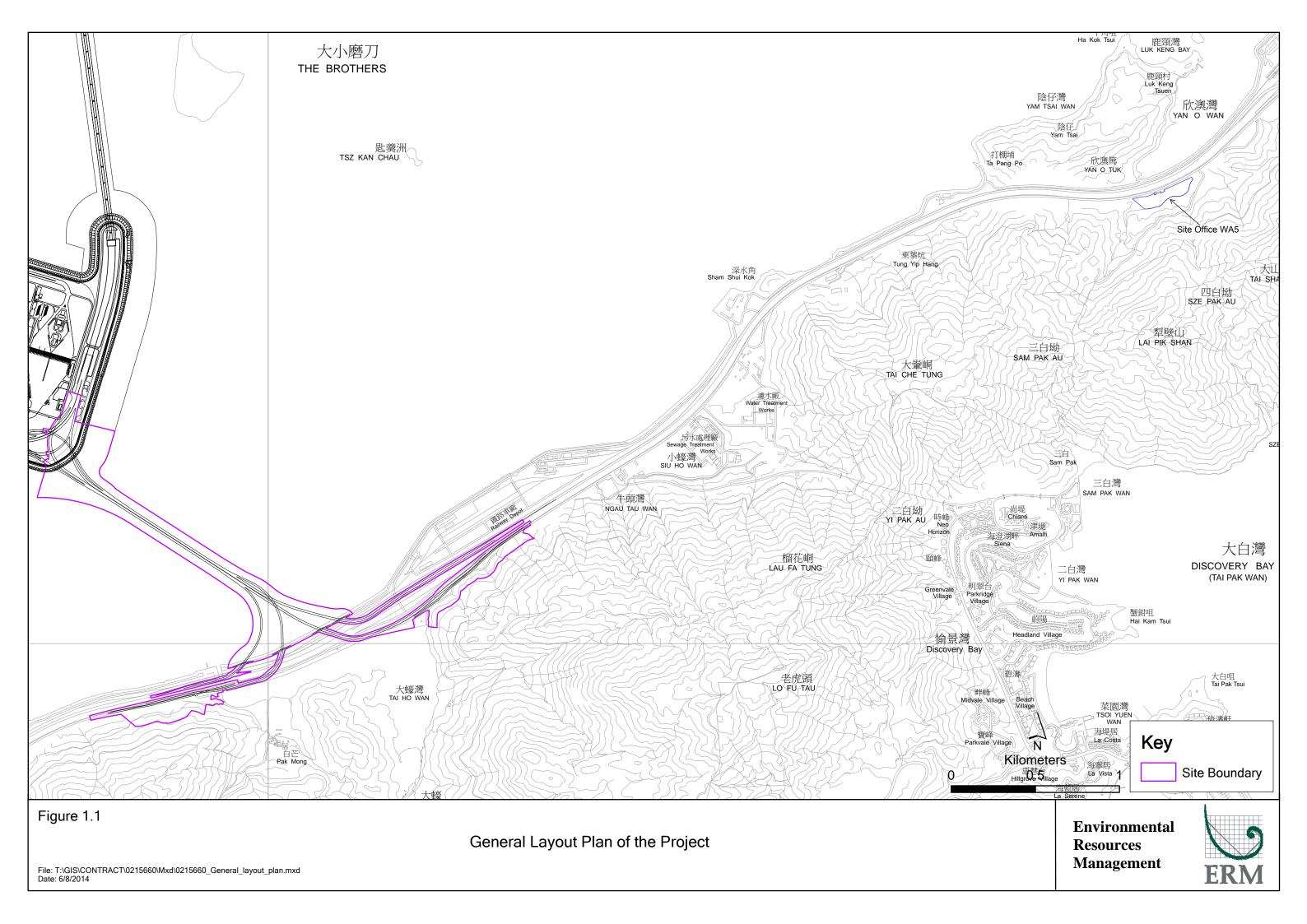
According to the findings of the Northwest New Territories (NWNT) Traffic and Infrastructure Review conducted by the Transport Department, Tuen Mun Road, Ting Kau Bridge, Lantau Link and North Lantau Highway would be operating beyond capacity after 2016. This forecast has been based on the estimated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

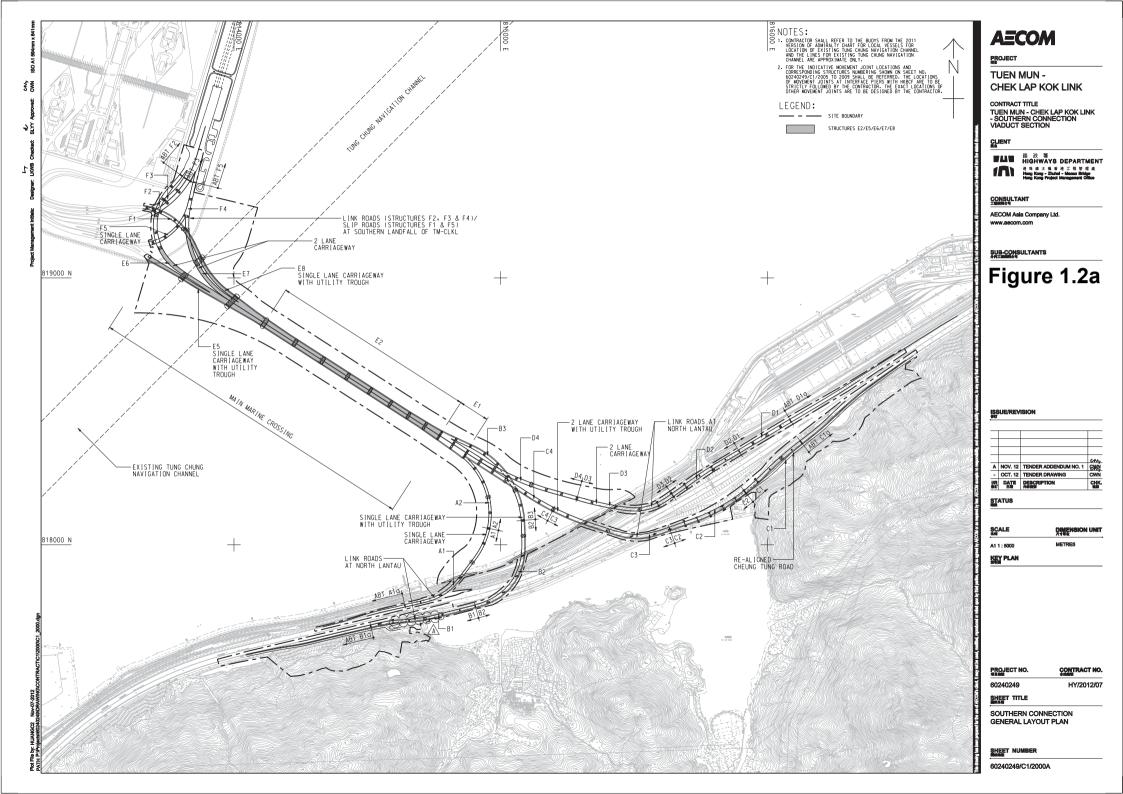
An Environmental Impact Assessment (EIA) of TM-CLKL (the Project) was prepared in accordance with the EIA Study Brief (No. *ESB-175/2007*) and the *Technical Memorandum of the Environmental Impact Assessment Process (EIAO-TM*). The EIA Report was submitted under the Environmental Impact Assessment Ordinance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

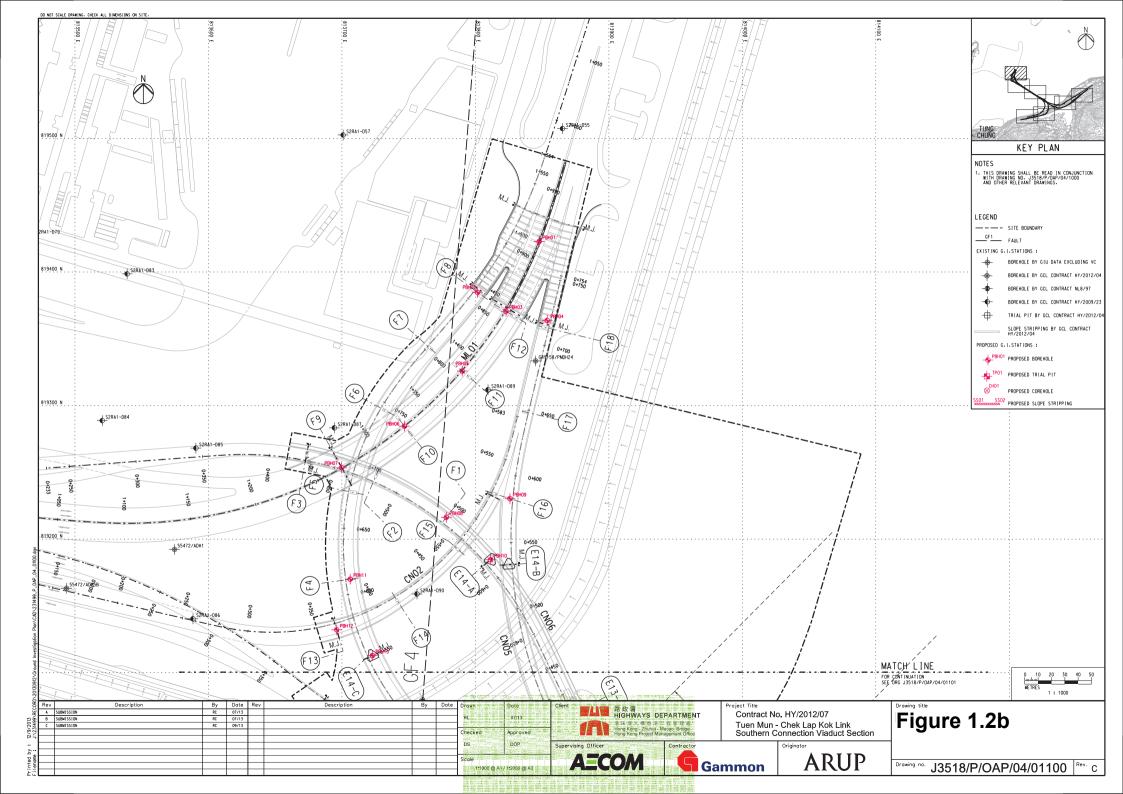
Under *Contract No. HY/2012/07*, Gammon Construction Limited (GCL) is commissioned by the Highways Department (HyD) to undertake the design and construction of the Southern Connection Viaduct Section of TM-CLKL ("the Contract") while AECOM Asia Company Limited was appointed by HyD as the Supervising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

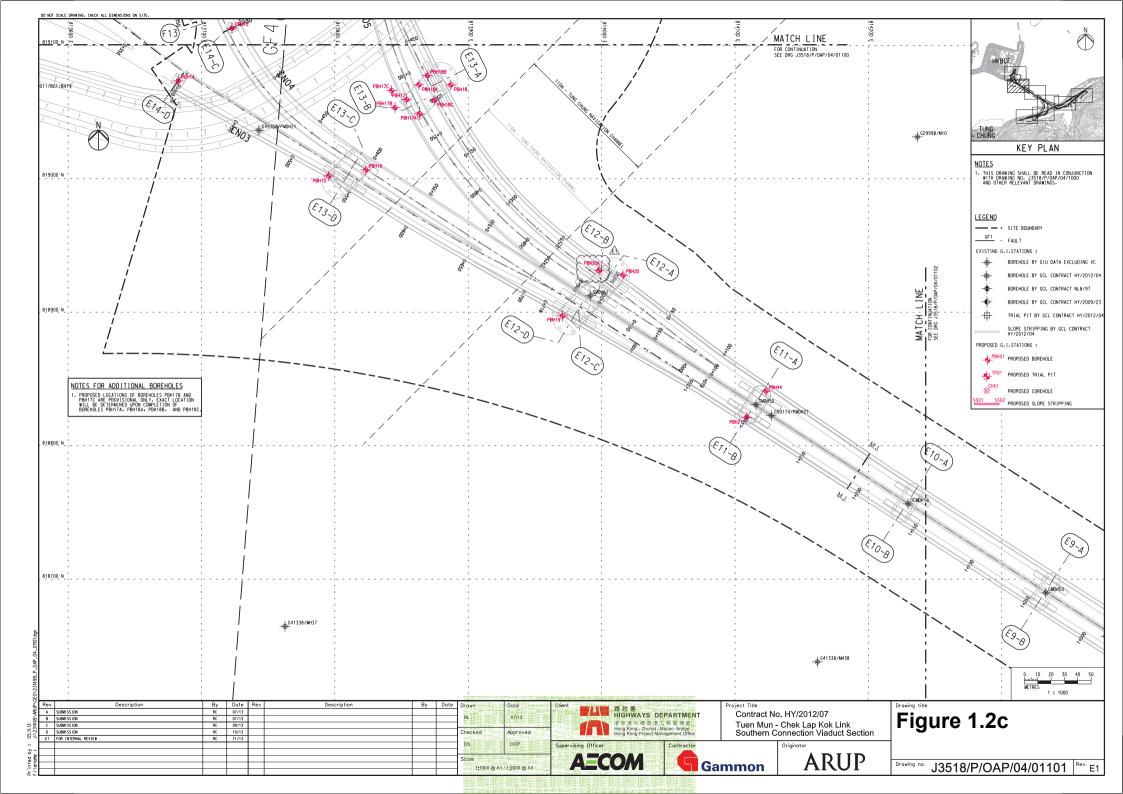
The construction phase of the Contract commenced on 31 October 2013 and will be tentatively be completed by 2018. The impact monitoring phase of the EM&A programme, including air quality, noise, water quality and marine ecological monitoring as well environmental site inspections, commenced on 31 October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

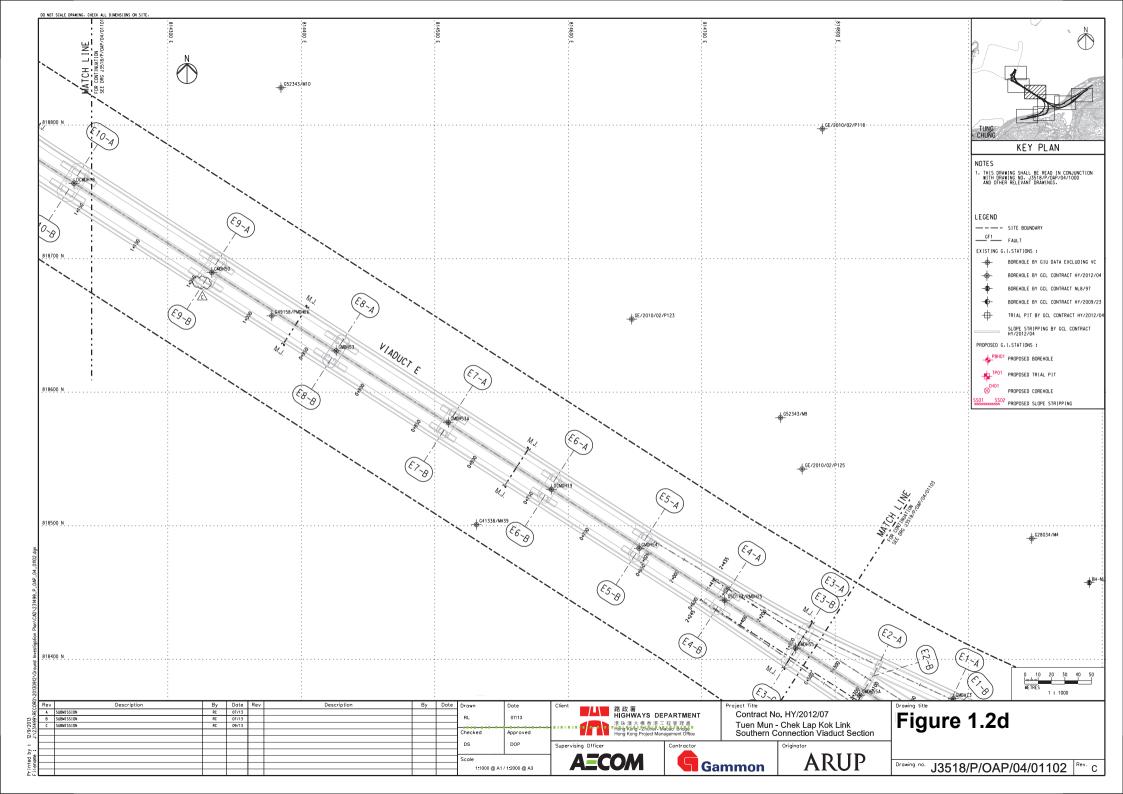
The general layout plan of the Contract components is presented in *Figures 1.1* & 1.2a to 1.

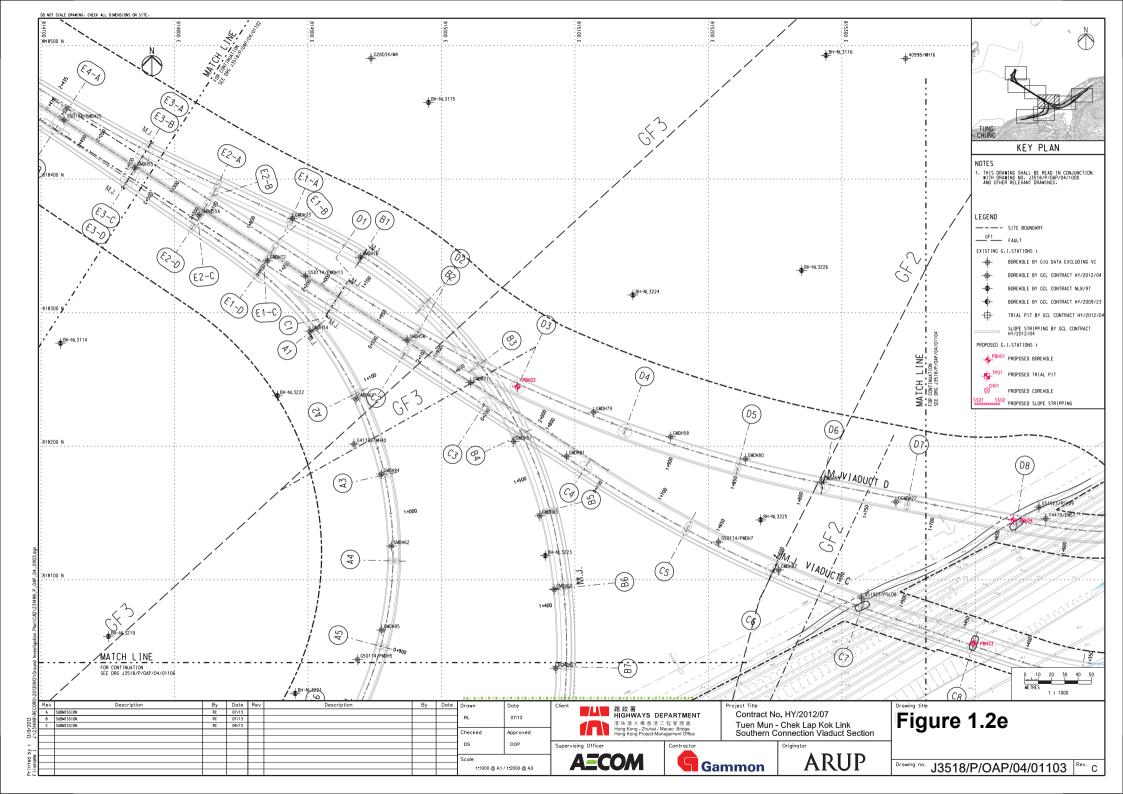


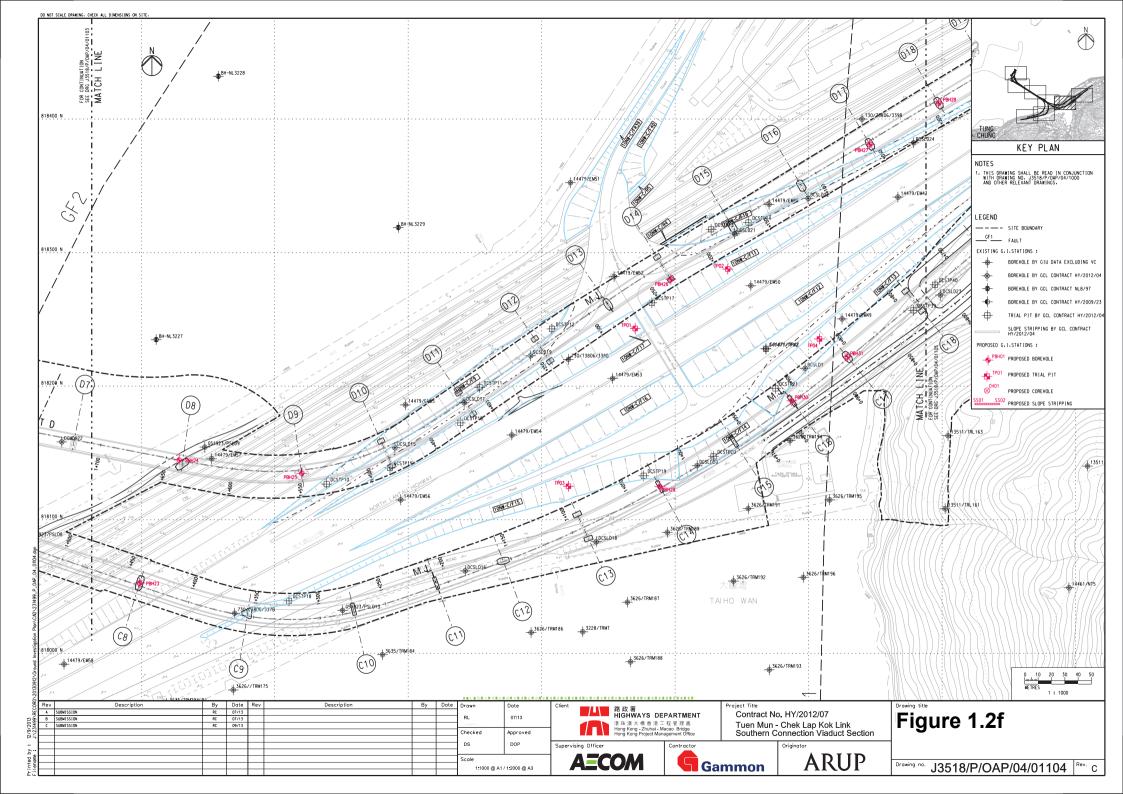


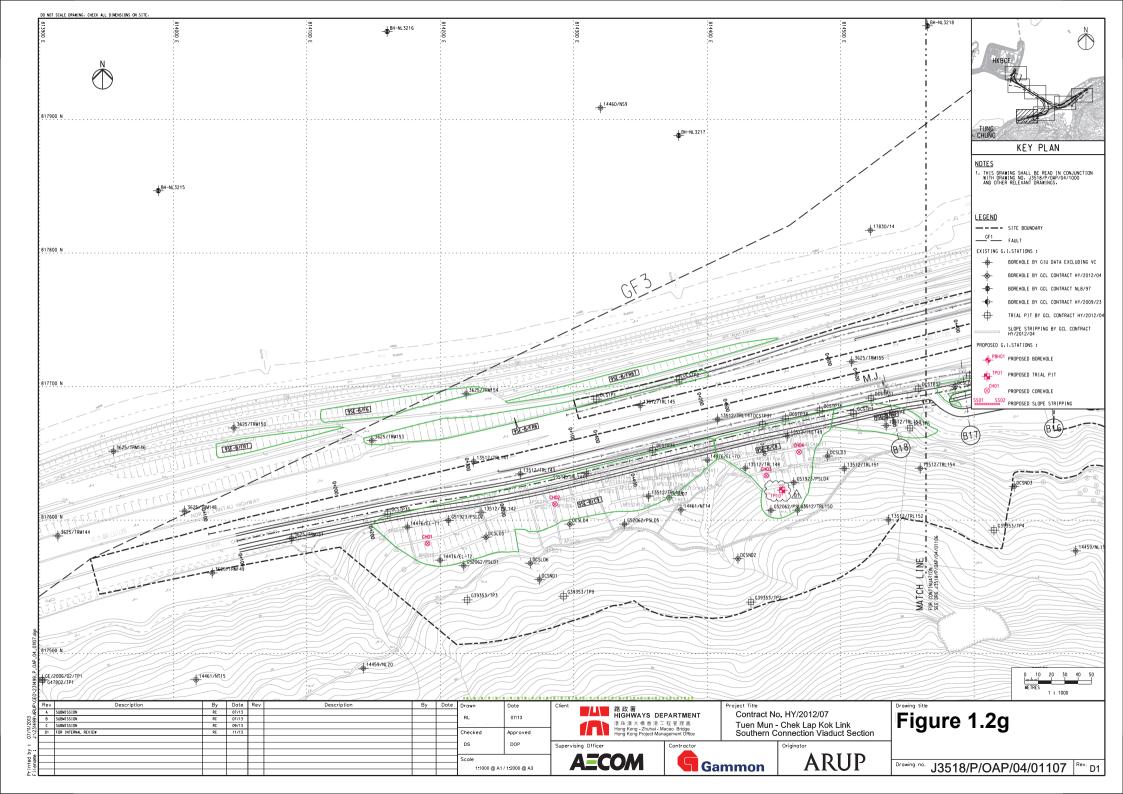


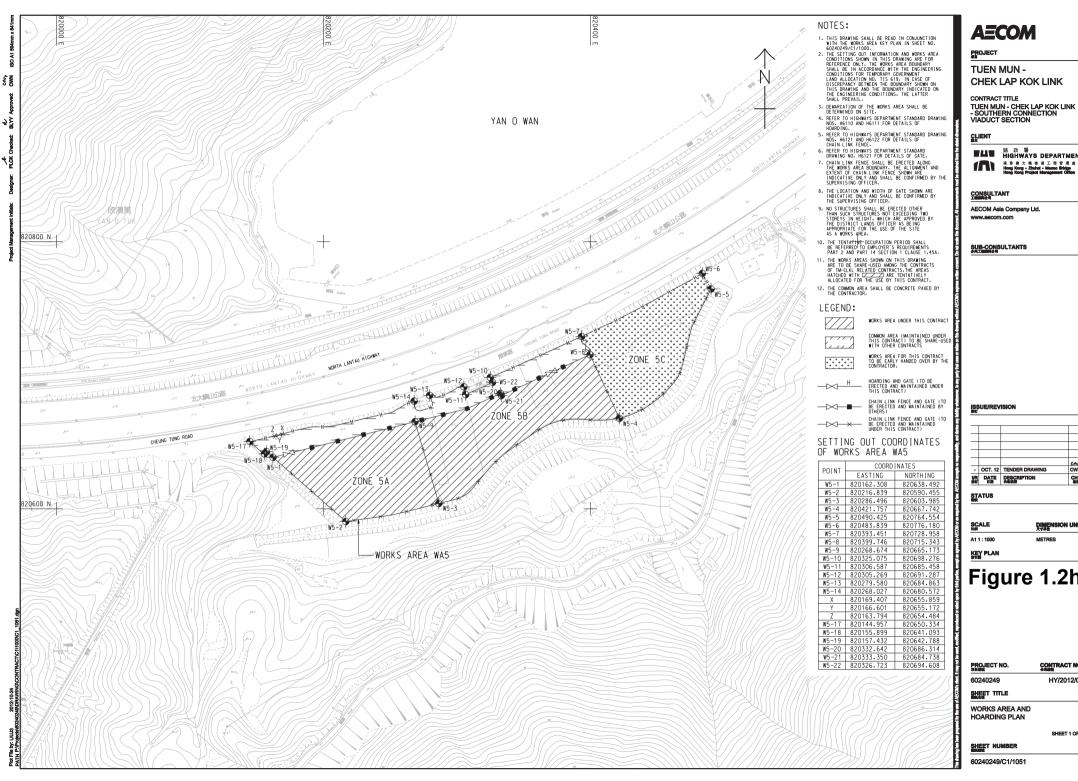












#### **AECOM**

PROJECT

TUEN MUN -CHEK LAP KOK LINK

CONTRACT TITLE

■ B 政 署 HIGHWAYS DEPARTMENT

CONSULTANT

AECOM Asia Company Ltd.

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Figure 1.2h

PROJECT NO.

CONTRACT NO. HY/2012/07

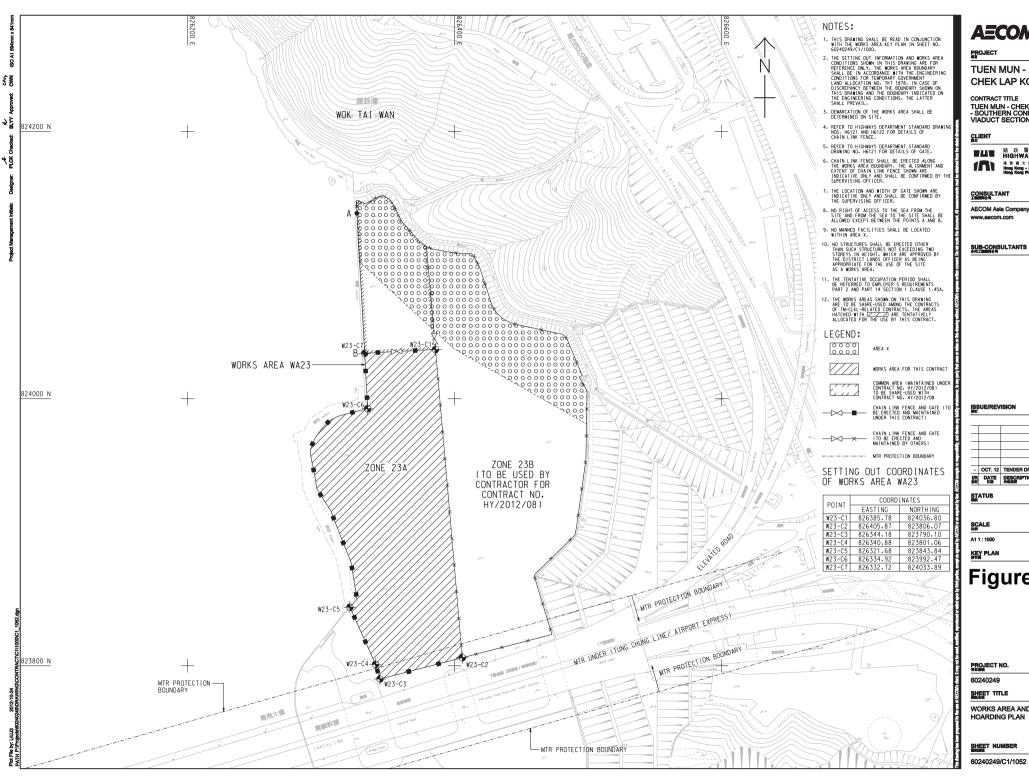
SHEET TITLE

WORKS AREA AND HOARDING PLAN

SHEET 1 OF 2

SHEET NUMBER

60240249/C1/1051



#### **AECOM**

TUEN MUN -CHEK LAP KOK LINK

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

■ B 政 署 HIGHWAYS DEPARTMENT 送取 表大 集 香 港 工 程 管 理 意 Hong Kong - Zhahal - Macano Bridge

AECOM Asia Company Ltd.

ISSUE/REVISION

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Figure 1.2i

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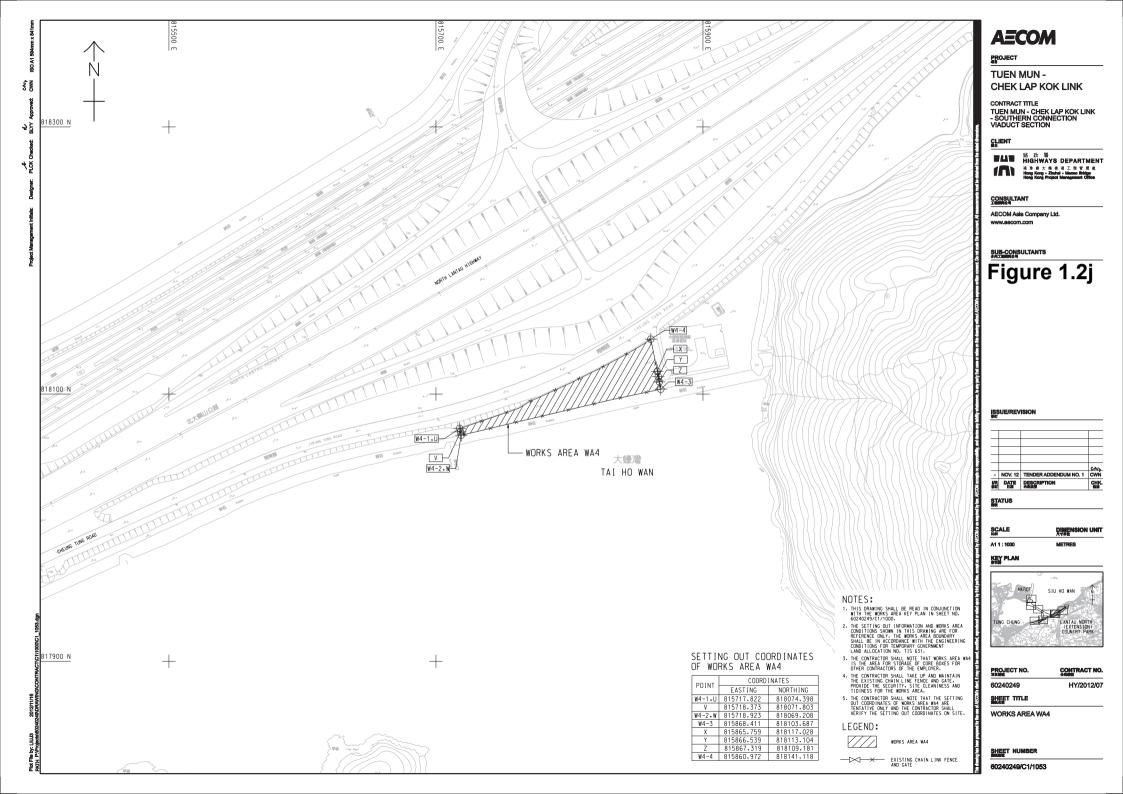
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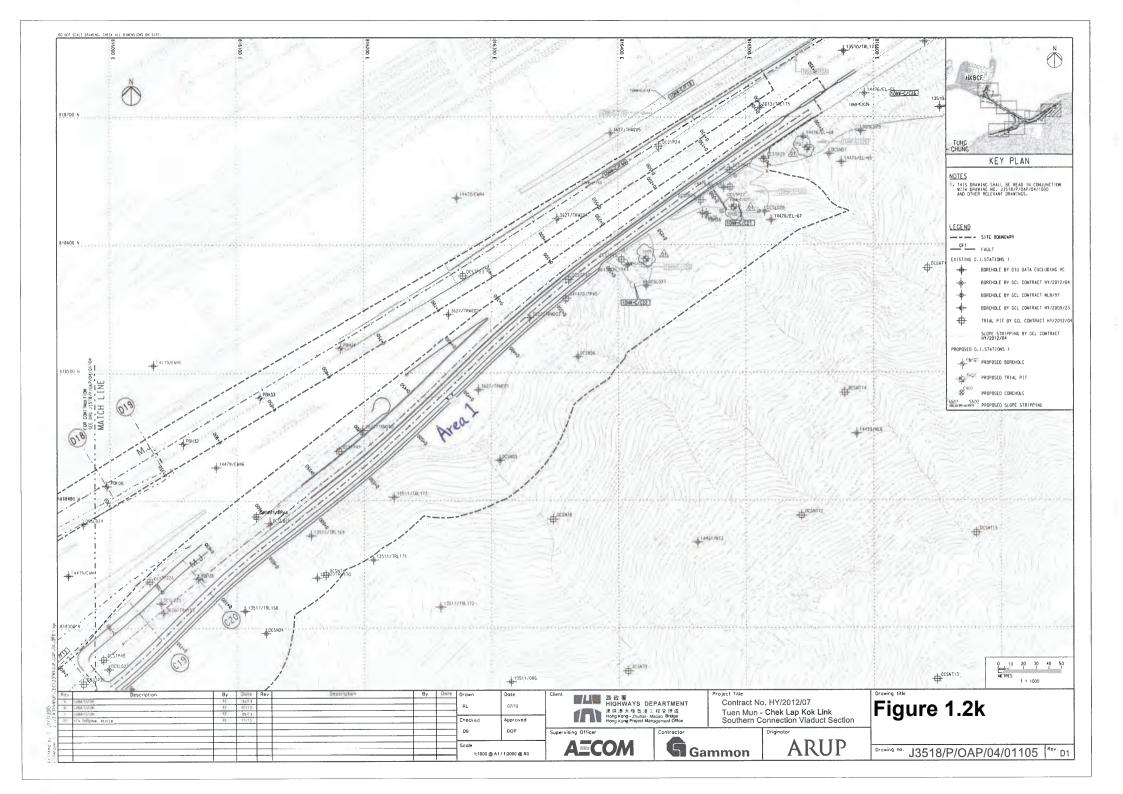
WORKS AREA AND HOARDING PLAN

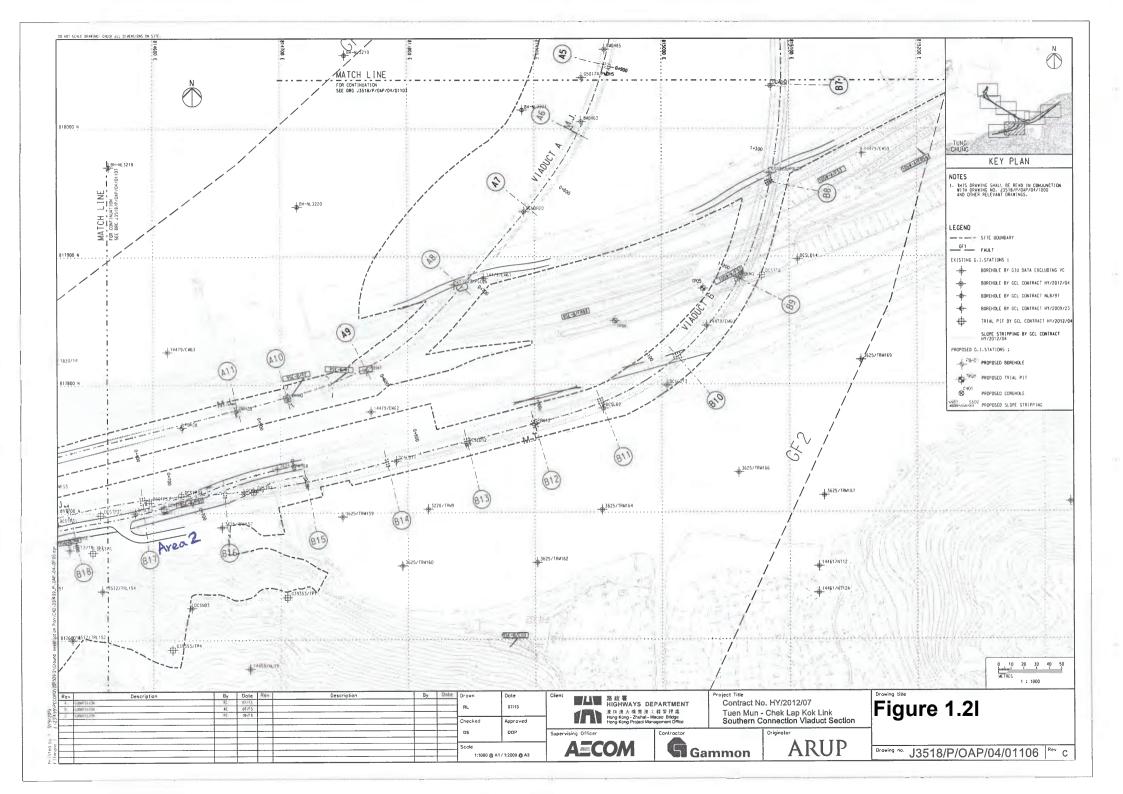
SHEET 2 OF 2

SHEET NUMBER

60240249/C1/1052







#### 1.2 Scope of Report

This is the Fifth Quarterly EM&A Report under the *Contract No. HY/2012/07 Tuen Mun – Chek Lap Kok Link – Southern Connection Viaduct Section.* This report presents a summary of the environmental monitoring and audit works from 1 December 2014 to 28 February 2015.

#### 1.3 ORGANIZATION STRUCTURE

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

Table 1.1 Contact Information of Key Personnel

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

#### 1.4 SUMMARY OF CONSTRUCTION WORKS

The construction phase of the Contract commenced on 31 October 2013. The rolling construction programme for the period of December 2014 to February 2015 is shown in *Appendix B*.

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

#### December 2014

#### Marine-based Works

- Construction of Pile caps at Viaducts B & E;
- Marine piling platform installation for Viaducts A, B, C, D & E;
- Marine Piling at Viaducts B, C, D & E; and
- Additional marine ground investigation (GI) and laboratory testing.

#### Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Channel re-construction at Area 1;
- Land Piling at Viaducts B, C & D;
- Pre-drilling works at Viaduct A;
- Construction of pile cap at Viaducts B & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

#### January 2015

#### Marine-based Works

- Construction of Pile caps at Viaducts B, C & E;
- Marine piling platform installation for Viaducts A, B, C, D & E;
- Marine Piling at Viaducts B, C, D & E; and
- Additional marine ground investigation (GI) and laboratory testing.

#### Land-based Works

- Construction of pile cap superstructure of Viaduct B & C;
- Channel re-construction at Area 1;
- Land Piling at Viaducts B, C & D;
- Pre-drilling works at Viaduct A;
- Construction of pile cap at Viaducts B & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

#### February 2015

#### Marine-based Works

- Construction of Pile caps at Viaducts B, C & E;
- Marine piling platform installation & uninstallation;
- Marine Piling at Viaducts C & E; and
- Additional marine ground investigation (GI) and laboratory testing.

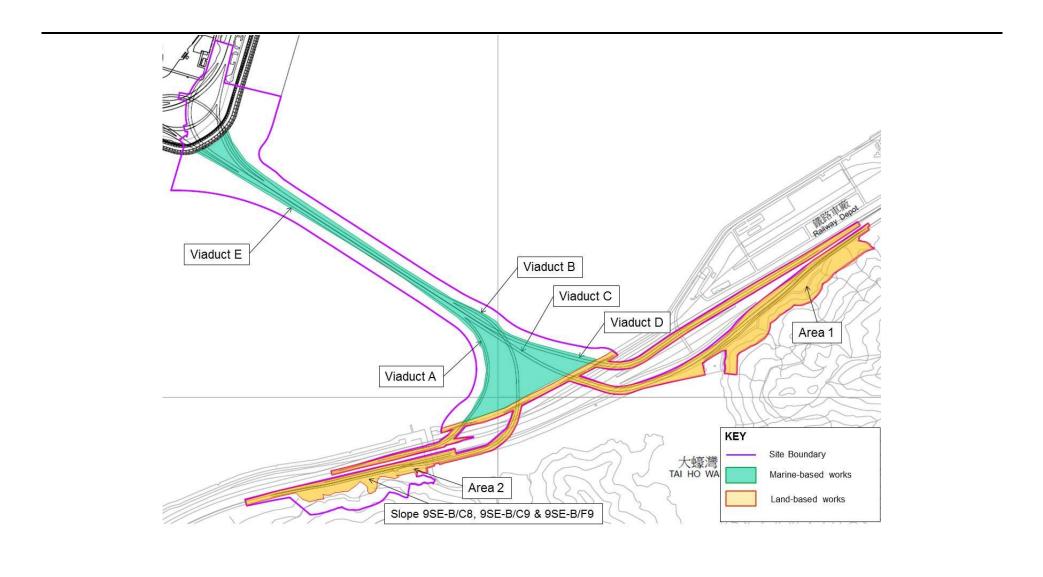
#### Land-based Works

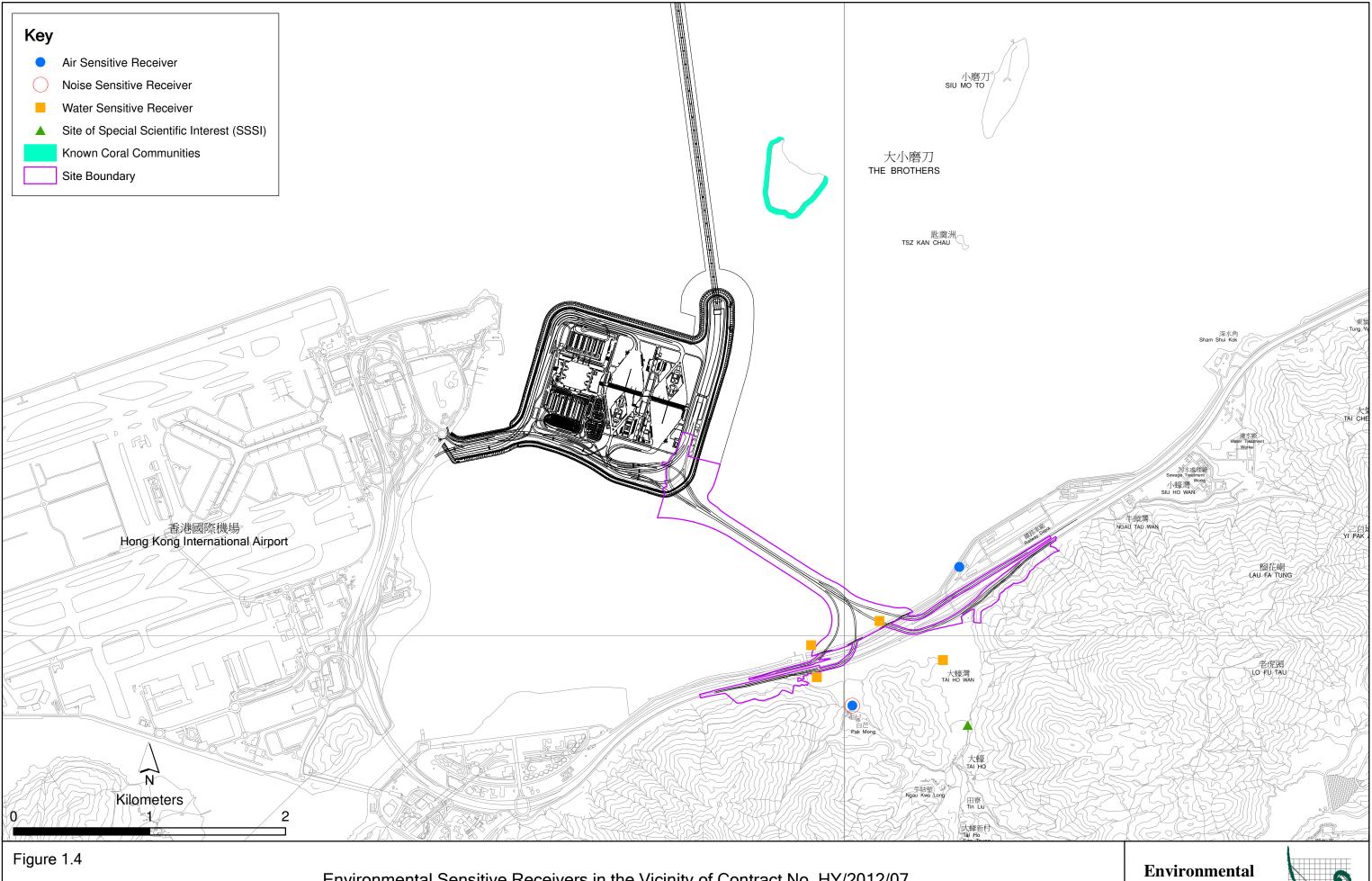
- Construction of pile cap superstructure of Viaduct B & C;
- Channel re-construction at Area 1;
- Land Piling at Viaducts B, C & D;
- Pre-drilling works at Viaduct A;
- Construction of pile cap at Viaducts B & D;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

3

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

Figure 1.3 Locations of Construction Activities in the Reporting Period





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

Environmental Resources Management



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

#### 1.5 SUMMARY OF EM&A PROGRAMME REQUIREMENTS

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

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

#### 2 EM&A RESULTS

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

#### 2.1 AIR QUALITY

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

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

#### 2.1.1 Monitoring Requirements and Equipment

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

Air quality monitoring stations ASR9A and ASR9C in Siu Ho Wan MTRC Depot were the proposed locations in accordance with the Updated EM&A Manual. However, authorization of getting access into Siu Ho Wan MTRC Depot was not granted for the impact monitoring of the EM&A programme for the captioned Contract. Air quality monitoring stations in Siu Ho Wan MTRC Depot (ASR9A and ASR9C) were relocated to Area 4 (ASR8A) and rooftop of Pak Mong Village (ASR8) respectively since November 2013. Due to the rejection of access to Pak Mong Village, monitoring results of 1-hour TSP and 24-hour TSP at ASR 8 and meteorological data was not recorded on 2 December 2014. The Proposal of Alternative Dust and Noise Monitoring Stations (1) was submitted to EPD on 2 December 2014, in which the HVS at ASR 8 was proposed to be relocated to Entrance of MTR Depot (ASR9) and the wind anemometer to be relocated to ASR 8A in accordance with the requirements of the Updated EM&A Manual. Same baseline and Action/Limit Level for air quality, as derived from the baseline monitoring data recorded at Siu Ho Wan MTRC Depot, were adopted for these temporary air quality monitoring locations (Figure 2.1; Table 2.1).

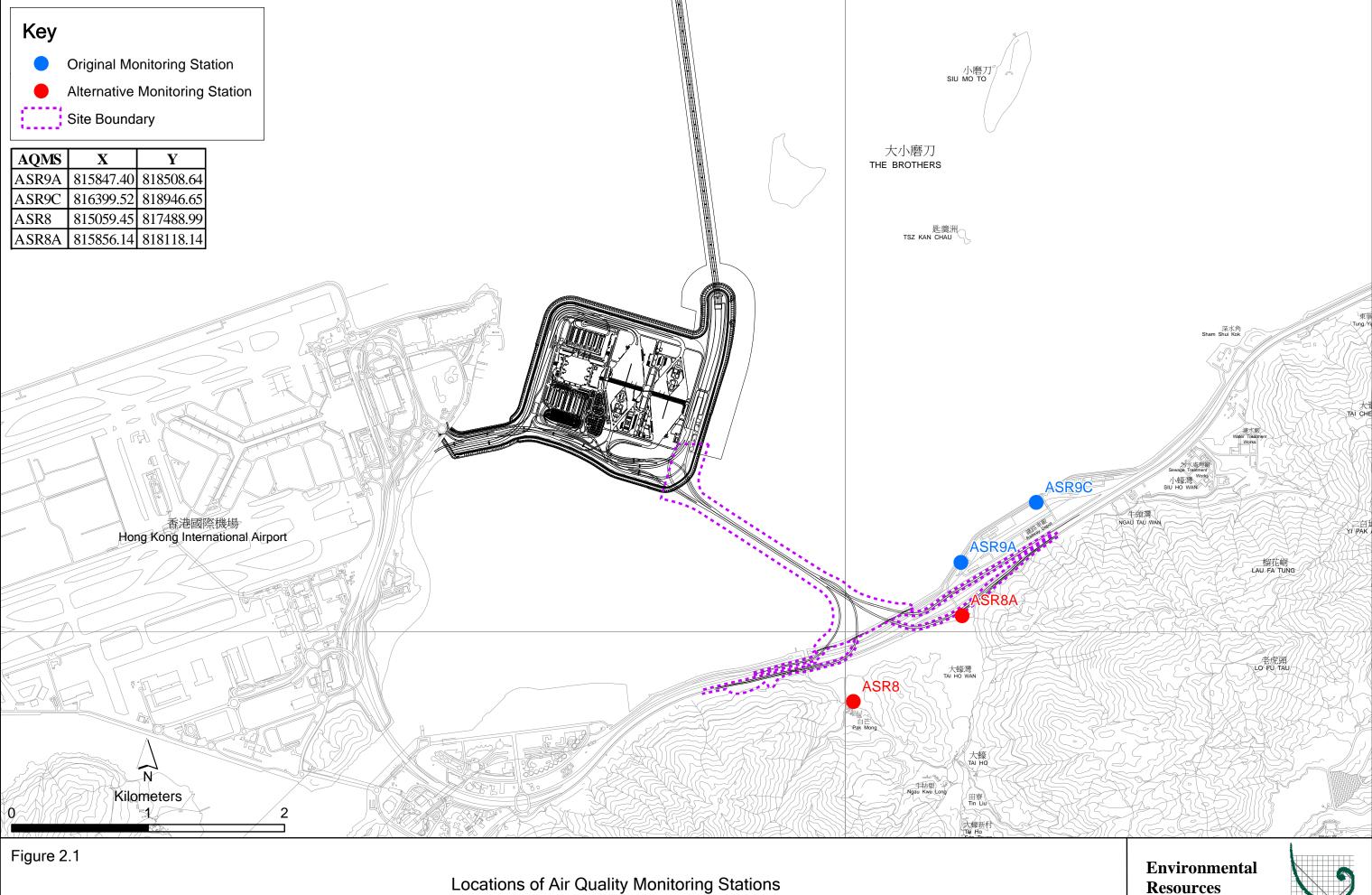
High Volume Samplers (HVSs) were used for carrying out 1-hour and 24-hour TSP monitoring during the reporting period. The HVS meets all requirements of the Updated EM&A Manual. Brand and model of the equipment are given in *Table 2.2*.

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

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

Monitoring Station (1)	Monitoring Period	Location	Description	Parameters & Frequency
	2 0 11 17 22 120	<u> </u>	0 1 1 1	<u> </u>
ASR8A	2, 8, 11, 17, 23 and 29	Area 4	On ground at the	<ul> <li>1-hour Total</li> </ul>
	December 2014; 2, 7, 13,		Area 4	Suspended
	19, 22 and 28 January			Particulates
	2015; 3, 9, 12, 17, 23 and			(1-hour TSP,
	26 February 2015			$\mu g/m^3$ ), 3

<sup>(1)</sup> The Proposal of Alternative Dust and Noise Monitoring Stations with the agreement letter from IEC and SOR was submitted to EPD on 2 December 2014, and subsequently replied with no objection on 4 December 2014.



Remark: Air Quality Monitoring Stations ASR9A and ASR9C (Siu Ho Wan MTRC Depot) proposed in accordance with the Updated EM&A were temporarily relocated to ASR8A and ASR8, respectively.

Management



Monitoring Station (1)	Monitoring Period	Location	Description	Parameters & Frequency
ASR9	8, 11, 17, 23 and 29 December 2014; 2, 7, 13, 19, 22 and 28 January 2015; 3, 9, 12, 17, 23 and 26 February 2015	MTR Depot	On the ground nearby MTR Depot Entrance	times per day every 6 days  24-hour Total Suspended Particulates (24-hour TSP, µg/m³), daily for 24-hour every 6 days

#### Note:

- (1) Air Quality Monitoring Stations ASR9A and ASR9C at Siu Ho Wan MTRC Depot proposed in accordance with the Updated EM&A were temporarily relocated to ASR9 and ASR8A respectively.
- (2) Due to the rejection of access to ASR8, the monitoring on 2 Dec 2014 at ASR8 was cancelled.

Table 2.2 Air Quality Monitoring Equipment

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

#### 2.1.2 Action & Limit Levels

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

#### 2.1.3 Monitoring Schedule for the Reporting Quarter

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

#### 2.1.4 Results and Observations

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

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

Month	Station	Average (μg/m³)	Range (µg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
December 2014	ASR 8A	122	63 - 298	394	500
	ASR 9	137	96 - 232	393	500
January 2015	ASR 8A	109	73 - 176	394	500
	ASR 9	148	77 - 217	393	500
February 2015	ASR 8A	118	68 - 211	394	500

Month	Station	Average (µg/m³)	Range (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m³)
	ASR 9	132	68 - 241	393	500

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

Month	Station	Average (μg/m³)	Range (µg/m³)	Action Level (μg/m³)	Limit Level (µg/m³)
December 2014	ASR 8A	75	63 - 99	178	260
	ASR 9	98	68 - 133	178	260
January 2015	ASR 8A	76	57 - 99	178	260
	ASR 9	97	64 - 123	178	260
February 2015	ASR 8A	72	54 - 104	178	260
	ASR 9	89	51 - 117	178	260

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

In this reporting period, a total of seventeen (17) monitoring events at ASR9 and eighteen (18) monitoring event at ASR8A were undertaken within the reporting period, in which no Action or Limit Level exceedance for 1-hour and 24-hour TSP for air quality was recorded during the reporting period.

#### 2.2 Noise Monitoring

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

#### 2.2.1 Monitoring Requirements and Equipment

In accordance with the Updated EM&A Manual, impact noise monitoring should be conducted once per week during the construction phase of the Contract at NSR1.

Monitoring location was set up at NSR1 in accordance with the Updated EM&A Manual since project commencement. Due to the rejection of access to Pak Mong Village, no noise monitoring at NSR1 was recorded on 2 December 2014. The *Proposal of Alternative Dust and Noise Monitoring Stations* (2) was submitted to EPD on 2 December 2014, in which the noise monitoring station was proposed to be relocated to the Pak Mong Village Pavilion (NSR1A) in accordance with the requirements of the Updated EM&A Manual.

Figure 2.2 shows the location of the monitoring station. Table 2.5 describes the details of the monitoring station.

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

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

<sup>(2)</sup> The *Proposal of Alternative Dust and Noise Monitoring Stations* with the agreement letter from IEC and SOR was submitted to EPD on 2 December 2014, and subsequently replied with no objection on 4 December 2014.

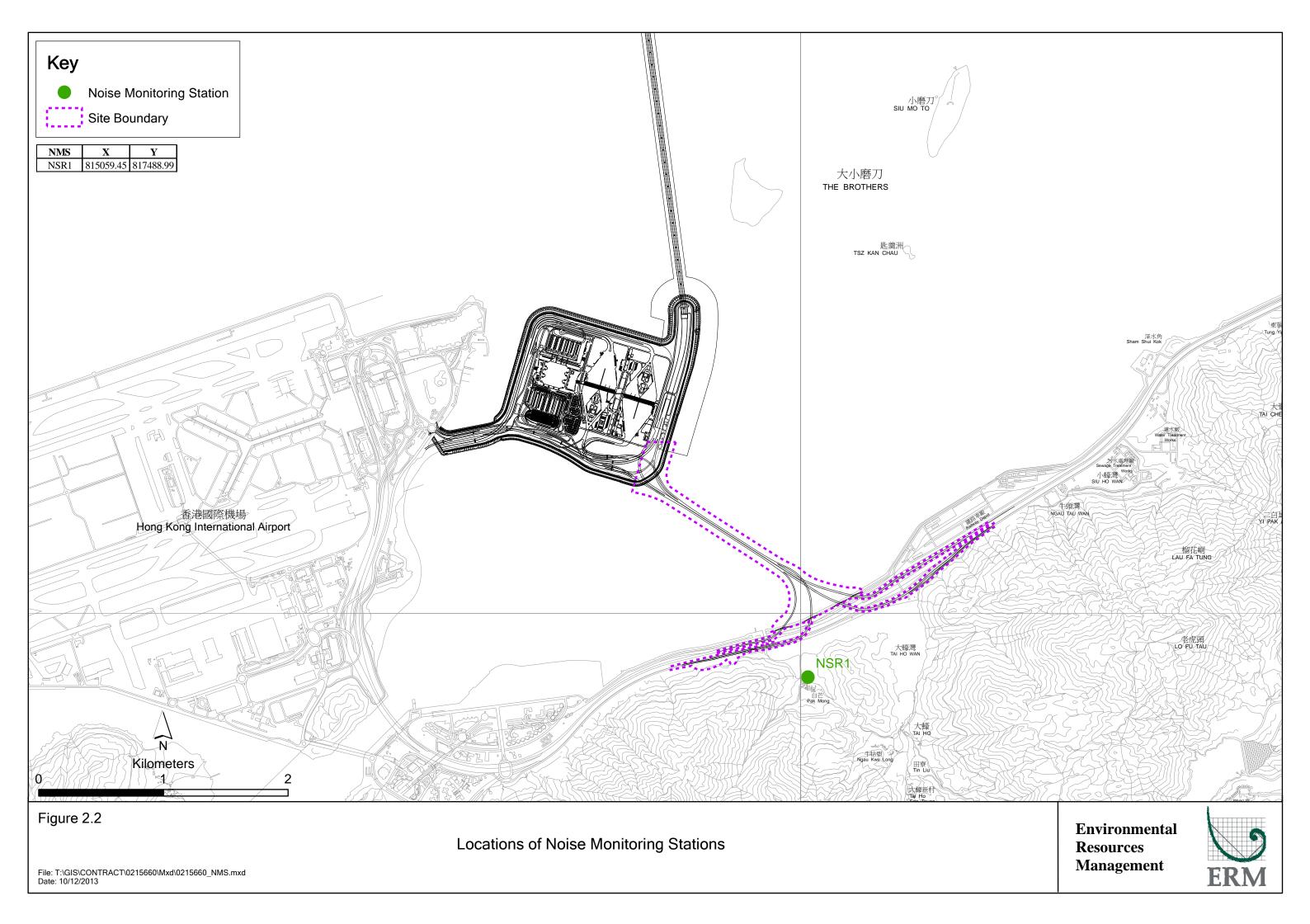


Table 2.5 Location of Impact Noise Monitoring Station and Monitoring Dates in this Reporting Period

Monitoring Station	Monitoring Period	Location	Para	meters & Frequency
NSR1A	December 2014 to February 2015	Pak Mong Village Pavilion	•	30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays (Monday to Saturday). L <sub>eq</sub> , L <sub>10</sub> and L <sub>90</sub> would be recorded. At least once a week

### Note:

- (1) Noise Monitoring Station NSR1 at Pak Mong Village proposed in accordance with the Updated EM&A was temporarily relocated to NSR1A.
- (2) Due to the rejection of access to NSR1, the monitoring on 2 December at NSR1 was cancelled.

### Table 2.6 Noise Monitoring Equipment

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

### 2.2.2 Action and Limit Levels

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

### 2.2.3 Monitoring Schedule for the Reporting Quarter

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

### 2.2.4 Results and Observations

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

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

Month	Average , dB(A), L <sub>eq</sub>	Average , dB(A), L <sub>eq</sub> Range, dB(A), L <sub>eq</sub>	
	(30mins)	(30mins)	(30mins)
December 2014	62	61 - 62	75
January 2015	61	59 - 62	<i>7</i> 5
February 2015	60	56 - 61	<i>7</i> 5

A total of seventeen (17) monitoring events were undertaken in the reporting period with no Action Level and Limit Level exceedance recorded at the monitoring station in the reporting period. No action is thus required to be undertaken in accordance with the Event Action Plan presented in *Appendix J*.

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

### 2.3 WATER QUALITY MONITORING

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

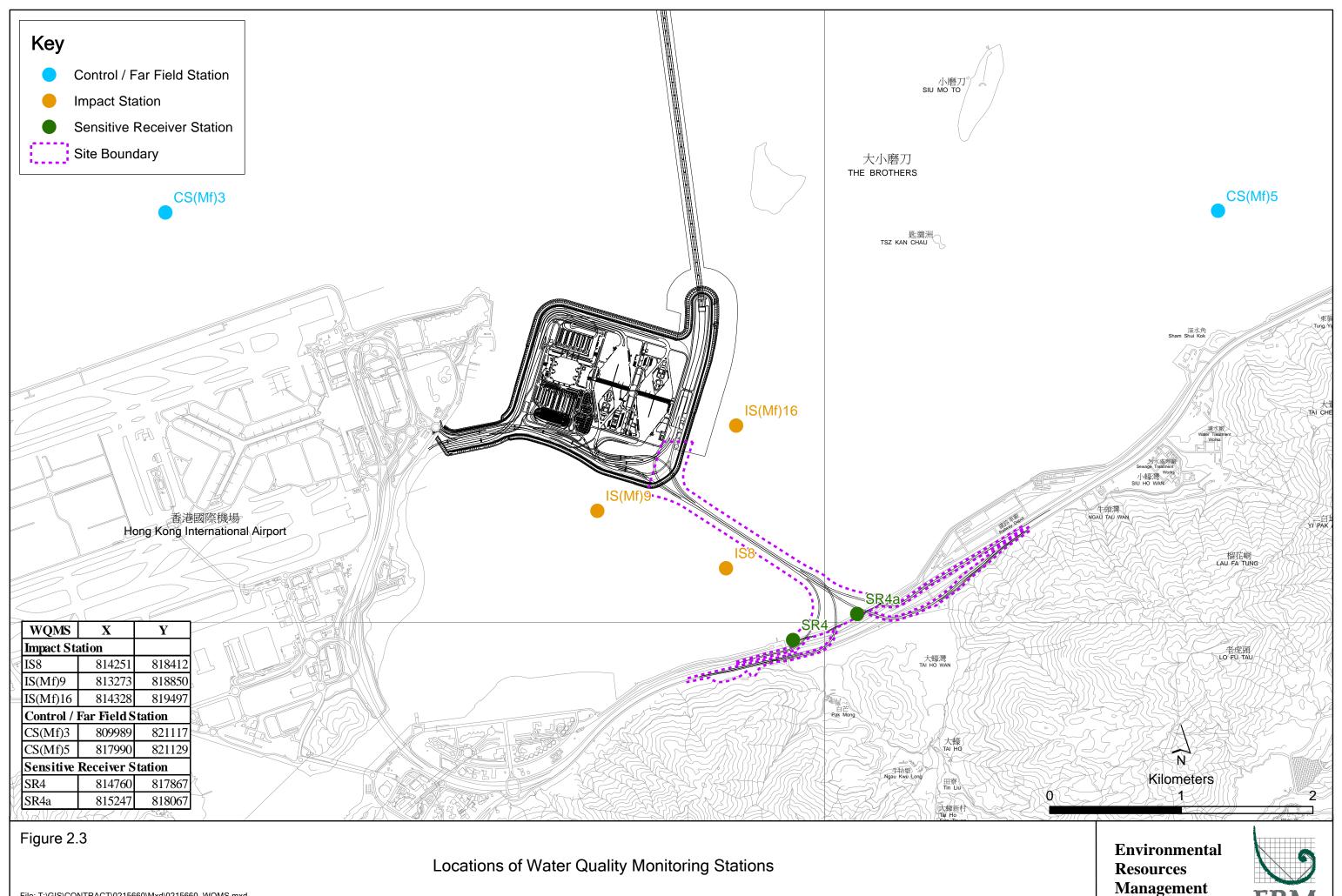
### 2.3.1 Monitoring Requirements and Equipment

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

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

Station ID	Type	Coordinates		*Parameters, unit	Depth	Frequency
		Easting	Northing	•		
IS(Mf)9	Impact Station (Close to HKBCF construction site)	813273	818850	<ul> <li>Temperature(°C)</li> <li>pH(pH unit)</li> <li>Turbidity (NTU)</li> <li>Water depth (m)</li> <li>Salinity (ppt)</li> </ul>	3 water depths: 1m below sea surface, mid-depth	Impact monitoring: 3 days per week, at mid-flood and mid-ebb
IS(Mf)16	Impact Station (Close to HKBCF construction site)	814328	819497	<ul><li>DO (mg/L and % of saturation)</li><li>SS (mg/L)</li></ul>	and 1m above sea bed. If the water depth is less than	tides during the construction period of the Contract.
IS8	Impact Station(Close to HKBCF construction site)	814251	818412		3m, mid- depth sampling only. If water depth	
SR4	Sensitive receiver (Tai Ho Inlet)	814760	817867		less than 6m, mid- depth may	
SR4a	Sensitive receiver	815247	818067		be omitted.	
CS(Mf)3	Control Station	809989	821117			
CS(Mf)5	Control Station	817990	821129			

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



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Station ID	Type	Coordinates	*Parameters, unit	Depth	Frequency
		Easting Northing			
Notos:					

In addition to the parameters presented monitoring location/position, time, water depth, sampling depth, tidal stages, weather conditions and any special phenomena or works underway nearby were also recorded.

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

#### Table 2.9 Water Quality Monitoring Equipment

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

#### 2.3.2 Action & Limit Levels

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

#### 2.3.3 Monitoring Schedule for the Reporting Quarter

The schedules for water quality monitoring in the reporting quarter are provided in *Appendix E*. No impact water quality monitoring was conducted on 19 and 21 February 2015 due to suspension of marine works.

#### 2.3.4 Results and Observations

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

In this reporting period, a total of thirty-seven (37) monitoring events were undertaken. There were SS results on 10, 14, 17 and 28 February recorded higher than the value of Action Level but not exceeding 120% of upstream control station at the same tide of same day. The results were considered as natural variation but not neither Action nor Limit Level exceedance. No Action or Limit Level exceedance was recorded during the reporting quarter.

### 2.4 DOLPHIN MONITORING

### 2.4.1 Monitoring Requirements

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

### 2.4.2 Monitoring Equipment

*Table 2.10* summarises the equipment used for the impact dolphin monitoring.

Table 2.10 Dolphin Monitoring Equipment

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

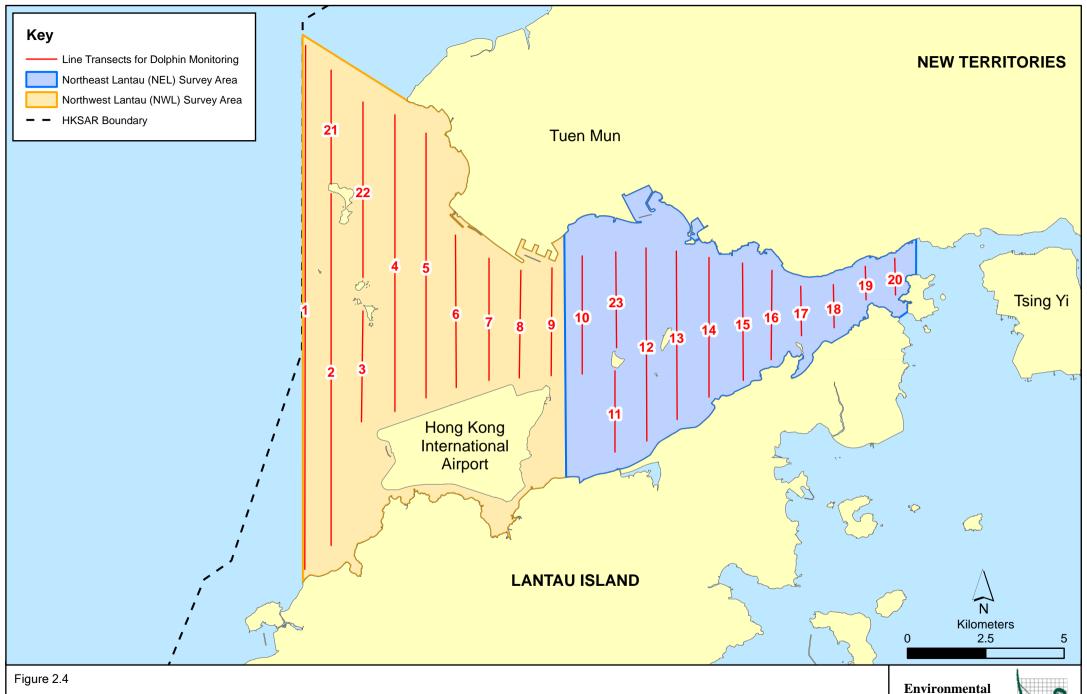
### 2.4.3 Monitoring Parameter, Frequencies & Duration

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

### 2.4.4 Monitoring Location

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

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

Environmental Resources Management



 Table 2.11
 Impact Dolphin Monitoring Line Transect Co-ordinates

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

### 2.4.5 Action & Limit Levels

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

### 2.4.6 Monitoring Schedule for the Reporting Period

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

### 2.4.7 Results & Observations

A total of 891.50 km of survey effort was collected, with 99.6% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). Among the two areas,

347.05 km and 544.45 km of survey effort were conducted in NEL and NWL survey areas respectively. The total survey effort conducted on primary lines was 645.44 km, while the effort on secondary lines was 246.06 km. Both survey efforts conducted on primary and secondary lines were considered as on-effort survey data. The survey efforts are summarized in *Appendix I*.

During the six sets of monitoring surveys in December 2014 to February 2015, a total of fifteen (15) groups of fifty-two (52) Chinese White Dolphins were sighted. All dolphin sightings were made during on-effort search. Twelve (12) of the fifteen (15) on-effort sightings were made on primary lines, while the other three (3) were made on secondary lines. No sighting was made in the proximity of the Project's alignment. In this quarterly period, all dolphin groups were sighted in NWL, while none of them were sighted in NEL. Summary table of the dolphin sightings is shown in *Appendix I*.

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

 Table 2.12
 Individual Survey Event Encounter Rates

Survey	Survey period	Encounter rate (STG)	Encounter rate (ANI)
Area		(no. of on-effort	(no. of dolphins from all
		dolphin sightings per	on-effort sightings per
		100 km of survey	100 km of survey effort)
		effort)	
		Primary Lines Only	Primary Lines Only
	Set 1: Dec 2 <sup>nd</sup> /9 <sup>th</sup>	0.0	0.0
	Set 2: Dec 15th/23rd	0.0	0.0
NEL	Set 3: Jan 8th / 15th	0.0	0.0
NEL	Set 4: Jan 27th / 29th	0.0	0.0
	Set 5: Feb 5th / 13th	0.0	0.0
	Set 6: Feb 16th / 25th	0.0	0.0
NWL	Set 1: Dec 2 <sup>nd</sup> /9 <sup>th</sup>	2.8	5.6
	Set 2: Dec 15th/23rd	1.4	1.4
	Set 3: Jan 8th / 15th	4.3	21.6
	Set 4: Jan 27th / 29th	7.5	37.6
	Set 5: Feb 5th / 13th	1.4	1.4
	Set 6: Feb 16th / 25th	0.0	0.0

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

Table 2.13 Quarterly Average Encounter Rates

Survey Area	Encounter rate (ST of on-effort dolph 100 km of sur	in sightings per	Encounter r (no. of dolphins fr sightings per 100 effor	rom all on-effort ) km of survey
	December 2014 –	September -	December 2014 –	September -
	February 2015	November	February 2015	November

		2011		2011
Northeast Lantau	0.00	$6.00 \pm 5.05$	0.00	22.19 ± 26.81
Northwest Lantau	2.91 ± 2.69	9.85 ± 5.85	11.27 ± 15.19	44.66 ± 29.85

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

Group size of Chinese White Dolphins ranged from one (1) to eight (8) individuals per group in North Lantau region during December 2014 to February 2015. The average dolphin group sizes from these three months were compared with the ones deduced from the baseline period in September to November 2011, as shown in *Table 2.14*.

Table 2.14 Comparison of Quarterly Average Encounter Rates

	Average Dolphin Group Size				
	December 2014 - February 2015 September -November				
Overall	3.47 ± 2.29 (n = 15)	3.72 ± 3.13 (n = 66)			
Northeast Lantau	0.00	3.18 ± 2.16 (n = 17)			
Northwest Lantau	3.47 ± 2.29 (n = 15)	3.92 ± 3.40 (n = 49)			

Whilst one (1) Limit Level exceedance was observed for the quarterly dolphin monitoring data between December 2014 and February 2015, no unacceptable impact from the activities of this Contract on Chinese White Dolphins was noticeable from the general observations in this quarter.

Although the dolphins infrequently occurred along the alignment of TM-CLKL Southern Connection Viaduct Section in the past and during the baseline monitoring period, it is apparent that dolphin usage has been significantly reduced in NEL.

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

### 2.4.8 Marine Mammal Exclusion Zone Monitoring

Daily marine mammal exclusion zone monitoring was undertaken during the period of marine works under this Contract. Passive Acoustic Monitoring (PAM) was also implemented for the detection of marine mammal when marine works were carried out outside the daylight hours under this Contract. No sighting of the Indo-Pacific humpback dolphin *Sousa chinensis* (i.e. Chinese

White Dolphin) was recorded in the monitoring period during the exclusion zone monitoring.

### 2.5 EM&A SITE INSPECTION

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. Thirteen (13) site inspections were carried out in the reporting quarter on 3, 10, 17, 24 and 30 December 2014; 8, 14, 21 and 29 January 2015; 4, 13, 17 and 26 February 2015.

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

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

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks
3 December 2014	<ul> <li>Seafront</li> <li>Some chemical containers were not placed in drip tray.</li> <li>Oil stain was found nearby a drip tray for generator.</li> <li>A skip for waste was nearly full.</li> <li>A sediment tank was under maintenance.</li> <li>Pier B7</li> <li>Gutter was found not well installed for waste water collection.</li> <li>Oil stain was found nearby a drip tray for generator.</li> <li>Pier E12</li> <li>A chemical container was found not placed in drip tray.</li> </ul>	<ul> <li>Chemical containers should be placed in drip tray</li> <li>Oil stain should be removed to avoid run-off.</li> <li>The contractor should clean up the waste on site regularly.</li> <li>The contractor should ensure the sedimentation tank is available for site operation.</li> <li>Pier B7</li> <li>Gutter should be properly installed for waste water collection.</li> <li>Oil stain should be removed to avoid run-off.</li> <li>Pier E12</li> <li>Chemical containers should be placed in drip</li> </ul>
10 December 2014	<ul> <li>Site Access 9B</li> <li>Checking record for wetsep was missing.</li> <li>Grouting material was accumulated at grouting station.</li> <li>The slope under works may generate dust.</li> <li>Viaduct B (land)</li> <li>A chemical container was found dripping and not placed in drip tray.</li> <li>Some drip trays for generator were not plugged or plugged properly.</li> <li>Oil stain was found under an excavator.</li> </ul>	<ul> <li>tray.</li> <li>Site Access 9B</li> <li>Wetsep should be checked regularly and the record should be filled.</li> <li>Grouting material should be cleaned up regularly to avoid runoff.</li> <li>The contractor was reminded to water the slope regularly.</li> <li>Viaduct B (land)</li> <li>Drip tray should be provided to the chemical container.</li> <li>Drip tray should be plugged properly.</li> <li>Drip tray was recommended for the excavator.</li> </ul>
17 December 2014	<ul> <li>Pier D7 (Barge Tung Shun 8)</li> <li>A drip tray was not plugged.</li> <li>A chemical container was not placed in drip tray.</li> <li>Pier D4 (Barge Kam Shun)</li> <li>A generator was not placed on decoupling pad.</li> <li>A label for coagulant was missing.</li> </ul>	<ul> <li>Pier D7 (Barge Tung Shun 8)</li> <li>The drip tray should be plugged.</li> <li>The chemical container should be placed in drip tray.</li> <li>Pier D4 (Barge Kam Shun)</li> <li>The generator should be placed on decoupling pad.</li> <li>Coagulant container should be labelled properly</li> </ul>

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks
24 December 2014		<ul><li>Pier D13B</li><li>The drip tray for generator should be plugged.</li></ul>
30 December 2014	<ul> <li>Pier E12</li> <li>A dumping permit for Category L sediment was not displayed.</li> <li>A generator was placed without decoupling pad.</li> <li>Pier E13</li> <li>Stagnant water was accumulated in a drip tray.</li> <li>A generator was placed without acoustic decoupling pad.</li> <li>Excessive soil was accumulated in the gutter.</li> <li>Area 1</li> <li>Stagnant water was accumulated in a drip tray.</li> <li>Placement of material stack was too close to natural habitat.</li> </ul>	<ul> <li>unpaved area 8 times a day.</li> <li>Pier E12</li> <li>The updated permit should be placed at the corresponding platform.</li> <li>Generator on marine platform should be placed on acoustic decoupling pad.</li> <li>Pier E13</li> <li>Drip tray should have enough volume to avoid overflowing, so stagnant water should be removed.</li> <li>Generator on marine platform should be placed on acoustic decoupling pad.</li> <li>Gutter should be cleaned up regularly.</li> <li>Area 1</li> <li>Drip tray should have enough volume to avoid overflowing, so stagnant water should be removed.</li> <li>The contractor should place the material stacks in the designated area within the</li> </ul>
8 January 2015	<ul> <li>Pier B2</li> <li>A generator was not placed on decoupling pad properly</li> <li>Pier D6.</li> <li>The updated dumping permit was not displayed.</li> <li>A power pack was not placed on decoupling pad properly.</li> <li>The door of an operating air compressor was not closed.</li> <li>Some refuse was found on sea nearby platform.</li> <li>Barge M027 (next to pier E13)</li> <li>A chemical container was not placed in drip trip.</li> <li>Pier E12</li> <li>A part of gutter was not installed properly.</li> </ul>	<ul> <li>existing disturbed land.</li> <li>Pier B2 and D6</li> <li>Generators or power packs should be placed on decoupling properly.</li> <li>The updated dumping permit should be displayed.</li> <li>Door of operating machine on marine platform should be closed.</li> <li>The contractor should clean up the site and surrounding area regularly to keep tidy and litter free.</li> <li>Barge M027 (next to pier E13)</li> <li>Chemical container should be placed in drip tray.</li> <li>Pier E12</li> <li>Gutter on platform should be installed properly.</li> </ul>
14 January 2015	Pak Mong  Stagnant water was accumulated in a drip tray.  Slope B/C9  Refuse was accumulated in the drainage.  Site Access 5D  Wheel washing facility was incomplete.	<ul> <li>Pak Mong</li> <li>Drip tray should have enough capacity to avoid overflowing.</li> <li>Slope B/C9</li> <li>Drainage should be cleaned up regularly to avoid blockage.</li> <li>Site Access 5D</li> <li>The contractor was reminded to ensure waste water from wheel washing will be treated before discharge.</li> </ul>

Inspection Date	Location & Environmental Observations	Recommendations/ Remarks						
21 January 2015	Barge Chang Sheung 307 (near platform E4)	Barge Chang Sheung 307 (near platform E4)						
	A chemical container was not placed in drip	• Chemical container should be placed in drip						
	tray.	tray.						
	Pier A1	Pier A1						
	A drip tray for generator was not plugged.	Drip tray should be plugged properly.						
29 January 2015	Pier E13 AB	Pier E13 AB and Seafront						
	A drip tray for generator was not plugged.	Chemical containers and generators should						
	Seafront	be placed in plugged drip tray.						
	Some chemical containers on pontoon were	Pier D14						
	not placed in drip tray.	The contractor was reminded to implement						
	Pier D14	the watering programme for effective dust						
4 F-1 201F	The ground was unpaved and dry.	suppression.						
4 February 2015	Area 1	Area 1						
	The ground was dry.  Washing facility at the entropes was	<ul> <li>The contractor was reminded to implement the watering programme for dust</li> </ul>						
	Washing facility at the entrance was     incomplete.							
	<ul><li>incomplete.</li><li>Soil stockpile was not covered.</li></ul>	<ul><li>suppression.</li><li>Wheel washing should be provided at the</li></ul>						
	Refuse was accumulated in drainage.	entrance.						
	A drip tray for generator was not plugged.	<ul> <li>Soil stockpile should be covered by tarpaulin</li> </ul>						
	Trump tray for generator was not prugged.	sheet or wet to avoid dust emission.						
		<ul> <li>Drainage should be cleaned up regularly.</li> </ul>						
		Drip trays should be plugged.						
13 February 2015	Pier D5	Pier D5						
j	A generator was not well placed on acoustic	Machine on marine platform should be well						
	decoupling pad.	placed on decoupling pad.						
	Pier B1	Pier B1						
	• Sediment was accumulated in the gutter.	Gutter should be cleaned regularly.						
	Barge Tung Shun 88 (next to Pier D2)	Barge Tung Shun 88 (next to Pier D2)						
	<ul> <li>Label for marine sediment was not</li> </ul>	<ul> <li>Label for marine sediment should be</li> </ul>						
	displayed.	displayed.						
	Pier B2	Pier B2						
	<ul> <li>A part of gutter was not properly installed.</li> </ul>	<ul> <li>Gutter should be properly installed.</li> </ul>						
17 February 2015	Seafront near Pier B8	Seafront near Pier B8						
	<ul> <li>A drip tray for generator was not plugged.</li> </ul>	<ul> <li>Drip trays should be plugged.</li> </ul>						
	Pier D12A	Pier D12A						
	• Some chemical containers were not placed in							
	drip tray.	placed in drip tray.						
	<ul> <li>Grouting material was found not covered.</li> </ul>	Stockpile of grouting material should be						
	Pier D10	covered.						
	Sandbags were found insufficient to avoid	Pier D10						
	waste water discharging offsite.	Sufficient sandbags should be provided to						
04.F.1	Di Gi	avoid any runoff of waste water.						
26 February 2015	Pier C1	Pier C1						
	Gutter was not properly installed.	Gutter should be properly installed to ensure						
		no waste water runoff from platform.						

### 2.6 WASTE MANAGEMENT STATUS

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

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

Table 2.16 Quantities of Different Waste Generated in the Reporting Period

Month/	Inert	Imported	Inert	Non-inert	Recyclable	Chemical	Marine Sediment (m³)			
Year	Construction	Fill (m³)	Construction	Construction	Materials (c)	Wastes	Category	Category		
	Waste (a) (m³)		Waste Re-used	Waste (b)	(kg)	(kg)	L	M		
			$(m^3)$	(tonnes)						
December 2014	15,987	0	3,020	130,970	147	0	337	275		
January 2015	12,474	115	990	132,170	91	0	178	487		
February 2015	5,759	0	436	141,020	112	400	801	333		
Total	34,220	115	4,446	404,160	350	400	1,316	1,095		

#### Notes:

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

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

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

### 2.7 ENVIRONMENTAL LICENSES AND PERMITS

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

Table 2.17 Summary of Environmental Licensing and Permit Status

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/Permit Holder	Remarks
Environmental Permit	EP-354/2009/C	10-Dec-14	N/A	HyD	Tuen Mun- Chek Lap Kok Link
Chemical Waste Producer Registration	5213-951-G2380-17	12-Jun-14	NA	GCL	Viaducts A, B, C, D & E
Chemical Waste Producer Registration	5213-961-G2380-13	10-Oct-13	NA	GCL	Area1 adjacent to Cheung Ting Road, Siu Ho Wan
Chemical Waste Producer Registration	5213-961-G2380-14	10-Oct-13	NA	GCL	Area 2 adjacent to Cheung Tung Road, Pak Mong Village
Chemical Waste Producer Registration	5213-974-G2588-03	04-Nov-13	NA	GCL	WA5 adjacent to Cheung Tung Road, Yan O
Construction Dust Notification	361571	05-Jul-13	NA	GCL	NA
Construction Dust Notification	362093 (for WA23)	17-Jul-13	NA	GCL	NA
Construction Noise Permit for night works and works in general holidays	GW-RS0078-15	28-Jan-15	29-Jul-15	GCL	For Plant mobilization using tractor
Construction Noise Permit for night works and works in general holidays	GW-RS0137-15	12-Feb-14	15-Aug-15	GCL	Pre-casted pile cap shell installation at E10-E13
Construction Noise Permit for night works and works in general holidays	GW-RS0206-15	24-Feb-15	30-Apr-15	GCL	B9-B16 Pier Head Segments Erection
Construction Noise Permit for night works and works in general holidays	GW-RS0700-14	21-Jul-14	31-Dec-14	GCL	For loading & unloading on NLH near Viaduct A & B (renewed to GW-RS1386- 14)
Construction Noise Permit for night works and works in general holidays	GW-RS1032-14	25-Sep-14	28-Mar-15	GCL	For Load unload at NLH near Viaduct D
Construction Noise Permit for night works and works in general holidays	GW-RS1129-14	17-Oct-14	31-Dec-14	GCL	For Safety Fences at Pier D9
Construction Noise Permit for night works and works in general holidays	GW-RS1130-14	20-Oct-14	22-Apr-15	GCL	For Plant mobilization using tractor

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License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Construction Noise Permit for night works and works in general holidays	GW-RS1135-14	17-Oct-14	15-Dec-14	GCL	For TTA Case 60-2 Ch.1.3E-3.6E (updated to GW-RS1383-14)
Construction Noise Permit for night works and works in general holidays	GW-RS1188-14	30-Oct-14	31-Dec-14	GCL	For TTA Cases 50 Airport Road-5.3 (updated to GW-RS1403-14)
Construction Noise Permit for night works and works in general holidays	GW-RS1225-14	31-Oct-14	02-May-15	GCL	For Broad Permit
Construction Noise Permit for night works and works in general holidays	GW-RS1383-14	15-Dec-14	28-Feb-15	GCL	TTA Case 060-12 Ch.1.0-4.2
Construction Noise Permit for night works and works in general holidays	GW-RS1386-14	15-Dec-14	15-Mar-15	GCL	TTA Case 009 Ch.2.3E-4.2E
Construction Noise Permit for night works and works in general holidays	GW-RS1403-14	15-Dec-14	28-Feb-15	GCL	TTA Case 050 Series Airport Rd to NLH Ch.5.3
Construction Noise Permit for night works and works in general holidays	GW-RW0093-15	26-Feb-15	26-Aug-15	GCL	General works at WA5
Construction Noise Permit for night works and works in general holidays	GW-RW0640-14	28-Aug-14	27-Feb-15	GCL	General works at WA5
Construction Noise Permit for Piling Works	Nil	NA	NA	GCL	NA
Construction Waste Disposal Account	7017735	10-Jul-13	NA	GCL	NA
Construction Waste Disposal Account	7019470	03-Mar-14	NA	GCL	Vessel CHIT Account
Effluent Discharge License	WT00019017-2014	13-May-14	31-May-19	GCL	Marine Portion
Effluent Discharge License	WT00019018-2014	13-May-14	31-May-19	GCL	Land Portion
Marine Dumping Permit	EP/MD/15-066	28-Jul-14	27-Jan-15	GCL	For dumping Type I sediment
Marine Dumping Permit	EP/MD/15-161	25-Nov-14	31-Dec-14	GCL	For dumping Type I (Dedicated Site) and Type II sediment

License/ Permit	License or Permit No.	Date of Issue	Date of Expiry	License/ Permit Holder	Remarks
Marine Dumping Permit	EP/MD/15-186	01-Jan-15	31-Jan-15	GCL	For dumping Type I (Dedicated Site) and Type II sediment
Marine Dumping Permit	EP/MD/15-203	28-Jan-15	27-Jul-15	GCL	For dumping Type I sediment
Marine Dumping Permit	EP/MD/15-234	27-Feb-15	31-Mar-15	GCL	For dumping Type I (Dedicated Site) and Type II sediment

### 2.8 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

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

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

# 2.9 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

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

The construction impact on depth-averaged SS was assessed by comparing the quarterly mean values of depth-averaged SS with the relevant ambient mean values. Results showed that the quarterly mean of depth-averaged SS at SR4a, CS(Mf)3 and CS(Mf)5 during mid-ebb tide was slightly higher than the ambient mean (*Table 2.18*). Statistical analyses showed that the increase of quarterly depth-averaged SS level at SR4a ( $F_{1,47} = 0.049$ ; p = 0.83), CS(Mf)3 ( $F_{1,71} = 1.84$ ; p = 0.18) and CS(Mf)5 ( $F_{1,71} = 0.41$ ; p = 0.53) are statistically insignificant, and thus considered as natural fluctuation in the western waters of Hong Kong. No further mitigation measures is recommended at this stage.

Table 2.18 Comparison between Quarterly Mean and Ambient Mean Values of Depthaveraged Suspended Solids

Station	Baselii	ne Mean	Ambien	t Mean <sup>(a)</sup>	(Decemb	rly Mean per 2014 to pry 2015)
	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood	Mid-ebb	Mid-flood
CS(Mf)3	9.2	12.8	12.0	16.6	12.8	12.8
CS(Mf)5	9.2	11.5	11.9	14.9	12.8	12.7
SR4	10.3	12.3	13.4	16.0	12.5	12.4
SR4a	9.1	9.8	11.9	12.7	12.4	12.4
IS8	11.3	13.5	14.6	17.6	12.5	12.2
IS(Mf)9	10.9	14.3	14.2 18.5		12.3	12.1
IS(Mf)16	11.4	10.3	14.8 13.4		12.3	12.3

Notes:

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

One (1) Limit Level exceedance was recorded for impact dolphin monitoring in this reporting quarter. Following the review of the monitoring data and marine works details as per the procedure stipulated in the Event and Action Plan of the Updated EM&A Manual, there is no evidence showing that the sources of impact directly related to the construction works under this Contract that may have affected the dolphin usage in the NEL region. Investigation findings were detailed in *Appendix L*.

# 2.10 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

There was no complaint, notification of summons or successful prosecution recorded in the reporting period. Statistics on complaint, notification of summons of successful prosecution are summarized in *Appendix L*.

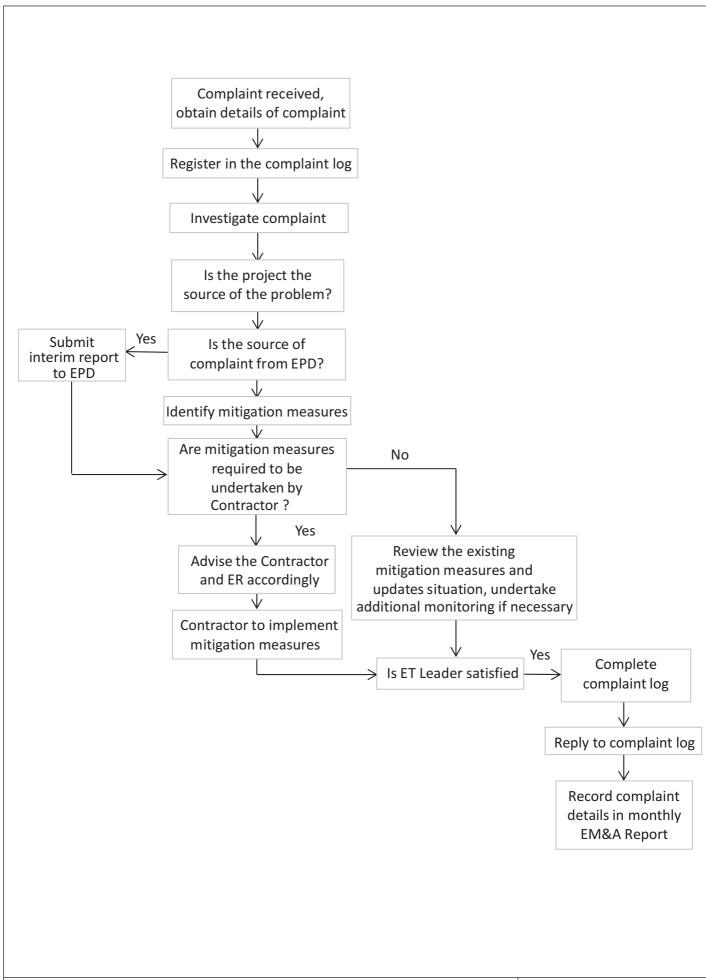


Figure 2.5

**Environmental Complaint Handling Procedure** 

Environmental Resources Management



### 3 FUTURE KEY ISSUES

### 3.1 CONSTRUCTION ACTIVITIES FOR THE COMING QUARTER

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

### March 2015

### Marine Works

- Construction of Pile caps at Viaducts B, C, D & E;
- Marine piling platform installation & uninstallation;
- Marine Piling at Viaducts C & E; and
- Additional marine ground investigation (GI) and laboratory testing.

### Land-based Works

- Construction of pile cap superstructure of Viaduct B;
- Channel re-construction at Area 1;
- Land Piling at Viaducts B, C & D;
- Pre-drilling works at Viaduct A;
- Construction of pile cap at Viaducts B, C, D & E;
- Additional land GI, trial pits & lab testing;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

### **April 2015**

### Marine Works

- Construction and installation of pile caps;
- Marine piling platform installation & uninstallation;
- Pier construction;
- Installation of launching gantry;
- Marine piling; and,
- Installation of pier head segment.

### Land-based Works

- Construction and installation of pile caps;
- Pier construction;
- Drainage works;
- Land piling;
- Pre-drilling works;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Tree survey, felling and transplanting;
- Utility surveys; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

### May 2015

### Marine Works

- Construction and installation of pile caps;
- Marine piling platform installation & uninstallation;
- Pier construction;
- Installation of launching gantry;
- Marine piling and
- Installation of pier head segment.

### Land-based Works

- Construction and installation of pile caps;
- Pier construction;
- Drainage works;
- Land piling;
- Pre-drilling works;
- Installation of pier head segment;
- Additional land GI, trial pits & lab testing;
- Tree survey, felling and transplanting;
- Relocation of MTRC fence; and
- Slope work of Slopes 9SE-B/C8, 9SE-B/C9 & 9SE-B/F9.

### 3.2 KEY ISSUES FOR THE COMING QUARTER

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

### 3.3 MONITORING SCHEDULE FOR THE COMING QUARTER

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

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

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### 4 CONCLUSIONS AND RECOMMENDATIONS

### 4.1 CONCLUSIONS

This Fifth Quarterly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 December 2014 to 28 February 2015, in accordance with the Updated EM&A Manual and the requirements of the *Environmental Permit* (*EP-354/2009/C*).

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

A total of fifteen (15) groups of fifty-two (52) Chinese White Dolphins were sighted during the six sets of surveys from December 2014 to February 2015. Whilst one (1) Limit Level exceedance was recorded for the quarterly dolphin monitoring data between December 2014 and February 2015, no unacceptable impact from the activities of this Contract on Chinese White Dolphins was noticeable from the general observations. It is critical to monitor the dolphin usage in North Lantau region in the upcoming quarters, to determine whether the dolphins are continuously affected by the various construction activities in relation to the HZMB-related works, and whether suitable mitigation measure can be applied to revert the situation.

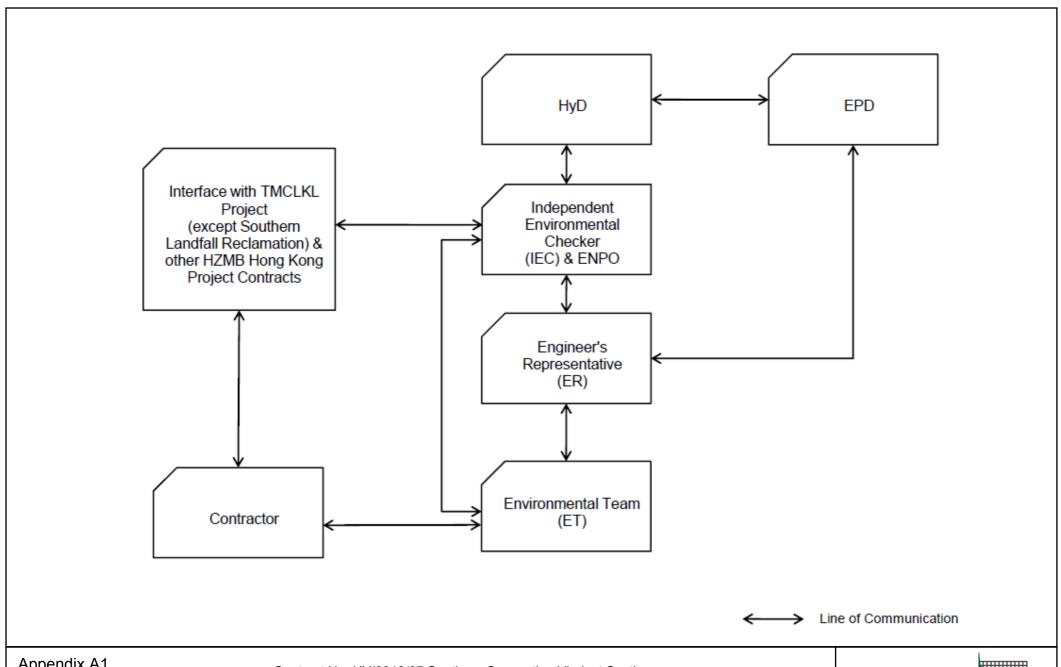
Environmental site inspection was carried out thirteen (13) times in the reporting period. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audits.

No environmental complaint, summons/ prosecution were received during the reporting period.

The monitoring programme has been reviewed and was considered as adequate to cater for the nature of works in progress. Change to the monitoring programme was thus not recommended at this stage. The monitoring programme will be evaluated as appropriate in the next reporting period. The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

## Appendix A

# Project Organization for Environmental Works



Appendix A1

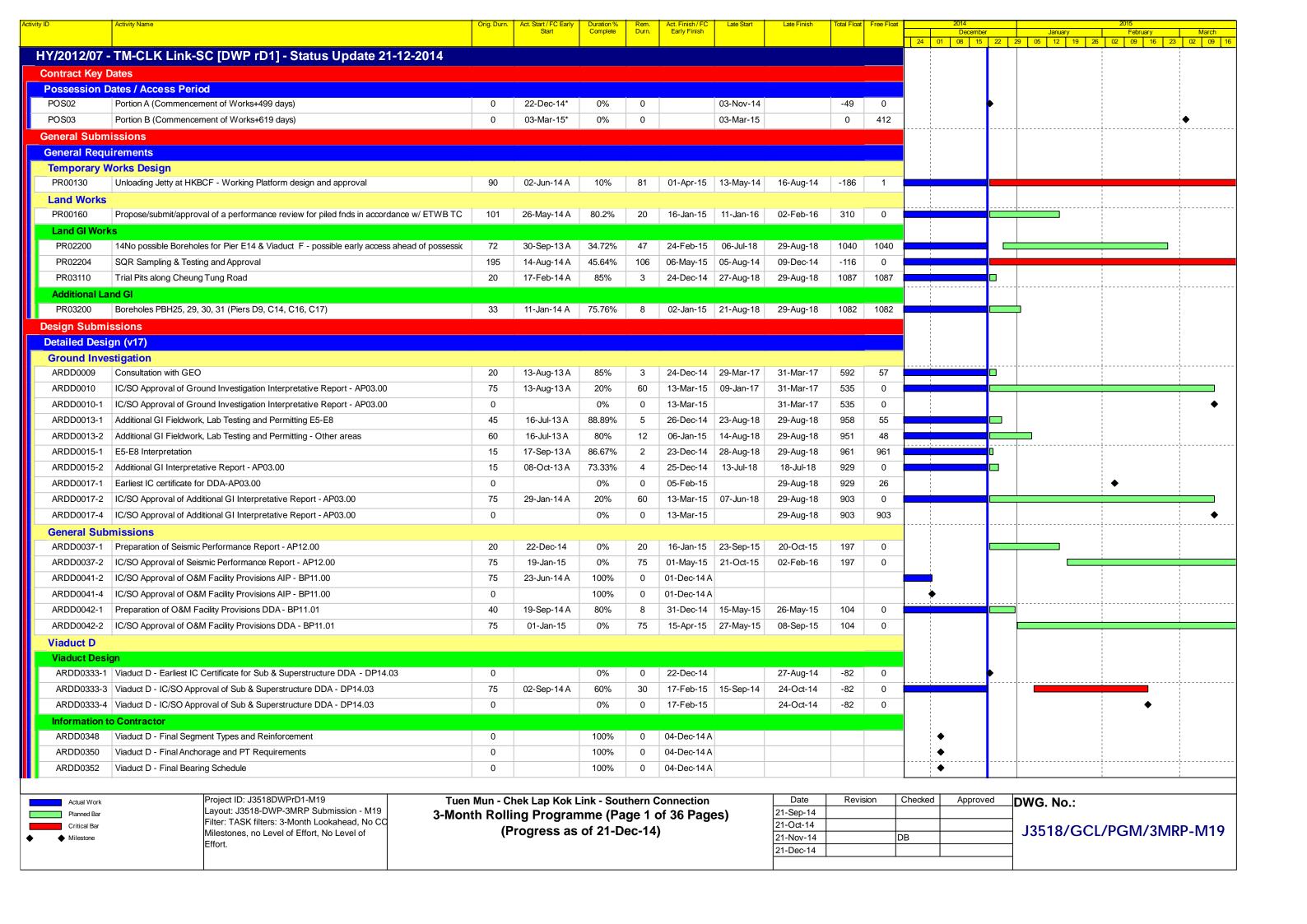
Contract No. HY/2012/07 Southern Connection Viaduct Section **Project Organization** 

**Environmental** Resources Management



### Appendix B

# Construction Programme for the Reporting Quarter

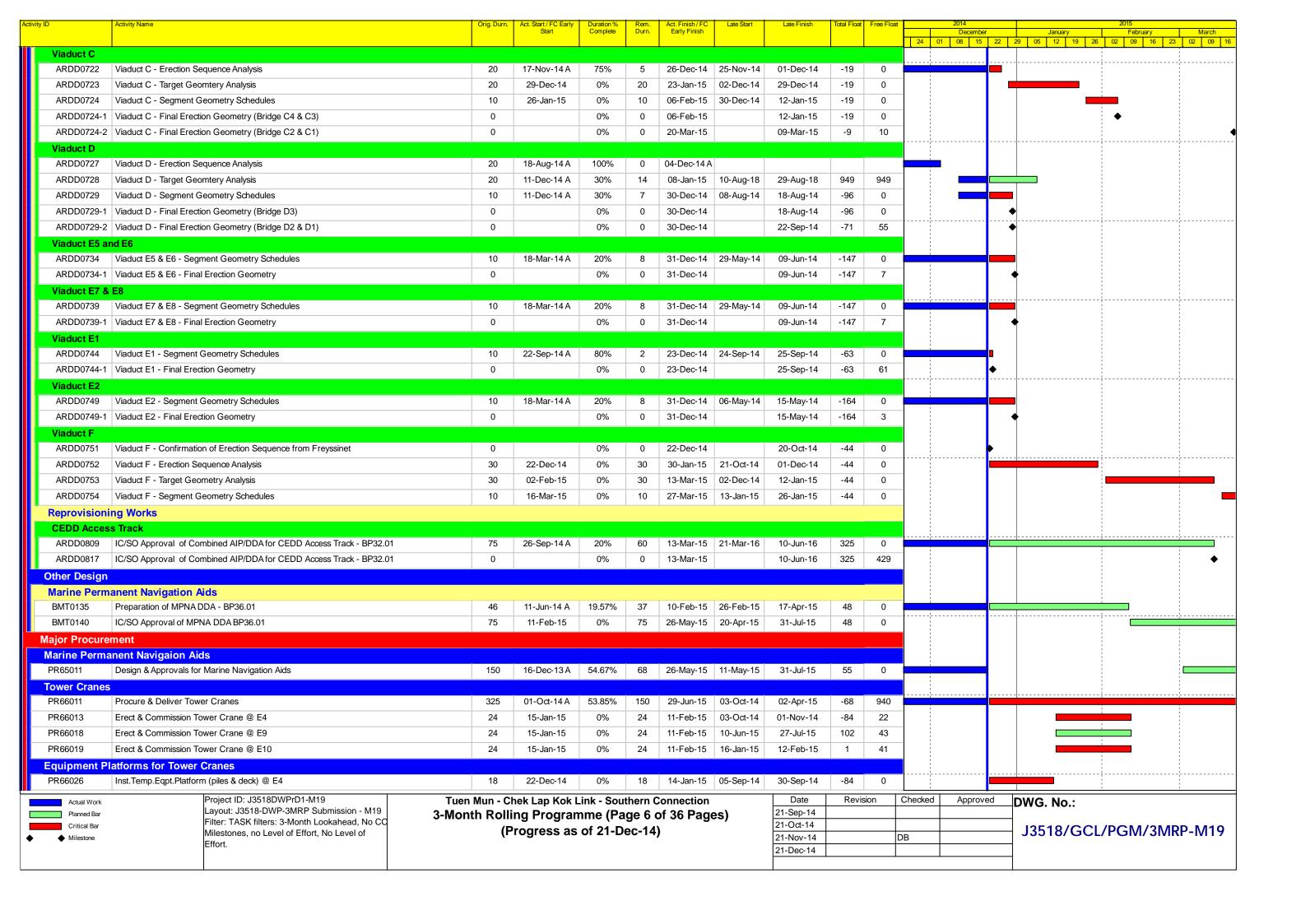


ity ID	Activity Name	Orig. Durn.	Act. Start / FC Early	Duration %	Rem.	Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float		2014		2015
			Start	Complete	Durn.	Early Finish					24	01 08 15		January February March 29 05 12 19 26 02 09 16 23 02 09 0
ARDD0354	Viaduct D - Final Movement Joint (MJ) Schedule	0		100%	0	04-Dec-14 A						<b>*</b>		
Associated C	Construction Milestones													
ARDD0362	Viaduct D - DDA approval ready for Commencement of Pilecaps	0	18-Feb-15	0%	0		27-Oct-14		-114	0				•
ARDD0363	Viaduct D - Initial Segment Casting on Approval of DDA	0	18-Feb-15	0%	0		27-Oct-14		-114	62				•
Viaduct C			J.											
Viaduct Desi	ian													
ARDD0381	Viaduct C - Preparation of Substructure DDA -DP13.03	50	04-Aug-14 A	100%	0	20-Dec-14 A					;			
ARDD0382	Viaduct C - Preparation of Superstructure DDA-DP13.03	70	04-Aug-14 A	100%	0	20-Dec-14 A								
ARDD0383	Viaduct C - Submission of Sub & Superstructure DDA - DP13.03	0		100%	0	20-Dec-14 A								
ARDD0384-1	·	0		0%	0	30-Jan-15		09-Mar-15	26	45				<u> </u>
	Viaduct C - IC/SO Approval of Sub & Superstructure DDA - DP13.03	75	22-Dec-14	0%	75		25-Nov-14	09-Mar-15	-19	0	-			•
Information to	·	10	22 000 14	070	70	00 / tp1 10	20 1407 14	00 Mai 10	10					
ARDD0394	Viaduct C - Final Pilecap Reinforcement	0		100%	0	20-Dec-14 A								
ARDD0396	Viaduct C - Final Pier Shapes and Reinforcement	0		100%	0	20-Dec-14 A					-			
ARDD0396 ARDD0397	Viaduct C - Final Pier Snapes and Reinforcement  Viaduct C - Typical Segment Shapes for Moulds	0		100%	0	20-Dec-14 A						· · · · · · · · · · · · · · · · · · ·	<b>]</b>	
	,, , ,	<u> </u>									-	•	1	
ARDD0398	Viaduct C - Typical Segment Reinforcement	0		100%	0	20-Dec-14 A		07 1- 15	4.4	00	-	•	1	
ARDD0399	Viaduct C - Final Segment Types and Reinforcement	0		0%	0	22-Jan-15		07-Jan-15	-11	36	-			▼
ARDD0400	Viaduct C - Typical Anchorage and Tendon Types	0		100%	0	20-Dec-14 A					- :	•	1	
ARDD0401	Viaduct C - Final Anchorage and PT Requirements	0		0%	0	22-Dec-14		07-Jan-15	13	60	1			
ARDD0402	Viaduct C - Provisional Bearing Schedule	0		100%	0	20-Dec-14 A						•	9	
ARDD0403	Viaduct C - Final Bearing Schedule	0		0%	0	22-Dec-14		05-Sep-14	-75	0				
ARDD0404	Viaduct C - Provisional Movement Joint (MJ) Schedule	0		100%	0	20-Dec-14 A						•	•	
ARDD0405	Viaduct C - Final Movement Joint (MJ) Schedule	0		0%	0	22-Dec-14		02-Mar-16	313	180			•	
Viaduct A														
Viaduct Desi	ign													
ARDD0425	Viaduct A - IC/SO Approval of Viaduct AIP - DP11.00	68	19-Jul-14 A	100%	0	08-Dec-14 A								
ARDD0425-1	Viaduct A - IC/SO Approval of Viaduct AIP - DP11.00	0		100%	0	08-Dec-14 A						<b>•</b>		
ARDD0430-1	Viaduct A - Earliest IC Certificate for Foundation DDA DP11.01	0		0%	0	22-Dec-14		04-Mar-15	53	45			•	
ARDD0430-2	Viaduct A - IC/SO Approval of Foundation DDA - DP11.01	55	04-Oct-14 A	20%	44	19-Feb-15	02-Jan-15	04-Mar-15	9	0				
ARDD0430-4	Viaduct A - IC/SO Approval of Foundation DDA - DP11.01	0		0%	0	19-Feb-15		04-Mar-15	9	0				<u> </u>
ARDD0432	Viaduct A - Preparation of Substructure DDA - DP11.03	50	19-Sep-14 A	34%	33	04-Feb-15	17-Nov-14	31-Dec-14	-25	0				
ARDD0433	Viaduct A - Preparation of Superstructure DDA-DP11.03	70	19-Sep-14 A	35.71%	45	20-Feb-15	18-Aug-14	17-Oct-14	-90	0				
ARDD0434-2	Viaduct A - Submission of DDA - DP11.03	0		0%	0	20-Feb-15	-	17-Oct-14	-90	0				•
ARDD0435-3	Viaduct A - IC/SO Approval of DDA DP11.03	75	23-Feb-15	0%	75	05-Jun-15	05-Mar-15	17-Jun-15	8	0	-			
Information to	A Company of the Comp												-	
ARDD0443	Viaduct A - Typical Pilecap Reinforcement - Stainless Steel Rebar	0	22-Dec-14	0%	0		01-Jan-15		8	33			•	
ARDD0444	Viaduct A - Typical Pilecap Reinforcement - Regular Rebar	0		0%	0	22-Dec-14		31-Dec-14	8	33	-			
ARDD0445	Viaduct A - Final Pilecap Reinforcement	0		0%	0	04-Feb-15		31-Dec-14	-25	0	-			•
ARDD0447	Viaduct A - Final Pier Shapes and Reinforcement	0		0%	0	04-Feb-15		21-May-15	76	10	-			•
ARDD0448	Viaduct A - Typical Segment Shapes for Moulds	0		0%	0	22-Dec-14		28-May-15	114	0				
ARDD0448 ARDD0449	Viaduct A - Typical Segment Reinforcement	0		0%	0	22-Dec-14 22-Dec-14		28-May-15	114	45	-			
ARDD0449 ARDD0450	Viaduct A - Typical Segment Reinforcement  Viaduct A - Final Segment Types and Reinforcement	0		0%	0	22-Dec-14 20-Feb-15		09-Jul-15		30	-			_
	0 //				0				99		-			<b>Y</b>
ARDD0451	Viaduct A - Typical Anchorage and Tendon Types	0		0%	0	20-Feb-15		28-May-15	69	0	-			× ·
ARDD0452	Viaduct A - Final Anchorage and PT Requirements	0		0%	0	20-Feb-15		09-Jul-15	99	30	ļ			
	Viaduct A - Provisional Bearing Schedule	0		0%	0	20-Feb-15		17-Oct-14	-90	0	-			•
ARDD0453				0%	0	20-Feb-15		06-Jul-15	96	48				<b>*</b>
ARDD0454	Viaduct A - Final Bearing Schedule	0					1	12-Jun-15	80	0				•
	Viaduct A - Final Bearing Schedule  Viaduct A - Provisional Movement Joint (MJ) Schedule	0		0%	0	20-Feb-15		12 0411 10						+
ARDD0454	Viaduct A - Provisional Movement Joint (MJ) Schedule  Project ID: J3518DWPrD1-M19	0 Tuen Mun - Cl	-	_ink - Sou	thern C	Connection		Date	Revis	sion	Checked	d Approv	/ed	DWG. No.:
ARDD0454 ARDD0455  Actual Work Planned Bar	Viaduct A - Provisional Movement Joint (MJ) Schedule  Project ID: J3518DWPrD1-M19 Layout: J3518-DWP-3MRP Submission - M19	0	-	_ink - Sou	thern C	Connection	es)	Date 21-Sep-14		sion	Checked	d Approv	/ed	DWG. No.:
ARDD0454 ARDD0455  Actual Work Planned Bar Critical Bar	Viaduct A - Provisional Movement Joint (MJ) Schedule  Project ID: J3518DWPrD1-M19	Tuen Mun - Cl	-	∟ink - Sou nme (Pa	thern 0	Connection of 36 Page	es)	Date 21-Sep-14 21-Oct-14				d Approv	/ed	
ARDD0454 ARDD0455  Actual Work Planned Bar	Viaduct A - Provisional Movement Joint (MJ) Schedule  Project ID: J3518DWPrD1-M19 Layout: J3518-DWP-3MRP Submission - M19 Filter: TASK filters: 3-Month Lookahead, No CC	Tuen Mun - Cl	ng Progran	∟ink - Sou nme (Pa	thern 0	Connection of 36 Page	es)	Date 21-Sep-14			Checked	d Approv	/ed	DWG. No.: J3518/GCL/PGM/3MRP-M19

Activit	/ ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float		2014 Decemb	vor	January 20°	5 February March
				Start	Сотприско	2 (3.1.1.1	Zany i mion					24			29 05 12 19 26 02	
Ш		Viaduct A - Final Movement Joint (MJ) Schedule	0		0%	0	20-Feb-15		12-Jun-15	80	5		1			•
Ш		onstruction Milestones											 			
Ш	ARDD0463	Viaduct A - DDA approval ready for Commencement of Piling	0	20-Mar-15	0%	0		13-May-15		54	0		! ! !			•
	Viaduct F1 &	F3											! ! !			
Ш	Viaduct Desig	gn											1 1 1		1	! !
Ш	ARDD0477	Viaduct F1 & F3 - Receipt of Data for Final Analysis	0		0%	0	22-Dec-14		29-Aug-18	963	963		1 1 1	•		
Ш	ARDD0481	Viaduct F1 & F3 - IC/SO Approval of Foundation DDA - DP16.01	75	16-Aug-14 A	90.67%	7	30-Dec-14	11-Nov-14	19-Nov-14	-29	0				,	
Ш	ARDD0481-1	Viaduct F1 & F3 - Earliest IC Certificate for DDA - DP16.01 DP16.07	0		0%	0	22-Dec-14		19-Nov-14	-22	7		1 1 1	•		
Ш	ARDD0481-2	Viaduct F1 & F3 - IC/SO Approval of Foundation DDA - DP16.07	75	16-Aug-14 A	90.67%	7	30-Dec-14	11-Nov-14	19-Nov-14	-29	0					
Ш	ARDD0481-3	Viaduct F1 & F3 - IC/SO Approval of Foundation DDA - DP16.07	0		0%	0	30-Dec-14		19-Nov-14	-29	0		1 1 1	•	<b>&gt;</b>	
П	ARDD0481-4	Viaduct F1 & F3 - IC/SO Approval of Foundation DDA - DP16.01	0		0%	0	30-Dec-14		19-Nov-14	-29	0		1 1 1	•	<b>•</b>	
П	ARDD0482	Viaduct F1 & F3 - Preparation of Substructure DDA - DP16.02	50	15-Aug-14 A	100%	0	24-Nov-14 A						1 1 1 1			
П	ARDD0482-2	Viaduct F1 & F3 - Preparation of Substructure DDA - DP16.08	50	15-Aug-14 A	100%	0	24-Nov-14 A					_	;	1		<u> </u>
	ARDD0483	Viaduct F1 & F3 - Preparation of Superstructure DDA - DP16.03	70	15-Aug-14 A	100%	0	24-Nov-14 A						1 1 1			
	ARDD0483-2	Viaduct F1 & F3 - Preparation of Superstructure DDA - DP16.09	70	15-Aug-14 A	100%	0	24-Nov-14 A						: ! !			
	ARDD0484-1	Viaduct F1 & F3 - Submission of DDA - DP16.02	0		100%	0	24-Nov-14 A					•	! !			
	ARDD0484-2	Viaduct F1 & F3 - Submission of DDA - DP16.03	0		100%	0	24-Nov-14 A					•	1 1 1 1			
	ARDD0484-3	Viaduct F1 & F3 - Submission of DDA - DP16.08	0		100%	0	24-Nov-14 A					•	} 		·	
	ARDD0484-4	Viaduct F1 & F3 - Submission of DDA - DP16.09	0		100%	0	24-Nov-14 A					•	1 1 1 1			
	ARDD0485-1	Viaduct F1 & F3 - Earliest IC Certificate for DDA - DP16.02,03,08,09	0		0%	0	05-Jan-15		09-Jan-15	4	17		1 1 1 1		•	
П	ARDD0485-2	Viaduct F1 & F3 - IC/SO Approval of DDA - DP16.02	75	25-Nov-14 A	20%	60	27-Mar-15	17-Dec-14	10-Mar-15	-13	6		1			
П	ARDD0485-4	Viaduct F1 & F3 - IC/SO Approval of DDA - DP16.03	75	25-Nov-14 A	20%	60	27-Mar-15	17-Dec-14	10-Mar-15	-13	0		1			
П	ARDD0485-6	Viaduct F1 & F3 - IC/SO Approval of DDA - DP16.08	75	25-Nov-14 A	20%	60	27-Mar-15	17-Dec-14	10-Mar-15	-13	6		<u> </u>			
П		Viaduct F1 & F3 - IC/SO Approval of DDA - DP16.09	75	25-Nov-14 A	20%	60	27-Mar-15	17-Dec-14	10-Mar-15	-13	0		i !			
П	Information to	İ														
Н		Viaduct F1 & F3 - Typical Pilecap Reinforcement - Stainless Steel Rebar	0	24-Nov-14 A	100%	0						•				
П	ARDD0493	Viaduct F1 & F3 - Typical Pilecap Reinforcement - Regular Rebar	0		100%	0	24-Nov-14 A					•				
Ш	ARDD0494	Viaduct F1 & F3 - Final Pilecap Reinforcement	0		100%	0	24-Nov-14 A					•	: 			
Ш		Viaduct F1 & F3 - Final Pier Shapes and Reinforcement	0		100%	0	24-Nov-14 A					•	1			
Ш	ARDD0497	Viaduct F1 & F3 - Typical Segment Shapes for Moulds	0		100%	0	24-Nov-14 A					•	! !			
П	ARDD0498	Viaduct F1 & F3 - Typical Segment Reinforcement	0		100%	0	24-Nov-14 A					- L	! ! !			
Ш	ARDD0499	Viaduct F1 & F3 - Final Segment Types and Reinforcement	0		0%	0	22-Dec-14		19-Feb-15	44	88	- `	1 1 1		1	! !
Ш	ARDD0500	Viaduct F1 & F3 - Typical Anchorage and Tendon Types	0		100%	0	24-Nov-14 A		10 1 00 10	77	- 00	<b></b>	 			
П	ARDD0500	Viaduct F1 & F3 - Final Anchorage and PT Requirements	0		0%	0	22-Dec-14		08-Jan-15	14	58	-	1 1 1 1			
	ARDD0501 ARDD0502	Viaduct F1 & F3 - Final Andiorage and F1 Requirements  Viaduct F1 & F3 - Provisional Bearing Schedule	0		100%	0	24-Nov-14 A		00-Jan-13	14	50	•	1 1 1 1			 
		Viaduct F1 & F3 - Provisional Bearing Schedule  Viaduct F1 & F3 - Final Bearing Schedule	0		0%	0			17-Oct-14	ΛE	45		1 1 1 1			!
	ARDD0503		0			-	22-Dec-14		17-Oct-14	-45	45		1 1 1			
	ARDD0504	Viaduct F1 & F3 - Provisional Movement Joint (MJ) Schedule			100%	0	24-Nov-14 A		06 hrs 45	425	60	<b>.</b>	 			
		Viaduct F1 & F3 - Final Movement Joint (MJ) Schedule	0		0%	0	22-Dec-14		26-Jun-15	135	60		: 			
		Construction Milestones		40 14 45	00/	0		40 5		00	F0		! !			
		Viaduct F1 & F3 - DDA approval ready for Commencement of Piling	0	10-Mar-15	0%	0		10-Dec-14		-90	58		! ! !			•
	Viaduct F2, F												1 1 1 1			
	Viaduct Desig			i									 			<u> </u>
		Viaduct F2, F4 & F5 - Receipt of Data for Final Analysis	0		0%	0	22-Dec-14		29-Aug-18	963	963		1 1 1 1			
		Viaduct F2, F4 & F5 - Earliest IC certificate for DDA - DP16.04, 10, 13	0	22-Dec-14	0%	0		03-Apr-15		74	70		1 1 1 1			
		Viaduct F2, F4 & F5 - IC/SO Approval of Foundation DDA - DP16.13	0		0%	0	30-Dec-14		03-Dec-14	-19	0		 			
		Viaduct F2, F4 & F5 - IC/SO Approval of Foundation DDA - DP16.04	75	16-Aug-14 A	90.67%	7	30-Dec-14		03-Dec-14	-19	0		!			
	ARDD0525-4	Viaduct F2, F4 & F5 - IC/SO Approval of Foundation DDA - DP16.10	75	16-Aug-14 A	90.67%	7	30-Dec-14	25-Nov-14	03-Dec-14	-19	0		i			; !
	Actual Work	Project ID: J3518DWPrD1-M19	Tuen Mun - Cl	hek Lap Kok L	ink - Sou	thern C	Connection		Date	Revis	sion	Checke	d Approv	ved	DWG. No.:	
	Planned Bar	Layout: J3518-DWP-3MRP Submission - M19 Filter: TASK filters: 3-Month Lookahead, No CQ	3-Month Rolli	ng Progran	nme (Pa	ige 3 (	of 36 Page	es)	21-Sep-14	· · · · · · · · · · · · · · · · · · ·				-		
	Critical Bar	Milestones, no Level of Effort, No Level of		rogress as	-	_	_		21-Oct-14				J3518/GCL/PG	M/3MRP-M19		
•	Milestone	Effort.	ν-	<b>J</b> 1 1 2 1 1 0			•			-		JR	_			
									21-Dec-14	<u> </u>						
•	<del></del>	Milestones, no Level of Effort, No Level of	(P	rogress as	of 21-D	ec-14	)		21-Nov-14 21-Dec-14		[	OB				J3518/GCL/PG

ty ID		Activity Name	Orig. Durn.	Act. Start / FC Early	Duration %	Rem.	Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float	2014			2015	
				Start	Complete	Durn.	Early Finish					24 01 08		January 05 12 19	February 26 02 09 16	23 02 09
Al	RDD0525-6	Viaduct F2, F4 & F5 - IC/SO Approval of Foundation DDA - DP16.13	75	16-Aug-14 A	90.67%	7	30-Dec-14	25-Nov-14	03-Dec-14	-19	0					
Al	RDD0525-7	Viaduct F2, F4 & F5 - IC/SO Approval of Foundation DDA - DP16.10	0		0%	0	30-Dec-14		03-Dec-14	-19	0		•			! ! !
Al	RDD0525-8	Viaduct F2, F4 & F5 - IC/SO Approval of Foundation DDA - DP16.04	0		0%	0	30-Dec-14		03-Dec-14	-19	0		•			
		Viaduct F2, F4 & F5 - Preparation of Substructure DDA - DP16.05	50	15-Aug-14 A	100%	0	24-Nov-14 A									
		Viaduct F2, F4 & F5 - Preparation of Substructure DDA - DP16.11	50	15-Aug-14 A	100%	0	24-Nov-14 A									1
		Viaduct F2, F4 & F5 - Preparation of Substructure DDA - DP16.14	50	15-Aug-14 A	100%	0	24-Nov-14 A									
		· · · · · · · · · · · · · · · · · · ·				-										
		Viaduct F2, F4 & F5 - Preparation of Superstructure DDA - DP16.06	70	15-Aug-14 A	100%	0	24-Nov-14 A									
		Viaduct F2, F4 & F5 - Preparation of Superstructure DDA - DP16.12	70	15-Aug-14 A	100%		24-Nov-14 A									
		Viaduct F2, F4 & F5 - Preparation of Superstructure DDA - DP16.15	70	15-Aug-14 A	100%		24-Nov-14 A									
		Viaduct F2, F4 & F5 - Submission of DDA -DP16.05	0		100%	0	24-Nov-14 A					<b>•</b>				
Al	RDD0528-2	Viaduct F2, F4 & F5 - Submission of DDA -DP16.06	0		100%	0	24-Nov-14 A					•				
AF	RDD0528-3	Viaduct F2, F4 & F5 - Submission of DDA -DP16.11	0		100%	0	24-Nov-14 A					•				
Al	RDD0528-4	Viaduct F2, F4 & F5 - Submission of DDA -DP16.12	0		100%	0	24-Nov-14 A					•				
Al	RDD0528-5	Viaduct F2, F4 & F5 - Submission of DDA -DP16.14	0		100%	0	24-Nov-14 A					•				
AF	RDD0528-6	Viaduct F2, F4 & F5 - Submission of DDA -DP16.15	0		100%	0	24-Nov-14 A					•				
AF	RDD0529-1	Viaduct F2, F4 & F5 - Earliest IC certificate for DDA - DP16.05,06,11,12,14,15	0		0%	0	05-Jan-15		17-Mar-15	51	47			•		
AF	RDD0529-10	Viaduct F2, F4 & F5 - IC/SO Approval of Sub-Structure DDA -DP16.14	75	25-Nov-14 A	20%	60	08-May-15	20-Feb-15	14-May-15	4	0					
		Viaduct F2, F4 & F5 - IC/SO Approval of Superstructure DDA -DP16.15	75	25-Nov-14 A	20%	60	08-May-15		14-May-15	4	0					i
		Viaduct F2, F4 & F5 - IC/SO Approval of Substructure DDA - DP16.05	75	25-Nov-14 A	20%	60	08-May-15		14-May-15	4	0					
		Viaduct F2, F4 & F5 - IC/SO Approval of Superstructure DDA - DP16.06	75	25-Nov-14 A	20%	60	08-May-15		14-May-15	4	0					i
		· ·					,			4	_					
		Viaduct F2, F4 & F5 - IC/SO Approval of Sub-Structure DDA - DP16.11	75	25-Nov-14 A	20%	60	08-May-15		14-May-15	· .	0					i
		Viaduct F2, F4 & F5 - IC/SO Approval of Superstructurte DDA - DP16.12	75	25-Nov-14 A	20%	60	08-May-15	20-Feb-15	14-May-15	4	0	i				į
		Contractor				,				, ,						1
Al	RDD0536	Viaduct F2, F4 & F5 - Typical Pilecap Reinforcement - Stainless Steel Rebar	0	24-Nov-14 A	100%	0						•				
AF	RDD0537	Viaduct F2, F4 & F5 - Typical Pilecap Reinforcement - Regular Rebar	0		100%	0	24-Nov-14 A					<b>•</b>				
AF	RDD0538	Viaduct F2, F4 & F5 - Final Pilecap Reinforcement	0		100%	0	24-Nov-14 A					•				
AF	RDD0540	Viaduct F2, F4 & F5 - Final Pier Shapes and Reinforcement	0		100%	0	24-Nov-14 A					•				
AF	RDD0541	Viaduct F2, F4 & F5 - Typical Segment Shapes for Moulds	0		100%	0	24-Nov-14 A					<b>•</b>				
AF	RDD0542	Viaduct F2, F4 & F5 - Typical Segment Reinforcement	0		100%	0	24-Nov-14 A					•				1
AF	RDD0543	Viaduct F2, F4 & F5 - Final Segment Types and Reinforcement	0		0%	0	22-Dec-14		19-Feb-15	44	88					
ΑF		Viaduct F2, F4 & F5 - Typical Anchorage and Tendon Types	0		100%	0	24-Nov-14 A					•				
		Viaduct F2, F4 & F5 - Final Anchorage and PT Requirements	0		0%	0	22-Dec-14		19-Feb-15	44	88					
		Viaduct F2, F4 & F5 - Provisional Bearing Schedule	0		100%	0	24-Nov-14 A		10 1 05 10	77		•				
		-				-			47.0 - 4.4	45	45	~				
		Viaduct F2, F4 & F5 - Final Bearing Schedule	0		0%	0	22-Dec-14		17-Oct-14	-45	45					
		Viaduct F2, F4 & F5 - Provisional Movement Joint (MJ) Schedule	0		100%	0	24-Nov-14 A					<b>•</b>				
		Viaduct F2, F4 & F5 - Final Movement Joint (MJ) Schedule	0		0%	0	22-Dec-14		26-Jun-15	135	60					
Par	rapet and U	Utility Trough								_						
AR	RDD0566	IC/SO Approval of DDA -DP30.01 & DP31.01	75	31-Jul-14 A	50.67%	37	10-Feb-15	02-Oct-14	21-Nov-14	-57	0	1				1
AR	RDD0566-1	IC/SO Approval of DDA -DP30.01 & DP31.01	0		0%	0	10-Feb-15		21-Nov-14	-57	0				•	
TC	SS Provisi	ions	'												1	
AR	RDD0573	IC/SO Approval of DDA for TCSS civil provisions - BP10.01	75	29-Sep-14 A	60%	30	30-Jan-15	13-Oct-14	21-Nov-14	-50	0				<u></u> †	
AR	RDD0573-1	IC/SO Approval of DDA for TCSS civil provisions - BP10.01	0		0%	0	30-Jan-15		21-Nov-14	-50	0				•	1
		or Viaduct C: 10NW -C/C22, C/C26, C/C27, C/F13, C/F14. C/F15		<u> </u>												
_	-	IC/SO Approval of Slope Combined AIP/DDA-CP13.01	75	20-Nov-13 A	89.33%	8	31-Dec-14	14-Sep-15	23-Sep-15	190	0					i
		IC/SO Approval of Slope Combined AIP/DDA-CP13.01	0	20.100 107	0%	0	31-Dec-14	7. Cop-10	23-Sep-15 23-Sep-15	190	0				1	1
			U		0 /0	U	31-060-14		20-0ch-10	190	U					
	-	or Viaduct A: 9SE-B/FR8, B/R1, B/R2		04 11 11 1	00.000	_	00.5	45.5 := 1	20.2 :=							
AR	RDD0595	IC/SO Approval of Slope Combined AIP/DDA - CP11.01	75	31-Jul-14 A	90.67%	7	30-Dec-14	15-Sep-15	23-Sep-15	191	1	i			1 1	1
	Actual Work		en Mun - Cl	nek Lap Kok L	ink - Sou	thern C	Connection		Date	Revisi	ion (	hecked Appr	oved	WG. No.:		
	Planned Bar	Layout: J3518-DWP-3MRP Submission - M19 Filter: TASK filters: 3-Month Lookahead, No CQ 3-Mc	onth Rolli	ng Progran	nme (Pa	ge 4 d	of 36 Page	es)	21-Sep-14							
	Critical Bar	Milestones, no Level of Effort, No Level of		rogress as	•	_	_		21-Oct-14					J3518/GC	L/PGM/3N	IRP-M1
	N ATT 1		٧.	- 3	<b>-</b>		,		21-Nov-14		D	3			_,,	
•	Milestone	Effort.							21-Dec-14			J				

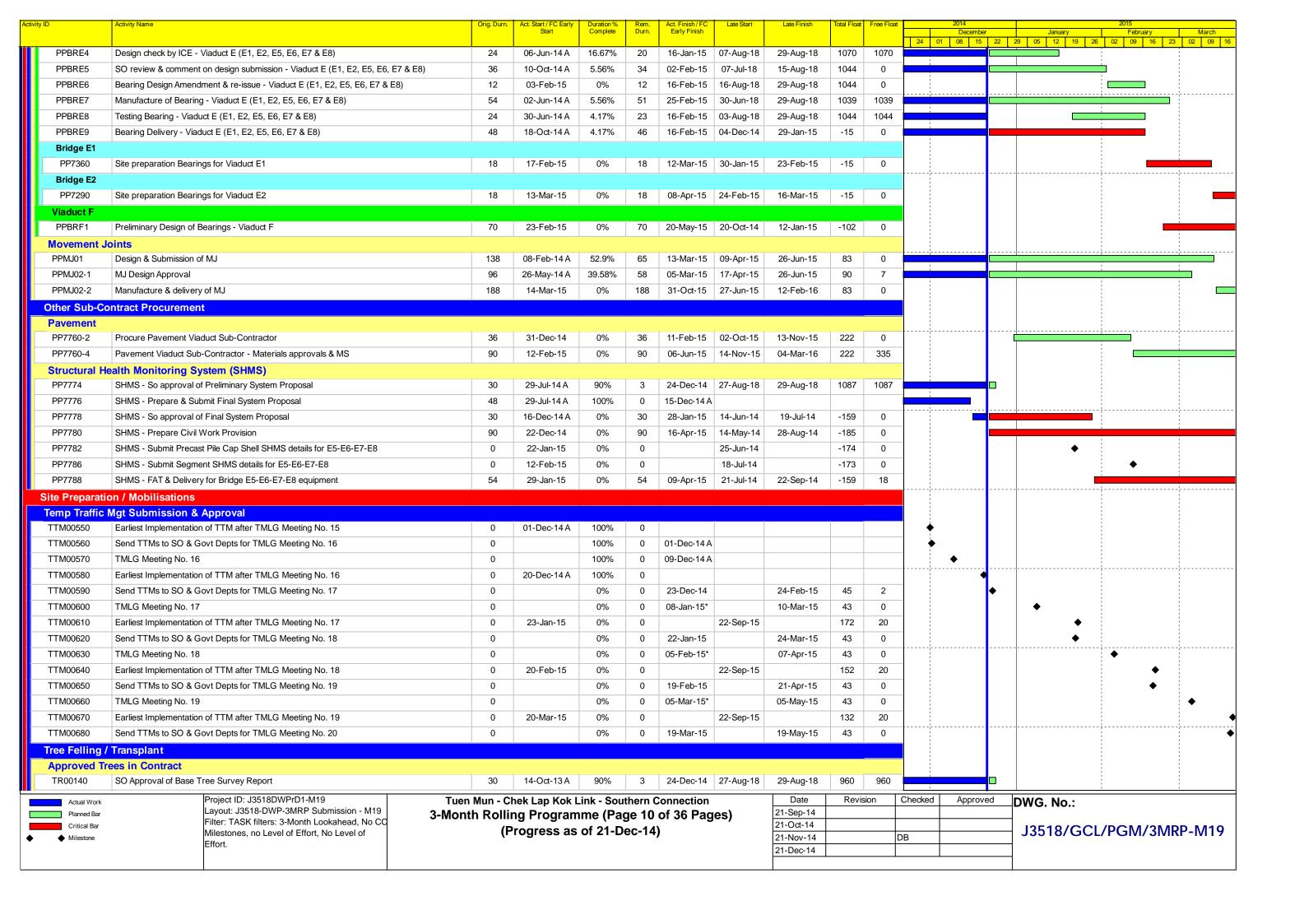
Activity ID	Activity Name	Orig. Durn.	Act. Start / FC Early	Duration %	Rem.	Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float	2014		2015
			Start	Complete	Durn.	Early Finish					24 01 08 15		January         February         March           05         12         19         26         02         09         16         23         02         09         16
ARDD0595-1	IC/SO Approval of Slope Combined AIP/DDA - CP11.01	0		0%	0	31-Dec-14		23-Sep-15	190	142		*	
Slopeworks	for Viaduct D: 10NW -C/R4, C/F9, C/F10, C/F11, C/F17, C/F50										1		
ARDD0602	Preparation of Slope Combined AIP/DDA - CP14.01	20	10-Dec-13 A	100%	0	15-Dec-14 A					1		
ARDD0603	IC/SO Approval of Slope Combined AIP/DDA -CP14.01	75	16-Dec-14 A	0%	75	03-Apr-15		10-Feb-15	-38	0			
	an Hazard Assessment		10 200 1171	0,0	,,,	00 7 (рт 10	20 000 11	10 1 05 10			_		
ARDD0613	GEO Approval of NTHM Combined AIP/DDA - CP20.02, CP21.02	75	16-Jul-14 A	90.67%	7	30-Dec-14	12-Mar-15	20-Mar-15	58	0	!		
	**		10-3ul-14 A		,		12-IVIAI-13			-			
ARDD0613-1	GEO Approval of NTHM Combined AIP/DDA - CP20.02, CP21.02	0		0%	0	30-Dec-14		20-Mar-15	58	0			
	Drainage & Utility Diversions						_						
ARDD0629	IC/SO Approval of Waterworks, Drainage & Utility DDA - BP20.01	75	22-Jul-14 A	90.67%	7	30-Dec-14	16-Oct-14	24-Oct-14	-47	8			
ARDD0629-1	IC/SO Approval of Waterworks, Drainage & Utility DDA - BP20.01	0		0%	0	09-Jan-15		24-Oct-14	-55	0			•
ARDD0630	Gov't Approval of Submissions for Waterworks, Drainage & Utility Diversions	75	22-Jul-14 A	80%	15	09-Jan-15	06-Oct-14	24-Oct-14	-55	0	i		
Viaduct Appr	roach Ramp Retaining Walls												
Approach Ra	amp D												
ARDD0652	Approach D - IC/SO Approval of Approach Ramp D DDA - DP20.01	75	25-Sep-14 A	60%	30	30-Jan-15	31-Dec-14	10-Feb-15	7	0			
ARDD0652-1	Approach D - IC/SO Approval of Approach Ramp D DDA - DP20.01	0		0%	0	30-Jan-15		10-Feb-15	7	12			•
Approach Ra	amn C												
ARDD0658	Approach C - IC/SO Approval of Approach Ramp C DDA -DP20.01	75	03-Oct-14 A	20%	60	13-Mar-15	16-Dec-14	09-Mar-15	-4	0			
	Approach C - IC/SO Approval of Approach Ramp C DDA -DP20.01	0	00 00 1471	0%	0	13-Mar-15	10 000 14	09-Mar-15	-4	15	!		
	A STATE OF THE STA	U		0%	U	13-IVIAI-13		09-Mai-15	-4	13			
Approach Ra	•			2001	1	20 1 15	22.2.44	21.0					
ARDD0664	Approach B - IC/SO Approval of Approach Ramp B DDA -DP21.01	75	14-Oct-14 A	80%	15	09-Jan-15	06-Oct-14	24-Oct-14	-55	0	i		
	Approach B - IC/SO Approval of Approach Ramp B DDA -DP21.01	0		0%	0	09-Jan-15		24-Oct-14	-55	136			•
Approach A													
ARDD0670	Approach A - IC/SO Approval of Approach Ramp A DDA - DP20.01	75	03-Oct-14 A	20%	60	13-Mar-15	26-Mar-15	17-Jun-15	68	0			
ARDD0670-1	Approach A - IC/SO Approval of Approach Ramp A DDA - DP20.01	0		0%	0	13-Mar-15		17-Jun-15	68	45			<b>•</b>
Approach F													
ARDD0675	Approach F - Preparation of Approach Ramp F DDA Submission -DP22.01	50	12-Nov-14 A	98%	1	22-Dec-14	09-Oct-14	09-Oct-14	-52	0		<b>-</b>	
ARDD0676	Approach F - IC/SO Approval of Approach Ramp F DDA -DP22.01	75	23-Dec-14	0%	75	06-Apr-15	10-Oct-14	22-Jan-15	-52	0			
Viaduct Pave	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					·							
ARDD867	Viaduct Pavement - IC/SO Approval of AIP - BP02.00	68	27-Jun-14 A	89.71%	7	30-Dec-14	21-Aug-18	29-Aug-18	956	0		-	
ARDD867-1	Viaduct Pavement - IC/SO Approval of AIP - BP02.00	0	27 0011 1471	0%	0	30-Dec-14	21 / lag 10	29-Aug-18	956	956	1		
	· ·		07 1 444				05 No. 44						
ARDD871	Viaduct Pavement - IC/SO Approval of DDA - BP02.01	75	27-Jun-14 A	90.67%	7		25-Nov-14	03-Dec-14	-19	0	1		
	Viaduct Pavement - IC/SO Approval of DDA - BP02.01	0		0%	0	30-Dec-14		03-Dec-14	-19	0		•	
Signs, Markii	ngs and Street Furniture		,		,		,						
ARDD0688	IC/SO Approval of Signs, Markings & Street Furniture DDA - BP03.01	75	16-Oct-14 A	20%	60	13-Mar-15	13-Feb-15	07-May-15	39	0	i		
ARDD0688-1	IC/SO Approval of Signs, Markings & Street Furniture DDA - BP03.01	0		0%	0	13-Mar-15		07-May-15	39	0	1		<b>•</b>
Landscape		·											
ARDD0700	IC/SO Approval of DDA for landscape works - BP22.01	75	15-Oct-14 A	0%	75	03-Apr-15	21-Sep-15	01-Jan-16	195	0			
Remaining W	Vorks	ļ.											
ARDD0704	Preparation of Remaining Works AIP - ZP01.00	30	22-Dec-14	0%	30	30-Jan-15	02-May-16	10-Jun-16	355	0	<del> </del>		
ARDD0705	IC/SO Approval of Remaining Works AIP - ZP01.00	40	02-Feb-15	0%	40	27-Mar-15		05-Aug-16	355	0			
	rget Geometry And Erection Engineering						1 10 000						
Viaduct A	get Geometry And Election Engineering												
	Visit at A. Confirmation of Frantism Common frame Francisco	0		00/	0	00 Dec 44		00 lan 45	0.4	0			
ARDD0716	Viaduct A - Confirmation of Erection Sequence from Freyssinet	0	00 5 - 11	0%	0	22-Dec-14	00 1- 15	22-Jan-15	24	0			
ARDD0717	Viaduct A - Erection Sequence Analysis	20	22-Dec-14	0%	20	16-Jan-15		19-Feb-15	24	0			
ARDD0718	Viaduct A - Target Geomtery Analysis	20	19-Jan-15	0%	20	13-Feb-15		19-Mar-15	24	0			
ARDD0719	Viaduct A - Segment Geometry Schedules	10	16-Feb-15	0%	10	27-Feb-15	20-Mar-15	02-Apr-15	24	0			
ARDD0719-1	Viaduct A - Final Erection Geometry (Bridge A2)	0		0%	0	27-Feb-15		02-Apr-15	24	0	1		•
Actual Work	Project ID: J3518DWPrD1-M19	Tuen Mun - C	hek Lap Kok L	ink - Sou	thern (	Connection		Date	Revis	sion	Checked Approv	ved n	WG. No.:
Planned Bar	Layout: J3518-DWP-3MRP Submission - M19	3-Month Roll	•				es)	21-Sep-14					
Critical Bar	Filter: TASK filters: 3-Month Lookahead, No CC Milestones, no Level of Effort, No Level of		Progress as	-	_	_	- ,	21-Oct-14					J3518/GCL/PGM/3MRP-M19
♠ Milestone	Effort.	(I	y 33 a3	J. 21-D	JJ-17	,		21-Nov-14			В		JULY COLT CIVIT SIVING - IVI 19
								21-Dec-14					



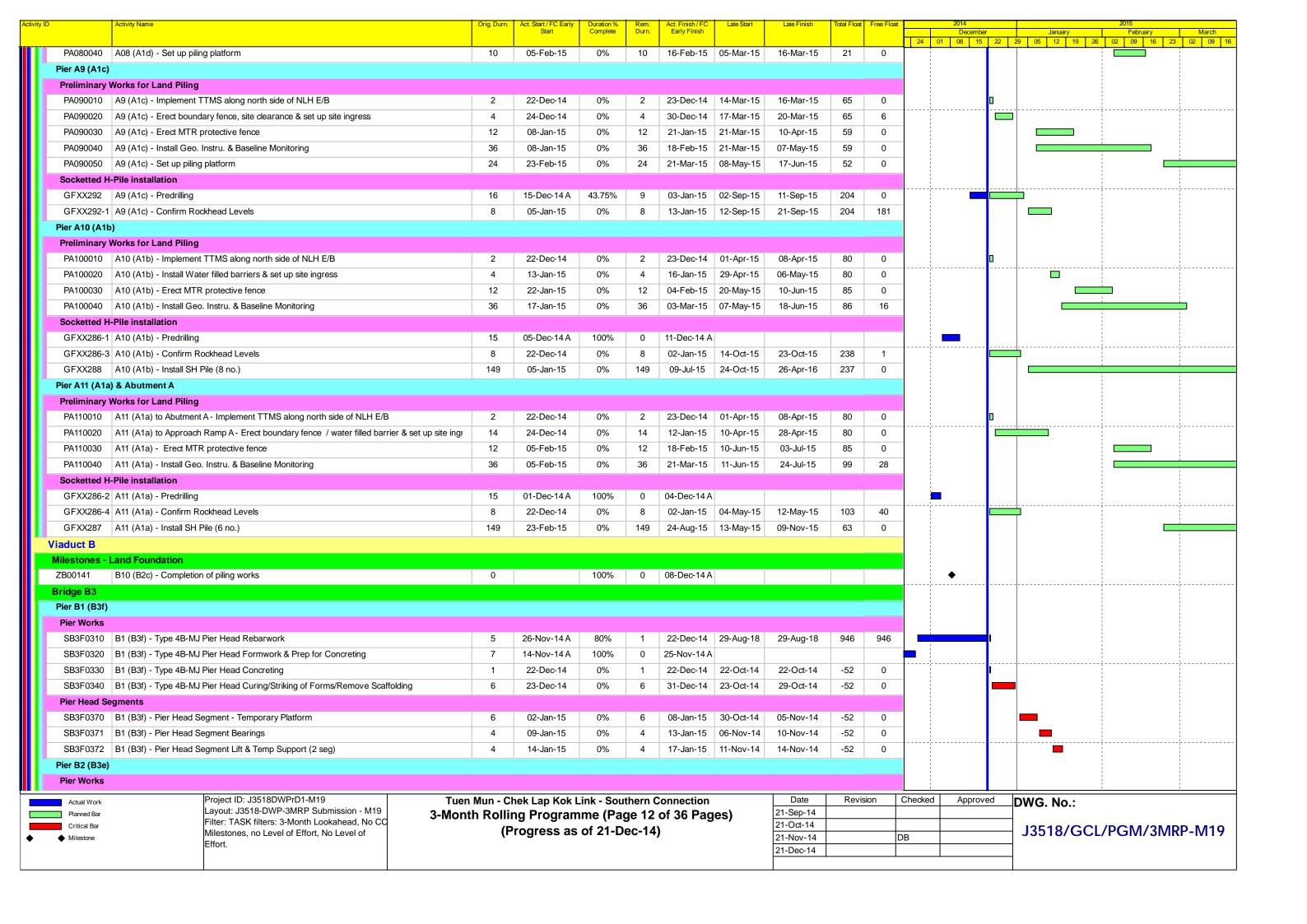
/ ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	2014 Decemb		January	2015 February Ma
PR66031	Inst.Temp.Eqpt.Platform (piles & deck) @ E9	18	22-Dec-14	0%	18	14-Jan-15	11-May-15	08-Jun-15	102	0	24 01 08 15	22 2	29 05 12 19 2	6 02 09 16 23 02
PR66032	Inst.Temp.Eqpt.Platform (piles & deck) @ E10	18	22-Dec-14	0%	18	14-Jan-15	-	15-Jan-15	1	0	-			
PR66033	Inst.Temp.Eqpt.Platform (piles & deck) @ E11	18	14-Mar-15	0%	18		27-Oct-14	15-Nov-14	-113	0	-			
	ent Installation Equipment	, ,	TT Mai To	0,0	.0	10745.10	2. 00	10 1101 11						
Launching														
PR67040	Launching Gantry Design	95	05-Feb-14 A	97.89%	2	23-Dec-14	12-Nov-14	13-Nov-14	-34	23				
PR67041	Launching Gantry 1 Fabrication	95	15-May-14 A	97.89%	2		28-Aug-18	29-Aug-18	1088	1088				
PR67042	Launching Gantry 1 Delivery	20	28-Aug-14 A	50%	10		18-Aug-18	29-Aug-18	1080	1080				
Launching			1 1 3				1							
PR67043	Launching Gantry 2 Fabrication	105	16-Jun-14 A	30.48%	73	23-Mar-15	16-Oct-14	12-Jan-15	-57	0				
Lifting Fran	,													
Lifting Fram														
PR68011	Lifting Frame 1&2 Design	70	02-Jun-14 A	60%	28	26-Jan-15	05-Sep-14	10-Oct-14	-89	2				
PR68012	Lifting Frame 1&2 Approval	60	22-Dec-14	0%	60		05-Sep-14	17-Nov-14	-89	6	-			
PR68013	Lifting Frame 1&2 Fabrication	140	29-Sep-14 A	10%	126	30-May-15	· ·	29-Jan-15	-95	0				
Lifting Fram		1.0	== 00p 1111	.070	0	11	==	0						
PR68015	Lifting Frame 3&4 Design	70	02-Jun-14 A	60%	28	26-Jan-15	06-Nov-14	08-Dec-14	-39	2				
PR68016	Lifting Frame 3&4 Approval	60	22-Dec-14	0%	60		29-Nov-14	10-Feb-15	-19	20	-			
PR68017	Lifting Frame 3&4 Fabrication	140	22-Dec-14 22-Dec-14	0%	140		06-Nov-14	29-Apr-15	-39	0	-			
Lifting Fram		140	22 000 14	070	140	10 0011 10	00 1407 14	20 / Ipi 10	00	Ü				
PR68019	Lifting Frame 5&6 Design	70	22-Dec-14	0%	70	10-Mar-15	08-Nov-14	31-Jan-15	-37	0				
PR68020	Lifting Frame 5&6 Approval	60	09-Mar-15	0%	60		13-Feb-15	02-May-15	-17	20	-			
PR68021	Lifting Frame 5&6 Fabrication	140	09-Mar-15	0%	140		21-Jan-15	15-Jul-15	-37	0	-			
	-	140	09-IVIAI - 13	078	140	21-Aug-13	21-Jan-13	13-341-13	-3/	0				-
Unloading I	riames													
PR69100	Unloading Frame Type 1 Design	50	05-May-14 A	40%	30	28-Jan-15	10-Oct-14	13-Nov-14	-62	17				
PR69110	Unloading Frame Type 1 Fabrication	95	22-Dec-14	0%	95			31-Jan-15	-62	0	-			
	Officialing Frame Type FF abrication	93	22-Dec-14	078	33	22-Api-13	10-061-14	31-Jan-13	-02	0				
Type 2 PR69170	Unloading Frame Type 2 Design	50	05-May-14 A	40%	30	28-Jan-15	18-May-15	23-Jun-15	115	17				
PR69180	Unloading Frame Type 2 Design	95	22-Dec-14	0%	95		18-May-15	08-Sep-15	115	0				
	Unidading Frame Type 21 abrication	93	22-060-14	0 78	33	22-Api-13	10-1viay-13	00-3ер-13	113	U				
<b>Type 4</b> PR69250	Unloading Frame Type 4 Design	50	05-May-14 A	40%	30	28-Jan-15	29-Oct-14	02-Dec-14	-46	17				
PR69260	Unloading Frame Type 4 (BCF) Fabrication	95	22-Dec-14	0%	95		29-Oct-14	23-Feb-15	-46	0				
		93	22-Dec-14	0 /0	95	22-Api-13	29-001-14	23-1-60-13	-40	0				
	ents & Precast Pile Cap Shells													
Preliminario MBBE0018	Precast Segment Mould Design (Viaduct E5, E6, E7 & E8)	42	15-Oct-13 A	59.52%	17	13-Jan-15	19-Jun-14	09-Jul-14	-155	0				
	Precast Segment Mould Design (Viaduct E5, E6, E7 & E6)  Precast Segment Mould Fabrication & Assembly (Viaduct E5, E6, E7 & E8)	52								18	-			
MBBE0020 MBBE0024	Precast Segment Mould Pabrication & Assembly (Viaduct E5, E6, E7 & E8)  Precast Segment Mould Design (Viaduct E2)	42	14-Jan-15 15-Oct-13 A	0% 59.52%	52	18-Mar-15 13-Jan-15		08-Sep-14 14-Jun-14	-155 -175	0	-			
MBBE0024 MBBE0026	Precast Segment Mould Design (Viaduct E2)  Precast Segment Mould Fabrication & Assembly (Viaduct E2)		15-Oct-13 A		17	13-Jan-15 18-Mar-15		14-Jun-14 15-Aug-14	-175	13	-			
		52 42		0%	52					0				
MBBE0030 MBBE0032	Precast Segment Mould Design (Viaduct E1)  Precast Segment Mould Fabrication & Assembly (Viaduct E1)	52	30-Jul-14 A 12-Feb-15	0%	42	11-Feb-15		26-Aug-14 29-Oct-14	-139 -139	0	-			
MBBE0032 MBBE0036		42	12-Feb-15 22-Dec-14	0%	52 42	21-Apr-15 11-Feb-15			-139	0	-			
MBBE0036	Precast Segment Mould Design (Viaduct D)  Precast Segment Mould Fabrication & Assembly (Viaduct D)	52	12-Feb-15	0%				23-Aug-14 27-Oct-14	-141	0	-			
MBBE0038	Precast Segment Mould Pabrication & Assembly (Viaduct D)  Precast Segment Mould Design (Viaduct C)	42	22-Dec-14	0%	52 42	21-Apr-15 11-Feb-15		27-Oct-14 27-Jan-15	-141	0	-			
MBBE0044	Precast Segment Mould Design (Viaduct C)  Precast Segment Mould Fabrication & Assembly (Viaduct C)	52	12-Feb-15			21-Apr-15		01-Apr-15	-13	37	<del> </del>	-		
				0%	52			·		0	-			
MBBE0048	Precast Segment Mould Entripotion & Fraction (Vindust A)	42	22-Dec-14	0%	42	11-Feb-15		09-Sep-15	169		-			
MBBE0050	Precast Segment Mould Fabrication & Erection (Viaduct A)	52	12-Feb-15	0%	52	21-Apr-15	<u>'</u>	12-Nov-15	169	89				
Actual Work	Project ID: J3518DWPrD1-M19 Layout: J3518-DWP-3MRP Submission - M19		hek Lap Kok					Date	Revis	ion	Checked Approx	ved	DWG. No.:	
Planned Bar Critical Bar	Filter: TASK filters: 3-Month Lookahead, No CQ	3-Month Roll	-	-	_	_	es)	21-Sep-14 21-Oct-14	-	+		$\longrightarrow$	10-10-10-	. /
Milestone	Milestones, no Level of Effort, No Level of	(I	Progress as	of 21-D	ec-14	.)		21-Nov-14			)B		J3518/GC	L/PGM/3MRP-M
	Effort.							21-Dec-14						

ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float		cember	January	2015 February Marc
MBBE0054	Precast Segment Mould Design (Viaduct F1 to F5)	42	22-Dec-14	0%	42	11-Feb-15	16-Jan-15	09-Mar-15	19	0	24 01 08	15 22	29 05 12 19 26 (	09 16 23 02 00
MBBE0056	Precast Segment Mould Fabrication & Erection (Viaduct F1 to F5)	52	12-Feb-15	0%	52	21-Apr-15	10-Mar-15	14-May-15	19	69			1	
Viaduct B	Treeast degricit would rabiteation a Erection (viadaet 1 1 to 1 3)	JZ	12-1 CD-13	070	32	21-Api-10	10-Wai-13	14-May-10	13	00				
Precast Dec	k Commonto													
		0	22 Dog 14	09/	0		20 Oct 14		-54	6				
MBBE0130	B: Commence Pier Head Segment Delivery	0	22-Dec-14	0%	0	05 Fab 45	20-Oct-14	04 lan 45						
MBBE130-1	, , , ,	54	02-Dec-14 A	5.56%	51	25-Feb-15		31-Jan-15	-18	20			į	
MBBE130	B: Commence Match Cast Segment Delivery	0	22-Dec-14	0%	0		10-Jun-15		134	229				
MBBE130-1	B: Progressive Match Cast Segment Manufacture & Delivery remaining segments (376 Nr)	96	24-Oct-14 A	4.17%	92	18-Apr-15		23-Feb-15	-43	42				
PP1032-1	Viaduct B - Pier Head Segment Casting	0	22-Dec-14	0%	0		29-Aug-18		1090	1090		•		
Viaduct E														
Precast Pile	Caps													
Viaduct E1														1
MBEC0130-2	2 E1: Commence Pile Cap Shell Delivery	0	25-Nov-14 A	100%	0						•		!	
PP7330	Production of Viaduct E1 Marine Precast Pile Cap Shells	80	17-Oct-14 A	50%	40	09-Feb-15	28-Oct-14	12-Dec-14	-47	9				
Viaduct E2			·			'			<u>'</u>					
MBEC0130-4	4 E2: Commence Pile Cap Shell Delivery	0	22-Dec-14	0%	0		14-Aug-14		-107	8		•		
PP7260	Production of Viaduct E2 Marine Precast Pile Cap Shells	80	27-Oct-14 A	28.75%	57	04-Mar-15	14-Aug-14	23-Oct-14	-107	0				
Viaduct E5, E	i i		<u> </u>										<del>-</del>	
	5 E5-6-7-8: Commence Pile Cap Shell Casting on Approval of DDA	0	09-Mar-15	0%	0		07-Aug-14		-174	0				•
PP7120	Production of Viaduct E5 & E6 Marine Precast Pile Cap Shells	60	09-Mar-15	0%	60	22-May-15		18-Oct-14	-174	4				_
PP7190	Production of Viaduct E7 & E8 Marine Precast Pile Cap Shells	60	09-Mar-15	0%	60	22-May-15		21-Oct-14	-172	0				_
Precast Dec	·	00	oo iviai 10	0,0	00	ZZ May 10	00 7 tag 1 1	21 000 11	., ., _	Ü			1	_
	Viaduct E2 - Pier Head Segment Casting	0	22 Doc 14	0%	0		16 Aug 14		106	92				
	Viaduct E2 - Fier fread Segment Casting	U	22-Dec-14	0%	U		16-Aug-14		-106	82		ľ		
Viaduct D														
Precast Pile			05.11	4000/										
	D: Commence Pile Cap Shell Delivery	0	25-Nov-14 A	100%	0		_						1	
	D: Progressive Pile Cap Shell Manufacture & Delivery remaining shells	90	07-Dec-14 A	30%	63	11-Mar-15	14-Oct-14	27-Dec-14	-59	28			· · · · · · · · · · · · · · · · · · ·	
Viaduct C														
Precast Pile	•		,											
MBCC0120	C: Commence Pile Cap Shell Casting on Approval of DDA	0	22-Dec-14	0%	0		27-Nov-14		-21	110		•		
Parapets														
MBEE0090	Approval of DDA to start Precast Parapets/Barriers Casting	0	11-Feb-15	0%	0		22-Nov-14		-66	0				•
PP6010	Procure Sub-Contractor for Precast Parapets/Barriers	40	23-Dec-14	0%	40	10-Feb-15	07-Oct-14	21-Nov-14	-66	0				
PP6011	Precast Parapets/Barriers Detail Design & Procure Moulds	120	11-Feb-15	0%	120	13-Jul-15	22-Nov-14	22-Apr-15	-66	0				
Materials														
PP7010	Procure Sub-contractor for Signs & Street Furniture	90	14-Mar-15	0%	90	06-Jul-15	08-May-15	24-Aug-15	42	0				1
H-Piles														
PP7550	Procurement of Viaduct A Socketted H-Piles	70	22-Dec-14	0%	70	19-Mar-15	11-Feb-15	12-May-15	41	0			<del>-</del>	<del>-</del>
Reinforceme								-, -						
Bored Piles														
PP7100	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct E5 & E6 Piles	185	07-Jul-14 A	40.54%	110	11-May-15	19-Mar-14	02-Aug-14	-227	135				
	-	185				•				980				
PP7170	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct E7 & E8 Piles		07-Jul-14 A	40.54%	110	· .	18-Nov-14	01-Apr-15	-29					
PP7240	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct E2 Piles	106	15-Apr-14 A	50.94%	52	26-Feb-15	· .	03-Jul-14	-195	133				
PP7310	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct E1 Piles	36	09-Jul-14 A	100%	0	28-Nov-14 A							<u></u>	
PP7380	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct D Piles	25	08-Aug-14 A	68%	8	02-Jan-15	11-Sep-14	19-Sep-14	-85	0			<del>-</del>	1
PP7460	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct C Piles	35	18-Aug-14 A	28.57%	25	22-Jan-15	15-Dec-14	15-Jan-15	-6	0				
PP7540	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct A Piles	21	12-Aug-14 A	14.29%	18	14-Jan-15	21-Apr-15	12-May-15	93	44	i			1
Actual Work	Project ID: J3518DWPrD1-M19 Tue	n Mun - C	hek Lap Kok I	_ink - Sou	thern (	Connection		Date	Revis	ion	Checked Ap	proved	DWG. No.:	
Planned Bar	Layout: J3518-DWP-3MRP Submission - M19 3-Mo		ing Progran				es)	21-Sep-14						
Critical Bar	Filter: TASK filters: 3-Month Lookahead, No CC Milestones, no Level of Effort, No Level of			-	_	_	,	21-Oct-14					J3518/GCL/F	GM/3MRP-M <sup>2</sup>
Milestone	Effort.	(Progress as of 21-Dec-14)						21-Nov-14			В		30010/301/1	CIVIT SIVING IVI
								21-Dec-14	l					

ID	Activity Name	Orig. Durn.	Act. Start / FC Early	Duration %	Rem.	Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float	2014	2015
			Start	Complete	Durn.	Early Finish					December           24         01         08         15         22	January   February   Marc
PP7620	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct F1 & F3 Piles	61	22-Dec-14	0%	61	09-Mar-15	27-Sep-14	09-Dec-14	-71	0		
PP7690	Rebar - Cut, Bend & Fabricate Pile Cage for Viaduct F2, F4 & F5 Piles	73	22-Dec-14	0%	73	23-Mar-15	04-Dec-14	06-Mar-15	-15	0		
Marine Pile C	Caps											
PP7110	Rebar - Cut, Bend & Fabricate for Viaduct E5 & E6 Pile Caps	245	22-Dec-14	0%	245	22-Oct-15	19-Mar-14	14-Jan-15	-227	0		
PP7180	Rebar - Cut, Bend & Fabricate for Viaduct E7 & E8 Pile Caps	102	22-Dec-14	0%	102	30-Apr-15	18-Nov-14	23-Mar-15	-29	0		
PP7250	Rebar - Cut, Bend & Fabricate for Viaduct E2 Pile Caps	185	22-Dec-14	0%	185	10-Aug-15	30-Apr-14	09-Dec-14	-195	0		
PP7320	Rebar - Cut, Bend & Fabricate for Viaduct E1 Pile Caps	67	11-Dec-14 A	7.46%	62	10-Mar-15	17-Oct-14	30-Dec-14	-56	0		
PP7400	Rebar - Cut, Bend & Fabricate for Viaduct D Marine Pile Caps	47	18-Dec-14 A	6.38%	44	13-Feb-15	02-Sep-14	25-Oct-14	-92	3		
PP7480	Rebar - Cut, Bend & Fabricate for Viaduct C Marine Pile Caps	42	23-Jan-15	0%	42	16-Mar-15	16-Jan-15	09-Mar-15	-6	15		
PP7560	Rebar - Cut, Bend & Fabricate for Viaduct A Marine Pile Caps	36	11-Mar-15	0%	36	25-Apr-15	13-Jul-15	22-Aug-15	98	33		ı
Marine Piers	s - Viaduct E											
PP7270	Rebar - Cut, Bend & Fabricate for Viaduct E2 Piers	180	22-Jan-15	0%	180	01-Sep-15	30-May-14	03-Jan-15	-195	0		
PP7340	Rebar - Cut, Bend & Fabricate for Viaduct E1 Piers	31	11-Mar-15	0%	31	20-Apr-15	31-Dec-14	05-Feb-15	-56	4		
Land Pile Ca	aps											
PP7630	Rebar - Cut, Bend & Fabricate for Viaduct F1 & F3 Pile Caps	47	10-Mar-15	0%	47	08-May-15	09-Jan-15	07-Mar-15	-48	0		
PP7752	Rebar - Cut, Bend & Fabricate for Viaduct B Land Pile Caps	26	16-Jul-14 A	26.92%	19	15-Jan-15		29-Aug-18	1071	1071		
PP7754	Rebar - Cut, Bend & Fabricate for Viaduct D Land Pile Caps	29	03-Jan-15	0%	29		20-Sep-14	25-Oct-14	-85	0		
PP7756	Rebar - Cut, Bend & Fabricate for Viaduct C Land Pile Caps	34	23-Jan-15	0%	34	06-Mar-15		09-Mar-15	2	0		
PP7758	Rebar - Cut, Bend & Fabricate for Viaduct A Land Pile Caps	12	11-Mar-15	0%	12		10-Aug-15	22-Aug-15	122	0		
	ne Piers - Viaduct A, B, C, D & F						10111119					
PP7060	Bending of Rebar for Viaduct B Piers	64	11-Aug-14 A	20.31%	51	25-Feb-15	18-Sep-14	18-Nov-14	-79	0		
PP7420	Bending of Rebar for Viaduct D Piers	71	06-Feb-15	0%	71		14-Mar-15	11-Jun-15	28	99		
PP7500	Bending of Rebar for Viaduct C Piers	78	07-Mar-15	0%	78	,	02-Apr-15	10-Jul-15	22	1	-	
	nworks / Falseworks	70	or mai 10	070	, ,	12 dan 10	02 / tp1 10	10 001 10		•		
PP7070	On-Site Preparation & Assembly of Pier Formwork for Viaduct B Piers	70	03-Sep-14 A	20%	56	03-Mar-15	17-Sep-14	22-Nov-14	-80	0		
PP7140	On-Site Preparation & Assembly of Pier Formwork for Viaduct E5 & E6 Piers	90	29-Jan-15	0%	90		17-Sep-14	02-Jan-15	-112	95		
PP7280	On-Site Preparation & Assembly of Pier Formwork for Viaduct E2 Piers	90	29-Jan-15	0%	90		27-Jun-14	14-Oct-14	-178	0	-	
PP7430	·	90			-	22-May-15		05-Feb-15	-84	0		
	On-Site Preparation & Assembly of Pier Formwork for Viaduct D Piers		29-Jan-15	0%	90	,						
PP7510	On-Site Preparation & Assembly of Pier Formwork for Viaduct C Piers	90	29-Jan-15	0%	90	,	26-Mar-15	17-Jul-15	45	25		
PPPF02	Design & Fabrication of Falsework / Formwork & Delivery	120	20-Feb-14 A	75%	30	28-Jan-15	22-May-14	26-Jun-14	-178	0		
Bearings												
Viaduct B		10	10.0	4000/		00.0						
PPBRB9	Bearing Delivery - Viaduct B	48	18-Oct-14 A	100%	0	08-Dec-14 A						_
PPBRB99	Site preparation Bearings for Viaduct B	6	22-Dec-14	0%	6	30-Dec-14	30-Oct-14	05-Nov-14	-45	7		_
Viaduct C											·	
PPBRC1	Preliminary Design of Bearings - Viaduct C	50	22-Dec-14	0%	50		06-Sep-14	06-Nov-14	-88	0		
PPBRC2	Confirmation of bearing assumption - Viaduct C	0		0%	0	24-Feb-15		24-Mar-15	24	0		•
PPBRC3	Bearing design and submission - Viaduct C	12	25-Feb-15	0%	12		25-Mar-15	11-Apr-15	24	0		
PPBRC4	Design check by ICE - Viaduct C	24	11-Mar-15	0%	24	11-Apr-15	13-Apr-15	11-May-15	24	0		[
Viaduct D												
PPBRD3	Bearing design and submission - Viaduct D	12	03-Nov-14 A	8.33%	11			10-Jan-15	4	0		<del></del>
PPBRD4	Design check by ICE - Viaduct D	24	07-Jan-15	0%	24		12-Jan-15	07-Feb-15	4	0		
PPBRD5	SO review & comment on design submission - Viaduct D	36	04-Feb-15	0%	36			25-Mar-15	4	0		
PPBRD7	Manufacture of Bearing - Viaduct D	54	04-Feb-15	0%	54	15-Apr-15	09-Feb-15	20-Apr-15	4	0		
Viaduct E												
PPBRE2	Confirmation of bearing assumption - Viaduct E (E1, E2, E5, E6, E7 & E8)	0		0%	0	22-Dec-14		29-Aug-18	1090	4	<b> </b>	
PPBRE3	Bearing design and submission - Viaduct E (E1, E2, E5, E6, E7 & E8)	12	06-Jan-14 A	66.67%	4	27-Dec-14	25-Aug-18	29-Aug-18	1086	1086		
Actual Work	Project ID: J3518DWPrD1-M19	Tuen Mun - C	hek Lap Kok L	ink - Sou	thern (	Connection	'	Date	Revis	ion (	Checked Approved	DWG. No.:
Planned Bar	Layout: J3518-DWP-3MRP Submission - M19	3-Month Roll	-					21-Sep-14			.,	
Critical Bar	Filter: TASK filters: 3-Month Lookahead, No CC Milestones, no Level of Effort, No Level of		Progress as	-	_	_	- ,	21-Oct-14				J3518/GCL/PGM/3MRP-M
Milestone	Milestones, no Level of Effort, No Level of Effort.	(1	1091633 a3	J1 Z 1-D	- I <del>- I</del>	7		21-Nov-14		D	)B	J33 10/ GCL/ F GIVI/ SIVINF-IVI
	ILIIOI G							21-Dec-14	i	1	1	İ



	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	2014  December		2015 February	March
TR00200	Tree transplant for Viaduct B - affecting Piers B11 to B17	90	17-Feb-14 A	97.78%	2	23-Dec-14	15-Feb-16	16-Feb-16	305	976	24 01 08 15	22 29 05 12 19 26	6 02 09 16 2	23 02 09
TR00200	Tree transplant for Viaduct B - affecting Pier B18 & Abutment B	90	17-Feb-14 A	97.78%	2	23-Dec-14 23-Dec-14	22-Dec-15	23-Dec-15	264	976				
TR00220	Tree transplant for Viaduct B - affecting realigned CTR	90	17-Feb-14 A	97.78%	2	23-Dec-14 23-Dec-14	24-Oct-14	25-Dec-13 25-Oct-14	-50	143				
TR00240	Tree felling for Viaduct B - affecting Slopes 9SE-B/F9, C8 & C9	48	05-May-14 A	91.67%	4	27-Dec-14	25-Aug-18	29-Aug-18	974	974				
TR00260	Tree felling for Viaduct C - affecting Piers C9 to Abutment C	24	30-Jan-14 A	83.33%	4	27-Dec-14	31-Jul-18	03-Aug-18	954	54				-
TR00270	Tree transplant for Viaduct C - affecting Piers C9 to Abutment C	90	17-Feb-14 A	35.56%	58	05-Mar-15	15-May-18	03-Aug-18	900	0				
TR00280	Tree felling for Viaduct C - affecting realigned CTR	30	30-Jan-14 A	70%	9	03-Jan-15	18-Dec-14	30-Dec-14	-3	49			- <del> </del>	
TR00200	Tree transplant for Viaduct C - affecting realigned CTR	90	17-Feb-14 A	35.56%	58	05-Mar-15		30-Dec-14	-52	0				<u> </u>
dditional T	<u> </u>	30	17 1 00 1471	00.0070	00	00 Widi 10	22 001 14	00 000 14	UZ.		-			
R01010	Additional tree felling for Viaduct B along CTR	48	19-May-14 A	77.08%	11	06-Jan-15	13-Oct-14	25-Oct-14	-59	134				
	for Works Area 3 and Site Offices along CEDD Access Road	40	15 May 1471	77.0070		00 0011 10	10 000 14	20 00. 14	00	10-7				
R30030	Works Area 3-A1/3-A2 - Construct 1.5m steel access bridge	30	22-Dec-14	0%	30	28- Jan-15	24-Jul-18	29-Aug-18	948	948				
	Vorking Platform at North Lantau	30	22-000-14	070	30	20-0411-10	24 Jul 10	25 Aug 10	340	340				
R08080	Inst.Unloading Frame incl. T&C for seg.lift (incl. Load Test)	15	24-Oct-14 A	20%	12	07- lan-15	11-Dec-14	24-Dec-14	-9	11	ļ			
		15	24-0ti-14A	2070	12	07-Jan-13	TT-Dec-14	24-060-14	-9	- 11				1
NSTRUCTI	SUBSTRUCTURE													
	SUBSTRUCTURE												- <del> </del>	
iaduct A	Marine Foundation													1
	- Marine Foundation A2 (A2d) - Start date for piling	0	20-Mar-15	00/	0		25 lun 45		76	0				1
	<u> </u>	-	20-iviai-15	0%	0	07 5-5 45	25-Jun-15	00 1 15	76	0	-			
	A1 (A2e) - Completion of piling works	0		0%	0	07-Feb-15		22-Aug-15	157	93			•	
	- Land Foundation	0	00 Man 45	00/	0		04.0 - 45		470	1.11				
ZA00040	A10 (A1b) - Start date for piling	0	20-Mar-15	0%	0		24-Oct-15		176	141	-			
ZA00050	A11 (A1a) - Start date for piling	0	20-Mar-15	0%	0		13-May-15		41	0				
General	No. 1 and 1	0		0%		10 5 1 15		40.14	50					
ZA00010 Bridge A2	Viaduct A - Approval of Foundation DDA DP11.01	0		0 78	0	19-Feb-15		12-May-15	58	1				
Pier A1 (A2e											<u>-</u>		-	
Foundation														
	A1 (A2e) - Bored Piles (1.80m dia. x 3 nos)	88	12-Aug-14 A	75%	22	19-Jan-15	09-Jul-15	03-Aug-15	157	0				
	A1 (A2e) - Sonic & Interface Coring	12	20-Jan-15	0%	12		04-Aug-15	17-Aug-15	157	0			<u>;</u>	
	A1 (A2e) - Some a memace coming  A1 (A2e) - Dismantle removable panels of temp. platform	5	03-Feb-15	0%	5		18-Aug-15	22-Aug-15	157	0	-			
Pier A2 (A2d		3	03-1 eb-13	0 78	J J	07-1 60-13	10-Aug-13	22-Aug-13	137		ļ			
Foundation														
GFXX137		12	22-Dec-14	0%	12	07-Jan-15	27-May-15	09-Jun-15	122	0				-
	, , , ,				12						-			
	A2 (A2d) - Pre-drilling (2 nos)  2 A2 (A2d) - Confirm Rockhead Levels	12	08-Jan-15	0%	12	21-Jan-15		24-Jun-15	122	0	-		1	
		8	22-Jan-15	0%	8	30-Jan-15		09-Jul-15	126	28	<b></b>		] , - <del> </del>	
GFXX139		51	23-Feb-15	0%	51	21-Apr-15	25-Jun-15	24-Aug-15	98	0			_	
Pier A5 (A2a	•													
Foundation		40	44 14-4 45	00/	40	OF Ma:: 45	05 I.J.45	00 10 45	400					
	A5 (A2a) - Inst.Temp.Working Platform	13	11-Mar-15	0%	13	∠ɔ-Mar-15	25-Jul-15	08-Aug-15	109	0				
Bridge A1														
Pier A8 (A1d														
	Works for Land Piling		47 5-5-45	00/	0.4	40 Maii 45	47 May 45	47 ^ 45	04	0				
	10 0 11	24	17-Feb-15	0%	24	19-Mar-15	17-Mar-15	17-Apr-15	21	0	-			
	1 A8 (A1d) - Pre-grouting Works	24	20-Mar-15	0%	24	21-Apr-15	18-Apr-15	16-May-15	21	0	-			
PA080020	, ,	12	22-Dec-14	0%	12	07-Jan-15	19-Jan-15	31-Jan-15	21	0	ļ		<u> </u>	
PA080030	A8 (A1d) - Install Geo. Instru. & Baseline Monitoring	36	22-Dec-14	0%	36	04-Feb-15	19-Jan-15	04-Mar-15	21	0				
Actual Work	Project ID: J3518DWPrD1-M19	Tuen Mun - C						Date	Revis	ion	Checked Approve	DWG. No.:		
Planned Bar	Layout: J3518-DWP-3MRP Submission - M19 Filter: TASK filters: 3-Month Lookahead, No CC	3-Month Rolli					jes)	21-Sep-14						
Critical Bar	Milestones, no Level of Effort, No Level of	(F	rogress as	of 21-D	ec-14	)		21-Oct-14 21-Nov-14			DB	— J3518/GCI	L/PGM/3MI	RP-M
										11.	,	ı		
◆ Milestone	Effort.							21-Dec-14						



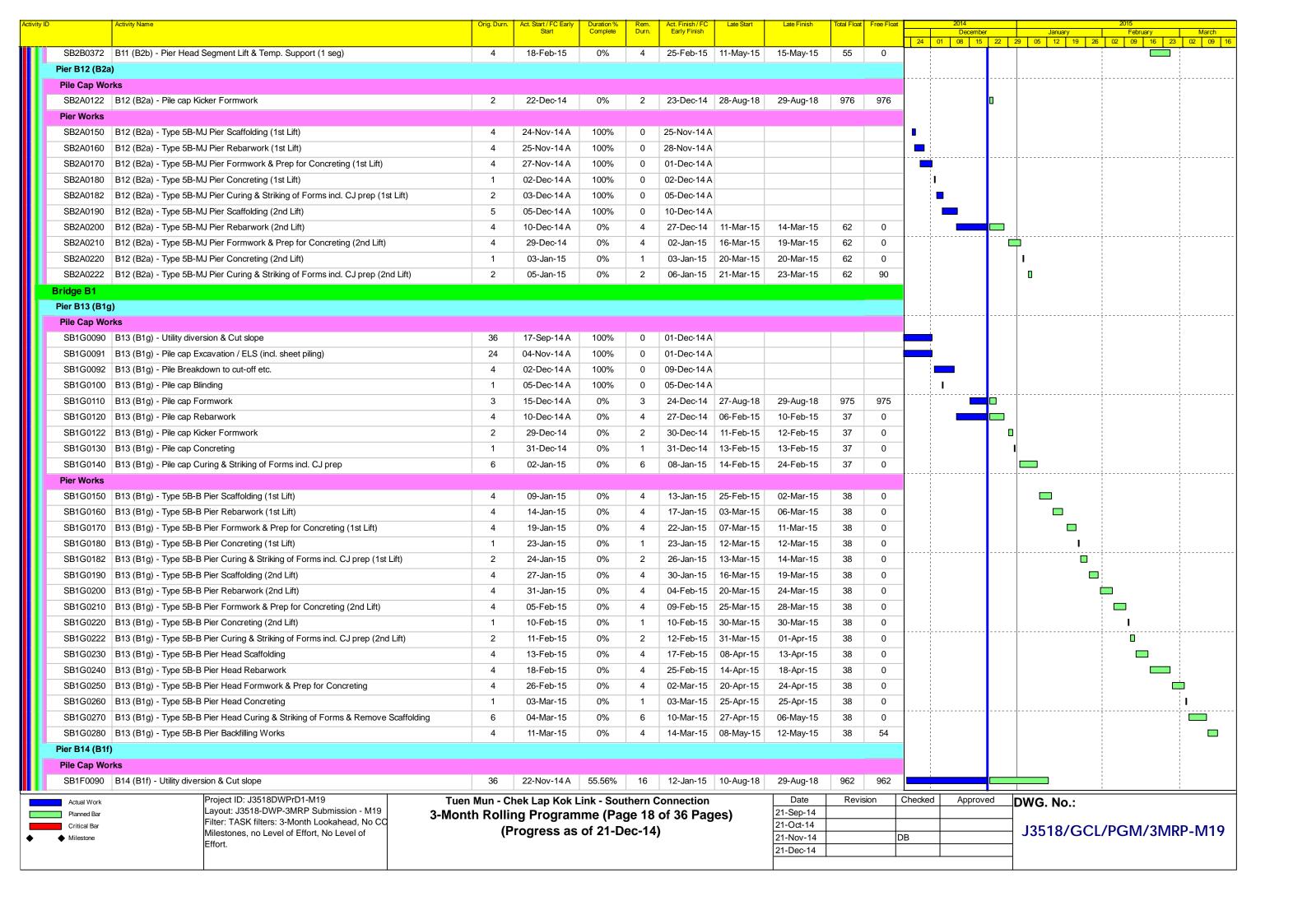
rity ID	Activity Name		Orig. Duri			Rem.	Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float	2014		2015	
				Start	Complete	Durn.	Early Finish					24 01 08 15		7 February 19 26 02 09 16	23 02 09 1
SB3E0310	B2 (B3e) - Type 4B Pie	r Head Rebarwork	5	15-Nov-14 A	100%	0	06-Dec-14 A								
SB3E0330	B2 (B3e) - Type 4B Pier	r Head Concreting	1	09-Dec-14 A	100%	0	09-Dec-14 A					1			
SB3E0340	B2 (B3e) - Type 4B Pier	r Head Curing/Striking of Forms/Remove Scaffolding	6	10-Dec-14 A	0%	6	30-Dec-14	11-Oct-14	18-Oct-14	-60	0				
Pier Head Se	egments														
	<u> </u>	egment - Temporary Platform	6	31-Dec-14	0%	6	07-Jan-15	20-Oct-14	25-Oct-14	-60	0				
	B2 (B3e) - Pier Head S		2	08-Jan-15		2		27-Oct-14	28-Oct-14	-60	0				
	` '	egment Diaphragm - Rebar	12	10-Jan-15		12		29-Oct-14	11-Nov-14	-60	0			_	
	` '	egment Diaphragm - Formwork & Prep for Concreting		24-Jan-15	0%		02-Feb-15		21-Nov-14	-59	0				
											0				
		egment Diaphragm - Concreting	2	03-Feb-15			04-Feb-15		24-Nov-14	-59	-				
		egment Diaphragm - Curing & Striking of Forms	6	05-Feb-15	0%	6	11-Feb-15	25-INOV-14	01-Dec-14	-59	0				
Pier B3 (B3d)															
Pile Cap Wo	_									_					
	` '	Cap M1 - Weld Fin plates/Plug Rebar & Concrete	9	13-Nov-14 A	100%		22-Nov-14 A								
SB3D0120	B3 (B3d) - Marine Pile (	Cap M1 - Dewater precast shell / Remove Lifting Fram	ne 2	24-Nov-14 A	100%	0	26-Nov-14 A								
SB3D0130	B3 (B3d) - Marine Pile (	Cap M1 - Pile cut down	8	27-Nov-14 A	100%	0	12-Dec-14 A								
SB3D0140	B3 (B3d) - Marine Pile (	Cap M1 - Rebar fixing, inst.inserts etc	12	15-Dec-14 A	91.67%	1	22-Dec-14	23-Oct-14	23-Oct-14	-51	0	_	<b>=</b>		
SB3D0150	B3 (B3d) - Marine Pile (	Cap M1 - Concreting	1	23-Dec-14	0%	1	23-Dec-14	24-Oct-14	24-Oct-14	-51	0		ı		1
SB3D0160	B3 (B3d) - Marine Pile (	Cap M1 - Curing incl. CJ Preparation	6	24-Dec-14	0%	6	02-Jan-15	25-Oct-14	31-Oct-14	-51	0				
Pier Works				, 						'					
SB3D0170	B3 (B3d) - Type 4B Pier	r Temp. Support Platform	6	24-Dec-14	0%	6	02-Jan-15	25-Oct-14	31-Oct-14	-51	0				1
SB3D0172	B3 (B3d) - Type 4B Pier	r Scaffolding (1st Lift)	4	03-Jan-15	0%	4	07-Jan-15	01-Nov-14	05-Nov-14	-51	0				
SB3D0180	B3 (B3d) - Type 4B Pier	r Rebarwork (1st Lift)	4	08-Jan-15	0%	4	12-Jan-15	06-Nov-14	10-Nov-14	-51	0				
		r Formwork & Prep for Concreting (1st Lift)	4	13-Jan-15	0%	4	16-Jan-15	11-Nov-14	14-Nov-14	-51	0				
	B3 (B3d) - Type 4B Pier		1	17-Jan-15	0%	1			15-Nov-14	-51	0				
	. , ,	r Curing & Striking of Forms incl. CJ prep (1st Lift)	2	19-Jan-15		2		17-Nov-14	18-Nov-14	-51	0		· ,		
	B3 (B3d) - Type 4B Pier		4	21-Jan-15		4		19-Nov-14	22-Nov-14	-51	0		_	<b>'</b>	1
	` ' <del>'</del> '	•	·												i 1 1
	B3 (B3d) - Type 4B Pier		5	26-Jan-15	***	5		24-Nov-14	28-Nov-14	-51	0			<u>i</u>	
	` , ,	r Head Formwork & Prep for Concreting	/	31-Jan-15	0%		07-Feb-15		06-Dec-14	-51	0				
	B3 (B3d) - Type 4B Pier		1	09-Feb-15	0%		09-Feb-15		08-Dec-14	-51	0			' <u> </u>	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	r Head Curing/Striking of Forms/Remove Scaffolding	6	10-Feb-15	0%	6	16-Feb-15	09-Dec-14	15-Dec-14	-51	0				1
Pier Head Se	<u>,                                    </u>													1	
	<u> </u>	egment - Temporary Platform	6	17-Feb-15	0%	6	26-Feb-15	16-Dec-14	22-Dec-14	-51	0	<u> </u>			
	B3 (B3d) - Pier Head S	<u> </u>	2	27-Feb-15	0%		28-Feb-15		24-Dec-14	-51	0				
SB3D0374	B3 (B3d) - Pier Head S	egment Diaphragm - Rebar	12	02-Mar-15	0%	12	14-Mar-15	27-Dec-14	12-Jan-15	-50	0				
SB3D0376	B3 (B3d) - Pier Head S	egment Diaphragm - Formwork & Prep for Concreting	9 8	16-Mar-15	0%	8	24-Mar-15	13-Jan-15	21-Jan-15	-50	0				T .
Pier B4 (B3c)															
Pile Cap Wo	rks														
SB3C0160	B4 (B3c) - Marine Pile (	Cap M1 - Curing incl. CJ Preparation	6	20-Nov-14 A	100%	0	26-Nov-14 A							i	
Pier Works			<u>'</u>	<u>,                                      </u>						'	,				
SB3C0170	B4 (B3c) - Type 4B Pier	Temp. Support Platform	6	24-Nov-14 A	100%	0	01-Dec-14 A								
	B4 (B3c) - Type 4B Pier		4	01-Dec-14 A	100%	0	01-Dec-14 A					j .			
	B4 (B3c) - Type 4B Pier		4	01-Dec-14 A			04-Dec-14 A					_			
	` ' '	Formwork & Prep for Concreting (1st Lift)	4	03-Dec-14 A			05-Dec-14 A								
	B4 (B3c) - Type 4B Pier		1	06-Dec-14 A			06-Dec-14 A								
		Curing & Striking of Forms incl. CJ prep (1st Lift)	2	07-Dec-14 A			19-Dec-14 A								
	B4 (B3c) - Type 4B Pier			22-Dec-14 A	0%		27-Dec-14 A		22-Nov-14	-28	0				
		<u> </u>	- 4												
SB3C0310	B4 (B3c) - Type 4B Pier		5	29-Dec-14	0%	5	03-Jan-15	∠4-INOV-14	28-Nov-14	-28	0	<u> </u>			i
Actual Work		Project ID: J3518DWPrD1-M19		Chek Lap Kok I					Date	Revi	sion	Checked Appro	DWG. No.	.:	
Planned Bar		Layout: J3518-DWP-3MRP Submission - M19 Filter: TASK filters: 3-Month Lookahead, No CO	3-Month Roll	-			_	es)	21-Sep-14 21-Oct-14						
Critical Bar  Milestone		Milestones, no Level of Effort, No Level of	(	Progress as	of 21-Dec	ડ-14)	)		21-Oct-14 21-Nov-14	-	D	В	— J3518/	GCL/PGM/3N	/IRP-M19
<b>▼</b>		Effort.									<del>-  </del>	_			
		I I							21-Dec-14			l			

ty ID	Activity Name		Orig. Durn		Duration % Re			art	Late Finish	Total Float	Free Float	2014		2015	
				Start	Complete Du	urn. Early F	nish					December           24         01         08         15	22 29 05 12 19	February 26 02 09 16	23 02 09
SB3C0320	B4 (B3c) - Type 4B Pier	· Head Formwork & Prep for Concreting	7	05-Jan-15	0%	7 12-Jai	-15 29-Nov	/-14 06	06-Dec-14	-28	0				
SB3C0330	B4 (B3c) - Type 4B Pier	Head Concreting	1	13-Jan-15	0%	1 13-Jai	-15 08-Dec	>14 08	08-Dec-14	-28	0	1	ı		! ! !
		Head Curing/Striking of Forms/Remove Scaffolding	6	14-Jan-15	0%		-15 09-Dec		15-Dec-14	-28	0				1 1 1
Pier Head Se															1
	<u>,                                    </u>	egment - Temporary Platform	6	21-Jan-15	0%	6 27-Jai	-15 16-Dec	-14 23	23-Dec-14	-27	0			_	
	B4 (B3c) - Pier Head So	· · ·	2	28-Jan-15		2 29-Jai			27-Dec-14	-27	0		·····		
	` ′	egment Diaphragm - Rebar	12	30-Jan-15		2 12-Fe			12-Jan-15	-27	0				
		egment Diaphragm - Formwork & Prep for Concretin		13-Feb-15	0% 8				21-Jan-15	-27	0				_
	1		-												
		egment Diaphragm - Concreting	2	26-Feb-15	0% 2		o-15 22-Jan		23-Jan-15	-27	0				<u> </u>
		egment Diaphragm - Curing & Striking of Forms	6	28-Feb-15	0%	06-Ma	-15 24-Jar	-15 30	30-Jan-15	-27	0				
Pier B5 (B3b)															1
Pile Cap Wo															1 1 1
SB3B0140	B5 (B3b) - Marine Pile (	Cap M1 - Rebar fixing, inst.inserts etc	12	17-Nov-14 A	100%										1
SB3B0150	B5 (B3b) - Marine Pile (	Cap M1 - Concreting	1	27-Nov-14 A	100%	0 27-Nov	-14 A					L			
SB3B0160	B5 (B3b) - Marine Pile (	Cap M1 - Curing incl. CJ Preparation	6	28-Nov-14 A	100%	05-Dec	-14 A								
Pier Works															
SB3B0170	B5 (B3b) - Type 4B Pier	r Temp. Support Platform	7	08-Dec-14 A	100%	0 13-Dec	-14 A								! ! !
SB3B0172	B5 (B3b) - Type 4B Pier	r Scaffolding (1st Lift)	4	15-Dec-14 A	100%	0 17-Dec	-14 A					■			
SB3B0180	B5 (B3b) - Type 4B Pier	r Rebarwork (1st Lift)	4	18-Dec-14 A	0%	4 27-De	:-14 06-Nov	/-14 10	0-Nov-14	-39	0	📥	_		: !
SB3B0190	B5 (B3b) - Type 4B Pier	Formwork & Prep for Concreting (1st Lift)	4	29-Dec-14	0%	4 02-Jai	-15 11-Nov	·-14 14	4-Nov-14	-39	0		<b>—</b>		
SB3B0200	B5 (B3b) - Type 4B Pier	r Concreting (1st Lift)	1	03-Jan-15	0%	1 03-Jai	-15 15-Nov	/-14 15	5-Nov-14	-39	0		······		
SB3B0202	B5 (B3b) - Type 4B Pier	r Curing & Striking of Forms incl. CJ prep (1st Lift)	2	05-Jan-15	0% 2	2 06-Jai	-15 17-Nov	/-14 18	8-Nov-14	-39	0				
	B5 (B3b) - Type 4B Pier		4	07-Jan-15	0%	4 10-Jai			22-Nov-14	-39	0		_		
	B5 (B3b) - Type 4B Pier		5	12-Jan-15	0%		-15 24-Nov		28-Nov-14	-39	0				
		r Head Formwork & Prep for Concreting	7	17-Jan-15	0%				08-Dec-14	-38	0			1	
	B5 (B3b) - Type 4B Pier	· · · · · · · · · · · · · · · · · · ·	1	26-Jan-15	0%	1 26-Jai			09-Dec-14	-38	0			' 	
	` ' '	<u> </u>	1											<b>'</b>	
		r Head Curing/Striking of Forms/Remove Scaffolding	6	27-Jan-15	0%	6 02-Fe	o-15 10-Dec	<i>-</i> 14 10	16-Dec-14	-38	0				
Pier Head Se	_														
		egment - Temporary Platform	6	03-Feb-15			-15 17-Dec		23-Dec-14	-38	0			_	
	B5 (B3b) - Pier Head S		2	10-Feb-15	0% 2		-15 24-Dec		27-Dec-14	-38	0				
	` ′	egment Diaphragm - Rebar	12	12-Feb-15	0% 1	2 28-Fe	-15 29-Dec	>-14 1:	12-Jan-15	-38	0				
SB3B0376	B5 (B3b) - Pier Head S	egment Diaphragm - Formwork & Prep for Concreting	ng 8	02-Mar-15	0%	8 10-Ma	-15 13-Jan	-15 2	21-Jan-15	-38	0				
SB3B0378	B5 (B3b) - Pier Head S	egment Diaphragm - Concreting	2	11-Mar-15	0% 2	2 12-Ma	<sup>-</sup> -15 22-Jan	-15 2	23-Jan-15	-38	0				
SB3B0380	B5 (B3b) - Pier Head S	egment Diaphragm - Curing & Striking of Forms	6	13-Mar-15	0%	6 19-Ma	<sup>-</sup> -15 24-Jan	-15 30	30-Jan-15	-38	0	1			_
Pier B6 (B3a)															
Pile Cap Wo	rks														
SB3A0130	B6 (B3a) - Marine Pile (	Cap M2 - Rebar fixing, inst.inserts etc	12	19-Nov-14 A	100%	0 01-Dec	-14 A								
SB3A0140	B6 (B3a) - Marine Pile (	Cap M2 - Concreting	1	04-Dec-14 A	100%	0 04-Dec	-14 A					1			
		Cap M2 - Curing incl. CJ preparation	6	05-Dec-14 A	100%	0 12-Dec	-14 A								
Pier Works															1
	B6 (B3a) - Type 4B-M.I	Pier Temp. Support Platform	6	12-Dec-14 A	100%	0 17-Dec	-14 A								
	B6 (B3a) - Type 4B-MJ		4	18-Dec-14 A	0%		:-14 14-Nov	/-14 18	8-Nov-14	-32	47		_		
	B6 (B3a) - Type 4B-MJ		1	26-Feb-15	0%		-15 19-Nov		22-Nov-14	-79	1		_		<u> </u>
		Pier Formwork & Prep for Concreting (1st Lift)	4		0% 2		-15 19-Nov		28-Nov-14		0				<b>—</b>
	` , , , ,		4	04-Mar-15						-79					
	` , , ,		1	09-Mar-15	0%		-15 29-Nov		29-Nov-14	-79	0				<u>-</u>
		Pier Curing & Striking of Forms incl. CJ prep (1st Lift	t) 2	10-Mar-15	0% 2		-15 01-Dec		02-Dec-14	-79	0				
SB3A0210	B6 (B3a) - Type 4B-MJ	Pier Scaffolding (2nd Lift)	4	12-Mar-15	0%	4 16-Ma	-15 03-Dec	>14 06	06-Dec-14	-79	0			1	
Actual Work		Project ID: J3518DWPrD1-M19		Chek Lap Kok I					Date	Revis	sion (	Checked Approve	DWG. No.:		
Planned Bar		Layout: J3518-DWP-3MRP Submission - M19 Filter: TASK filters: 3-Month Lookahead, No CC	3-Month Roll	ing Program	nme (Page	14 of 36	Pages)		1-Sep-14						
Critical Bar		Milestones, no Level of Effort, No Level of	(	Progress as	of 21-Dec-	14)		—	1-Oct-14 1-Nov-14			DB	J3518/G	CL/PGM/3N	<b>Л</b> RР-М19
▲ Milostono		Effort.	,					21	1*1NOV*14		In In	עי			
♠ Milestone		Liloit.						121	1-Dec-14		I	1			

/ ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start		Rem. Act. Finish / FC Durn. Early Finish	Late Start	Late Finish	Total Float	Free Float	2014 December	January	2015 February March
			Start	Compicio	•							6 02 09 16 23 02 09
SB3A0220	B6 (B3a) - Type 4B-MJ Pier Rebarwork (2nd Lift)	4	17-Mar-15	0%	4 20-Mar-15	08-Dec-14	11-Dec-14	-79	0			
Bridge B2												
Pier B7 (B2f)												
Pile Cap Wor	rks											
SB2F0130	B7 (B2f) - Marine Pile Cap M1 - Pile cut down	6	01-Nov-14 A	100%	0 27-Nov-14 A	4						
SB2F0140	B7 (B2f) - Marine Pile Cap M1 - Rebar fixing, inst.inserts etc	10	01-Dec-14 A	100%	0 09-Dec-14 A	4						
SB2F0150	B7 (B2f) - Marine Pile Cap M1 - Concreting	1	10-Dec-14 A	100%	0 10-Dec-14 A	4				1		
SB2F0160	B7 (B2f) - Marine Pile Cap M1 - Curing incl. CJ Preparation	6	11-Dec-14 A	83.33%	1 22-Dec-14	25-Oct-14	25-Oct-14	-49	5			
Pier Works				<u> </u>	'		<u> </u>		J			!
SB2F0170	B7 (B2f) - Type 4B Pier Temp. Support Platform	6	22-Dec-14	0%	6 30-Dec-14	25-Oct-14	31-Oct-14	-49	0		<b>=</b>	
SB2F0172	B7 (B2f) - Type 4B Pier Scaffolding (1st Lift)	4	31-Dec-14	0%	4 05-Jan-15	01-Nov-14	05-Nov-14	-49	0		_	
SB2F0180	B7 (B2f) - Type 4B Pier Rebarwork (1st Lift)	4	06-Jan-15	0%	4 09-Jan-15	06-Nov-14	10-Nov-14	-49	0			
SB2F0190	B7 (B2f) - Type 4B Pier Formwork & Prep for Concreting (1st Lift)	4	10-Jan-15	0%	4 14-Jan-15	11-Nov-14	14-Nov-14	-49	0			
SB2F0200	B7 (B2f) - Type 4B Pier Concreting (1st Lift)	1	15-Jan-15	0%	1 15-Jan-15	15-Nov-14	15-Nov-14	-49	0		1	
	B7 (B2f) - Type 4B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	16-Jan-15	0%	2 17-Jan-15		18-Nov-14	-49	0		•	
	B7 (B2f) - Type 4B Pier Scaffolding (2nd Lift)	4	19-Jan-15	0%	4 22-Jan-15		22-Nov-14	-49	0	-	_	
	B7 (B2f) - Type 4B Pier Rebarwork (2nd Lift)	4	23-Jan-15	0%	4 27-Jan-15		27-Nov-14	-49	0	-		
	B7 (B2f) - Type 4B Pier Formwork & Prep for Concreting (2nd Lift)	4	28-Jan-15	0%	4 31-Jan-15		02-Dec-14	-49	0	-		_
	B7 (B2f) - Type 4B Pier Concreting (2nd Lift)	1	02-Feb-15	0%	1 02-Feb-15		03-Dec-14	-49	0			
	B7 (B2f) - Type 4B Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	03-Feb-15	0%		04-Dec-14	05-Dec-14	-49	0			
		2				04-Dec-14	10-Dec-14	-49	0	-		
	B7 (B2f) - Type 4B Pier Head Scaffolding	4	05-Feb-15	0%					_			
	B7 (B2f) - Type 4B Pier Head Rebarwork	5	10-Feb-15	0%	5 14-Feb-15		16-Dec-14	-49	0			
	B7 (B2f) - Type 4B Pier Head Formwork & Prep for Concreting	/	16-Feb-15	0%	7 26-Feb-15		24-Dec-14	-49	0			
	B7 (B2f) - Type 4B Pier Head Concreting	1	27-Feb-15	0%		27-Dec-14	27-Dec-14	-49	0			
	B7 (B2f) - Type 4B Pier Head Curing/Striking of Forms/Remove Scaffolding	6	28-Feb-15	0%	6 06-Mar-15	29-Dec-14	05-Jan-15	-49	0			
Pier Head Se	egments											
SB2F0370	B7 (B2f) - Pier Head Segment - Temporary Platform	6	07-Mar-15	0%	6 13-Mar-15	06-Jan-15	12-Jan-15	-49	0			
SB2F0372	B7 (B2f) - Pier Head Segment Lift & Fix (1 seg)	2	14-Mar-15	0%	2 16-Mar-15	13-Jan-15	14-Jan-15	-49	0			
SB2F0374	B7 (B2f) - Pier Head Segment Diaphragm - Rebar	12	17-Mar-15	0%	12 30-Mar-15	15-Jan-15	28-Jan-15	-49	0			
Pier B8 (B2e)												
Pile Cap Wor	rks											
SB2E0092	B8 (B2e) - Pile Breakdown to cut-off etc.	4	20-Nov-14 A	100%	0 03-Dec-14 A	4						
SB2E0110	B8 (B2e) - Pile cap Formwork	3	22-Nov-14 A	100%	0 25-Nov-14 A	4						
SB2E0120	B8 (B2e) - Pile cap Rebarwork	4	05-Dec-14 A	100%	0 11-Dec-14 A	4						
SB2E0122	B8 (B2e) - Pile cap Kicker Formwork	2	22-Dec-14	0%	2 23-Dec-14	28-Aug-18	29-Aug-18	976	976			
SB2E0130	B8 (B2e) - Pile cap Concreting	1	12-Dec-14 A	100%	0 12-Dec-14 A	4				1		
SB2E0140	B8 (B2e) - Pile cap Curing & Striking of Forms incl. CJ prep	6	13-Dec-14 A	0%	6 30-Dec-14	29-Dec-14	05-Jan-15	4	53			
Pier Works									l.			
SB2E0150	B8 (B2e) - Type 5B Pier Scaffolding (1st Lift)	4	16-Dec-14 A	100%	0 20-Dec-14 A	A						
	B8 (B2e) - Type 5B Pier Rebarwork (1st Lift)	4	22-Dec-14	0%		21-Nov-14	25-Nov-14	-26	0			
	B8 (B2e) - Type 5B Pier Formwork & Prep for Concreting (1st Lift)	4	29-Dec-14	0%		26-Nov-14	01-Dec-14	-25	0		<u></u>	
	B8 (B2e) - Type 5B Pier Concreting (1st Lift)	1	03-Jan-15	0%		02-Dec-14	02-Dec-14	-25	0	-	$\top_{\mathbf{i}}$	
	B8 (B2e) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	05-Jan-15	0%		03-Dec-14	04-Dec-14	-25	0	-		
	B8 (B2e) - Type 5B Pier Scaffolding (2nd Lift)	4	07-Jan-15	0%		05-Dec-14	09-Dec-14	-25	0			
	B8 (B2e) - Type 5B Pier Rebarwork (2nd Lift)	4	12-Jan-15	0%	4 15-Jan-15		13-Dec-14	-25	0	-		
	B8 (B2e) - Type 5B Pier Reparwork (2nd Lift) B8 (B2e) - Type 5B Pier Formwork & Prep for Concreting (2nd Lift)	4	12-Jan-15 16-Jan-15		4 15-Jan-15 4 20-Jan-15		18-Dec-14			-		
		4		0%		15-Dec-14 19-Dec-14		-25	0	-		
SB2E0220		1	21-Jan-15	0%			19-Dec-14	-25			<u> </u>	
Actual Work	Project ID: J3518DWPrD1-M19 Layout: J3518-DWP-3MRP Submission - M19		-		ern Connection		Date	Revis	sion	Checked Approved	_DWG. No.:	
	Filter: TASK filters: 3-Month Lookahead, No CO	3-Month Rollin	_			ges)	21-Sep-14 21-Oct-14				-	
Planned Bar Critical Bar		(P	rogress as	of 21-Dec	·-1 <i>4</i> \			+	<del></del>	55	¬ J3518/GC <sup>1</sup>	L/PGM/3MRP-M19
Planned Bar Critical Bar  Milestone	Milestones, no Level of Effort, No Level of	γ.	logicos as	0. L. Doo	, 17)		21-Nov-14		ID	OB		
Critical Bar	Milestones, no Level of Effort, No Level of Effort.	(.	rogress as	0. 2. 500	, 17)		21-Nov-14 21-Dec-14			)B	_	

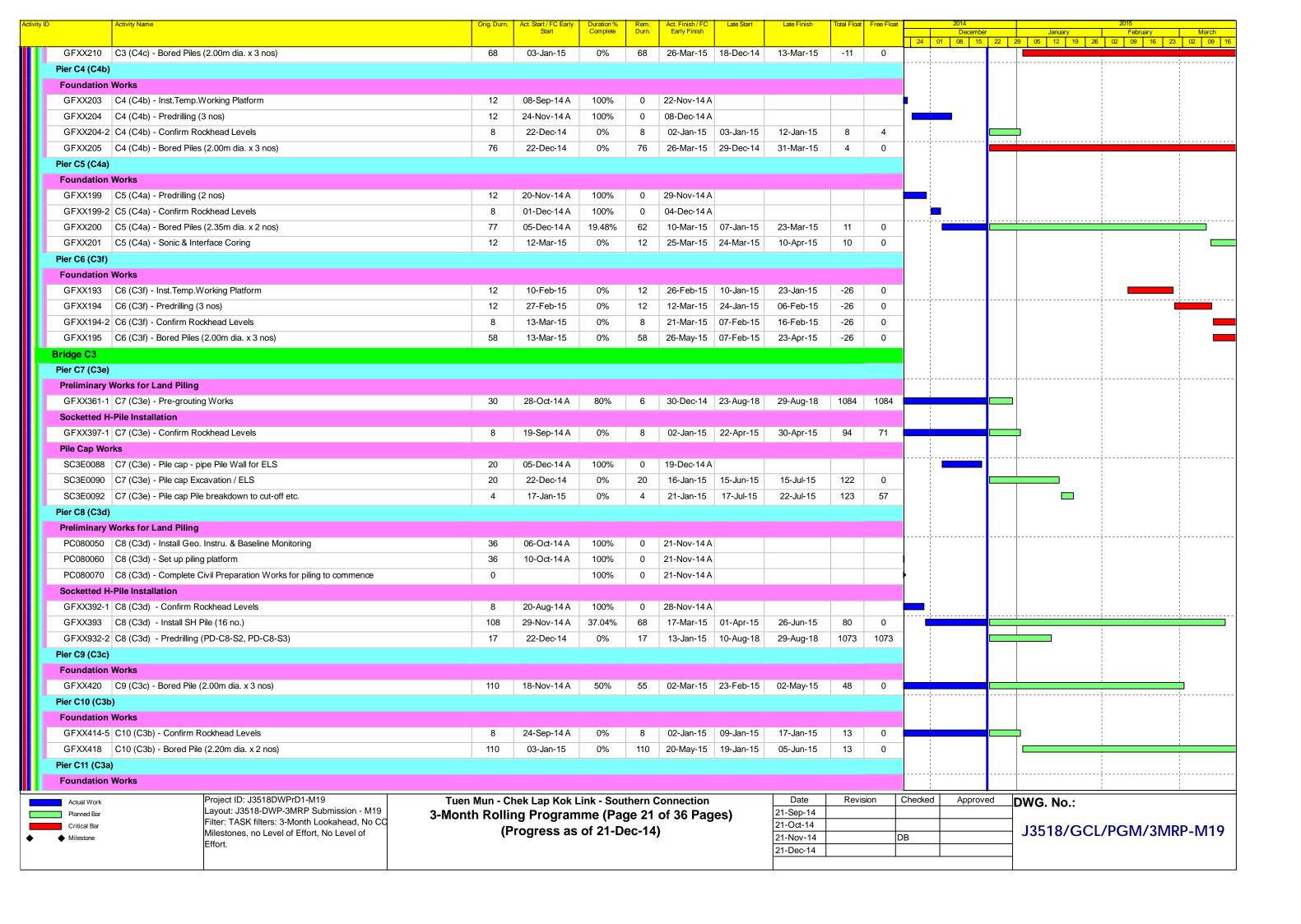
D	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float		2014 Decembe	or	2015 January February March
			S.C.I.Y	Сотприско	2 0.11.11						24			29 05 12 19 26 02 09 16 23 02 09
SB2E0222	B8 (B2e) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	22-Jan-15	0%	2	23-Jan-15		22-Dec-14	-25	0				
SB2E0230	B8 (B2e) - Type 5B Pier Head Scaffolding	4	24-Jan-15	0%	4	28-Jan-15	23-Dec-14	29-Dec-14	-25	0				_
SB2E0240	B8 (B2e) - Type 5B Pier Head Rebarwork	4	29-Jan-15	0%	4	02-Feb-15	30-Dec-14	03-Jan-15	-25	0				-
SB2E0250	B8 (B2e) - Type 5B Pier Head Formwork & Prep for Concreting	4	03-Feb-15	0%	4	06-Feb-15	05-Jan-15	08-Jan-15	-25	0				-
SB2E0260	B8 (B2e) - Type 5B Pier Head Concreting	1	07-Feb-15	0%	1	07-Feb-15	09-Jan-15	09-Jan-15	-25	0				1
SB2E0270	B8 (B2e) - Type 5B Pier Head Curing & Striking of Forms & Remove Scaffolding	6	09-Feb-15	0%	6	14-Feb-15	10-Jan-15	16-Jan-15	-25	0				
SB2E0280	B8 (B2e) - Type 5B Pier Backfilling Works	4	12-Feb-15	0%	4	16-Feb-15	14-Jan-15	17-Jan-15	-25	0				_
Pier Head Se	egments													
SB2E0370	B8 (B2e) - Pier Head Segment - Temporary Platform	6	17-Feb-15	0%	6	26-Feb-15	19-Jan-15	24-Jan-15	-25	0				
SB2E0372	B8 (B2e) - Pier Head Segment Lift & Fix (1 seg)	2	27-Feb-15	0%	2	28-Feb-15	26-Jan-15	27-Jan-15	-25	0				
SB2E0374	B8 (B2e) - Pier Head Segment Diaphragm - Rebar	12	02-Mar-15	0%	12	14-Mar-15	28-Jan-15	10-Feb-15	-25	0				
SB2E0376	B8 (B2e) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting	8	16-Mar-15	0%	8	24-Mar-15	11-Feb-15	23-Feb-15	-25	0			-	
Pier B9 (B2d)														
Pile Cap Wo	orks													
SB2D0110	B9 (B2d) - Pile cap Formwork	3	06-Dec-14 A	100%	0	09-Dec-14 A								
SB2D0120	B9 (B2d) - Pile cap Rebarwork	4	10-Dec-14 A	100%	0	18-Dec-14 A								
	B9 (B2d) - Pile cap Kicker Formwork	2	22-Dec-14	0%	2		28-Aug-18	29-Aug-18	976	976	<del> </del>		-	<del></del>
	B9 (B2d) - Pile cap Concreting	1	19-Dec-14 A	100%	0	19-Dec-14 A	-	<u> </u>				ı		
	B9 (B2d) - Pile cap Curing & Striking of Forms incl. CJ prep	6	20-Dec-14 A	0%	6		02-Dec-14	08-Dec-14	-17	0		-		
Pier Works	7, 7, 11, 3, 11, 3, 11, 11, 11, 11, 11, 11,													
	B9 (B2d) - Type 5B Pier Scaffolding (1st Lift)	4	31-Dec-14	0%	4	05-Jan-15	09-Dec-14	13-Dec-14	-16	0				
	B9 (B2d) - Type 5B Pier Rebarwork (1st Lift)	4	06-Jan-15	0%	4		15-Dec-14	18-Dec-14	-16	0				
	B9 (B2d) - Type 5B Pier Formwork & Prep for Concreting (1st Lift)	4	10-Jan-15	0%	4	14-Jan-15	19-Dec-14	23-Dec-14	-16	0				
	B9 (B2d) - Type 5B Pier Concreting (1st Lift)	1	15-Jan-15	0%	1	15-Jan-15	24-Dec-14	24-Dec-14	-16	0				
	B9 (B2d) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	16-Jan-15	0%	2	17-Jan-15		29-Dec-14	-16	0				<u> </u>
	B9 (B2d) - Type 5B Pier Scaffolding (2nd Lift)	1	19-Jan-15	0%	1	22-Jan-15	30-Dec-14	03-Jan-15	-16	0				
		4		0%	4	27-Jan-15		08-Jan-15	-16	0			-	
	B9 (B2d) - Type 5B Pier Rebarwork (2nd Lift) B9 (B2d) - Type 5B Pier Formwork & Prep for Concreting (2nd Lift)	4	23-Jan-15		4	31-Jan-15	09-Jan-15			0				
		4	28-Jan-15	0%	4			13-Jan-15	-16	-				
	B9 (B2d) - Type 5B Pier Concreting (2nd Lift)	1	02-Feb-15	0%	1		14-Jan-15	14-Jan-15	-16	0				<b>'_</b>
SB2D0222	1 ( 1, 7, 1, 1 )	2	03-Feb-15	0%	2		15-Jan-15	17-Jan-15	-15	0				• <u> </u>
	, , ,,	4	05-Feb-15	0%	4		19-Jan-15	22-Jan-15	-15	0			-	
	B9 (B2d) - Type 5B Pier Head Rebarwork	4	10-Feb-15	0%	4		23-Jan-15	27-Jan-15	-15	0				<u> </u>
	B9 (B2d) - Type 5B Pier Head Formwork & Prep for Concreting	4	14-Feb-15	0%	4		28-Jan-15	31-Jan-15	-15	0				
	B9 (B2d) - Type 5B Pier Head Concreting	1	23-Feb-15	0%	1		02-Feb-15	02-Feb-15	-15	0				1
	B9 (B2d) - Type 5B Pier Head Curing & Striking of Forms & Remove Scaffolding	6	24-Feb-15	0%	6		03-Feb-15	09-Feb-15	-15	0				
	B9 (B2d) - Type 5B Pier Backfilling Works	4	27-Feb-15	0%	4	03-Mar-15	06-Feb-15	10-Feb-15	-15	0	; 			
Pier Head Se														
	B9 (B2d) - Pier Head Segment - Temporary Platform	6	04-Mar-15	0%	6		11-Feb-15	17-Feb-15	-15	0				_
	B9 (B2d) - Pier Head Segment Lift & Fix (1 seg)	2	11-Mar-15	0%	2		18-Feb-15	23-Feb-15	-15	0				
SB2D0374	B9 (B2d) - Pier Head Segment Diaphragm - Rebar	12	13-Mar-15	0%	12	26-Mar-15	24-Feb-15	09-Mar-15	-15	0				
Pier B10 (B2d	c)													
Socketted H	I-Pile Installation													
GFXX341	B10 (B2c) - Install SH Pile (14 nr)	36	20-Oct-14 A	100%	0	08-Dec-14 A								
Pile Cap Wo	orks													
SB2C0090	B10 (B2c) - Pile cap Excavation / ELS	24	27-Nov-14 A	100%	0	05-Dec-14 A								
SB2C0092	B10 (B2c) - Pile Breakdown to cut-off etc.	4	22-Dec-14	0%	4	27-Dec-14	04-Dec-14	08-Dec-14	-15	0				
SB2C0100	B10 (B2c) - Pile cap Blinding	1	29-Dec-14	0%	1	29-Dec-14	09-Dec-14	09-Dec-14	-15	0			-   	
Actual Work	Project ID: J3518DWPrD1-M19	Tuen Mun - Cl	nek Lan Kok I	ink - Sou	thern (	Connection	1	Date	Revis	ion (	Checked	Approv	/ed	DWG. No.:
Planned Bar	Layout: J3518-DWP-3MRP Submission - M19	3-Month Rollin	-				ies)	21-Sep-14						DVVG. NO
Critical Bar	Filter: TASK filters: 3-Month Lookanead, No CQ		rogress as		_	_	, ,	21-Oct-14						J3518/GCL/PGM/3MRP-M1
♠ Milestone	Milestones, no Level of Effort, No Level of Effort.	(1	. ogi coo do	J. 21-D		7		21-Nov-14		D	В			333 TO/ GOL/T GIVI/ SIVING TIVIT
	I <del>=</del>							21-Dec-14				i		

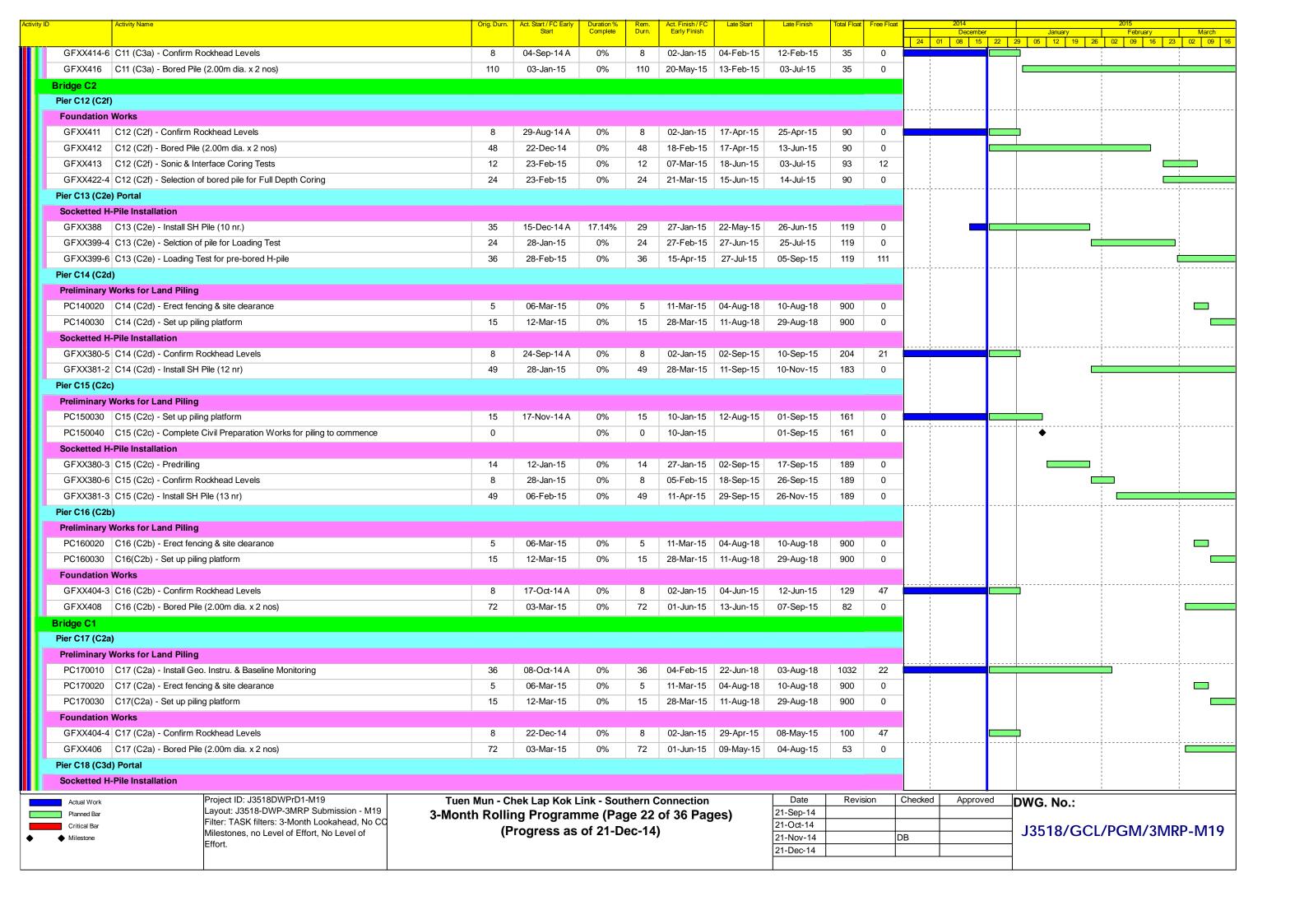
Activity I	ID	Activity Name	Orig. Durn.	Act. Start / FC Early	Duration %	Rem.	Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float		2014			2015 March
				Start	Complete	Durn.	Early Finish					24	December           01         08         15		29 05 12 19 26 02	February         March           09         16         23         02         09         16
	SB2C0110	B10 (B2c) - Pile cap Formwork	3	30-Dec-14	0%	3	02-Jan-15	10-Dec-14	12-Dec-14	-15	0			Ī	+	
Ш	SB2C0120	B10 (B2c) - Pile cap Rebarwork	4	03-Jan-15	0%	4	07-Jan-15	13-Dec-14	17-Dec-14	-15	0					
Ш	SB2C0122	B10 (B2c) - Pile cap Kicker Formwork	2	08-Jan-15	0%	2	09-Jan-15	18-Dec-14	20-Dec-14	-14	0					
ш	SB2C0130	B10 (B2c) - Pile cap Concreting	1	10-Jan-15	0%	1	10-Jan-15	22-Dec-14	22-Dec-14	-14	0				1	
ш	SB2C0140	B10 (B2c) - Pile cap Curing & Striking of Forms incl. CJ prep	6	12-Jan-15	0%	6	17-Jan-15	23-Dec-14	02-Jan-15	-13	0					
	Pier Works				"		1									
Ш	SB2C0150	B10 (B2c) - Type 5B Pier Scaffolding (1st Lift)	4	19-Jan-15	0%	4	22-Jan-15	03-Jan-15	07-Jan-15	-13	0				_	
Ш	SB2C0160	B10 (B2c) - Type 5B Pier Rebarwork (1st Lift)	4	23-Jan-15	0%	4	27-Jan-15	08-Jan-15	12-Jan-15	-13	0					
Ш	SB2C0170	B10 (B2c) - Type 5B Pier Formwork & Prep for Concreting (1st Lift)	4	28-Jan-15	0%	4	31-Jan-15	13-Jan-15	16-Jan-15	-13	0					
Ш	SB2C0180	B10 (B2c) - Type 5B Pier Concreting (1st Lift)	1	02-Feb-15	0%	1	02-Feb-15	17-Jan-15	17-Jan-15	-13	0	·			1	
Ш	SB2C0182	B10 (B2c) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	03-Feb-15	0%	2	04-Feb-15	19-Jan-15	20-Jan-15	-13	0					
Ш	SB2C0190	B10 (B2c) - Type 5B Pier Scaffolding (2nd Lift)	4	05-Feb-15	0%	4	09-Feb-15	21-Jan-15	24-Jan-15	-13	0					_
Ш	SB2C0200	B10 (B2c) - Type 5B Pier Rebarwork (2nd Lift)	4	10-Feb-15	0%	4	13-Feb-15	26-Jan-15	29-Jan-15	-13	0					
Ш	SB2C0210	B10 (B2c) - Type 5B Pier Formwork & Prep for Concreting (2nd Lift)	4	14-Feb-15	0%	4	18-Feb-15	30-Jan-15	03-Feb-15	-13	0					
Ш		B10 (B2c) - Type 5B Pier Concreting (2nd Lift)	1	23-Feb-15	0%	1	23-Feb-15	04-Feb-15	04-Feb-15	-13	0					1
		B10 (B2c) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	24-Feb-15	0%	2			06-Feb-15	-13	0					
	SB2C0230	B10 (B2c) - Type 5B Pier Head Scaffolding	4	26-Feb-15	0%	4			11-Feb-15	-13	0					
		B10 (B2c) - Type 5B Pier Head Scandding	<u>т</u>	03-Mar-15	0%	4		12-Feb-15	16-Feb-15	-13	0					
		B10 (B2c) - Type 5B Pier Head Rebarwork & Prep for Concreting	1	03-Mar-15	0%	1	11-Mar-15		24-Feb-15	-13	0					
Ш		B10 (B2c) - Type 5B Pier Head Concreting	1	12-Mar-15	0%	1	12-Mar-15		25-Feb-15	-13	0					
Ш			, ,					26-Feb-15	04-Mar-15	-13	0					<u> </u>
Ш		B10 (B2c) - Type 5B Pier Head Curing & Striking of Forms & Remove Scaffolding	4	13-Mar-15	0%	0										
III L		B10 (B2c) - Type 5B Pier Backfilling Works	4	17-Mar-15	0%	4	20-IVIAI - 15	02-Mar-15	05-Mar-15	-13	0					•
Ш	Pier B11 (B2b	•														
Ш	Pile Cap Wo			00 D 11	00/		00 D 44	00.4.40	00.4.40	070	070					
Ш		B11 (B2b) - Pile cap Kicker Formwork	2	22-Dec-14	0%	2		28-Aug-18	29-Aug-18	976	976			ľ		
Ш		B11 (B2b) - Pile cap Concreting	1	21-Nov-14 A	100%	0	21-Nov-14 A									
Ш		B11 (B2b) - Pile cap Curing & Striking of Forms incl. CJ prep	6	22-Nov-14 A	100%	0	29-Nov-14 A									
Ш	Pier Works			,												
Ш		B11 (B2b) - Type 5B-B Pier Scaffolding (1st Lift)	4	28-Nov-14 A	100%	0	01-Dec-14 A									
Ш		B11 (B2b) - Type 5B-B Pier Rebarwork (1st Lift)	4	01-Dec-14 A	100%	0	04-Dec-14 A									
Ш		B11 (B2b) - Type 5B-B Pier Formwork & Prep for Concreting (1st Lift)	4	03-Dec-14 A	100%	0	05-Dec-14 A									
Ш		B11 (B2b) - Type 5B-B Pier Concreting (1st Lift)	1	06-Dec-14 A	100%	0	06-Dec-14 A						I			
Ш	SB2B0182	B11 (B2b) - Type 5B-B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	08-Dec-14 A	0%	2	23-Dec-14	28-Feb-15	02-Mar-15	53	0			0		
Ш	SB2B0190	B11 (B2b) - Type 5B-B Pier Scaffolding (2nd Lift)	4	24-Dec-14	0%	4	30-Dec-14	03-Mar-15	07-Mar-15	54	0					
	SB2B0200	B11 (B2b) - Type 5B-B Pier Rebarwork (2nd Lift)	4	31-Dec-14	0%	4	05-Jan-15	09-Mar-15	12-Mar-15	54	0					
	SB2B0210	B11 (B2b) - Type 5B-B Pier Formwork & Prep for Concreting (2nd Lift)	4	06-Jan-15	0%	4	09-Jan-15	13-Mar-15	17-Mar-15	54	0					 
	SB2B0220	B11 (B2b) - Type 5B-B Pier Concreting (2nd Lift)	1	10-Jan-15	0%	1	10-Jan-15	18-Mar-15	18-Mar-15	54	0				1	
	SB2B0222	B11 (B2b) - Type 5B-B Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	12-Jan-15	0%	2	13-Jan-15	19-Mar-15	20-Mar-15	54	0					 
	SB2B0230	B11 (B2b) - Type 5B-B Pier Head Scaffolding	4	14-Jan-15	0%	4	17-Jan-15	21-Mar-15	25-Mar-15	54	0					!
	SB2B0240	B11 (B2b) - Type 5B-B Pier Head Rebarwork	4	19-Jan-15	0%	4	22-Jan-15	26-Mar-15	30-Mar-15	54	0					
	SB2B0250	B11 (B2b) - Type 5B-B Pier Head Formwork & Prep for Concreting	4	23-Jan-15	0%	4	27-Jan-15	31-Mar-15	10-Apr-15	54	0					
	SB2B0260	B11 (B2b) - Type 5B-B Pier Head Concreting	1	28-Jan-15	0%	1	28-Jan-15	11-Apr-15	11-Apr-15	54	0				1	
	SB2B0270	B11 (B2b) - Type 5B-B Pier Head Curing & Striking of Forms & Remove Scaffold	ing 6	29-Jan-15	0%	6	04-Feb-15	13-Apr-15	21-Apr-15	55	0					
	SB2B0280	B11 (B2b) - Type 5B-B Pier Backfilling Works	4	02-Feb-15	0%	4	05-Feb-15	18-Apr-15	22-Apr-15	55	0					
	Pier Head Se	egments														
	SB2B0370	B11 (B2b) - Pier Head Segment - Temporary Platform	6	06-Feb-15	0%	6	12-Feb-15	24-Apr-15	02-May-15	55	0					
	SB2B0371	B11 (B2b) - Pier Head Segment Bearings	4	13-Feb-15	0%	4	17-Feb-15	04-May-15	09-May-15	55	0					
		Project ID: J3518DWPrD1-M19	Tuen Mun - C	hek I an Kok I	ink - Sou	thern (	Connection		Date	Revis	sion I a	Checked	Approve	ed I	DWG No.	I .
	Actual Work Planned Bar	Layout: J3518-DWP-3MRP Submission - M19	3-Month Rollin	-				es)	21-Sep-14	1.0010	,		, , , , , , , , , , ,		DWG. No.:	
	Critical Bar	Filter: TASK filters: 3-Month Lookahead, No CO		Progress as	-	_	_	,00,	21-Oct-14						   13519700170	GM/3MRP-M19
<b>♦</b>	♠ Milestone	Milestones, no Level of Effort, No Level of Effort.	(۲	iogicas ds	טו בויט	<del>C</del> C-14	,		21-Nov-14		D	В			J3510/GCL/P	GIVI/ SIVIKE -IVI 19
									21-Dec-14							

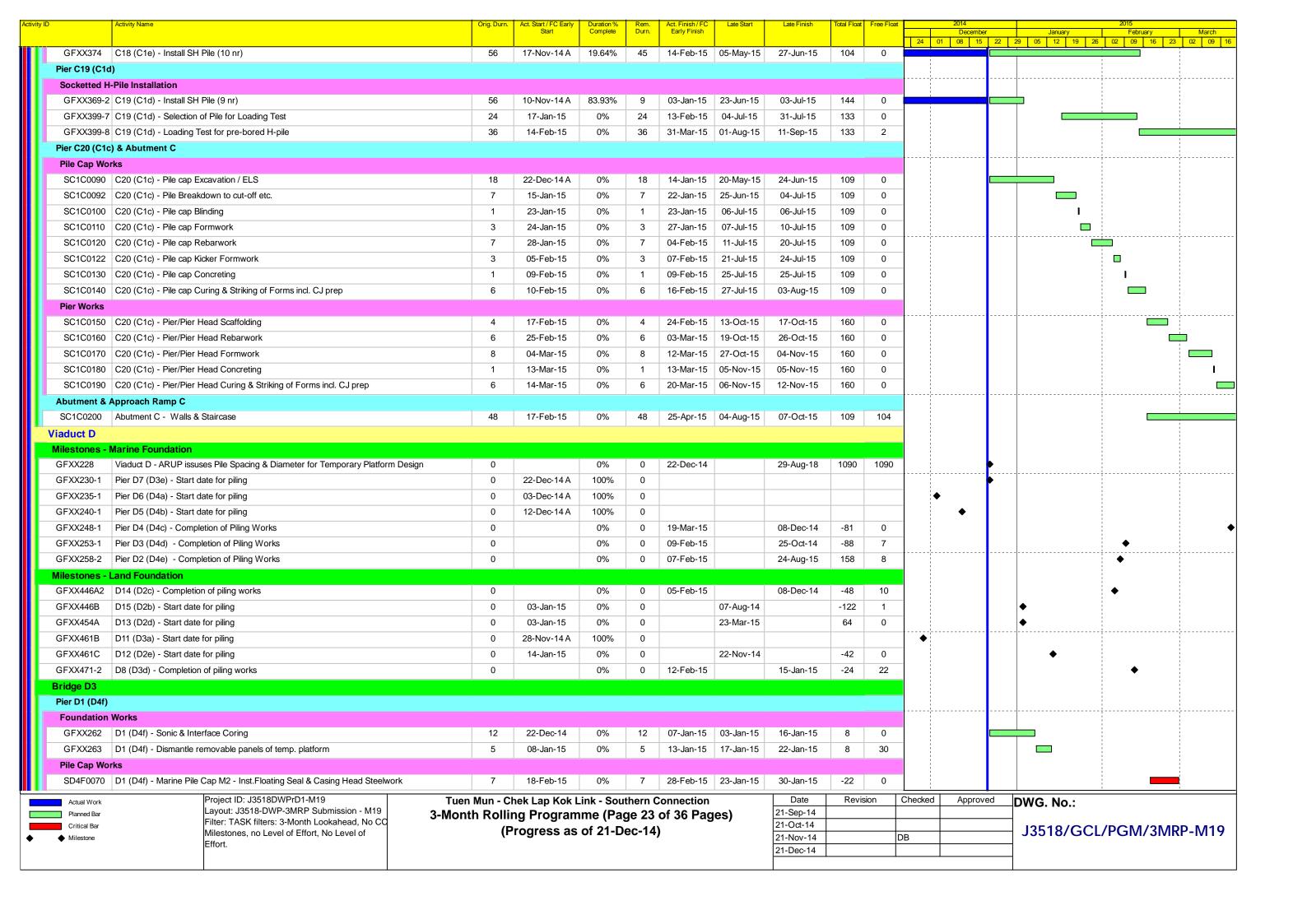


tivity ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float		2014 Decembe	ar .	January	2015 February March
			Start	Complete	Dun.	Larry 1 mion					24				02 09 16 23 02 09
SB1F0091	B14 (B1f) - Pile cap Excavation / ELS (incl. sheet piling)	24	02-Dec-14 A	58.33%	10	05-Jan-15	01-Dec-14	11-Dec-14	-18	0	1				
SB1F0092	B14 (B1f) - Pile Breakdown to cut-off etc.	4	06-Jan-15	0%	4	09-Jan-15	12-Dec-14	16-Dec-14	-18	0			l		
SB1F0100	B14 (B1f) - Pile cap Blinding	1	10-Jan-15	0%	1	10-Jan-15	17-Dec-14	17-Dec-14	-18	0			ı	1	
SB1F0110	B14 (B1f) - Pile cap Formwork	3	12-Jan-15	0%	3	14-Jan-15	18-Dec-14	20-Dec-14	-18	0			l		
SB1F0120	B14 (B1f) - Pile cap Rebarwork	4	15-Jan-15	0%	4	19-Jan-15	22-Dec-14	27-Dec-14	-18	0			ı		
SB1F0122	B14 (B1f) - Pile cap Kicker Formwork	2	20-Jan-15	0%	2	21-Jan-15	29-Dec-14	30-Dec-14	-18	0					
SB1F0130	B14 (B1f) - Pile cap Concreting	1	22-Jan-15	0%	1	22-Jan-15	31-Dec-14	31-Dec-14	-18	0			l	ı	
SB1F0140	B14 (B1f) - Pile cap Curing & Striking of Forms incl. CJ prep	6	23-Jan-15	0%	6	29-Jan-15	02-Jan-15	08-Jan-15	-18	0			l		
Pier Works		'			·	'							l		
SB1F0150	B14 (B1f) - Type 5B Pier Scaffolding (1st Lift)	4	30-Jan-15	0%	4	03-Feb-15	09-Jan-15	13-Jan-15	-18	0			l		
SB1F0160	B14 (B1f) - Type 5B Pier Rebarwork (1st Lift)	4	04-Feb-15	0%	4	07-Feb-15	14-Jan-15	17-Jan-15	-18	0	† <del>-</del>				
SB1F0170	B14 (B1f) - Type 5B Pier Formwork & Prep for Concreting (1st Lift)	4	09-Feb-15	0%	4	12-Feb-15	19-Jan-15	22-Jan-15	-18	0			l		
SB1F0180	B14 (B1f) - Type 5B Pier Concreting (1st Lift)	1	13-Feb-15	0%	1	13-Feb-15	23-Jan-15	23-Jan-15	-18	0			l		1
SB1F0182	B14 (B1f) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	14-Feb-15	0%	2	16-Feb-15	24-Jan-15	26-Jan-15	-18	0			l		
	B14 (B1f) - Type 5B Pier Scaffolding (2nd Lift)	4	17-Feb-15	0%	4	24-Feb-15	27-Jan-15	31-Jan-15	-17	0			l		
	B14 (B1f) - Type 5B Pier Rebarwork (2nd Lift)	4	25-Feb-15	0%	4			05-Feb-15	-17	0	<del> </del>		•		<del>-</del>
	B14 (B1f) - Type 5B Pier Formwork & Prep for Concreting (2nd Lift)	4	02-Mar-15	0%	4			10-Feb-15	-17	0					
	B14 (B1f) - Type 5B Pier Concreting (2nd Lift)	1	06-Mar-15	0%	1	06-Mar-15	11-Feb-15	11-Feb-15	-17	0			ı		_
<u> </u>	B14 (B1f) - Type 5B Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	07-Mar-15	0%	2		12-Feb-15	13-Feb-15	-17	0	-				_
	B14 (B1f) - Type 5B Pier Head Scaffolding	4	10-Mar-15	0%	4	13-Mar-15		18-Feb-15	-17	0	-		l		
	B14 (B1f) - Type 5B Pier Head Rebarwork	4	14-Mar-15	0%	1			26-Feb-15	-17	0					
	B14 (B1f) - Type 5B Pier Head Formwork & Prep for Concreting	4	19-Mar-15	0%	1		27-Feb-15	03-Mar-15	-17	0	-		ı		•
<u> </u>			19-Wai-13	0 78	7	25-iviai-15	27-1 eb-13	03-Iviai-13	-17	0			l		
Pier B15 (B1e	;)												ı		
Pier Works	D45 (D4a) Time 5D Dies Head Coeffelding	4	22 Dec 44	00/	1	27 Dec 14	12 Apr 15	17 Apr 15	0.4	0					
	B15 (B1e) - Type 5B Pier Head Scaffolding	4	22-Dec-14	0%	4	27-Dec-14	· ·	17-Apr-15	84	0	ļ				
	B15 (B1e) - Type 5B Pier Head Rebarwork	4	29-Dec-14	0%	4	02-Jan-15	18-Apr-15	22-Apr-15	84	0	-		١ '	Τ	
	B15 (B1e) - Type 5B Pier Head Formwork & Prep for Concreting	4	03-Jan-15	0%	4	07-Jan-15	· ·	28-Apr-15	84	0	-		ı		
	B15 (B1e) - Type 5B Pier Head Concreting	1	08-Jan-15	0%	1	08-Jan-15	29-Apr-15	29-Apr-15	84	0	- :		l	' <u> </u>	
	B15 (B1e) - Type 5B Pier Head Curing & Striking of Forms & Remove Scaffolding	6	09-Jan-15	0%	6		02-May-15	11-May-15	84	0			l		
	B15 (B1e) - Type 5B Pier Backfilling Works	4	16-Jan-15	0%	4	20-Jan-15	12-May-15	16-May-15	84	0					
Pier Head Se							,		_				l		
	B15 (B1e) - Pier Head Segment - Temporary Platform	6	21-Jan-15	0%	6		18-May-15	27-May-15	85	0			l		
	B15 (B1e) - Pier Head Segment Lift & Fix (1 seg)	2	28-Jan-15	0%	2			30-May-15	85	0			ı		
	B15 (B1e) - Pier Head Segment Diaphragm - Rebar	12	30-Jan-15	0%	12	12-Feb-15		25-Jun-15	85	0			ı		
	B15 (B1e) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting	8	13-Feb-15	0%	8	25-Feb-15		07-Jul-15	85	0					
SB1E0378	B15 (B1e) - Pier Head Segment Diaphragm - Concreting	2	26-Feb-15	0%	2	27-Feb-15	08-Jul-15	10-Jul-15	85	0			ı		
SB1E0380	B15 (B1e) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	28-Feb-15	0%	6	06-Mar-15	11-Jul-15	20-Jul-15	86	0			ı		
Pier B16 (B1d	I)												l		
Pier Works															
SB1D0200	B16 (B1d) - Type 5B Pier Head Rebarwork	4	22-Dec-14	0%	4	27-Dec-14	13-May-15	19-May-15	104	0	1				
SB1D0210	B16 (B1d) - Type 5B Pier Head Formwork & Prep for Concreting	4	29-Dec-14	0%	4	02-Jan-15	19-May-15	26-May-15	104	0			Ī		
SB1D0220	B16 (B1d) - Type 5B Pier Head Concreting	1	03-Jan-15	0%	1	03-Jan-15	26-May-15	27-May-15	104	0				1	
SB1D0270	B16 (B1d) - Type 5B Pier Head Curing & Striking of Forms & Remove Scaffolding	6	05-Jan-15	0%	6	10-Jan-15	27-May-15	10-Jun-15	105	0					
SB1D0280	B16 (B1d) - Type 5B Pier Backfilling Works	4	12-Jan-15	0%	4	15-Jan-15	10-Jun-15	19-Jun-15	105	0	1				
Pier Head Se	egments	<u>'</u>				<u>'</u>	·								
SB1D0370	B16 (B1d) - Pier Head Segment - Temporary Platform	6	16-Jan-15	0%	6	22-Jan-15	19-Jun-15	29-Jun-15	105	0					
SB1D0372	B16 (B1d) - Pier Head Segment Lift & Fix (1 seg)	2	23-Jan-15	0%	2	24-Jan-15	29-Jun-15	03-Jul-15	105	0					
Actual Work	Project ID: J3518DWPrD1-M19	Fuen Mun - Cl	hek Lap Kok L	ink - Sou	thern (			Date	Revis	sion T	Checked	Approv	red	DWG. No.:	i i
Planned Bar	Layout: J3518-DWP-3MRP Submission - M19 3-M		ng Program				ies)	21-Sep-14						אישם. NO.:	
Critical Bar	Filter: TASK filters: 3-Month Lookanead, No CQ		rogress as		_	_	,,	21-Oct-14						13518/GCI	/PGM/3MRP-M19
♦ Milestone	Milestones, no Level of Effort, No Level of Effort.	1,	i ogi coo ao	J. 21-D	50-1 <b>-</b> 1	,		21-Nov-14			)B			- 33310/ GCL	, i Givi, Jiviike -ivi i i
								21-Dec-14						_	
									1			1			

	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float		2014 December	r	January	2015 February	March
05155							00.11	01.111			24 0			29 05 12 19 26		
	B16 (B1d) - Pier Head Segment Diaphragm - Rebar	12	26-Jan-15	0%	12	07-Feb-15		21-Jul-15	107	0						
	B16 (B1d) - Pier Head Segment Diaphragm - Formwork & Prep for Concreting	8	09-Feb-15	0%	8	17-Feb-15		01-Aug-15	107	0						
	B16 (B1d) - Pier Head Segment Diaphragm - Concreting	2	18-Feb-15	0%	2		03-Aug-15	04-Aug-15	107	0	ļ				<u> </u>	<u></u>
	B16 (B1d) - Pier Head Segment Diaphragm - Curing & Striking of Forms	6	24-Feb-15	0%	6	02-Mar-15	05-Aug-15	12-Aug-15	107	0						1
	b) & Abutment B															!
	Works for Land Piling					,										
	B18 (B1b) - Install Geo. Instru. & Baseline Monitoring	36	13-Jun-14 A	0%	36	04-Feb-15	03-Nov-15	14-Dec-15	254	478						
Viaduct C																
	Marine Foundation					,	, , , , , , , , , , , , , , , , , , , ,									!
	C6 (C3f) - Start date for piling	0	13-Mar-15	0%	0		07-Feb-15		-26	0						•
	C5 (C4a) - Start date for piling	0	05-Dec-14 A	100%	0						1	•				
	C4 (C4b) - Start date for piling	0	22-Dec-14	0%	0		29-Dec-14		4	0			•			
GFXX209-1	C3 (C4c) - Start date for piling	0	03-Jan-15	0%	0		18-Dec-14		-11	0	ļ			<b>♦</b>		
GFXX217-1	C2 (C4d) - Completion of piling works	0		100%	0	19-Dec-14 A						•	·			
GFXX222-1	C1(C4e) - Completion of piling works	0		100%	0	27-Nov-14 A					•					
Milestones -	Land Foundation					,			,							
ZC00031	C19 (C1d) - Completion of piling works	0		0%	0	03-Jan-15		03-Jul-15	144	11				<b>•</b>		
ZC00041	C18 (C1e) - Completion of piling works	0		0%	0	14-Feb-15		27-Jun-15	104	37	ļ <u>.</u>				<b>•</b>	
ZC00050	C17 (C2a) - Start date for piling	0	03-Mar-15	0%	0		09-May-15		53	0						•
ZC00060	C16 (C2b) - Start date for piling	0	03-Mar-15	0%	0		29-Jun-15		94	0						•
ZC00070	C15 (C2c) - Start date for piling	0	06-Feb-15	0%	0		29-Sep-15		189	111					•	
ZC00080	C14 (C2d) - Start date for piling	0	28-Jan-15	0%	0		11-Sep-15		183	162				•		
ZC00090-1	C13 (C2e) - Start date for piling	0	15-Dec-14 A	100%	0							•				
ZC00090-2	C13 (C2e) - Completion of piling works	0		0%	0	27-Jan-15		26-Jun-15	119	0	1			<b>♦</b>		
ZC00091	C12 (C2f) - Start date for piling	0	22-Dec-14	0%	0		21-Apr-15		93	0			•			!
ZC00092	C11 (C3a) - Start date for piling	0	03-Jan-15	0%	0		13-Feb-15		35	0				<b>•</b>		
ZC00093	C10 (C3b) - Start date for piling	0	03-Jan-15	0%	0		19-Jan-15		13	0				<b>•</b>		
ZC00095	C8 (C3d) - Start date for piling	0	29-Nov-14 A	100%	0						•					
ZC00095-1	C8 (C3d) - Completion of piling works	0		0%	0	17-Mar-15		26-Jun-15	80	22						
Bridge C4																
Pier C1 (C4e)	)															
Foundation	) Works															!
GFXX220	C1 (C4e) - Bored Piles (1.80m dia. x 3 nos)	84	18-Aug-14 A	100%	0	27-Nov-14 A					<b>—</b> :					
GFXX221	C1 (C4e) - Sonic & Interface Coring	12	22-Dec-14	0%	12	07-Jan-15	22-Jan-15	04-Feb-15	24	9	1					:
GFXX221-1	C1 (C4e) - Selection of bored pile for Full Depth Coring	21	22-Dec-14	0%	21	17-Jan-15	12-Jan-15	04-Feb-15	15	0						
GFXX221-2	C1 (C4e) - Bored Pile Full Depth Coring & Testing	20	19-Jan-15	0%	20	10-Feb-15	05-Feb-15	03-Mar-15	15	0						
GFXX222	C1 (C4e) - Dismantle removable panels of temp. platform	5	11-Feb-15	0%	5	16-Feb-15	04-Mar-15	09-Mar-15	15	36	1					
Pier C2 (C4d)		, , , , , , , , , , , , , , , , , , ,					1									
Foundation	ı Works															
GFXX215	C2 (C4d) - Bored Piles (2.20m dia. x 2 nos)	70	21-Oct-14 A	100%	0	19-Dec-14 A										
GFXX216	C2 (C4d) - Sonic & Interface Coring	12	23-Dec-14	0%	12	08-Jan-15	27-Feb-15	12-Mar-15	51	0						
GFXX217	C2 (C4d) - Dismantle removable panels of temp. platform	5	09-Jan-15	0%	5	14-Jan-15	13-Mar-15	18-Mar-15	51	141						
Pier C3 (C4c)																
Foundation	ı Works										}					
GFXX208	C3 (C4c) - Inst.Temp.Working Platform	12	24-Nov-14 A	100%	0	04-Dec-14 A										
GFXX209	C3 (C4c) - Predrilling (3 nos)	12	09-Dec-14 A	33.33%	8	02-Jan-15	09-Dec-14	17-Dec-14	-11	0				<b>-</b>		
	2 C3 (C4c) - Confirm Rockhead Levels	8	03-Jan-15	0%	8		19-Dec-14	30-Dec-14	-10	1						
	Project ID: J3518DWPrD1-M19	Tuen Mun - Cl			thorn (			Date	Revis	sion I	Checked	Approv	ed l	DWC No -		i .
Actual Work Planned Bar	Layout: J3518-DWP-3MRP Submission - M19	3-Month Rollin	-				ies)	21-Sep-14	17015	5.011	CHOUNCU	Αρριονι	-	DWG. No.:		
Critical Bar	Filter: TASK filters: 3-Month Lookahead, No CC		rogress as		_	_	,00,	21-Oct-14						J3518/GCL	/DC1/1/21/1	DD_1/1
Milestone	Milestones, no Level of Effort, No Level of Effort.	(P	i ogi coo ao	JI Z 1-D	<del>5</del> 6-14	7)		21-Nov-14			В			33310/GCL		IXF -IVI I
	-··-· <del>·</del>							21-Dec-14								







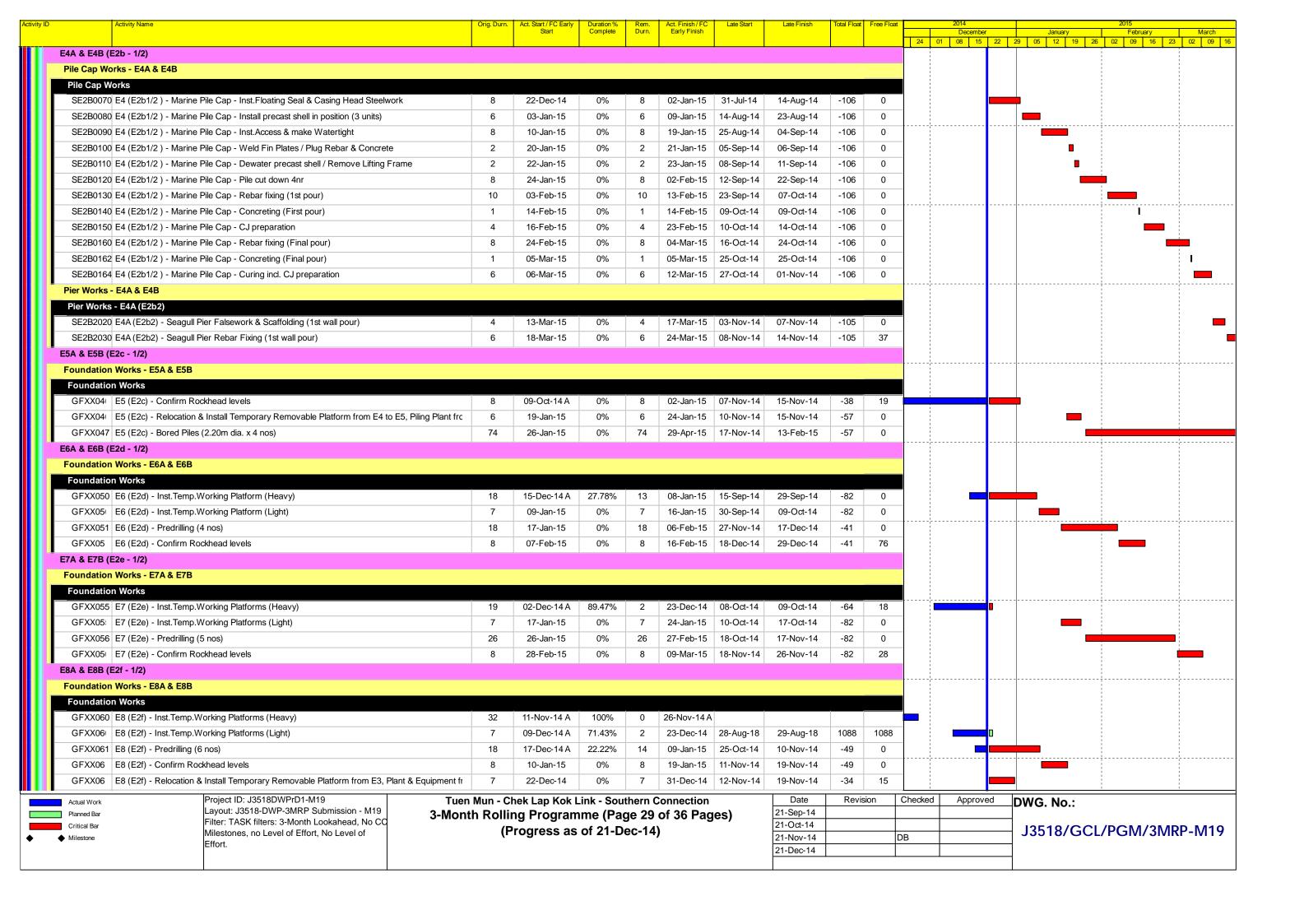
	Activity Name		Orig. Durn		Duration % Rem	. Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float	2014		2015	Mand
				Start	Complete Durn	i. Early Finish					24 01 08 15	er January 22 29 05 12 19	26 02 09 16	23 02 09
SD4F0080	D1 (D4f) - Marine Pile	Cap M2 - Install precast shell in position	1	02-Mar-15	0% 1	02-Mar-15	31-Jan-15	31-Jan-15	-22	0				i
SD4F0090	D1 (D4f) - Marine Pile	Cap M2 - Inst.Access & make Watertight	3	03-Mar-15	0% 3	05-Mar-15	02-Feb-15	05-Feb-15	-21	0				_
SD4F0100	D1 (D4f) - Marine Pile	Cap M2 - Weld Fin plates/Plug Rebar & Concrete	9	06-Mar-15	0% 9	16-Mar-15	06-Feb-15	16-Feb-15	-21	0				
SD4F0110	D1 (D4f) - Marine Pile	Cap M2 - Dewater precast shell / Remove Lifting Fram	ne 2	17-Mar-15	0% 2	18-Mar-15	17-Feb-15	18-Feb-15	-21	0				1
	D1 (D4f) - Marine Pile	<u> </u>	12	19-Mar-15	0% 12	01-Apr-15	23-Feb-15	07-Mar-15	-21	0				
Pier D2 (D4e)	` ,									_			· <del> </del>	
Foundation														
	D2 (D4e) - Bored Piles	(2.35m dia x.2 nos)	63	19-Sep-14 A	65.08% 22	19-Jan-15	10-Jul-15	04-Aug-15	158	0	1		1	1
	D2 (D4e) - Sonic & Inte	,	12	20-Jan-15	0% 12		05-Aug-15	18-Aug-15	158	0	!			
	1 1	emovable panels of temp. platform	5	03-Feb-15						-				
	` '	етномаріе рапеіѕ от теттр. ріатютті	5	03-Feb-15	0% 5	07-Feb-15	19-Aug-15	24-Aug-15	158	0				
Pile Cap Wo		0. 144   1.51   1. 0. 100   1. 11   101   1	_	10.5.1.15	201	00 5 1 45	05.4	22.2	44.4					
	1 1	Cap M1 - Inst.Floating Seal & Casing Head Steelwork	7	18-Feb-15	0% 7		25-Aug-15	02-Sep-15	114	0	1			
	` ,	Cap M1 - Install precast shell in position	1	02-Mar-15	0% 1		04-Sep-15	04-Sep-15	114	0				l I
	` '	Cap M1 - Inst.Access & make Watertight	3	03-Mar-15	0% 3		05-Sep-15	08-Sep-15	114	0				
SD4E0100	D2 (D4e) - Marine Pile	Cap M1 - Weld Fin plates/Plug Rebar & Concrete	9	06-Mar-15	0% 9	16-Mar-15	09-Sep-15	21-Sep-15	114	0	į			
SD4E0120	D2 (D4e) - Marine Pile	Cap M1 - Dewater precast shell / Remove Lifting Fran	me 2	17-Mar-15	0% 2	18-Mar-15	22-Sep-15	23-Sep-15	114	0				
SD4E0130	D2 (D4e) - Marine Pile	Cap M1 - Pile cut down	8	19-Mar-15	0% 8	27-Mar-15	25-Sep-15	06-Oct-15	114	0				
Pier D3 (D4d)	)					'								
Foundation	Works													
GFXX251	D3 (D4d) - Bored Piles	(2.00m dia. x 3 nos)	65	03-Nov-14 A	69.23% 20	16-Jan-15	11-Sep-14	06-Oct-14	-85	3	1			
GFXX252	D3 (D4d) - Sonic & Inte	erface Coring	12	21-Jan-15	0% 12	03-Feb-15	07-Oct-14	20-Oct-14	-88	0			· ‡	
	1 1	emovable panels of temp. platform	5	04-Feb-15	0% 5		21-Oct-14	25-Oct-14	-88	0				
Pile Cap Wo										-				
		Cap M2b - Inst.Floating Seal & Casing Head Steelwor	·b 7	18-Feb-15	0% 7	28-Feb-15	27-Oct-14	03-Nov-14	-95	0				
	` ,	·	1											
	` '	Cap M2b - Install precast shell in position	1	02-Mar-15	0% 1		04-Nov-14	04-Nov-14	-95	0			· <del> </del>	
	<u> </u>	Cap M2b - Inst.Access & make Watertight	3	03-Mar-15	0% 3		05-Nov-14	07-Nov-14	-95	0				
	` '	Cap M2b - Weld Fin plates/Plug Rebar & Concrete	9	06-Mar-15	0% 9	16-Mar-15	08-Nov-14	18-Nov-14	-95	0				
SD4D0120	D3 (D4d) - Marine Pile	Cap M2b - Dewater precast shell / Remove Lifting Fra	ame 2	17-Mar-15	0% 2	18-Mar-15	19-Nov-14	20-Nov-14	-95	0				
SD4D0130	D3 (D4d) - Marine Pile	Cap M2b - Pile cut down	12	19-Mar-15	0% 12	01-Apr-15	21-Nov-14	04-Dec-14	-95	0			i	
Pier D4 (D4c)														
Foundation	Works													
GFXX246	D4 (D4c) - Bored Piles	(2.00m dia. x 3 nos)	70	06-Nov-14 A	24.29% 53	27-Feb-15	16-Sep-14	18-Nov-14	-81	0			:	<b>-</b>
GFXX247	D4 (D4c) - Sonic & Inte	erface Coring	12	28-Feb-15	0% 12	13-Mar-15	19-Nov-14	02-Dec-14	-81	0				
GFXX248	D4 (D4c) - Dismantle r	emovable panels of temp. platform	5	14-Mar-15	0% 5	19-Mar-15	03-Dec-14	08-Dec-14	-81	0				
Pile Cap Wo	orks										1		1	
SD4C0070	D4 (D4c) - Marine Pile	Cap M2b - Inst.Floating Seal & Casing Head Steelworl	k 7	20-Mar-15	0% 7	27-Mar-15	09-Dec-14	16-Dec-14	-81	0	<u>-</u>		· <del> </del>	
Pier D5 (D4b)	` ′	<u> </u>												
Foundation														
	D5 (D4b) - Confirm Ro	ckhead Levels	8	20-Nov-14 A	100% 0	11-Dec-14 A								
	` '							15 Doc 14	-76	0				
	D5 (D4b) - Bored Piles	(2.33)11 Ula. X 2 11US)	78	12-Dec-14 A	8.97% 71	∠u-ıvıar-15	22-Sep-14	15-Dec-14	-/6	0				
Pier D6 (D4a)														
Foundation														
	D6 (D4a) - Confirm Ro		8	21-Nov-14 A	100% 0	02-Dec-14 A					;		 	!
	D6 (D4a) - Bored Piles		62	03-Dec-14 A	8.06% 57		27-Sep-14	04-Dec-14	-71	0				
	D6 (D4a) - Sonic & Inte	•	12	05-Mar-15	0% 12		19-Dec-14	05-Jan-15	-59	12				
GFXX237-1	D6 (D4a) - Selection of	bored pile for Full Depth Coring	24	05-Mar-15	0% 24	01-Apr-15	05-Dec-14	05-Jan-15	-71	0				
Bridge D2														
Actual Work		Project ID: J3518DWPrD1-M19	Tuen Mun - (	hek Lan Kok I	ink - Southern	Connection		Date	Revis	sion (	Checked Approv	/ed DWG. No.:	· · · · · · · · · · · · · · · · · · ·	•
Planned Bar		Layout: J3518-DWP-3MRP Submission - M19	3-Month Roll	-				21-Sep-14	1.5.16		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	DVVG. NO.:		
Critical Bar		Filter: TASK filters: 3-Month Lookahead, No CO		-	of 21-Dec-1		,,	21-Oct-14				13519/60	CL/PGM/3M	IRD_N/I1
<ul> <li>Milestone</li> </ul>		Milestones, no Level of Effort, No Level of Effort.	(1	TOGICOS dS	01 21-DEC-1	<b>"</b> )		21-Nov-14		D	В		OL/ F GIVI/ SIVI	IIXE -IVI
•		ILHOIL						21-Dec-14				I		

ty ID	Activity Name	Orig. Durn.	Act. Start / FC Early	Duration %	Rem.	Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float		2014		2015
			Start	Complete	Durn.	Early Finish					24	01 08 15		January February March   29   05   12   19   26   02   09   16   23   02   09   1
Pier D7 (D3e)												•		
Foundation	Works													
GFXX230-2	D7 (D3e) - Confirm Rockhead Levels	8	08-Nov-14 A	100%	0	21-Nov-14 A								
GFXX231	D7 (D3e) - Bored Piles (2.35m dia. x 2 nos)	67	22-Nov-14 A	40.3%	40	09-Feb-15	12-Nov-14	30-Dec-14	-34	0				
GFXX232	D7 (D3e) - Sonic & Interface Coring	10	17-Mar-15	0%	10	27-Mar-15	31-Dec-14	12-Jan-15	-61	0				T T
Pier D8 (D3d)														
Socketted H-	Pile Installation													
GFXX471	D8 (D3d) - Installation of SH Pile (16 nr)	122	16-Oct-14 A	64.75%	43	12-Feb-15	24-Nov-14	15-Jan-15	-24	0				
Pile Cap Wor	ks									<u> </u>			-	
	D8 (D3d) - Pile cap - Pipe Pile Wall for ELS	24	14-Mar-15	0%	24	18-Apr-15	16-Jan-15	12-Feb-15	-46	0				_
Pier D9 (D3c)														
	Pile Installation													
	D9 (D3c) - Installation of SH Pile (22 nr)	108	20-Nov-14 A	26.85%	79	30-Mar-15	21-Jan-15	30-Apr-15	23	0				
Pile Cap Wor								, , , , , , , , , , , , , , , , , , ,						
	D9 (D3c) - Pile cap Excavation / ELS (incl. sheet piling)	45	27-Sep-14 A	30%	32	30-Jan-15	10-Apr-15	27-May-15	83	48				
Pier D10 (D3b			2.1				,	- 7						
	Pile Installation													
	D10 (D3b) - Installation of SH Pile (16 nr)	153	10-Nov-14 A	24.84%	115	16-May-15	15-Sep-14	31-Jan-15	-82	0				
Pier D11 (D3a)		100	10 140V-147	2→.0→/0	113	10-Iviay-13	10 Ocp-14	JI-Jail-1J	-02	•				
	Norks for Land Piling													
		10	22 Jul 44 A	1009/	0	21 Nov 14 A								
	D11 (D3a) - Set up piling platform  D11 (D3a) - Complete Civil Proportion Works for piling to company	10	23-Jul-14 A	100%	0	21-Nov-14 A					_			
	D11(D3a) - Complete Civil Preparation Works for piling to commence	U		100%	0	21-Nov-14 A	·							
	Pile Installation	47	05 O+ 44 A	4000/	0	04 Dag 44 A								
	D11 (D3a) - Predrilling	17	25-Oct-14 A	100%	0	01-Dec-14 A		00. 1	4000	1000		l		
	D11 (D3a) - Confirm Rockhead Levels	8	03-Nov-14 A	75%	2		28-Aug-18	29-Aug-18	1088	1088				
	D11 (D3a) - Installation of SH Pile (16 nr)	153	28-Nov-14 A	15.03%	130	04-Jun-15	26-Sep-14	05-Mar-15	-72	0	-			: :
Pier D12 (D2e)														
	Norks for Land Piling	00	00 D 44	00/	00	04 5 1 45	40 1 40	00. 4	4054	4054				
	D12 (D2e) - Install Geo. Instru. & Baseline Monitoring	36	22-Dec-14	0%	36	04-Feb-15		29-Aug-18	1054	1054				
	D12 (D2e) - Set up piling platform	10	03-Nov-14 A	50%	5		24-Aug-18	29-Aug-18	973	0	_			
	D12 (D2e) - Complete Civil Preparation Works for piling to commence	0		0%	0	29-Dec-14		29-Aug-18	973	973			•	
	Pile Installation													
	D12 (D2e) - Confirm Rockhead Levels	8	22-Sep-14 A	50%	4		18-Nov-14	21-Nov-14	-29	13				
	D12A (D2e) - Predrilling (PD-D12A-S1)	17	20-Dec-14 A	0%	17		03-Nov-14	21-Nov-14	-42	0	-			
	D12 (D2e) - Installation of SH Pile (16 nr)	153	14-Jan-15	0%	153	23-Jul-15	22-Nov-14	02-Jun-15	-42	0				
Pile Cap Wor											L			
	D12A (D2e-L) - Pile cap Excavation / ELS	45	03-Nov-14 A	0%	45	14-Feb-15	23-Mar-15	01-Jun-15	72	102				
Pier D13 (D2d														
	Pile Installation													
	D13 (D2d) - Confirm Rockhead Levels	8	31-May-14 A	0%	8		13-Mar-15	21-Mar-15	64	0				7
	D13 (D2d) - Installation of SH Pile (16 nos)	71	03-Jan-15	0%	71	30-Mar-15	23-Mar-15	19-Jun-15	64	0				
Bridge D1														
Pier D14 (D2c)														
	Pile Installation													
	D14 (D2c) - Installation of SH Pile (10 nr)	121	06-Oct-14 A	69.42%	37	05-Feb-15	27-Oct-14	08-Dec-14	-48	0				
Pile Cap Wor														
SD2CL090	D14A (D2c-L) - Pile cap Excavation / ELS	35	18-Feb-15	0%	35	08-Apr-15	09-Dec-14	21-Jan-15	-58	0				
Actual Work	Project ID: J3518DWPrD1-M19 Tuel	n Mun - C	hek Lap Kok L	ink - Sou	thern (	Connection		Date	Revis	sion	Checke	d Approv	/ed	DWG. No.:
Planned Bar	Layout: J3518-DWP-3MRP Submission - M19 Filter: TASK filters: 3-Month Lookahead, No CQ  3-Mon	th Rolli	ng Program	me (Pa	ge 25	of 36 Pag	jes)	21-Sep-14						I
Critical Bar	Milestones, no Level of Effort, No Level of		rogress as					21-Oct-14 21-Nov-14			DB			J3518/GCL/PGM/3MRP-M19
<del></del>		-						14 1-1NUV-14		IL	<i>,</i> $\cup$	1		1
Milestone	Effort.							21-Dec-14						<b>,</b>

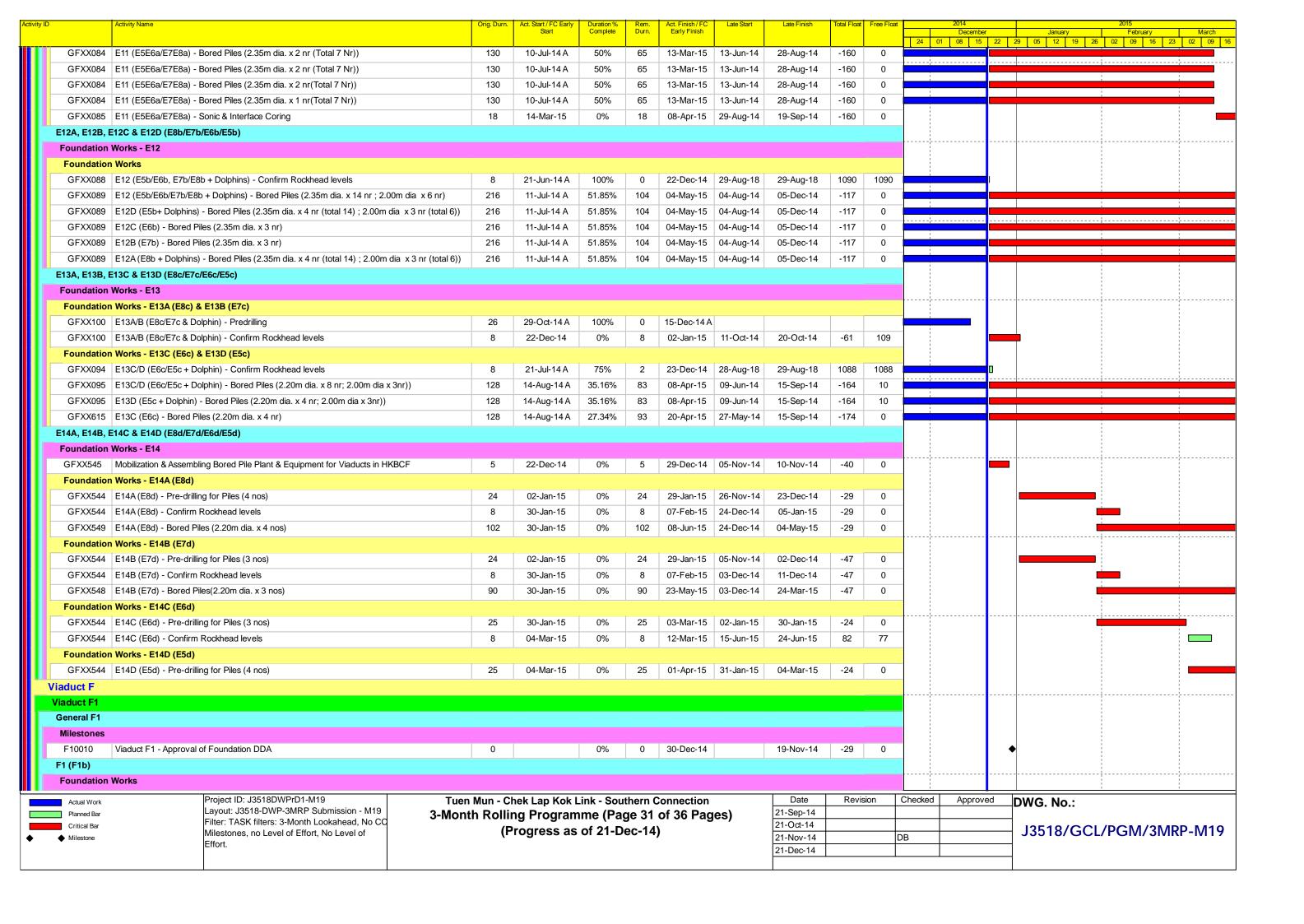
Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float		2014 Decembe	er e	January .	2015 February Marc
		Start	Complete	Dum.	Early FilliSil					24 (			29 05 12 19 26 02	
Pier D15 (D2b)		•									<u> </u>			<u> </u>
Preliminary Works for Land Piling														
PD150020 D15 (D2b) - Set up piling platform	20	22-Dec-14	0%	20	16-Jan-15	04-Aug-18	29-Aug-18	958	0					1
PD150030 D15 (D2b) - Complete Civil Preparation Works for piling to commence	0		0%	0	16-Jan-15		29-Aug-18	958	958			ı	•	
Socketted H-Pile Installation			- 7,0									ı	·	
	10	24-Nov-14 A	1009/	0	27 Nov. 14 A							ı		
GFXX445-2 D15 (D2b) - Predrilling	18		100%	0	27-Nov-14 A			100				. <u> </u>	<u></u>	
GFXX445-4 D15 (D2b) - Confirm Rockhead Levels	8	22-Dec-14	0%	8		29-Jul-14	06-Aug-14	-122	0				T	 
GFXX446-2 D15 (D2b) - Installation of SH Pile (13 nr)	121	03-Jan-15	0%	121	03-Jun-15	07-Aug-14	31-Dec-14	-122	0			ı		
Pier D16 (D2a)												ı		i !
Pile Cap Works												ı		
SD2A0090 D16 (D2a) - Pile cap Excavation / ELS (incl. sheet piling)	22	18-Feb-15	0%	22	18-Mar-15	06-Dec-14	03-Jan-15	-60	0			ı		
SD2A0092 D16 (D2a) - Pile cap Pile breakdown to cut-off etc.	4	19-Mar-15	0%	4	23-Mar-15	05-Jan-15	08-Jan-15	-60	0					 
Pier D17 (D1d)												ı		
Pile Cap Works												ı		
SD1D0090 D17 (D1d) - Pile cap Excavation / ELS (incl. sheet piling)	45	18-Feb-15	0%	45	22-Apr-15	03-Mar-15	06-May-15	8	0			ı		
Pier D18 (D1c)	.0	10 1 05 10	070	10	22 / (p) 10	oo mar ro	00 May 10					ı		
Socketted H-Pile Installation														
									-					
GFXX439-5 D18 (D1c) - Selction of pile for Loading test	24	22-Dec-14	0%	24	21-Jan-15		03-Mar-15	32	0					
GFXX439-7 D18 (D1c) - Loading test of pre-bored H-pile	36	22-Jan-15	0%	36	07-Mar-15	04-Mar-15	18-Apr-15	32	0			ı	i	
Pile Cap Works												ı		
SD1C0090 D18 (D1c) - Pile cap Excavation / ELS (incl. sheet piling)	30	09-Mar-15	0%	30	20-Apr-15	20-Apr-15	05-Jun-15	29	0			ı		_
Pier D19 (D1b) & Abutment D														
Pile Cap Works												ı		
SD1B0090 D19 (D1b) - Pile cap Excavation / ELS	45	18-Feb-15	0%	45	22-Apr-15	11-Feb-15	14-Apr-15	-6	0			ı		
Abutment & Approach Ramp D		<u> </u>			·	<u> </u>	<u> </u>					ı		i !
SD1B0200 Abutment D - Walls & Staircase	48	18-Feb-15	0%	48	27-Apr-15	11-Feb-15	18-Apr-15	-6	34			ı		
	70	10-1 CD-13	070	10	21-Api-10	11-1 CD-13	10-7-10		J-7					
Viaduct E												ı		
Viaduct E1												ı		
Bridge E1 - Piling & Substructure												ı		
Milestones												ı		
GFXX031-5 E2C/E2D (E1b2/E1b1) - Piling Works Completion	0		100%	0	02-Dec-14 A									
GFXX031-6 E2B (E1b3) - Piling Works Completion	0		100%	0	02-Dec-14 A					•		ı		
GFXX031-7 E2A (E1b4) - Piling Works Completion	0		100%	0	02-Dec-14 A					•		ı		
E1A, E1B, E1C & E1D (E1a1-2-3-4)												ı		
Pile Cap Works - E1A, E1B, E1C & E1D												ı		
Pile Cap Works - E1A (E1a4)												ı		
SE1A4070 E1A (E1a4) - Marine Pile Cap - Inst.prefab.collar frame to perm.casing of Bored pile	4	28-Nov-14 A	0%	4	27-Dec-14	25-Aug-18	29-Aug-18	943	943					
SE1A4080 E1A (E1a4) - Marine Pile Cap M1 - Install precast shell in position	2	17-Dec-14 A	100%	0	17-Dec-14 A		- · · · · · · · · · · · · · · · · · · ·			-	1			
SE1A4090 E1A (E1a4) - Marine Pile Cap WiT - Install precast shell in position	6	18-Dec-14 A	0%	6	30-Dec-14		15-Dec-14	-12	0		' <u>-</u>			1
	0			0							_			
SE1A4100 E1A (E1a4) - Marine Pile Cap - Tremie concrete at pedestal	1	31-Dec-14	0%	1	31-Dec-14		16-Dec-14	-12	0			1		
SE1A4120 E1A (E1a4) - Marine Pile Cap - Dewatering inside precast shell	1	02-Jan-15	0%	1	02-Jan-15		17-Dec-14	-12	0	ļ			<b> </b>	
SE1A4130 E1A (E1a4) - Marine Pile Cap - Trimming of pile & casing	10	03-Jan-15	0%	10	14-Jan-15	17-Dec-14	31-Dec-14	-12	0			1		 
SE1A4140 E1A (E1a4) - Marine Pile Cap - Rebar fixing, installation of cast inserts etc	10	15-Jan-15	0%	10	26-Jan-15	31-Dec-14	13-Jan-15	-12	0			1		
SE1A4150 E1A (E1a4) - Marine Pile Cap - Concreting	1	27-Jan-15	0%	1	27-Jan-15	13-Jan-15	14-Jan-15	-12	0			1	1	
SE1A4160 E1A (E1a4) - Marine Pile Cap - Curing incl. CJ Preparation	6	28-Jan-15	0%	6	03-Feb-15	14-Jan-15	21-Jan-15	-12	0			1		
Pile Cap Works - E1B (E1a3)												1		1
SE1A3070 E1B (E1a3) - Marine Pile Cap - Inst.prefab.collar frame to perm.casing of Bored pile	4	28-Nov-14 A	100%	0	04-Dec-14 A							1	<u>i</u>	
							T 5. 1				- 	1		!
1		hek Lap Kok L					Date 21 Sep 14	Revis	sion (	Checked	Approv	red	DWG. No.:	
Planned Bar  Critical Bar  Filter: TASK filters: 3-Month Lookahead, No CC		ng Program	-	_	_	es)	21-Sep-14 21-Oct-14							
Milestones, no Level of Effort, No Level of	(F	Progress as	of 21-D	ec-14	)		21-Nov-14		D	<u></u> В			J3518/GCL/P0	SM/3MRP-M <sup>2</sup>
Effort.							21-Dec-14							
Enort							21-Dec-14		l l			I		

D	Activity Name		Orig. Durn.	Act. Start / FC Early Start	Duration % Rem. Complete Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	2014	-bas	lan and	2015	March
				Start	Complete Dun.	Earry Finish				H	24 01 08 °		January 05 12 19	26 02 09 16	23 02 09
	SE1A3080 E1B (E1a3) - Marine Pi	e Cap M1 - Install precast shell in position	2	05-Dec-14 A	100% 0	05-Dec-14 A					1				
	SE1A3090 E1B (E1a3) - Marine Pi	e Cap - Temp fixings to casings	6	08-Dec-14 A	100% 0	13-Dec-14 A									
	SE1A3100 E1B (E1a3) - Marine Pi	e Cap - Tremie concrete at pedestal	1	18-Dec-14 A	100% 0	18-Dec-14 A						1			
	SE1A3120 E1B (E1a3) - Marine Pi	e Cap - Dewatering inside precast shell	1	22-Dec-14	0% 1	22-Dec-14	26-Jan-15	26-Jan-15	27	0		ı			
	SE1A3130 E1B (E1a3) - Marine Pi	e Cap - Trimming of pile & casing	10	23-Dec-14	0% 10	06-Jan-15	27-Jan-15	06-Feb-15	27	0					
	, ,	e Cap - Rebar fixing, installation of cast inserts etc	10	07-Jan-15	0% 10		07-Feb-15	18-Feb-15	27	0			_		
	SE1A3150 E1B (E1a3) - Marine Pi		1	19-Jan-15	0% 1		23-Feb-15	23-Feb-15	27	0					1
	SE1A3160 E1B (E1a3) - Marine Pi		6	20-Jan-15	0% 6		24-Feb-15	02-Mar-15	27	0					!
	Pile Cap Works - E1C/D (E1a2/E1a		0	20-3411-13	070 0	20-3411-13	24 1 CD 10	02-Iviai-15		0					
F	· , · · · ·	<u>'</u>	of Doro	22 Dec 44	00/	27 Dec 14	17 Mor 15	24 Mar 45	60	0					
	· · · · · · · · · · · · · · · · · · ·	larine Pile Cap - Inst.prefab.collar frame to permanent casing of		22-Dec-14	0% 4		17-Mar-15	21-Mar-15	68	0	į				
	,	farine Pile Cap - Install precast shell in position	2	29-Dec-14	0% 2	30-Dec-14		24-Mar-15	68	0		<u> </u>			
	,	larine Pile Cap - Temp fixings to casings	6	31-Dec-14	0% 6		24-Mar-15	31-Mar-15	68	0		-			
	SE1A2100 E1C/D (E1a2/E1a1) - N	larine Pile Cap - Tremie concrete at pedestal	1	08-Jan-15	0% 1	08-Jan-15	31-Mar-15	01-Apr-15	68	0			1		
	SE1A2120 E1C/D (E1a2/E1a1) - N	larine Pile Cap - Dewatering inside precast shell	1	09-Jan-15	0% 1	09-Jan-15	01-Apr-15	08-Apr-15	68	0			<b></b>		
	SE1A2130 E1C/D (E1a2/E1a1) - N	larine Pile Cap - Trimming of pile & casing	10	10-Jan-15	0% 10	21-Jan-15	08-Apr-15	22-Apr-15	68	0					
	SE1A2140 E1C/D (E1a2/E1a1) - N	farine Pile Cap - Rebar fixing, installation of cast inserts etc	10	22-Jan-15	0% 10	02-Feb-15	22-Apr-15	09-May-15	68	0				<u> </u>	 
	SE1A2150 E1C/D (E1a2/E1a1) - N	larine Pile Cap - Concreting	1	03-Feb-15	0% 1	03-Feb-15	09-May-15	11-May-15	68	0				1	
	SE1A2160 E1C/D (E1a2/E1a1) - N	larine Pile Cap - Curing incl. CJ Preparation	6	04-Feb-15	0% 6	10-Feb-15	11-May-15	19-May-15	68	0					
Р	Pier Works - E1A, E1B, E1C & E1D														1 1 1
	Pier Works - E1A (E1a4)														
	SE1A4170 E1A (E1a4) - Type 4B F	Pier Temp. Support Platform	6	28-Jan-15	0% 6	03-Feb-15	14-Jan-15	21-Jan-15	-12	0				<u></u>	
	SE1A4172 E1A (E1a4) - Type 4B F	· · · · · · · · · · · · · · · · · · ·	4	04-Feb-15	0% 4	07-Feb-15		26-Jan-15	-12	0				<b>—</b>	
	SE1A4180 E1A (E1a4) - Type 4B F		4	09-Feb-15	0% 4	12-Feb-15		30-Jan-15	-12	0					
	` , , ,	Pier Formwork & Prep for Concreting (1st Lift)	4	13-Feb-15	0% 4		30-Jan-15	04-Feb-15	-12	0					
	` , , ,		1				04-Feb-15	05-Feb-15							
	SE1A4200 E1A (E1a4) - Type 4B F			18-Feb-15	0% 1				-12	0				1	_
	( , , , , , , , , , , , , , , , , , , ,	Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	23-Feb-15	0% 2	24-Feb-15		07-Feb-15	-12	0					<b>-</b> i
	SE1A4210 E1A (E1a4) - Type 4B F		4	25-Feb-15	0% 4		07-Feb-15	12-Feb-15	-12	0					
	SE1A4220 E1A (E1a4) - Type 4B F	Pier Rebarwork (2nd Lift)	4	02-Mar-15	0% 4		12-Feb-15	17-Feb-15	-12	0					
	` , , , ,	ier Formwork & Prep for Concreting (2nd Lift)	4	06-Mar-15	0% 4	10-Mar-15	17-Feb-15	25-Feb-15	-12	0					
	SE1A4240 E1A (E1a4) - Type 4B F	Pier Concreting (2nd Lift)	1	11-Mar-15	0% 1	11-Mar-15	25-Feb-15	26-Feb-15	-12	0					1
	SE1A4242 E1A (E1a4) - Type 4B F	Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	12-Mar-15	0% 2	13-Mar-15	26-Feb-15	28-Feb-15	-12	0				1	
	SE1A4300 E1A (E1a4) - Type 4B F	Pier Head Scaffolding	4	14-Mar-15	0% 4	18-Mar-15	28-Feb-15	05-Mar-15	-12	0					
	SE1A4310 E1A (E1a4) - Type 4B F	Pier Head Rebarwork	5	19-Mar-15	0% 5	24-Mar-15	05-Mar-15	11-Mar-15	-12	0	į				
	Pier Works - E1B (E1a3)		Į.		I I	I									
	SE1A3170 E1B (E1a3) - Type 4B F	Pier Temp. Support Platform	6	20-Jan-15	0% 6	26-Jan-15	24-Feb-15	02-Mar-15	27	0					<u>-</u>
	SE1A3172 E1B (E1a3) - Type 4B F	· · · · ·	4	27-Jan-15	0% 4		03-Mar-15	06-Mar-15	27	0					1
	SE1A3180 E1B (E1a3) - Type 4B F		4	31-Jan-15	0% 4	04-Feb-15		11-Mar-15	27	0				<u> </u>	
	, , ,	Pier Formwork & Prep for Concreting (1st Lift)	A	05-Feb-15	0% 4	09-Feb-15		16-Mar-15	27	0					 
			4	10-Feb-15	0% 4		17-Mar-15	17-Mar-15	27	0					1 1 1
	SE1A3200 E1B (E1a3) - Type 4B F		1									-			
	, , , , , , , , , , , , , , , , , , , ,	Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	11-Feb-15	0% 2		18-Mar-15	19-Mar-15	27	0					1
	SE1A3210 E1B (E1a3) - Type 4B F		4	13-Feb-15	0% 4	17-Feb-15		24-Mar-15	27	0					_ ;
	SE1A3220 E1B (E1a3) - Type 4B F		4	18-Feb-15	0% 4	25-Feb-15		28-Mar-15	27	0					
		Pier Formwork & Prep for Concreting (2nd Lift)	4	26-Feb-15	0% 4	02-Mar-15		08-Apr-15	27	0					-
	SE1A3240 E1B (E1a3) - Type 4B F	Pier Concreting (2nd Lift)	1	03-Mar-15	0% 1	03-Mar-15	10-Apr-15	10-Apr-15	27	0					1
	SE1A3242 E1B (E1a3) - Type 4B F	Pier Curing & Striking of Forms incl. CJ prep (2nd Lift)	2	04-Mar-15	0% 2	05-Mar-15	11-Apr-15	13-Apr-15	27	0					
	SE1A3300 E1B (E1a3) - Type 4B F	Pier Head Scaffolding	4	06-Mar-15	0% 4	10-Mar-15	14-Apr-15	18-Apr-15	27	0					
	SE1A3310 E1B (E1a3) - Type 4B F	Pier Head Rebarwork	5	11-Mar-15	0% 5	16-Mar-15	20-Apr-15	25-Apr-15	27	0					_
_	Actual Work	Project ID: J3518DWPrD1-M19	Tuen Mun - Cl	nek I an Kok I	ink - Southern	Connection		Date	Revis	sion Ch	necked Appro	oved In	WG. No.:		1
	Planned Bar	Lavard 10540 DWD OMDD Out attacks 1440	-Month Rollii	-			ies)	21-Sep-14	1.0710	311	, , , , , , , , , , , ,	U	WW. NO.:		
_	Critical Bar	Filter: TASK filters: 3-Month Lookanead, No CQ		-	of 21-Dec-1	_	,50,	21-Oct-14					13519/60	CL/PGM/3N	/IDD_N/11
•	MILESTONE	Milestones, no Level of Effort, No Level of Effort.	(1-	i ogi <del>c</del> aa aa	OI Z I-DCC-14	¬ <i>)</i>		21-Nov-14		DB			333 10/ GC	JE/ F GIVI/ 3IV	VIIVE -IVI I
•								21-Dec-14	I		I				

Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float		2014 December	,	2015 January February Mar
		Start	Complete	Dum.	Larry I IIIISII					24			29 05 12 19 26 02 09 16 23 02 0
SE1A3320 E1B (E1a3) - Type 4B Pier Head Formwork & Prep for Concreting	7	17-Mar-15	0%	7	24-Mar-15	27-Apr-15	08-May-15	27	0				
Pier Works - E1C (E1a2)													
SE1A2170 E1C (E1a2) - Type 4B Pier Temp. Support Platform	6	11-Feb-15	0%	6	17-Feb-15	19-May-15	29-May-15	68	0				
SE1A2172 E1C (E1a2) - Type 4B Pier Scaffolding (1st Lift)	4	18-Feb-15	0%	4	25-Feb-15	29-May-15	05-Jun-15	68	0				
SE1A2180 E1C (E1a2) - Type 4B Pier Rebarwork (1st Lift)	4	26-Feb-15	0%	4	02-Mar-15	05-Jun-15	17-Jun-15	68	0				
SE1A2190 E1C (E1a2) - Type 4B Pier Formwork & Prep for Concreting (1st Lift)	4	03-Mar-15	0%	4	06-Mar-15	17-Jun-15	26-Jun-15	68	0				
SE1A2200 E1C (E1a2) - Type 4B Pier Concreting (1st Lift)	1	07-Mar-15	0%	1	07-Mar-15		29-Jun-15	68	0				
SE1A2202 E1C (E1a2) - Type 4B Pier Curing & Striking of Forms incl. CJ prep (1st Lift)	2	07-Mar-15	0%	2	10-Mar-15		08-Jul-15	70	0				
, , , , , , , , , , , , , , , , , , , ,													<b>"</b>
SE1A2210 E1C (E1a2) - Type 4B Pier Scaffolding (2nd Lift)	4	11-Mar-15	0%	4	14-Mar-15		15-Jul-15	70	0				
SE1A2220 E1C (E1a2) - Type 4B Pier Rebarwork (2nd Lift)	4	16-Mar-15	0%	4	19-Mar-15	17-Jul-15	21-Jul-15	70	0				
SE1A2230 E1C (E1a2) - Type 4B Pier Formwork & Prep for Concreting (2nd Lift)	4	20-Mar-15	0%	4	24-Mar-15	22-Jul-15	27-Jul-15	70	0				
E2A, E2B, E2C & E2D (E1b1-2-3-4)													
Foundation Works - E2A, E2B, E2C & E2D													
Foundation Works													
GFXX02: E2A/E2B/E2C/E2D (E1b4/3/2/1) - Bored Piles (2.00m dia. x 7 nr)	88	05-Sep-14 A	100%	0	02-Dec-14 A								
GFXX02! E2A/E2B/E2C/E2D (E1b4/3/2/1) - Sonic & Interface Coring	34	22-Dec-14	0%	34	02-Feb-15	16-Oct-14	24-Nov-14	-57	0				
GFXX030 E2A/E2B/E2C/E2D (E1b4/3/2/1) - Dismantle Temporary Removable Piling Platform	8	03-Feb-15	0%	8	11-Feb-15	26-Nov-14	04-Dec-14	-56	0				
Pile Cap Works - E2A, E2B, E2C & E2D													
Pile Cap Works - E2A (E1b4)													
SE1B4070 E2A (E1b4) - Marine Pile Cap M1 - Inst. Floating Seal & Casing Head Steelwork	7	12-Feb-15	0%	7	23-Fah-15	05-Dec-14	12-Dec-14	-56	0				
, , , , , , , , , , , , , , , , , , , ,	1	24-Feb-15	0%	1		13-Dec-14	12-Dec-14 13-Dec-14	-56					
SE1B4080 E2A (E1b4) - Marine Pile Cap M1 - Install precast shell in position	1			1					0				<u>'</u>
SE1B4090 E2A (E1b4) - Marine Pile Cap M1 - Inst.Access & make Watertight	3	25-Feb-15	0%	3		15-Dec-14	17-Dec-14	-56	0				
SE1B4100 E2A (E1b4) - Marine Pile Cap M1 - Weld Fin Plates/Plug Rebar & Concrete	9	28-Feb-15	0%	9		18-Dec-14	30-Dec-14	-56	0				
SE1B4120 E2A (E1b4) - Marine Pile Cap M1 - Dewater precast shell / Remove Lifting Frame	2	11-Mar-15	0%	2	12-Mar-15	31-Dec-14	02-Jan-15	-56	0				
SE1B4130 E2A (E1b4) - Marine Pile Cap M1 - Pile cut down	8	13-Mar-15	0%	8	21-Mar-15	03-Jan-15	12-Jan-15	-56	0				
Pile Cap Works - E2B (E1b3)													
SE1B3070 E2B (E1b3) - Marine Pile Cap M1 - Inst.Floating Seal & Casing Head Steelwork	7	25-Feb-15	0%	7	04-Mar-15	16-Dec-14	23-Dec-14	-55	0				
SE1B3080 E2B (E1b3) - Marine Pile Cap M1 - Install precast shell in position	1	05-Mar-15	0%	1	05-Mar-15	24-Dec-14	24-Dec-14	-55	0	† <del> </del> -			
SE1B3090 E2B (E1b3) - Marine Pile Cap M1 - Inst. Access & make Watertight	3	06-Mar-15	0%	3	09-Mar-15	27-Dec-14	30-Dec-14	-55	0				
SE1B3100 E2B (E1b3) - Marine Pile Cap M1 - Weld Fin Plates/Plug Rebar & Concrete	9	10-Mar-15	0%	9	19-Mar-15	31-Dec-14	10-Jan-15	-55	0				
SE1B3120 E2B (E1b3) - Marine Pile Cap M1 - Dewater precast shell / Remove Lifting Frame	2	20-Mar-15	0%	2	21-Mar-15	12-Jan-15	13-Jan-15	-55	0				
Pile Cap Works - E2C/E2D (E1b1/E1b2)		20 11101 10	0,0	_	21 10	12 0011 10		00					
SE1B2070 E2C/E2D (E1b1/E1b2) - Marine Pile Cap - Inst.Floating Seal & Casing Head Steelwork	Q	06-Mar-15	0%	8	1/L-Mar-15	16-Jan-15	24-Jan-15	-39	0				
	0									-			_
SE1B2080 E2C/E2D (E1b1/E1b2) - Marine Pile Cap - Install precast shell in position	6	16-Mar-15	0%	6	21-Mar-15	26-Jan-15	31-Jan-15	-39	0				
iaduct E2													
Bridge E2 - Piling & Substructure													
Milestones										ļ			
GFXX047-1 E5 (E2c) - Start date for piling	0	26-Jan-15	0%	0		17-Nov-14		-57	0				•
GFXX062-1 E8 (E2f) - Start date for piling	0	20-Jan-15	0%	0		20-Nov-14		-49	0	1			•
GFXX077-5 E9 (E2g) - Completion of piling works	0		100%	0	03-Dec-14 A						•		
GFXX078 E10 (E2h) - Completion of piling works	0		100%	0	12-Dec-14 A						•		
E3A, E3B, E3C & E3D (E2a - 1/2/3/4)								1					
Pile Cap Works - E3A, E3B, E3C & E3D													
Pile Cap Works													
SE2A1070 E3 (E2a1/2/3/4)- Marine Pile Cap - Inst.Floating Seal & Casing Head Steelwork	8	22-Dec-14	0%	8	02- lan-15	04-Nov-14	12-Nov-14	-41	49				_
SE2A1080 E3 (E2a1/2/3/4)- Marine Pile Cap - Install precast shell in position (3 units)	6	05-Mar-15	0%	6		13-Nov-14	19-Nov-14			- :			T :
				0				-90	0	- i			_
SE2A1090 E3 (E2a1/2/3/4)- Marine Pile Cap - Inst.Access & make Watertight	8	12-Mar-15	0%	8	20-Mar-15	20-Nov-14	28-Nov-14	-90	0	<u> </u>		<u></u>	
I I IOSAO DIAID O I I I I MAGO		nek Lap Kok I					Date	Revis	sion	Checked	Approve	ed	DWG. No.:
	nth Rollir	ng Program	nme (Pa	ge 28	of 36 Pag	jes)	21-Sep-14						I
Milestones no Level of Effort No Level of	(P	rogress as	of 21-D	ec-14)	)		21-Oct-14			nR			J3518/GCL/PGM/3MRP-M
Milestone Effort.	•	_		•	-		21-Nov-14 21-Dec-14			)B			I



ID	Activity Name	Orig. Durn.	Act. Start / FC Early	Duration %	Rem.	Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float		2014		2015
			Start	Complete	Durn.	Early Finish					24	December           01         08         15		January February March   29 05 12 19 26 02 09 16 23 02 09
GFXX062	E8 (E2f) - Bored Piles (2.20m dia. x 4 nr)	100	20-Jan-15	0%	100	26-May-15	20-Nov-14	23-Mar-15	-49	0				
E9A & E9B (E	E2g - 1/2)													
Foundation	1 Works - E9A & E9B										1			
Foundation	n Works												-	
GFXX067	E9 (E2g) - Bored Piles (2.00m dia. x 6 nr)	105	17-May-14 A	100%	0	03-Dec-14 A								
GFXX068	E9 (E2g) - Sonic & Interface Coring	12	22-Dec-14	0%	12	07-Jan-15	05-Mar-15	18-Mar-15	57	0				
GFXX069	E9 (E2g) - Dismantle temp. removable piling platform	7	08-Jan-15	0%	7	15-Jan-15	19-Mar-15	26-Mar-15	57	0				
Pile Cap Wo	orks - E9A & E9B					1								
Pile Cap W	orks .												-	
SE2G007	E9 (E2g1/2) - Marine Pile Cap - Inst.Floating Seal & Casing Head Steelwork	8	16-Jan-15	0%	8	24-Jan-15	27-Mar-15	11-Apr-15	57	0				
SE2G008	E9 (E2g1/2) - Marine Pile Cap - Install precast shell in position (3 units)	6	26-Jan-15	0%	6	31-Jan-15	13-Apr-15	20-Apr-15	57	0				
SE2G009	E9 (E2g1/2) - Marine Pile Cap - Inst.Access & make Watertight	8	02-Feb-15	0%	8	10-Feb-15	21-Apr-15	06-May-15	59	0				
SE2G01(	E9 (E2g1/2) - Marine Pile Cap - Weld Fin Plates / Plug Rebar & Concrete	2	11-Feb-15	0%	2	12-Feb-15	08-May-15	09-May-15	59	0				
SE2G011	E9 (E2g1/2) - Marine Pile Cap - Dewater precast shell / Remove Lifting Frame	2	13-Feb-15	0%	2	14-Feb-15	11-May-15	12-May-15	59	0				
	E9 (E2g1/2) - Marine Pile Cap - Pile cut down 6nr	12	16-Feb-15	0%	12	04-Mar-15	13-May-15	30-May-15	59	0				
	E9 (E2g1/2) - Marine Pile Cap - Rebar fixing (1st pour)	8	05-Mar-15	0%	8	13-Mar-15	,	19-Jun-15	59	0				
	E9 (E2g1/2) - Marine Pile Cap - Concreting (First pour)	1	14-Mar-15	0%	1	14-Mar-15	22-Jun-15	22-Jun-15	59	0				
	E9 (E2g1/2) - Marine Pile Cap - CJ preparation	4	16-Mar-15	0%	4	19-Mar-15		03-Jul-15	59	0				
	E9 (E2g1/2) - Marine Pile Cap - Rebar fixing (Final pour)	8	20-Mar-15	0%	8	28-Mar-15		17-Jul-15	59	0			-	
E10A & E10B			20 11101 10	0,0		20 11101 10	01 001 10	17 001 10						
	Works - E10A & E10B													
Foundation														
	E10 (E2h) - Bored Piles (2.20m dia. x 6 nr)	132	15-May-14 A	100%	0	12-Dec-14 A					į			
	E10 (E2h) - Sonic & Interface Coring	12	22-Dec-14	0%	12		05-Nov-14	18-Nov-14	-40	0				
	E10 (E2h) - Dismantle temp. removable piling platform	7	08-Jan-15	0%	7		19-Nov-14	26-Nov-14	-40	0	-			
	The state of the s		00-3an-13	0 78		13-3411-13	19-1107-14	20-1107-14	-40	U				_
Pile Cap Wo	orks - E10A & E10B													
	E10 (E2h1/2) - Marine Pile Cap - Inst.Floating Seal & Casing Head Steelwork	8	16-Jan-15	0%	8	24- lan-15	27-Nov-14	05-Dec-14	-40	0				
		6		0%	6	31-Jan-15		12-Dec-14	-40	0			-	
	E10 (E2h1/2) - Marine Pile Cap - Install precast shell in position (3 units) E10 (E2h1/2) - Marine Pile Cap - Inst.Access & make Watertight	0	26-Jan-15 02-Feb-15		0		13-Dec-14	22-Dec-14		0				
	· · · · · · · · · · · · · · · · · · ·	0	11-Feb-15	0%	0			24-Dec-14 24-Dec-14	-40					
	E10 (E2h1/2) - Marine Pile Cap - Weld Fin Plates / Plug Rebar & Concrete	2		0%	2	12-Feb-15			-40	0				<b>"_</b>
	E10 (E2h1/2) - Marine Pile Cap - Dewater precast shell / Remove Lifting Frame	2	13-Feb-15	0%	2	14-Feb-15		29-Dec-14	-40	0				• <u> </u>
	E10 (E2h1/2) - Marine Pile Cap - Pile cut down 6nr	10	16-Feb-15	0%	10			10-Jan-15	-40	0	ļ		-	
	E10 (E2h1/2) - Marine Pile Cap - Rebar fixing (1st pour)	8	03-Mar-15	0%	8		12-Jan-15	20-Jan-15	-40	0				
	E10 (E2h1/2) - Marine Pile Cap - Concreting (First pour)	1	12-Mar-15	0%	1	12-Mar-15		21-Jan-15	-40	0				
	E10 (E2h1/2) - Marine Pile Cap - CJ preparation	4	13-Mar-15	0%	4	17-Mar-15		26-Jan-15	-40	0				•
	E10 (E2h1/2) - Marine Pile Cap - Rebar fixing (Final pour)	8	18-Mar-15	0%	8	26-Mar-15	27-Jan-15	04-Feb-15	-40	0				
Viaduct E5, E														
	Land Foundation													
	Land Access to BCF (Available in Month 17)	0	22-Dec-14	0%	0		05-Nov-14		-47	0				
	E14B (E7d) - Start date for piling	0	30-Jan-15	0%	0		13-Jun-15		106	0				•
	E14A (E8d) - Start date for piling	0	30-Jan-15	0%	0		24-Dec-14		-29	0				•
	(E5E6a/E7E8a)										ļ			
Foundation \	Works - E11A & E11B													
Foundation														
GFXX083	E11 (E5E6a/E7E8a) - Confirm Rockhead levels	8	12-Jun-14 A	75%	2	23-Dec-14	28-Aug-18	29-Aug-18	1088	1088			0	
GFXX084	E11 (E5E6a/E7E8a) - Bored Piles (2.35m dia. x 7 nr)	130	10-Jul-14 A	50%	65	13-Mar-15	13-Jun-14	28-Aug-14	-160	0				
Actual Work	Project ID: J3518DWPrD1-M19	en Mun - Cl	nek Lap Kok L	ink - Sou	thern C	Connection		Date	Revis	sion	Checked	Approv	/ed	DWG. No.:
Planned Bar	Layout: J3518-DWP-3MRP Submission - M19		ng Program				es)	21-Sep-14						
0.000.01.000	Filter: TASK filters: 3-Month Lookahead, No CO Milestones, no Level of Effort, No Level of		rogress as	-	_	_	•	21-Oct-14				1		J3518/GCL/PGM/3MRP-M1
Critical Bar	princatorica, no level of enort, NO Level of	ζ.	. Jg. 555 us	J. Z. D	JJ 17)	,		21-Nov-14	I	[0	)B	1		JUJ 107 GOL/ 1 GIVI/ JIVINI 1911
Milestone	Effort.							21-Dec-14				1		



ID	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float		2014		2015
			Start	Complete	Durn.	Early Finish					24	December           01         08         15	22 29 05 12	February Marci 19 26 02 09 16 23 02 09
GFXX553-1	F1 (F1b) - Pre-drilling for Piles (2 nos)	19	30-Dec-14	0%	19	21-Jan-15	18-Nov-14	09-Dec-14	-34	0				
GFXX553-4	F1 (F1b) - Confirm Rockhead Levels	8	22-Jan-15	0%	8	30-Jan-15	10-Dec-14	18-Dec-14	-34	82				
F2 (F1c)		<u> </u>	J.											
Foundation	Works													
GFXX553-2	F2 (F1c) - Pre-drilling for Piles (2 nos)	19	31-Dec-14	0%	19	22-Jan-15	20-Nov-14	11-Dec-14	-33	0	·			
	F 2 (F1c) - Confirm Rockhead Levels	8	23-Jan-15	0%	8		12-Dec-14	20-Dec-14	-33	81				
F3 (F1d)		<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>							
Foundation	Works													
	F3 (F1d) - Pre-drilling for Piles (2 nos)	19	31-Dec-14	0%	19	22- Jan-15	20-Nov-14	12-Dec-14	-33	0				
	F3 (F1d) - Confirm Rockhead Levels	8	23-Jan-15	0%	8		12-Dec-14	22-Dec-14	-33	81				
Viaduct F2	1 3 (1 1d) - Committockicad Ecocis	0	25-0411-15	070	0	31-0411-10	12-000-14	22-000-14	-33	01				
General F2														
Milestones	Visit of FO. Assessed of Foundation DDA			00/	0	20 Dec 44		00 Dec 44	40	0				
F20010	Viaduct F2 - Approval of Foundation DDA	0		0%	0	30-Dec-14		03-Dec-14	-19	0				
F4 (F2b)														
Foundation														
	F4 (F2b) - Pre-drilling for piles (2 nos)	19	04-Mar-15	0%	19	25-Mar-15	30-Apr-15	22-May-15	45	0				
F5 (F2c)														
Foundation	Works													
GFXX561-2	F5 (F2c) - Pre-drilling for Piles (2 nos)	19	31-Dec-14	0%	19	22-Jan-15	17-Mar-15	11-Apr-15	61	0				
GFXX561-8	F5 (F2c) - Confirm Rockhead Levels	8	23-Jan-15	0%	8	31-Jan-15	13-Apr-15	21-Apr-15	61	141				
F6 (F2d)														
Foundation	Works													
GFXX561-	F6 (F2d) - Confirm Rockhead Levels	8	23-Jan-15	0%	8	31-Jan-15	29-Dec-14	07-Jan-15	-21	81				
GFXX561-3	F6 (F2d) - Pre-drilling for Piles (2 nos)	19	31-Dec-14	0%	19	22-Jan-15	04-Dec-14	27-Dec-14	-21	0				
F7 (F2e)														
Foundation	Works													
GFXX561-	F7 (F2e) - Confirm Rockhead Levels	8	14-Feb-15	0%	8	26-Feb-15	14-Apr-15	22-Apr-15	43	122				
	F7 (F2e) - Pre-drilling for Piles (2 nos)	19	23-Jan-15	0%	19		19-Jan-15	09-Feb-15	-4	0				
F8 (F2f) & Ab		10		- 70	. •	2 . 02 10	2 23 10		•					
Foundation														
	F8 (F2f) - Confirm Rockhead Levels	8	03-Mar-15	0%	8	11-Mar-15	04-Dec-15	12-Dec-15	226	158				
	F8 (F2f) - Pre-drilling for Piles (2 nos)	18	06-Feb-15	0%	18		02-Feb-15	25-Feb-15	-4	0				
Viaduct F3	Pro (P21) - Pre-drilling for Files (2 1105)	10	00-Feb-13	0 /6	10	02-IVIAI-13	02-1-60-13	20-1-60-10	-4	U				
General F3														
Milestones														
	Viaduct F3 - Approval of Foundation DDA	0		00/	0	30-Dec-14		30. lon 15	22	17				
		0		0%	0	30-De0-14		30-Jan-15	23	17				
F9 (F3d-1/F3d														
	Works - F9 (F3d-1/F3d-2)													
Foundation				-						_				
	F9 (F3d) - Pre-drilling for Piles (4 nos)	19	23-Jan-15	0%	19	13-Feb-15		10-Jul-15	115	0				
	F9 (F3d) - Confirm Rockhead Levels	8	14-Feb-15	0%	8	26-Feb-15	11-Jul-15	20-Jul-15	115	194				
F10 (F3c-1/F3	3c-2)													
Foundation	Works - Pier F10													
Foundation	n Works													
GFXX571	F10 (F3c) - Pre-drilling for Piles (4 nos)	18	06-Feb-15	0%	18	02-Mar-15	02-Feb-15	25-Feb-15	-4	0				
GFXX571	F10 (F3c) - Confirm Rockhead Levels	8	03-Mar-15	0%	8	11-Mar-15	27-Feb-15	09-Mar-15	-3	111				
Actual Work	Project ID: J3518DWPrD1-M19	Tuen Mun - C	hek Lan Kok I	ink - Sou	thern C	Connection	1	Date	Revis	sion C	Checked	Approve	DWG. No	· · ·
ACIDAL WOLK	Layout: J3518-DWP-3MRP Submission - M19	3-Month Rolling					ies)	21-Sep-14		†`		1,1.2.0	PVVG. NC	<b>/</b>
Planned Bar	Filter: TASK filters: 3-Month Lookahead, No CC		rogress as				, ,	21-Oct-14					3512	/GCL/PGM/3MRP-M1
Planned Bar Critical Bar	Milestones no Level of Effort No Lovel of							104 11 44 1		In	D	1	1 33310	COLT OIVITOIVIN - IVI
	Milestones, no Level of Effort, No Level of Effort.	(1-	rogress as	0. 2. 5	00,	,		21-Nov-14 21-Dec-14		D	Ь			

)	Activity Name	Orig. Durn.	Act. Start / FC Early	Duration %	Rem.	Act. Finish / FC	Late Start	Late Finish	Total Float	Free Float		2014			2015
			Start	Complete	Durn.	Early Finish					24	01 08 15		29 05 12 19 26	February         March           02         09         16         23         02         09
F11 (F3b-1/F3	3b-2)														<del>,                                    </del>
Foundation	Works - Pier F11 (F3b-1/F3b-2)														
Foundation	n Works														 
GFXX571	F11 (F3b) - Pre-drilling for Piles (4 nos)	18	25-Feb-15	0%	18	17-Mar-15	17-Feb-15	12-Mar-15	-4	0		1			
	F11 (F3b) - Confirm Rockhead Levels	8	18-Mar-15	0%	8	26-Mar-15	13-Mar-15	21-Mar-15	-4	98					
F12 (F3a) & A	I .														
Foundation															
	F12 (F3a) - Pre-drilling for Piles (2 nos)	20	11-Mar-15	0%	20	02-Apr-15	05-May-15	29-May-15	42	0					¦
Viaduct F5	1 12 (1 3d) 1 1 3 d ming 101 1 1103 (2 1103)	20	TT Widi 10	070	20	02 /tpi 10	oo way 10	20 May 10	72	Ŭ					_
General F5												1			
Milestones	Visit of Et. Assessed of Considering DDA			00/		00 D		00 1145	404						
F50010	Viaduct F5 - Approval of foundation DDA	0		0%	0	30-Dec-14		06-Jul-15	134	55		¦			¦
F13 (F5d)												1			
Foundation															
GFXX586-1	F13 (F5d) - Pre-drilling for Piles (3 nos)	12	18-Mar-15	0%	12	31-Mar-15	07-Jul-15	20-Jul-15	87	0					
Viaduct F4															
General F4													L		
F40010	Viaduct F4 - Approval of foundation DDA	0		0%	0	30-Dec-14		26-Jun-15	128	13		,,	•		T
F17 (F4b)			'												
Foundation	Works											1			
GFXX579-2	F17 (F4b) - Pre-drilling for Piles (2 nos)	12	22-Dec-14	0%	12	07-Jan-15	04-Jun-15	17-Jun-15	129	0					
	F17 (F4b) - Confirm Rockhead Levels	8	08-Jan-15	0%	8	16-Jan-15	18-Jun-15	27-Jun-15	129	0		!			
	F17 (F4b) - Bored Piles (2.20m dia. x 2 nos)	70	17-Jan-15	0%	70		29-Jun-15	18-Sep-15	129	53		!			<u> </u>
F18 (F4c) & A			•	0,0	. •	1074110	20 00 10	Cop	.20			1			
Foundation												1			
	F18 (F4c) - Pre-drilling for Piles (2 nos)	12	08-Jan-15	0%	12	21 lon 15	10-Sep-15	23-Sep-15	199	0					
		12			-			<u> </u>			_				
	F18 (F4c) - Confirm Rockhead Levels	8	22-Jan-15	0%	8	30-Jan-15	24-Sep-15	05-Oct-15	199	123		; ;			; }
Approach Ra															
	Imp Land Foundation - HKBCF											1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	amp F Piling		,									1			
	AR-F - Pre-drilling for Piles (28 nos)	24	22-Dec-14	0%	24		13-Dec-14	13-Jan-15	-7	0		1			
	AR-F - Confirm Rockhead Levels	8	22-Jan-15	0%	8	30-Jan-15	14-Jan-15	22-Jan-15	-7	50		i 			ļ 
UPERSTRUC	CTURE				_										
Assembling,	relocation and dismantle of lifting equipment											1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
<b>Lauching Gar</b>	ntry 1											! !			
PR20130	Assembly of Launching Gantry LG1 on Temp.Loading Platform	36	15-Sep-14 A	55.56%	16	17-Jan-15	28-Oct-14	14-Nov-14	-52	7		<u>i</u>			
PR20130-1	Assembly of Launching Gantry LG1 onto Pier B1/B2 (incl.Load Test)	24	27-Jan-15	0%	24	26-Feb-15	15-Nov-14	12-Dec-14	-59	0				_	
PR20140	Viaduct B3 - Learning Curve Gantry LG1	25	27-Feb-15	0%	25	27-Mar-15	13-Dec-14	14-Jan-15	-59	0	†	} !			
/iaduct B Su	perstructure											! ! !			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	perstructure											! !			
Milestones															
	Ready for PH Segment Erection														
	Pier B5 (B3b) ready for Viaduct B3 PH segment erection	0		0%	0	02-Feb-15		16-Dec-14	-38	0	ļ	}		-	i
B300020-1	Pier B4 (B3c) ready for Viaduct B3 PH segment erection	0		0%	0	20-Jan-15		15-Dec-14	-28	0		1		_	•
					-									_	
	Pier B3 (B3d) ready for Viaduct B3 PH segment erection	0		0%	0	16-Feb-15		15-Dec-14	-51	0					•
	Pier B2 (B3e) ready for Viaduct B3 PH segment erection	0		0%	0	30-Dec-14		18-Oct-14	-60	0			1		1
B300060-1	Pier B1 (B3f) ready for Viaduct B3 PH segment erection	0		0%	0	31-Dec-14		29-Oct-14	-52	0		 		<b>†</b>	i i i
Actual Work	Project ID: J3518DWPrD1-M19	Tuen Mun - C	hek Lap Kok	Link - Sou	thern C	Connection		Date	Revis	ion	Checke	ed Approv	ed	DWG. No.:	
Planned Bar	Layout: J3518-DWP-3MRP Submission - M19	3-Month Rollin	-					21-Sep-14							
Critical Bar	Filter: TASK filters: 3-Month Lookahead, No CC Milestones, no Level of Effort, No Level of		rogress as				-	21-Oct-14			ND.			J3518/GCI	/PGM/3MRP-M1
Milestone	Effort.	ν-	J : 3 3 3 3 3		·	,		21-Nov-14			)B				
								21-Dec-14		- 1		ı			

)	Activity Name		Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	2014 	cember	January	2015 February	March
					,									29 05 12 19		
	Ready for Deck Segm											1 1 1				
B300020	1 1	or Viaduct B3 deck segment erection	0		0%	0	19-Mar-15		30-Jan-15	-38	25					
B300030	1 1 1	or Viaduct B3 deck segment erection	0		0%	0	06-Mar-15		30-Jan-15	-27	30					•
B300050	1 1	or Viaduct B3 deck segment erection	0		0%	0	11-Feb-15		14-Jan-15	-24	35				•	
B300060	1 1 1	r Viaduct B3 deck segment erection	0		0%	0	17-Jan-15		14-Nov-14	-52	0			<b>•</b>		
	uperstructure											1				
Milestones	5 1 ( 500											1				
	Ready for PH Segmen				201											
	1 1	for Viaduct B2 PH segment erection	0		0%	0	05-Feb-15		23-Apr-15	59	0				•	
		for Viaduct B2 PH segment erection	0		0%	0	19-Mar-15		05-Mar-15	-12	1					
	1 1	or Viaduct B2 PH segment erection	0		0%	0	02-Mar-15		10-Feb-15	-14	1					•
	1 1	or Viaduct B2 PH segment erection	0		0%	0	14-Feb-15		17-Jan-15	-24	1				•	
		r Viaduct B2 PH segment erection	0		0%	0	06-Mar-15		05-Jan-15	-49	0	!				•
	Ready for Deck Segm															
		for Viaduct B2 deck segment erection	0		0%	0	25-Feb-15		15-May-15	63	148	<del>.</del>			<del> </del>	•
	uperstructure											1				 
Milestones												1 1 1			1	 
	Ready for PH Segmen				i	,				, ,						
		for Viaduct B1 PH segment erection	0		0%	0	10-Jan-15		10-Jun-15	119	0			•		
		for Viaduct B1 PH segment erection	0		0%	0	15-Jan-15		11-May-15	91	0			<b>•</b>	: <del>-</del>	
	, ,,	for Viaduct B1 PH segment erection	0		0%	0	10-Mar-15		07-May-15	45	0					•
Milestones	Ready for Deck Segm						,									
B100030		for Viaduct B1 deck segment erection	0		0%	0	02-Mar-15		12-Aug-15	132	217					•
B100040	Pier B15 (B1e) ready	for Viaduct B1 deck segment erection	0		0%	0	06-Mar-15		20-Jul-15	108	193					•
Viaduct C Su	uperstructure															
	uperstructure															
Milestones																
	Ready for PH Segmen															
C100010-1	Pier C20 (C1c) ready	for Viaduct C1 PH segment erection	0		0%	0	20-Mar-15		12-Nov-15	192	0					
Viaduct E										_						
Bridge E1 Su	uperstructure															
Milestones																
Milestones	Ready for PH Segmen	t Erection														
E100040-1	Pier B1 (B3f) ready fo	r Viaduct E1 PH segment erection	0		0%	0	31-Dec-14		29-Oct-14	-52	0			•		
Milestones	Ready for Deck Segm	ent Erection														
E100040	Pier B1 (B3f) ready fo	r Viaduct E1 deck segment erection	0		0%	0	17-Jan-15		23-Jan-15	5	64	!		•		
At-Grade Roa	adworks & Other W	orks along NLH														
Viaduct D SI	lope Works									-		1				
Slope 10NW-	'-C/F10											1				
M201215	10NW-C/F10 - Install	Geo. Instru. & Baseline Monitoring	30	26-Jul-14 A	0%	30	28-Jan-15	28-Jul-16	08-Sep-16	415	323	-			1	1 1 1 1
Slope 10NW-	-C/F11															
M201220	10NW-C/F11 - Install	Geo. Instru. & Baseline Monitoring	30	16-Aug-14 A	0%	30	28-Jan-15	28-Sep-16	05-Nov-16	459	531	i			1	 
At-Grade Roa	adworks and Other	Works along Cheung Tung Road										1 1 1			1	 
Re-alignmen	nt of Cheung Tung	Road adjacent to Viaduct B										1 1 1				 
RP00020	Construct new ESS a	djacent to Viaduct B	60	15-Sep-14 A	28.33%	43	12-Feb-15	20-Mar-14	26-May-14	-193	0	<u> </u>			-	1 1 1
RP00030	Inst. new equip. & tes	ing / commissioning of new ESS	60	13-Feb-15	0%	60	11-May-15	27-May-14	29-Aug-14	-193	0	   				
Box Culvert	Extension											1 1 1				 
Actual Work		Project ID: J3518DWPrD1-M19	Tuen Mun - C	hek Lap Kok I	_ink - Sou	ıthern C	Connection		Date	Revis	ion C	hecked App	proved	DWG. No.:		
Planned Bar		Layout: J3518-DWP-3MRP Submission - M19	3-Month Rolli	•					21-Sep-14					]		
Critical Bar		Filter: TASK filters: 3-Month Lookahead, No CC Milestones, no Level of Effort, No Level of		Progress as	-	_	_		21-Oct-14					J3518/GC	L/PGM/3I	MRP-M
<ul> <li>Milestone</li> </ul>		Effort.	γ.	. J. 525 mo		,	•		21-Nov-14		DE				0 01	
*									21-Dec-14							

	Activity Name	Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float		December		January	February	1
			Start	Complete	Duiti.	Early Fillish					24 0		22 29 05		6 02 09 16 2	
BCE0030	Demolish existing culvert / step channel / existing staircase	12	14-Oct-14 A	100%	0	21-Nov-14 A										
BCE0040	Prepare slab base & blind	6	25-Nov-14 A	100%	0	10-Dec-14 A										
BCE0050	Culvert RC base	12	01-Dec-14 A	100%	0	10-Dec-14 A					_					
BCE0060	Culvert RC walls & connect new 450 dia. stormwater pipe	20	12-Dec-14 A	0%	20	16-Jan-15	24-Jan-15	16-Feb-15	26	0					: !	
BCE0070	Culvert RC roof	20	17-Jan-15	0%	20	09-Feb-15	17-Feb-15	14-Mar-15	26	0						
BCE0080	Catch pit rear wall to +3.189	6	10-Feb-15	0%	6	16-Feb-15	16-Mar-15	21-Mar-15	26	0						
BCE0090	Catch pit rear wall to +7.600	6	17-Feb-15	0%	6	26-Feb-15	23-Mar-15	28-Mar-15	26	0						ı
BCE0100	Catch pit rear wall to +12.250 w/ backfill	6	27-Feb-15	0%	6	05-Mar-15	30-Mar-15	11-Apr-15	26	0						
BCE0110	Construct staircases & backfill to required elevation	12	06-Mar-15	0%	12	19-Mar-15	13-Apr-15	28-Apr-15	26	0						
BCE0120	Construct step irons at 300c/c staggerd & new railings	6	06-Mar-15	0%	6	12-Mar-15	·	28-Apr-15	32	6						
BCE0130	Construct all proposed connecting U-Channels	12	06-Mar-15	0%	12	19-Mar-15		28-Apr-15	26	219						
Viaduct B Slo	A Company of the Comp	·														
Slope 9SE-B/	•															
Zone A																
	9SE-B/C9 Zone A - Soil nail 37 nr. @ +18.5 (Row F)	12	01-Aug-14 A	100%	0	21-Nov-14 A										
	9SE-B/C9 Zone A - Inst. 300UC @ +15.0	10	22-Dec-14	0%	10		17-Aug-18	29-Aug-18	968	968						1 1 1
	9SE-B/C9 Zone A - Inst. 3000C @ +15.0	5	18-Nov-14 A	100%		06-Dec-14 A		23-Muy-18	900	900						1 1
		-			0			29-Aug-18	070	070		_				1
	9SE-B/C9 Zone A - Raking Drain 14 nr @ +16.0	5	22-Dec-14	0%	5		24-Aug-18	29-Aug-18	973	973	· <u></u>	<u></u>				
	9SE-B/C9 Zone A - Excav. to +11.5	5	01-Dec-14 A	100%	0	13-Dec-14 A		00.4.40	007		-					
	9SE-B/C9 Zone A - Soil nail 42 nr @ +13.0 (Row C)	12	16-Dec-14 A	8.33%	11		16-Aug-18	29-Aug-18	967	967		_ =				
	9SE-B/C9 Zone A - Excav. to +9.0	5	01-Dec-14 A	100%	0	06-Dec-14 A					-					
	9SE-B/C9 Zone A - Soil nail 55 nr @ +11.0 (Row B)	14	08-Dec-14 A	35.71%	9		07-Aug-18	17-Aug-18	960	0						
	9SE-B/C9 Zone A - Raking Drain 27 nr @ +10.5	9	05-Jan-15	0%	9		18-Aug-18	29-Aug-18	960	960					¦ 	
	9SE-B/C9 Zone A - Excav. to +7.0	5	24-Nov-14 A	100%	0			29-Aug-18	978	978	i					
	9SE-B/C9 Zone A - Soil nail 67 nr @ +9.0 (Row A)	15	18-Dec-14 A	0%	15	10-Jan-15	16-Jan-15	02-Feb-15	19	0		-				
SWVB1270	9SE-B/C9 Zone A - Raking Drain 33 nr @ +8.5	11	12-Jan-15	0%	11	23-Jan-15	03-Feb-15	14-Feb-15	19	0						
SWVB1280	9SE-B/C9 Zone A - Excav. to +5.50	5	24-Jan-15	0%	5	29-Jan-15	16-Feb-15	24-Feb-15	19	0						
SWVB1290	9SE-B/C9 Zone A - Form 375UC @ +5.5	12	30-Jan-15	0%	12	12-Feb-15	25-Feb-15	10-Mar-15	19	0				]		
SWVB1300	9SE-B/C9 Zone A - Hydroseeding	6	13-Feb-15	0%	6	23-Feb-15	11-Mar-15	17-Mar-15	19	43						-
Zone B & C																
SWVB1440	9SE-B/C9 Zone B & C - Soil nail 87 nr. @+20.5 (Row G)	17	22-Sep-14 A	100%	0	11-Dec-14 A										
SWVB1460	9SE-B/C9 Zone B & C - Soil nail 92 nr. @ +18.5 (Row F)	17	27-Oct-14 A	100%	0	15-Dec-14 A										
SWVB1470	9SE-B/C9 Zone B & C - Raking Drain 13 nr @ +18.6	5	22-Dec-14	0%	5	29-Dec-14	24-Aug-18	29-Aug-18	973	973						
SWVB1480	9SE-B/C9 Zone B & C - Excav. to approx +15	8	17-Oct-14 A	100%	0	12-Dec-14 A									- <del>†</del>	
SWVB1490	9SE-B/C9 Zone B & C - Soil nail 35 nr. @+16.5 (Row E)	12	18-Oct-14 A	100%	0	20-Dec-14 A					- 1					1
SWVB1500	9SE-B/C9 Zone B & C - Raking Drain 14 nr @ +17.0	5	22-Dec-14	0%	5	29-Dec-14	25-Nov-14	29-Nov-14	-23	0						
SWVB1510	9SE-B/C9 Zone B & C - Form 375UC @ approx +16.0	18	30-Dec-14	0%	18	20-Jan-15	01-Dec-14	20-Dec-14	-23	1			<u> </u>			
SWVB1520	9SE-B/C9 Zone B & C - Rock excav. to +6.5	42	24-Nov-14 A	42.86%	24	21-Jan-15	24-Nov-14	20-Dec-14	-24	0						
SWVB1530	9SE-B/C9 Zone B & C - Raking Drain 8 nr @ +8.0 in rock	8	22-Jan-15	0%	8	30-Jan-15	22-Dec-14	02-Jan-15	-24	0					] 	
SWVB1540	9SE-B/C9 Zone B & C - Rock excav. to +5.5	42	31-Jan-15	0%	42	24-Mar-15	03-Jan-15	24-Feb-15	-24	0					Ļ	!
SWVB1560	9SE-B/C9 Zone B & C - Install Geo. Instru. & Baseline Monitoring	30	09-Jun-14 A	0%	30	28-Jan-15		24-Feb-15	20	44	-					 
Slope 9SE-B/																1 1 1
	9SE-B/C8 -Raking Drain 9 nr	12	22-Dec-14	0%	12	07-Jan-15	15-Aug-18	29-Aug-18	966	966						1 1 1
	9SE-B/C8 -Inst. 225UC & railings @ approx +15.0	14	22-Dec-14	0%	14	09-Jan-15	-	18-Sep-14	-90	1	<del> </del>			 	- <del> </del>	
	9SE-B/C8 -Rock excav. to +7.00	30	10-Oct-14 A	50%	15	10-Jan-15		18-Sep-14	-91	0						1
	9SE-B/C8 -Raking Drain 9 nr	10	12-Jan-15	0%	10	22-Jan-15	-	30-Sep-14	-91	0						
	9SE-B/C8 -Inst. 225UC	12	23-Jan-15	0%	12	05-Feb-15	·	18-Oct-14	-91	0						1
344 ADT 120							00 000-14				<u>                                     </u>		, I_		i	1
Actual Work	Project ID: J3518DWPrD1-M19 Layout: J3518-DWP-3MRP Submission - M19	Tuen Mun - Cl	-				\	Date 21-Sep-14	Revis	sion (	Checked	Approve		6. No.:		
Planned Bar Critical Bar	Filter: TASK filters: 3-Month Lookahead, No CC	3-Month Rollin	-	-	_	_	jes)	21-Sep-14 21-Oct-14						F40/00'	/DOB# /OB#	
◆ Milestone	Milestones, no Level of Effort, No Level of	(P	rogress as	or 21-D	ec-14	·)		21-Nov-14		D	В		13	o 18/GCL	_/PGM/3M	KY-IVI
	Effort.							21-Dec-14								

)	Activity Name		Orig. Durn.	Act. Start / FC Early Start	Duration % Complete	Rem. Durn.	Act. Finish / FC Early Finish	Late Start	Late Finish	Total Float	Free Float	2014 December		2015 February	March
SW//B2140	9SE-B/C8 - Install Ge	o. Instru. & Baseline Monitoring	30	09-Jun-14 A	0%	30	28- Jan-15	08-Sep-14	18-Oct-14	-84	7	24 01 08 15	22 29 05 12 19 2	6 02 09 16	23 02 09
	9SE-B/C8 - Hydroseed	•	6	06-Feb-15	0%	6		20-Oct-14	25-Oct-14	-91	0			·	
Slope 9SE-B/	-	ли ig	0	00-1-60-13	0 76	0	12-1 60-13	20-001-14	25-00-14	-91	U				
<u> </u>	9SE-B/F9 - Soil nail 59	Onr (Row A & B)	Q	13-Oct-14 A	100%	0	27-Nov-14 A								
	9SE-B/F9 - Soil nail 33	<u> </u>	8	08-Nov-14 A	100%	0	27-Nov-14 A								
	9SE-B/F9 - Raking Dr		5	22-Dec-14	0%	5		24-Aug-18	29-Aug-18	973	973				
	9SE-B/F9 - Excav. to		8	28-Nov-14 A	100%	0	16-Dec-14 A	-	20-Aug-10	373	373				
		vidth conc. maintenance staircase w/ railings & 450UC	18	22-Dec-14	0%	18		24-Sep-14	18-Oct-14	-72	12				
	9SE-B/F9 - Inst. 225U		12	22-Dec-14	0%	12	07-Jan-15	·	18-Oct-14	-66	18				
		b. Instru. & Baseline Monitoring	30	22-Dec-14	0%	30	28-Jan-15		18-Oct-14	-84	0				
	9SE-B/F9 - Hydrosee	•	6	29-Jan-15	0%	6		20-Oct-14	25-Oct-14	-84	0				
Slope 9SE-B/	1	uning	0	29-3411-13	0 78	0	04-1 eb-13	20-001-14	25-001-14	-04	U			- <del> </del>	
<u> </u>	9SE-B/F85 - Filling &	forming slope	18	13-Feb-15	0%	18	00-Mar-15	18-Mar-15	14-Apr-15	25	0				
	9SE-B/F85 - Form U(	<u> </u>	12	10-Mar-15	0%	12		02-Oct-15	17-Oct-15	137	0				
			12	10-Wai-13	0 78	12	25-Iviai-15	02-001-13	17-00-13	137	U				
West Portion		Road adjacent to Viaduct C													
RW61000		f Abut. C) - Site Clearance	42	03-Sep-14 A	76.19%	10	05-Jan-15	07-Nov-14	18-Nov-14	-38	38				
RW61010	,	f Abut. C) - Site Clearance	60	08-Jan-15	0%	60		07-Nov-14	19-Jan-15	-50	0			İ	İ
RW61010	,	f Abut. C) - Utilily diversion	90	09-Mar-15	0%	90	27-Jul-15		06-May-15	-50	0				
RW61082	,	f Abut. C) - Road formation	48	20-Nov-14 A	31.25%	33	18-Feb-15		15-Dec-14	-53	0				_
RW61084	,	f Abut. C) - Retaining Wall C1	48	13-Oct-14 A	75%	12		21-Oct-14	03-Nov-14	-53	0				
East Portion	Realigh CTR (West 0	Abut. C) - Retaining Wall C1	40	13-00-14 A	1570	12	07-Jan-13	21-001-14	03-1107-14	-55	U				
RW60000	Realign CTR (Fast of	Abut. C) - Site Clearance	54	01-Dec-14 A	18.52%	44	13-Feb-15	27-Jan-15	21-Mar-15	28	80			1	1
RW60005	,	Abut. C) - Site Clearance  Abut. C) - Road formation	66	06-Mar-15	0%	66		31-Dec-14	21-Mar-15	-52	0				
RW61086	,	Abut. C) - Retaining Wall C2	54	22-Nov-14 A	100%	0	22-Nov-14 A		21-IVIAI-15	-52	0				
	Gates G6 & G7	Abut. C) - Retaining Wall C2	34	22-110V-14 A	10076	U	22-NOV-14 A	<u> </u>				•			 
		Fence /Beam Barriers betw new Gates G6 & G7	24	20 Oct 14 A	250/	10	14 lon 15	11 11 15	04 Can 45	160	0				
RP10070 RP10080			30	30-Oct-14 A	25% 0%	18 30		11-Aug-15 05-Sep-15	04-Sep-15 14-Oct-15	160 160	0				
RP10090	Install new gates G6 &	vement, kerbing for new gates G6 & G7		15-Jan-15							-				
	-	x G /	24	23-Feb-15	0%	24	21-Mai-15	16-Oct-15	13-Nov-15	160	210			_	
ESS Sub-Stat		Sub.Stn. adjacent to Viaduct C	40	12 Aug 14 A	750/	10	07 lon 15	27 Oct 14	00 Nov 14	40	0				
RP10020 RP10030		commissioning of new ESS	48	13-Aug-14 A	75% 0%	12		27-Oct-14	08-Nov-14	-48	0			; <del>-</del>	
	· · · · · · · · · · · · · · · · · · ·	on missioning of new ESS	80	08-Jan-15	U%	60	21-Mai-13	10-Nov-14	21-Jan-15	-48	0				
Viaduct C Slo Slope 10NW-															
	10NW-C/C22 - Slope	works	10	19-Dec-14 A	100%	0	19-Dec-14 A								
Slope 10NW-	1	WOINS	18	19-Dec-14 A	10076	0	19-Dec-14 A	<u> </u>							
	10NW-C/C26 - Slope	works	60	19-Dec-14 A	100%	0	19-Dec-14 A							·	
Slope 10NW-	-	WOINS	00	19-Dec-14 A	10076	0	19-Dec-14 A	<u> </u>				•			! !
	10NW-C/C27 - Slope	works	24	10 Doc 14 A	100%	0	10 Doc 14 A								 
			24	19-Dec-14 A	100%	0	19-Dec-14 A	<u> </u>				<b>'</b>			1 1 1
	ain Hazard Mitigation	on works													
	BDA Approval for Na	tural Terrain Hazard Mitigation Measures	0		00/	0	30-Dec-14		20-Mar-15	50	0			<del> </del>	
Check Dam n		turar retrain mazaru miliyalion medsures	U		0%	0	30-060-14		20-iviai-13	58	0				1 1 1
GFXX497	Predrilling Works for (	Shack Dame	25	31-Dec-14	0%	25	29-Jan-15	23-Mar-15	29-Apr-15	66	0			1	
GFXX497 GFXX499	-		6											1	
GFXX499 GFXX500	CD1 - Mobilization of M	•	52	23-Jan-15 30-Jan-15	0%	52	29-Jan-15	22-Apr-15 02-May-15	29-Apr-15 25-Jul-15	66	0				
GLVV900	ו או אוויים וויים ויים ויים ויים ויים וי	шш н <del>е</del> (топоэ. <i>)</i>	52	30-Jan-15	0%	52	10-Apr-15	u∠-iviay-15	∠ט-Jul- 15	66	U			i	i
Actual Work		Project ID: J3518DWPrD1-M19 Layout: J3518-DWP-3MRP Submission - M19		hek Lap Kok I					Date	Revis	sion	Checked Approve	DWG. No.:		
Planned Bar Critical Bar		Filter: TASK filters: 3-Month Lookahead, No CC	3-Month Roll		-	_	_	jes)	21-Sep-14 21-Oct-14						
Milestone		Milestones, no Level of Effort, No Level of	(1	Progress as	of 21-D	ec-14	.)		21-Nov-14			В	── J3518/GC	L/PGM/3N	IRP-M1
		Effort.							21-Dec-14						
		i										•			

## Appendix C

## Environmental Mitigation and Enhancement Measure Implementation Schedules

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

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

## Environmental Mitigation and Enhancement Measure Implementation Schedule

EIA Reference	EM&A Manual	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Imp Stag	lement ges	tation	Status
	Reference					D	С	О	
Air Qualit	Y	·							
4.8.1	3.8	An effective watering programme of eight daily watering with complete coverage, is estimated to reduce by 50%. This is recommended for all areas in order to reduce dust levels to a minimum;	All areas / throughout construction period	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		<b>~</b>
4.8.1	3.8	The Contractor shall, to the satisfaction of the Engineer, install effective dust suppression measures and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver, dust levels are kept to acceptable levels.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<b>*</b>
4.8.1	3.8	The Contractor shall not burn debris or other materials on the works areas.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<b>✓</b>
4.8. 1	3.8	In hot, dry or windy weather, the watering programme shall maintain all exposed road surfaces and dust sources wet.	All unpaved haul roads / throughout construction period in hot, dry or windy weather	Contractor	TMEIA Avoid smoke impacts and disturbance		Y		<>
4.8.1	3.8	Where breaking of oversize rock/concrete is required, watering shall be implemented to control dust. Water spray shall be used during the handling of fill material at the site and at active cuts, excavation and fill sites where dust is likely to be created.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<b>✓</b>
4.8. 1	3.8	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m to minimise the fugitive dust arising from unloading.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<>
4.8.1	3.8	During transportation by truck, materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport.	All areas / throughout construction period	Contractor	TMEIA Avoid dust generation		Y		<b>~</b>

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

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

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

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

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	С	О	
6.10		All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<b>✓</b>
6.10		Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.	All areas/ throughout construction period	Contractor	TM-EIAO		Y		<>
6.10		Roadside gullies to trap silt and grit shall be provided prior to discharging the stormwater into the marine environment. The sumps will be maintained and cleaned at regular intervals.	Roadside/design and operation	Design Consultant/ Contractor	TM-EIAO	Y		Υ	<b>~</b>
6.10		All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	All areas/ throughout construction period	Contractor	EM&A Manual		Υ		<b>*</b>
Water Quali	ity Monitoring	3			•				
6.10	Section 5	Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen.  Nutrients and metal parameters shall also be measured for Mf sediment operations (only HKBCF and HKLR required handling of Mf sediment) during baseline, backfilling and post construction period.  One year operation phase water quality monitoring at designated stations	Designated monitoring stations as defined in EM&A Manual, Section 5/ Before, through-out marine construction period, post construction and monthly operational phase water quality monitoring for a year.	Contractor	EM&A Manual		Y	Y	<b>~</b>
Ecology									
8.14	6.3	Specification for and implement pre, during and post construction dolphin abundance monitoring.	All Areas/Detailed Design/ during construction works/post construction	Design Consultant/ Contractor	TMEIA	Y	Y	Y	<b>✓</b>
8.14	6.3	Specification for bored piling monitoring	Detailed Design	Design Consultant	TMEIA	Y			✓
8.14	6.3	Implement any recommendations of the bored piling monitoring	Southern marine viaduct/Throughout	Contractor	TMEIA		Y		<b>✓</b>

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

EIA Reference	EM&A Manual Reference	Environmental Protection Measures		Implementation Agent	Relevant Standard or Requirement	Imp Stag		on Status
						D	C O	
			season/construction phase					
7.13	6.5	The loss of habitat shall be supplemented by enhancement planting in accordance with the landscape mitigation schedule.	All areas / As soon as accessible	Contractor	TMEIA		Y	AFCD/LCSD
7.13	6.5	Spoil heaps shall be covered at all times.	All areas / Throughout construction period	Contractor	TMEIA		Y	✓
7.13	6.5	Avoid damage and disturbance to the remaining and surrounding natural habitat	All areas / Throughout construction period	Contractor	TMEIA		Y	<b>✓</b>
7.13	6.5	Placement of equipment in designated areas within the existing disturbed land	All areas / Throughout construction period	Contractor	TMEIA		Y	<b>✓</b>
7.13	6.5	Disturbed areas to be reinstated immediately after completion of the works.	All areas / Throughout construction period	Contractor	TMEIA		Y	✓
7.13	6.5	Construction activities should be restricted to the proposed works boundary	All areas / Throughout construction period	Contractor	TMEIA		Y	<b>✓</b>
LANDSCAPE	AND VISUAL	· t	.i			<u>Å</u>		i
10.9	7.6	Round angle, patterned finishes, and oval shaped pier were considered in the viaduct design, and further details will be developed under ACABAS submission (DM3)	All areas/detailed design	Design Consultant	TMEIA	Y		n/a
10.9	7.6	Details of the street furniture will be developed in the detailed design stage (DM4)	All areas/detailed design	Design Consultant	TMEIA	Y		n/a
10.9	7.6	Aesthetic design of the viaduct, retaining wall and other structures will be developed under ACABAS submission (DM5)	All areas/detailed design	Design Consultant	TMEIA	Y		n/a
10.9	7.6	Existing trees on boundary of the Project Area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree	All areas/detailed design/ during construction	Design Consultant/ Contractor	TMEIA	Y	Y	<b>✓</b>

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

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

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

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

EIA Reference	EM&A Manual	<b>Environmental Protection Measures</b>	Location/ Timing	Implementation Agent	Relevant Standard or Requirement		Implementation Stages		Status
	Reference					D	С	O	
		scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.		alt.					
12.6	8.1	All falsework will be steel instead of wood.	All areas / throughout construction period	Contractor	TMEIA		Y		<b>*</b>
12.6	8.1	Chemical waste producers should register with the EPD. Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows:  - suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed;  - Having a capacity of <450L unless the specifications have been approved by the EPD; and  - Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations. Clearly labelled and used solely for the storage of chemical wastes;  - Enclosed with at least 3 sides;  - Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest;  - Adequate ventilation;  - Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and  - Incompatible materials are adequately separated.	All areas / throughout construction period	Contractor	TMEIA		Y		
12.6	8.1	Waste oils, chemicals or solvents shall not be disposed of to drain,	All areas / throughout	Contractor	TMEIA		Y		<b>★</b>

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

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

#### Notes:

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

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

#### Remark:

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

#### Appendix D

### Summary of Action and Limit Levels

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

Parameters	Action	Limit
24 Hour TSP Level in μg/m³	ASR9A/ASR8A = 178 ASR9C/ASR8/ASR9 = 178	260
1 Hour TSP Level in $\mu g / m^3$	ASR9A/ASR8A = 394 ASR9C/ASR8/ASR9 = 393	500

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

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

#### Table D3 Action and Limit Levels for Water Quality

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

#### Notes:

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

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

Para	meter	Action Level#	Limit Level#
(e)	The 1%-ile of baseline data	a for surface and middle DO is 4.	2 mg/L, whilst for bottom DO
	is 3.6 mg/L.		

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

	North Lant	tau Social Cluster		
	NEL	NWL		
Action Level	STG < 70% of baseline &	STG < 70% of baseline &		
	ANI < 70% of baseline	ANI < 70% of baseline		
Limit Level	[STG < 40% of baseling	ne & ANI < 40% of baseline]		
	and			
	STG < 40% of baseling	ne & ANI < 40% of baseline		

#### Notes:

- STG means quarterly encounter rate of number of dolphin sightings, which is 6.00 in NEL and 9.85 in NWL during the baseline monitoring period
- 2. ANI means quarterly encounter rate of total number of dolphins, which is **22.19 in NEL** and **44.66 in NWL** during the baseline monitoring period
- 3. For North Lantau Social Cluster, AL will be trigger if NEL or NWL fall below the criteria; LL will be triggered if both NEL and NWL fall below the criteria.

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

	North Lanta	u Social Cluster
	NEL	NWL
Action Level	STG < 4.2 & ANI< 15.5	STG < 6.9 & ANI < 31.3
Limit Level	[STG < 2.4	4 & ANI <8.9]
		and
	[STG < 3.9	& ANI <17.9]

#### Appendix E

# EM&A Monitoring Schedules

# HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section Impact Noise Monitoring Schedule (1 to 31 December 2014)

Alternative Noise Monitoring at Pak Mong Village Entrance Pavilion

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Dec	02-Dec	03-Dec	04-Dec	05-Dec	06-Dec
		(Monitoring cancelled				
		due to rejection of				
		access to the				
		monitoring station)				
07-Dec	08-Dec	09-Dec	10-Dec			13-Dec
	Noise Impact			Noise Impact Monitoring		
	Monitoring					
14-Dec	15-Dec				19-Dec	20-Dec
			Noise Impact Monitoring			
21-Dec	22-Dec		24-Dec	Holiday 25-Dec	Holiday 26-Dec	27-Dec
		Noise Impact				
		Monitoring				
28-Dec		30-Dec	31-Dec			
	Noise Impact					
	Monitoring					

## HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section Impact Air Quality Monitoring Schedule (1 to 31 December 2014)

Alternative Air Quality Monitoring at WA4 and MTRC Depot Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Dec		03-Dec	04-Dec	05-Dec	06-Dec
		1-hr TSP Monitoring				
		24-hr TSP Monitoring				
		(Monitoring at Pak				
		Mong Watch Tower				
		cancelled due to				
		rejection of access to				
		the monitoring station)				
07-Dec		09-Dec	10-Dec		12-Dec	13-Dec
	1-hr TSP Monitoring			1-hr TSP Monitoring		
	24-hr TSP Monitoring			24-hr TSP Monitoring		
14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec	20-Dec
14 000	10 000		1-hr TSP Monitoring	10 000	10 000	20 000
			24-hr TSP Monitoring			
			2 · · · · · · · · · · · · · · · · · · ·			
_						
21-Dec	22-Dec		24-Dec	Holiday 25-Dec	Holiday 26-Dec	27-Dec
		1-hr TSP Monitoring				
		24-hr TSP Monitoring				
28-Dec	29-Dec	30-Dec	31-Dec			
	1-hr TSP Monitoring					
	24-hr TSP Monitoring					

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

Alternative Noise Monitoring at Pak Mong Village Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
,			-	Holiday 01-Jan	02-Jan	03-Jar
					Noise Impact	
					Monitoring	
					g	
04-Jan	05-Jan	06-Jan	07-Jan	08-Jan	09-Jan	10-Jai
			Noise Impact Monitoring			
			,			
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jar
		Noise Impact				
		Monitoring				
		]				
18-Jan	19-Jan	20-Jan			23-Jan	24-Jar
	Noise Impact			Noise Impact		
	Monitoring			Monitoring		
	Ĭ					
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jar
			Noise Impact Monitoring			

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

Alternative Air Quality Monitoring at WA4 and MTRC Depot Entrance

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

## HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section Impact Noise Monitoring Schedule (1 to 28 February 2015)

Alternative Noise Monitoring at Pak Mong Village Entrance

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

## HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section Impact Air Quality Monitoring Schedule (1 to 28 February 2015)

Alternative Air Quality Monitoring at WA4 and MTRC Depot Entrance

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Feb	02-Feb	03-Feb	04-Feb	05-Feb	06-Feb	07-Fel
		1-hr TSP Monitoring				
		24-hr TSP Monitoring				
08-Feb	09-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Fe
	1-hr TSP Monitoring			1-hr TSP Monitoring		
	24-hr TSP Monitoring			24-hr TSP Monitoring		
15-Feb	16-Feb	17-Feb	18-Feb	Holiday 19-Feb	Holiday 20-Feb	Holiday 21-Fe
		1-hr TSP Monitoring				·
		24-hr TSP Monitoring				
22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Fe
	1-hr TSP Monitoring			1-hr TSP Monitoring		
	24-hr TSP Monitoring			24-hr TSP Monitoring		
				9		

### HY/2012/07 - Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section Impact Marine Water Quality Monitoring (WQM) Schedule (December 14)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturda	
	01-Dec	02-Dec	03-Dec		05-Dec		06-Dec
		WQM		WQM		WQM	
		Mid-Ebb		Mid-Ebb		Mid-Ebb	
		9:17		11:17		12:55	
		(07:32 - 11:02)		(09:32 - 13:02)		(11:10 - 14:40)	
		Mid-Flood		Mid-Flood		Mid-Flood	
		15:52		17:04		18:12	
07 D		(14:07 - 17:37)	10 D	(15:19 - 18:49)	10.0-	(16:27 - 19:57)	10 D
07-Dec	08-Dec	09-Dec	10-Dec	11-Dec WQM	12-Dec	WQM	13-Dec
		<b>WQM</b> Mid-Flood		Mid-Flood		Mid-Flood	
		9:34		10:51		12:18	
		9.34 (07:49 - 11:19)		(09:06 - 12:36)		(10:33 - 14:03)	
		(07.49 - 11.19) Mid-Ebb		(09.06 - 12.36) Mid-Ebb		(10.33 - 14.03) Mid-Ebb	
		14:47		16:00		17:42	
		(13:02 - 16:32)		(14:15 - 17:45)		(15:57 - 19:27)	
14-Dec	15-Dec	(13.02 - 16.32) 16-Dec	17-Dec		19-Dec		20-Dec
14-Dec		WQM		WQM		WQM	20-Dec
		Mid-Ebb		Mid-Ebb		Mid-Ebb	
		7:20		10:04		11:48	
		(05:35 - 09:05)		(08:19 - 11:49)		(10:03 - 13:33)	
		Mid-Flood		Mid-Flood		Mid-Flood	
		14:36		15:49		17:08	
		(12:51 - 16:21)		(14:04 - 17:34)		(15:23 - 18:53)	
21-Dec	22-Dec	23-Dec	24-Dec		26-Dec		27-Dec
		WQM		WQM		WQM	
		Mid-Flood		Mid-Flood		Mid-Flood	
		8:39		10:07		11:42	
		(06:54 - 10:24)		(08:22 - 11:52)		(09:57 - 13:27)	
		Mid-Ebb		Mid-Ebb		Mid-Ebb	
		14:06		15:39		17:31	
		(12:21 - 15:51)		(13:54 - 17:24)		(15:46 - 19:16)	
28-Dec	29-Dec	30-Dec	31-Dec		02-Jan		03-Jan
		WQM					
		Mid-Ebb					
		7:28					
		(05:43 - 09:13)					
		Mid-Flood					
		14:23					
		(12:38 - 16:08)					

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
				01-Jan	02-Jan		03-Jan
				WQM		WQM	
				Mid-Ebb		Mid-Ebb	
				10:12		12:02	
				(08:27 - 11:57)		(10:17 - 13:47)	
				Mid-Flood		Mid-Flood	
				15:56		17:15	
04 lan	05 lan	00 lan	07 lan	(14:11 - 17:41)	00 lan	(15:30 - 19:00)	10-Jan
04-Jan	05-Jan	06-Jan WQM	07-Jan	08-Jan	09-Jan	WQM	10-Jan
		Mid-Flood		Mid-Flood		Mid-Flood	
		8:35		9:35		10:31	
		(06:50 - 10:20)		(07:50 - 11:20)		(08:46 - 12:16)	
		(06.50 - 10.20) Mid-Ebb		Mid-Ebb		Mid-Ebb	
		13:49		14:52		16:01	
		(12:04 - 15:34)		(13:07 - 16:37)		(14:16 - 17:46)	
11-Jan			14-Jan		16-Jan		17-Jan
11-5811		WQM	14-5811	WQM		WQM	17-Jaii
		Mid-Flood		Mid-Ebb		Mid-Ebb	
		12:26		7:45		10:37	
		(10:41 - 14:11)		(06:00 - 09:30)		(08:52 - 12:22)	
		Mid-Ebb		Mid-Flood		Mid-Flood	
		18:52		14:04		15:50	
		(17:07 - 20:37)		(12:19 - 15:49)		(14:05 - 17:35)	
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan		24-Jan
		WQM		WQM		WQM	
		Mid-Ebb		Mid-Flood		Mid-Flood	
		13:06		9:00		10:19	
		(11:21 - 14:51)		(07:15 - 10:45)		(08:34 - 12:04)	
		Mid-Flood		Mid-Ebb		Mid-Ebb	
		18:19		14:35		16:08	
		(16:34 - 20:04)		(12:50 - 16:20)		(14:23 - 17:53)	
25-Jan			28-Jan		30-Jan		31-Jan
		WQM		WQM		WQM	
		Mid-Flood		Mid-Ebb		Mid-Ebb	
		12:33		8:27		11:11	
		(10:48 - 14:18)		(06:42 - 10:12)		(09:30 - 12:50)	
		Mid-Ebb		Mid-Flood		Mid-Flood	
		19:18		14:22		16:18	
		(17:33 - 21:03)		(12:37 - 16:07)		(14:33 - 18:03)	

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Feb					06-Feb	
		WQM Mid-Ebb 12:58 (11:13 - 14:43) Mid-Flood 18:20 (15:35 - 20:05)		WQM Mid-Ebb 8:29 (06:44 - 10:14) Mid-Flood 13:53 (12:08 - 15:38)		WQM Mid-Ebb 9:14 (07:29 - 10:59) Mid-Flood 14:35 (12:50 - 16:20)
08-Feb	09-Feb		11-Feb		13-Feb	
		WQM Mid-Ebb 10:39 (08:54 - 12:24) Mid-Flood 16:52 (15:08 - 18:38)		WQM Mid-Ebb 12:00 (10:15 - 13:45) Mid-Flood 19:00 (17:15 - 20:45)		WQM Mid-Ebb 9:11 (07:40 - 10:40) Mid-Flood 14:09 (12:24 - 15:54)
15-Feb	16-Feb	17-Feb	18-Feb	Holiday 19-Feb	Holiday 20-Feb	Holiday 21-Feb
		WQM Mid-Ebb 12:05 (10:20 - 13:50) Mid-Flood 17:21 (15:36 - 19:06)		WQM cancelled due to marine works suspension		WQM cancelled due to marine works suspension
22-Feb					27-Feb	
		WQM Mid-Ebb 10:39 (08:54 - 12:24) Mid-Flood 17:18 (15:33 - 19:03)		WQM Mid-Ebb 12:19 (10:34 - 14:04) Mid-Flood 19:46 (18:01 - 21:31)		WQM Mid-Ebb 10:02 (09:00 - 11:00) Mid-Flood 14:52 (13:07 - 16:37)

### HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section Impact Dolphin Monitoring Survey Schedule (1 December to 31 December 2014)

Saturday ec 06-Dec
ec 13-Dec
ec 20-Dec
ec 27-Dec
27 500

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

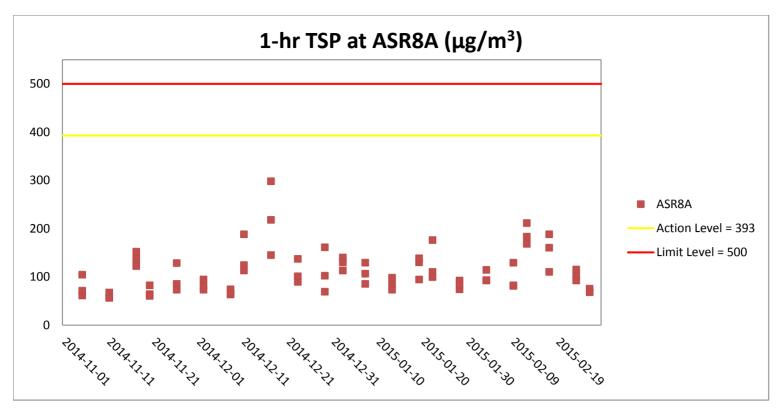
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				Holiday 01-Jan	02-Jan	03-Jan
04-Jan	05-Jan	06-Jan	07-Jan	08-Jan	09-Jan	10-Jan
				Impact Dolphin		
				Monitoring		
11-Jan	12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan
	5.71			Impact Dolphin		
				Monitoring		
18-Jan	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan
10 04.11	10 0411	20 0411	21 0411	22 0411	20 0411	210411
25-Jan	26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan
25-Jaii		Impact Dolphin	20-0411	Impact Dolphin	30-Jail	31-Jaii
		Monitoring		Monitoring		
		simiy				

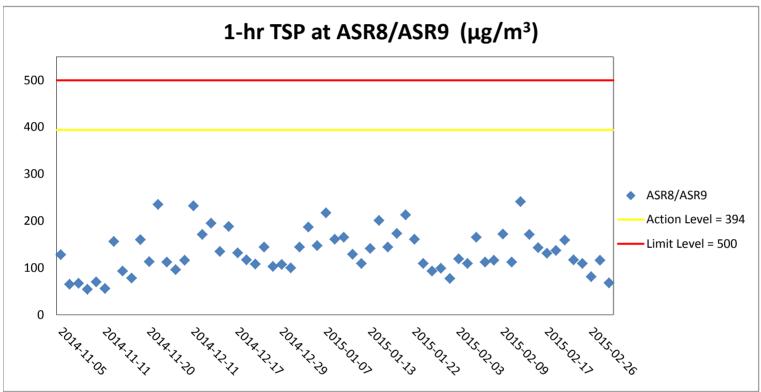
# HY/2012/07 Tuen Mun - Chek Lap Kok Link - Southern Connection Viaduct Section Impact Dolphin Monitoring Survey Schedule (1 to 28 February 2015)

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

#### Appendix F

Impact Air Quality
Monitoring Graphical
Presentation





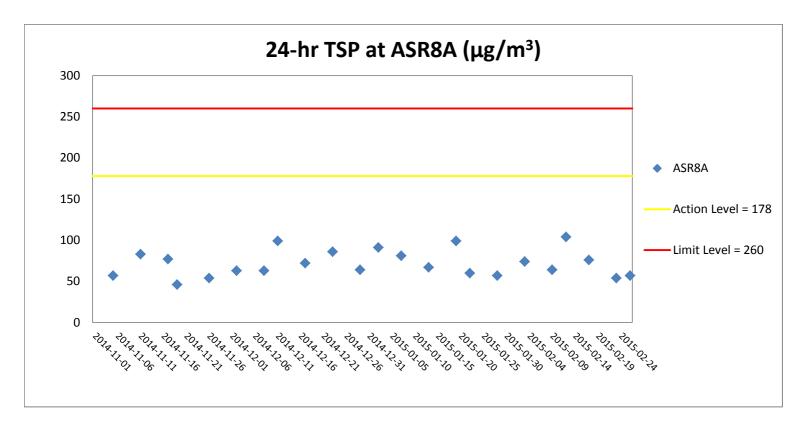
Weather condition within the reporting period varied between sunny to rainy.

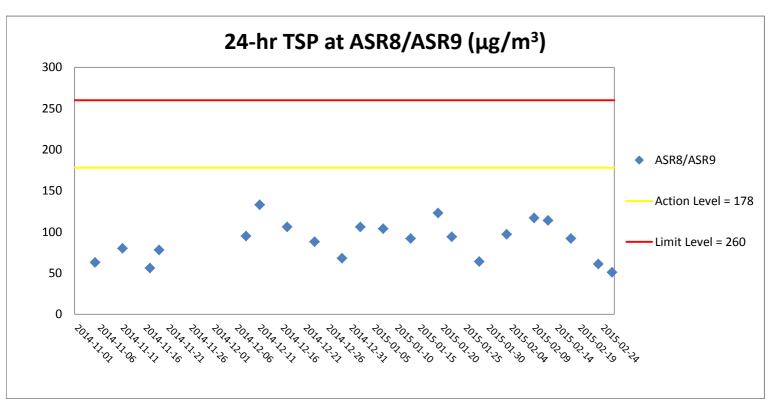
Major construction works undertaken within the reporting period include Construction of pile cap superstructure of Viaducts B & C; Channel reconstruction at Area 1; Land Piling at Viaducts B, C & D; Pre-drilling works at Viaduct A; Construction of pile cap at Viaducts B & D; Additional land GI, trial pits & lab testing; Utility surveys; and Slope work of Slopes 9SE-B/C9, 9SE-B/C9 & 9SE-B/F9.

Marine works within the reporting period include Construction of Pile caps at Viaducts B, C & E; Marine piling platform installation &

uninstallation; Marine Piling at Viaducts B, C, D & E; and Additional marine ground investigation (GI) and laboratory testing.

TSP monitoring at ASR8 on 26 November and 2 December were cancelled due to rejection of access to monitoring station.





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

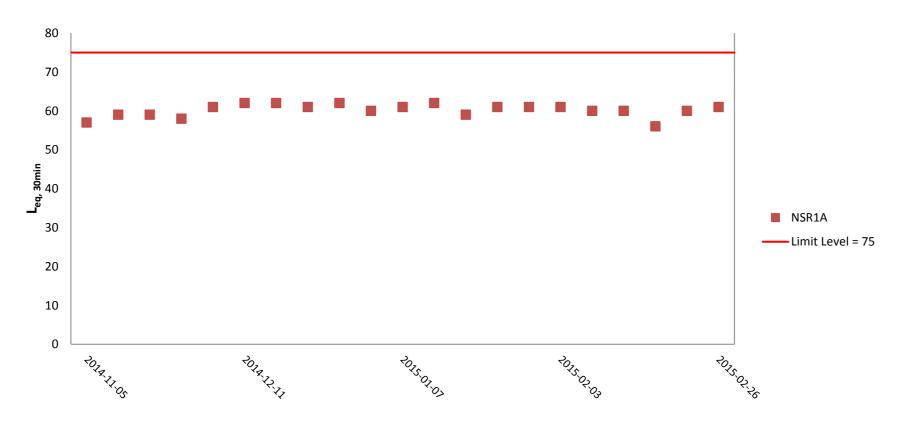
Major construction works undertaken within the reporting period include Construction of pile cap superstructure of Viaducts B & C; Channel reconstruction at Area 1; Land Piling at Viaducts B, C & D; Pre-drilling works at Viaduct A; Construction of pile cap at Viaducts B & D; Additional land GI, trial pits & lab testing; Utility surveys; and Slope work of Slopes 9SE-B/C9, 9SE-B/F9.

Marine works within the reporting period include Construction of Pile caps at Viaducts B, C & E; Marine piling platform installation & uninstallation; Marine Piling at Viaducts B, C, D & E; and Additional marine ground investigation (GI) and laboratory testing. TSP monitoring at ASR8 on 26 November and 2 December were cancelled due to rejection of access to monitoring station.

#### Appendix G

### Impact Noise Monitoring Graphical Presentation

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



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

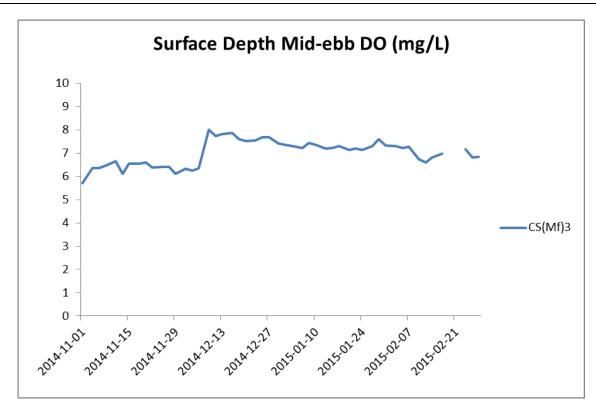
Major construction works undertaken within the reporting period include Construction of pile cap superstructure of Viaduct B & C; Channel re-construction at Area 1; Land Piling at Viaducts B, C & D; Pre-drilling works at Viaduct A; Construction of pile cap at Viaducts B & D; Additional land GI, trial pits & lab testing; Utility surveys; and Slope work of Slopes 9SE-B/C9, 9SE-B/F9.

Marine works within the reporting period include Construction of Pile caps at Viaducts B, C & E; Marine piling platform installation & uninstallation; Marine Piling at Viaducts B, C, D & E; and Additional marine ground investigation (GI) and laboratory testing.

Noise impact monitoring on 26 November and 2 December were cancelled due to rejection of access to monitoring station.

#### Appendix H

Impact Water Quality Monitoring Graphical Presentation



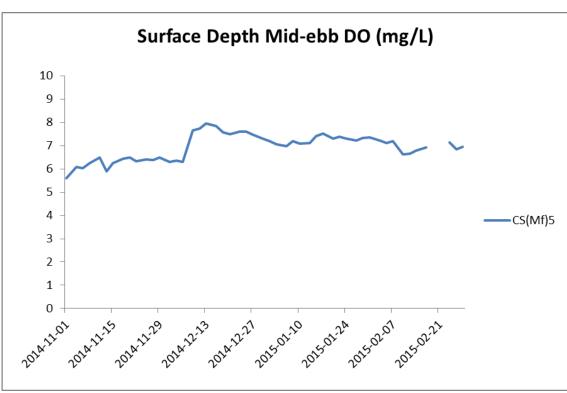
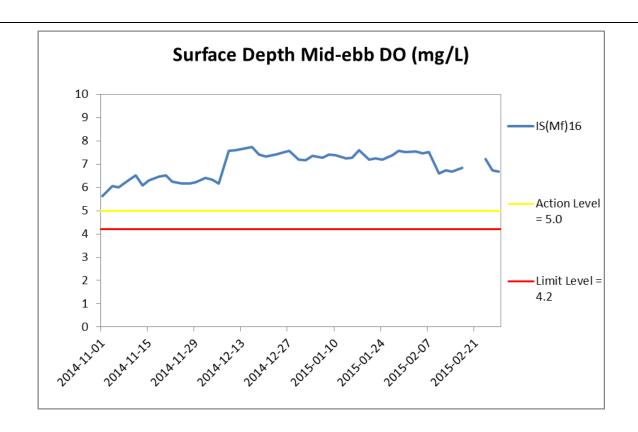


Figure H1 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(Mf)5.





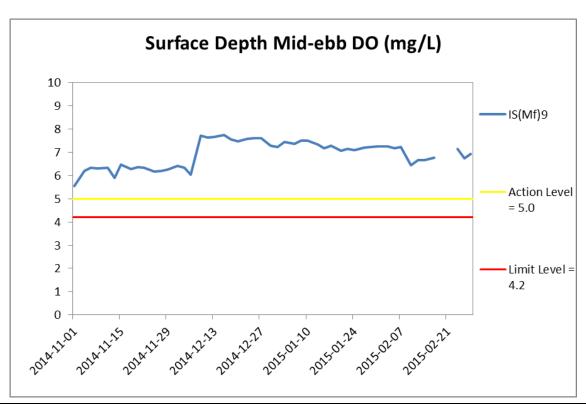
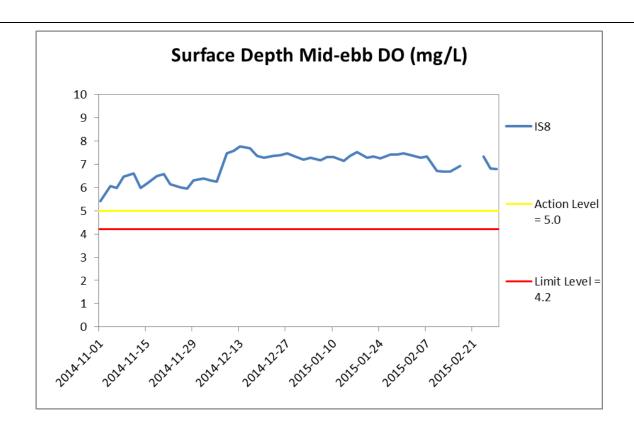


Figure H2 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at IS(Mf)16 and IS(Mf)9.





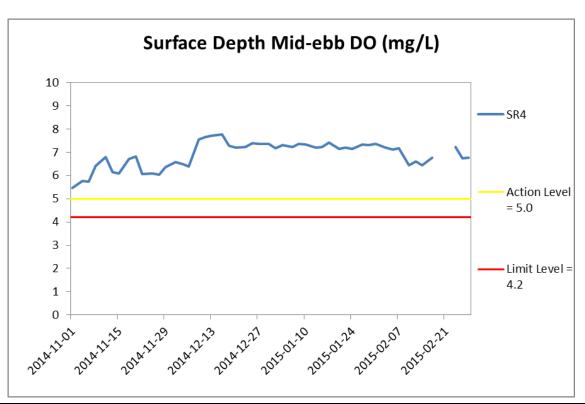


Figure H3 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at IS8 and SR4.



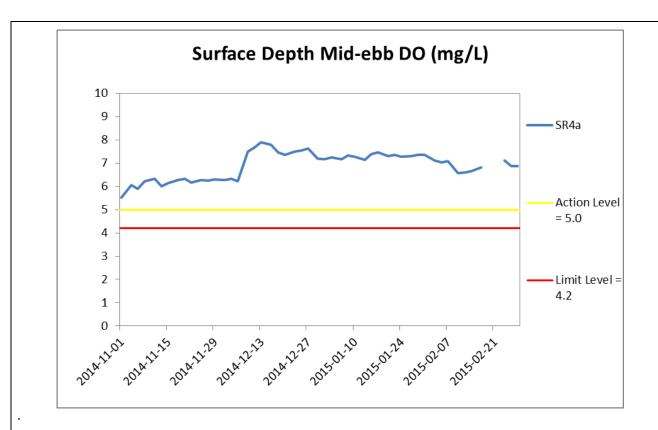
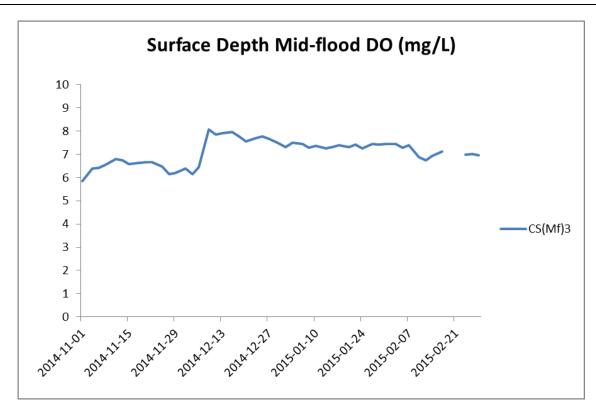


Figure H4 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





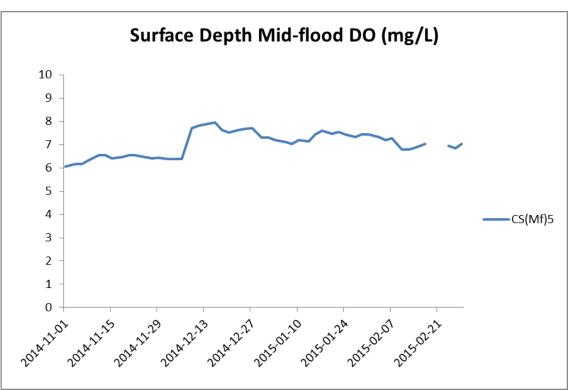
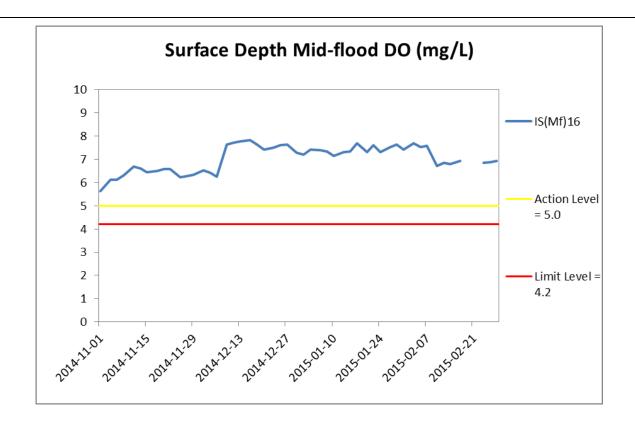


Figure H5 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(Mf)5.





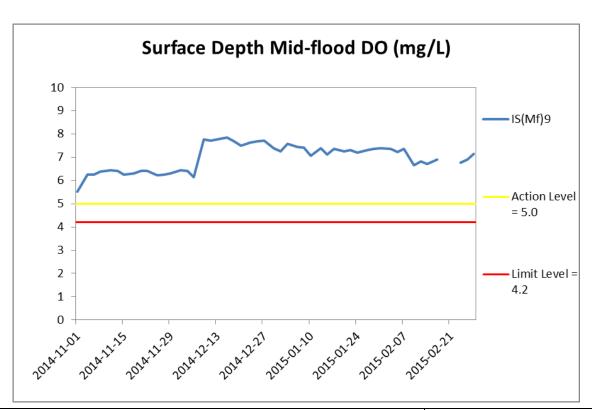
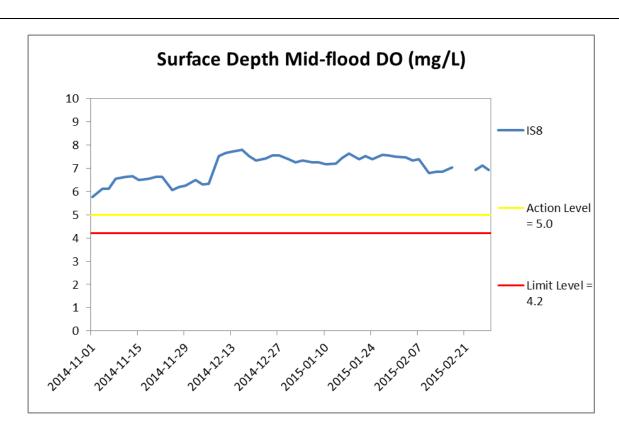


Figure H6 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 November 2014 and 28 February 2015 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





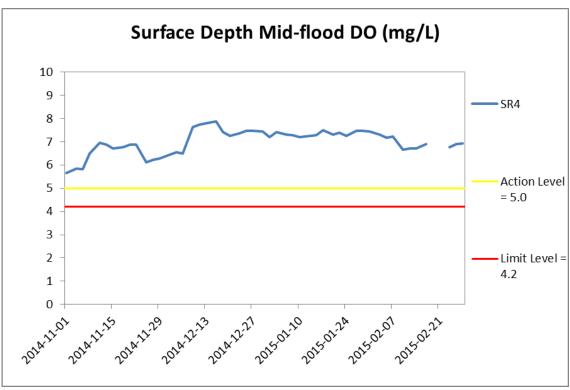


Figure H7 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 November 2014 and 28 February 2015 at IS8 and SR4.



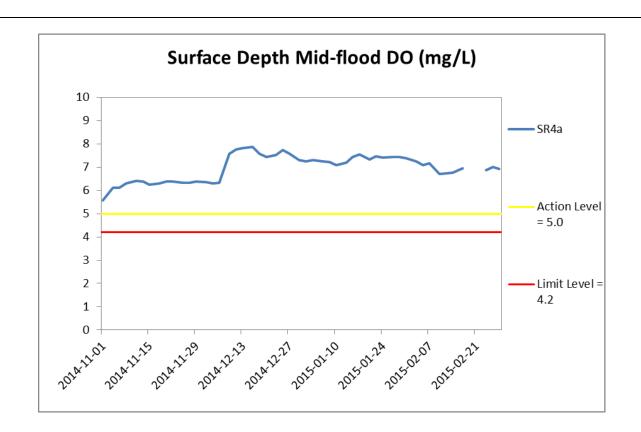
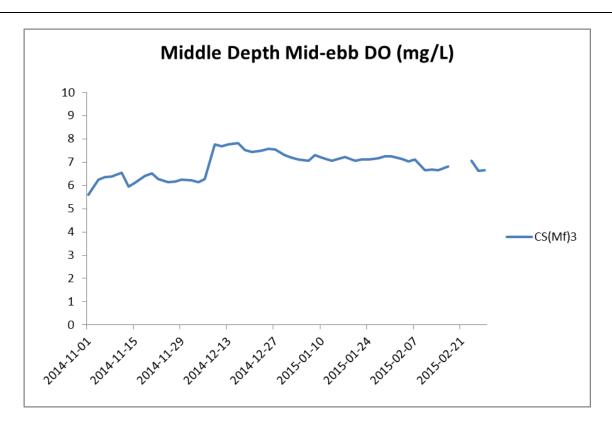


Figure H8 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in surface waters during mid-flood tide between 1 November 2014 and 28 February 2015 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





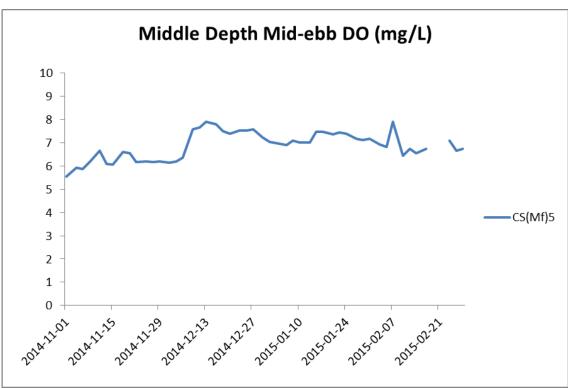


Figure H9 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(Mf)5.



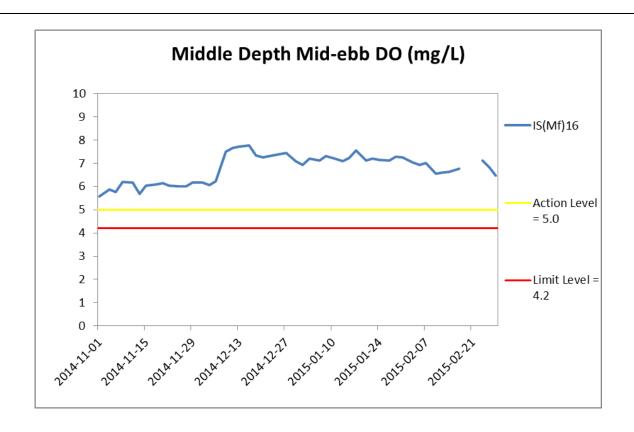
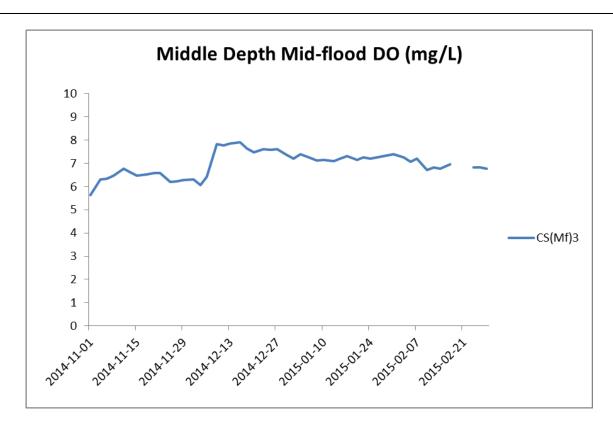


Figure H10 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at IS(Mf)16.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





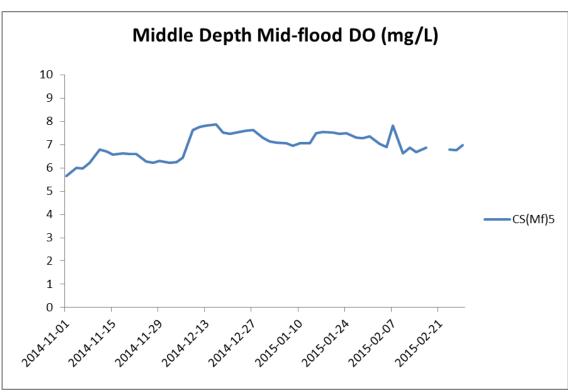


Figure H11 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-flood tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(Mf)5.



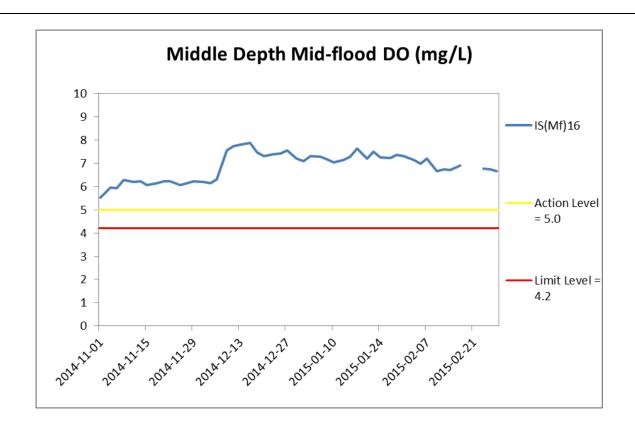
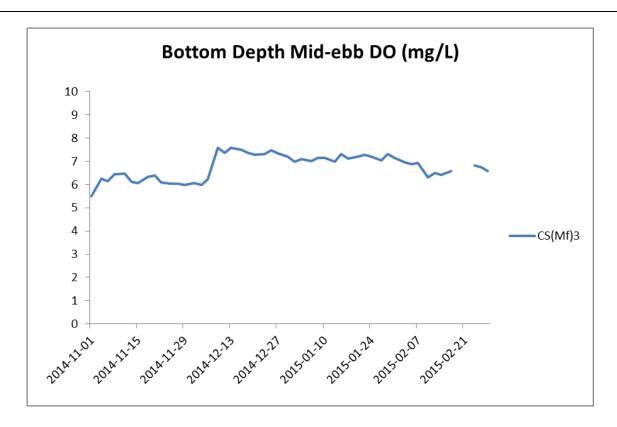


Figure H12 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in mid-depth waters during mid-flood tide between 1 November 2014 and 28 February 2015 at IS(Mf)16.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





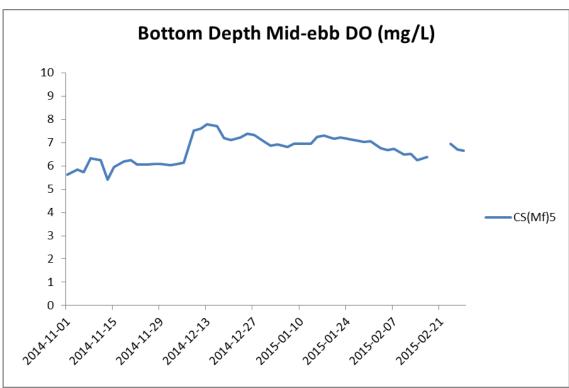
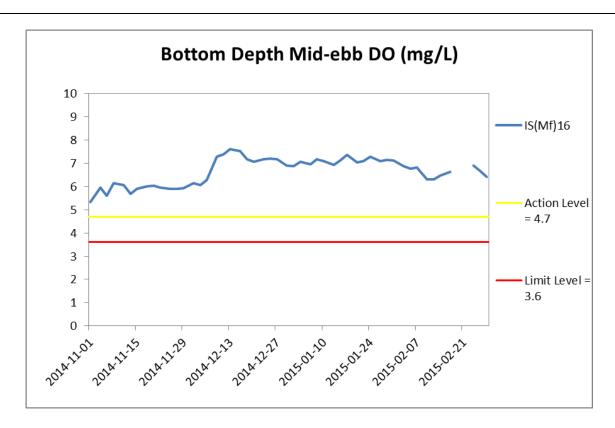


Figure H13 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(Mf)5.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





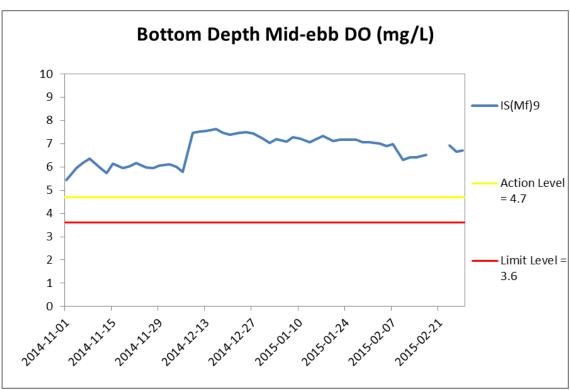
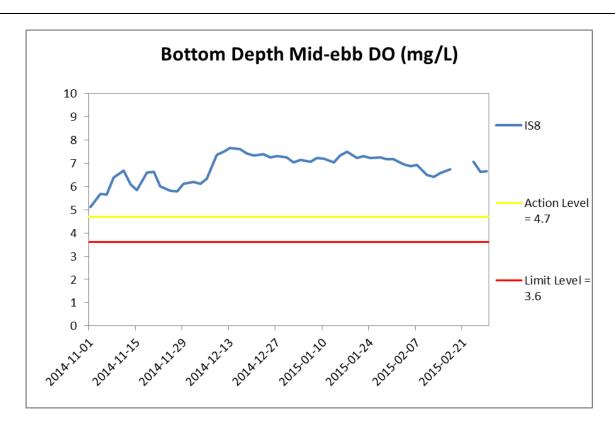


Figure H14 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





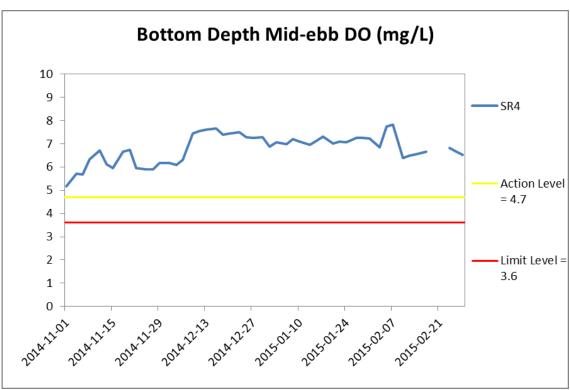


Figure H15 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.



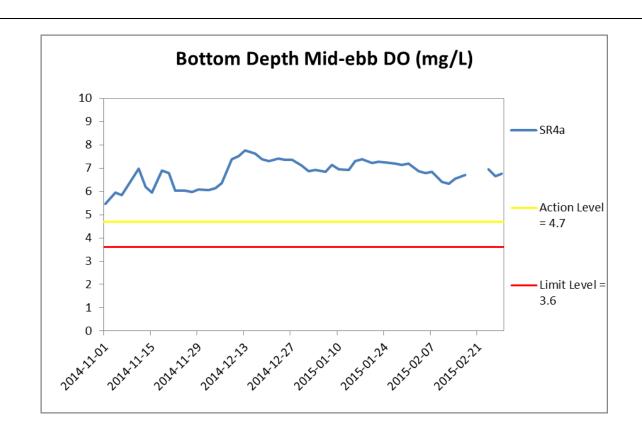
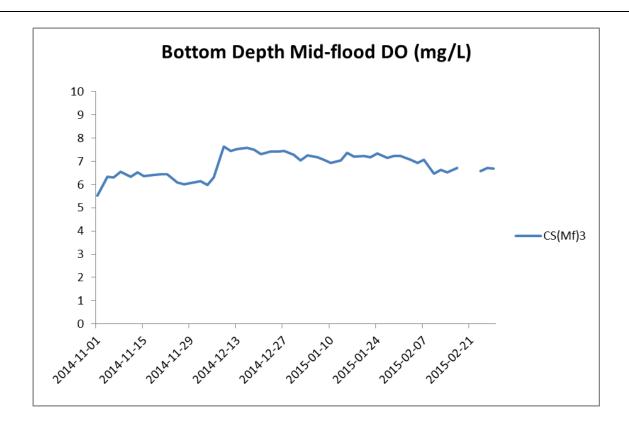


Figure H16 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-ebb tide between 1 November 2014 and 28 February 2015 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





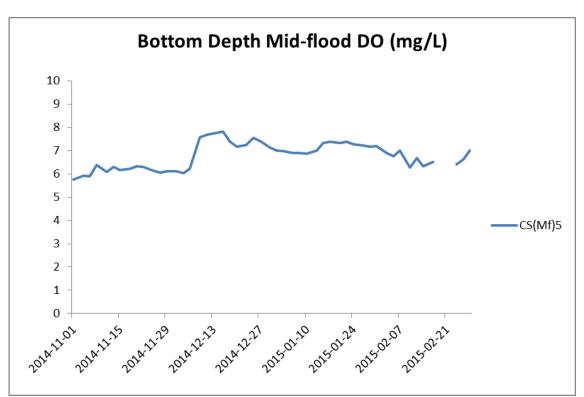
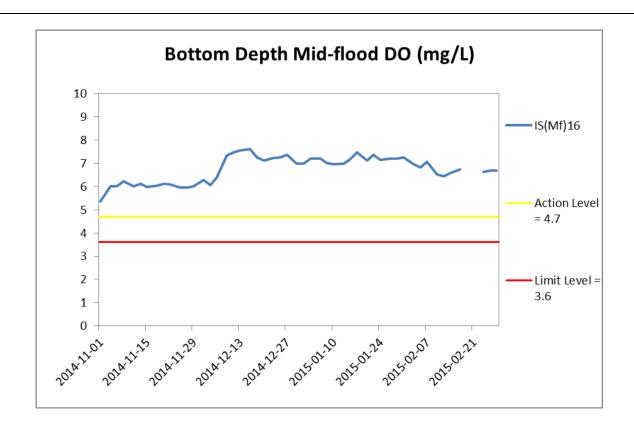


Figure H17 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(Mf)5.





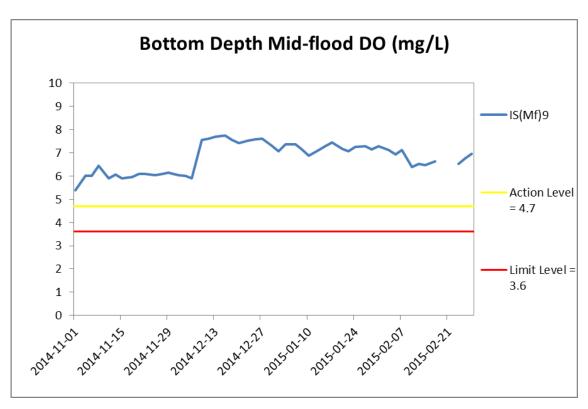
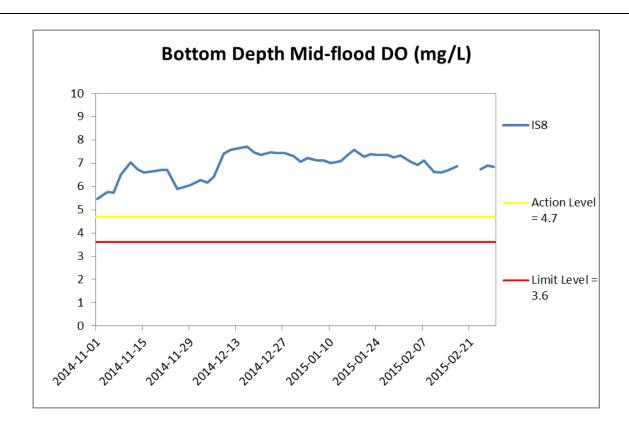


Figure H18 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 November 2014 and 28 February 2015 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





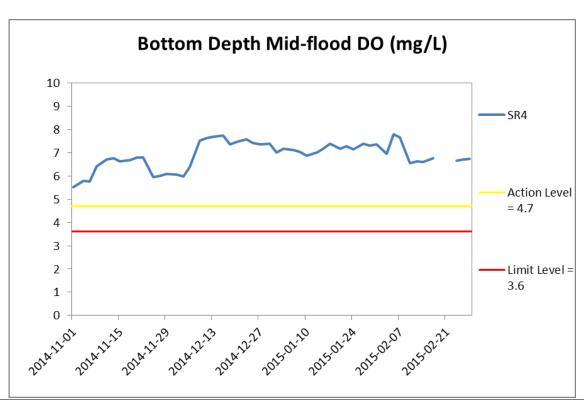


Figure H19 Impact Monitoring - Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 November 2014 and 28 February 2015 at IS8 and SR4.



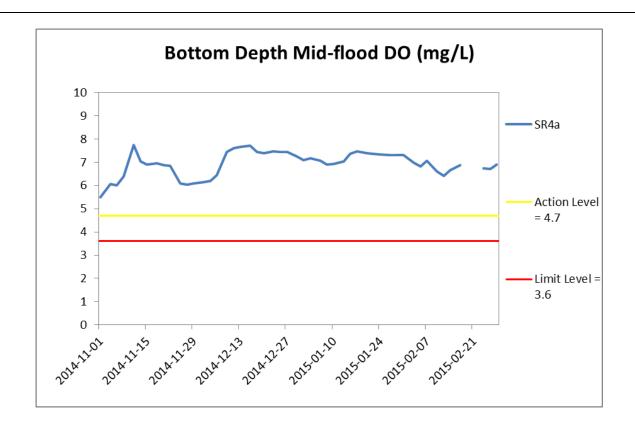
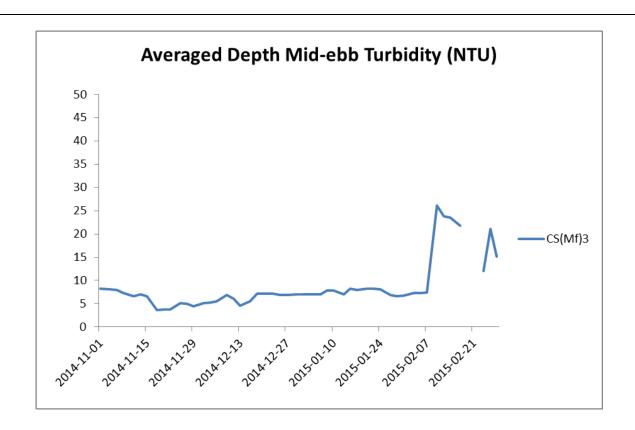


Figure H20 Impact Monitoring – Mean Level of Dissolved Oxygen (mg/L) in bottom waters during mid-flood tide between 1 November 2014 and 28 February 2015 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





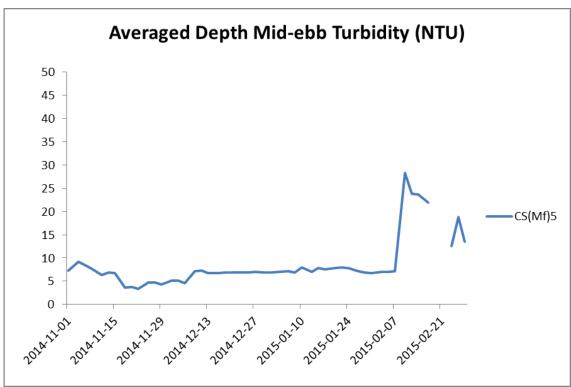
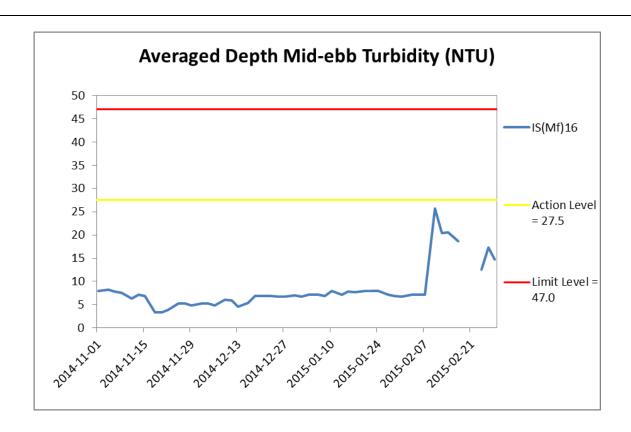


Figure H21 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(Mf)5.





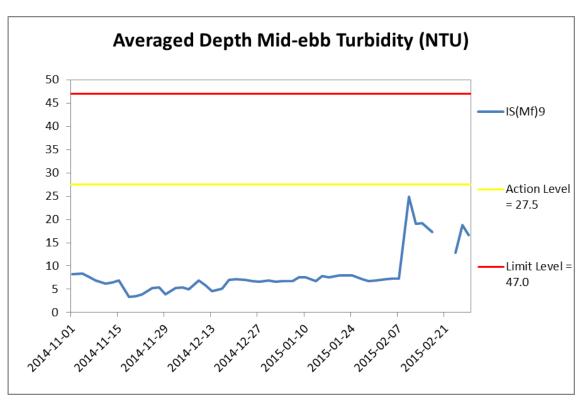
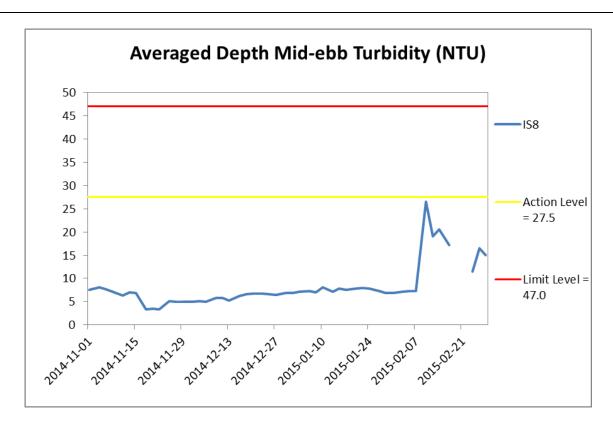


Figure H22 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 November 2014 and 28 February 2015 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





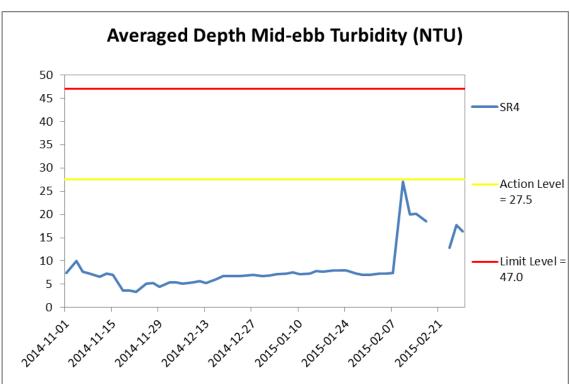


Figure H23 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 November 2014 and 28 February 2015 at IS8 and SR4.



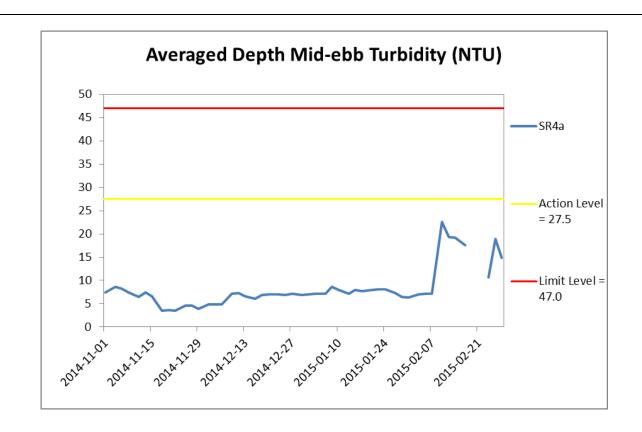
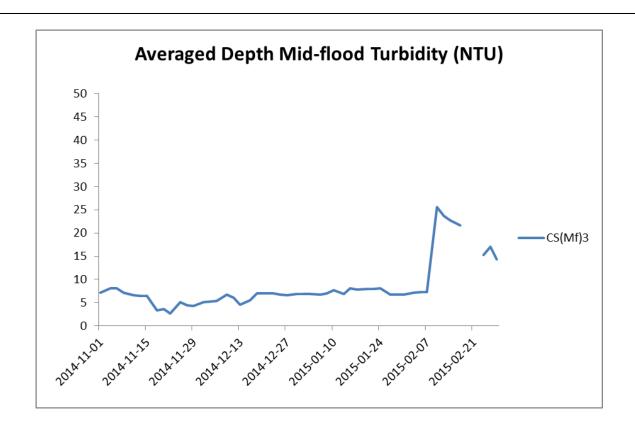


Figure H24 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-ebb tide between 1 November 2014 and 28 February 2015 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





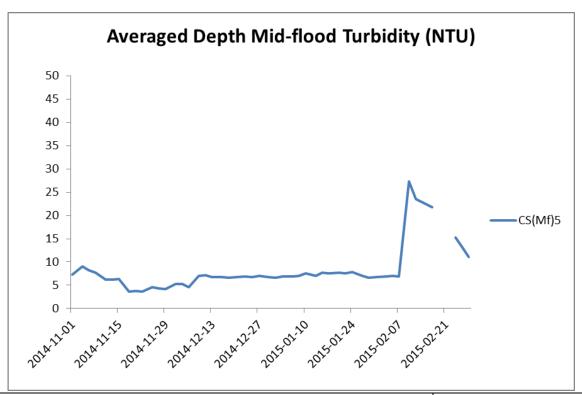
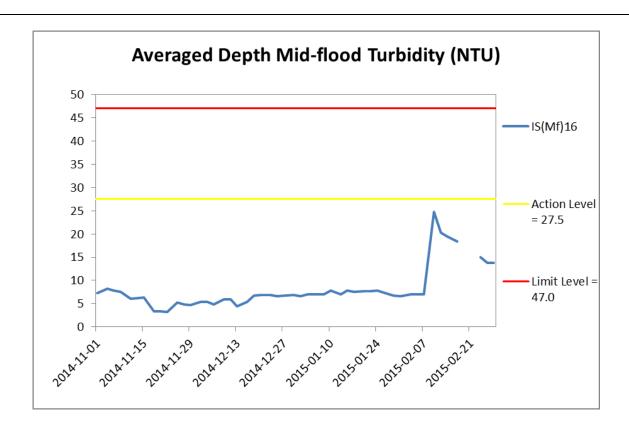


Figure H25 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(MF)5.





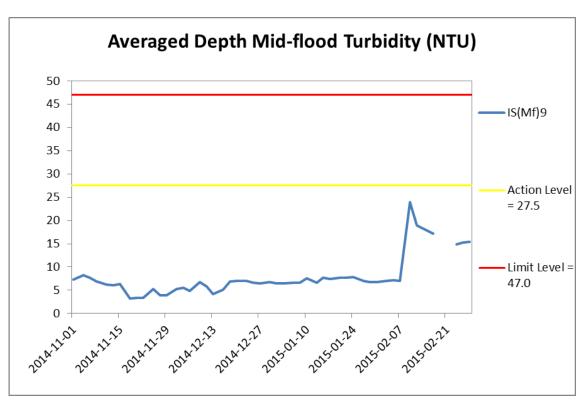
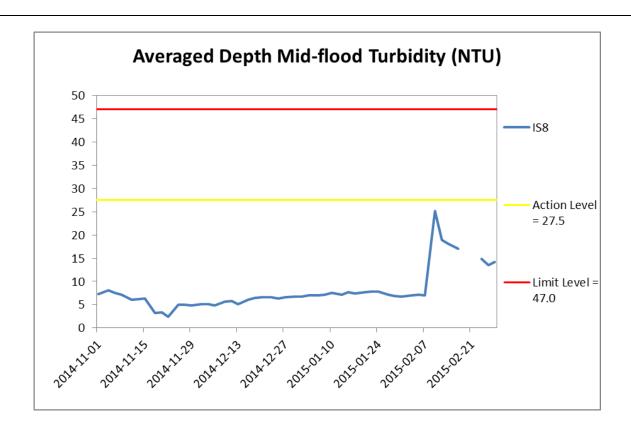


Figure H26 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 November 2014 and 28 February 2015 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





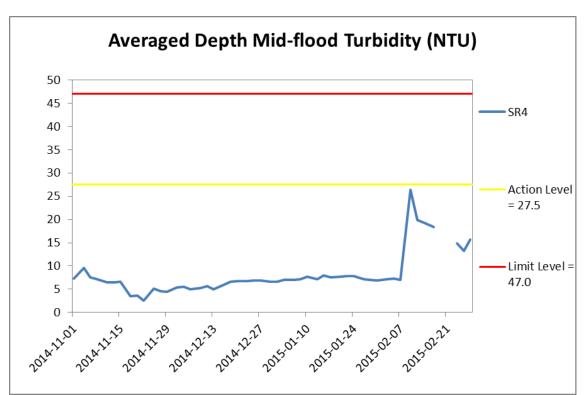


Figure H27 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 November 2014 and 28 February 2015 at IS8 and SR4.



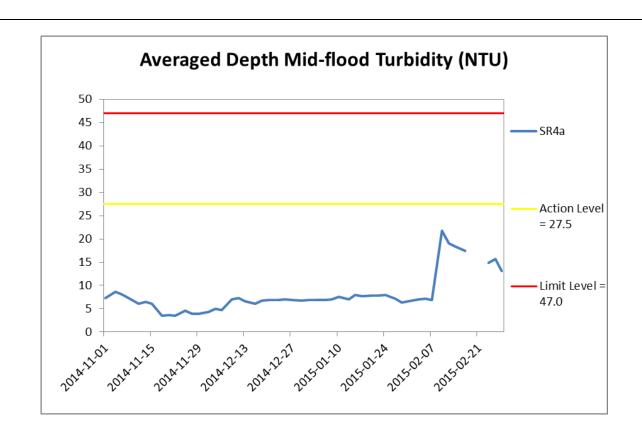
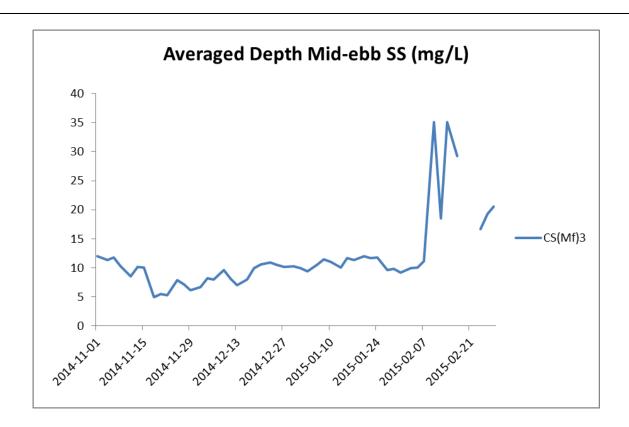


Figure H28 Impact Monitoring – Mean Level of depth-averaged Turbidity (NTU) during mid-flood tide between 1 November 2014 and 28 February 2015 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015.





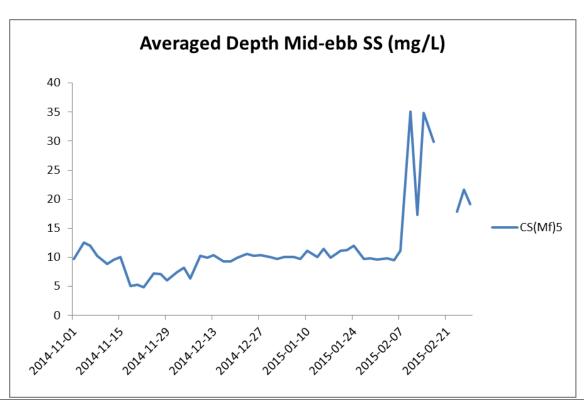
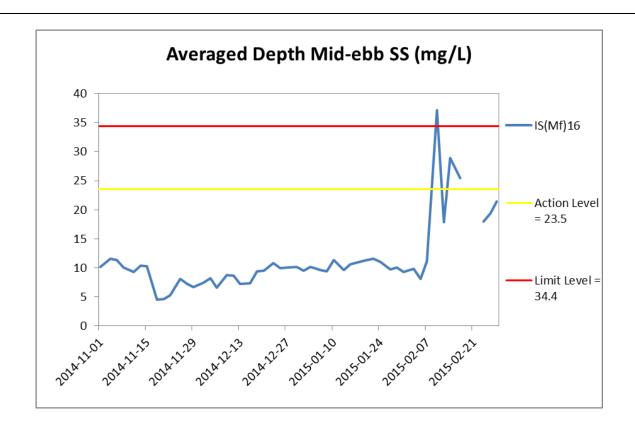


Figure H29 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(Mf)5.





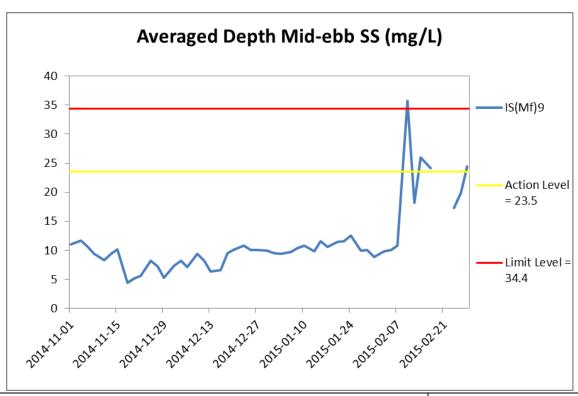
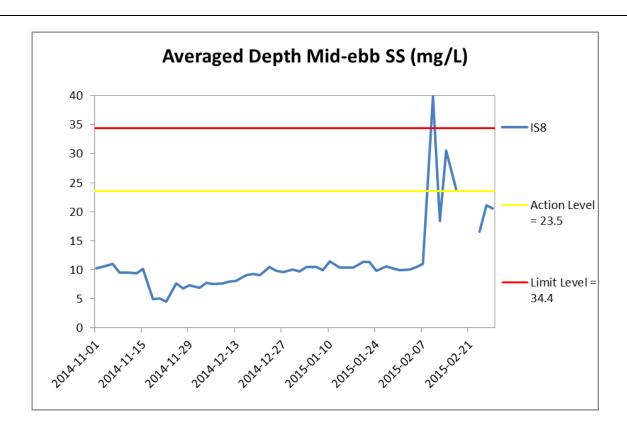


Figure H30 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 November 2014 and 28 February 2015 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015. The SS results in Feb 2015 higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.





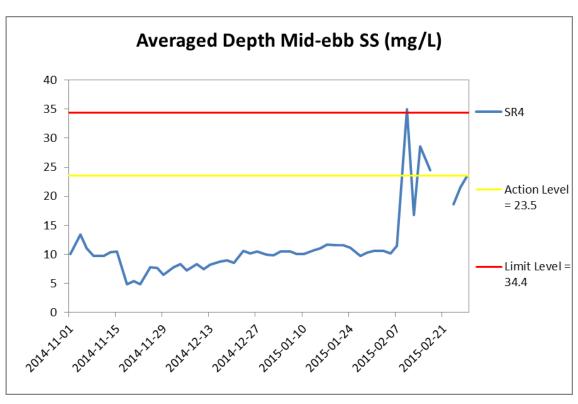


Figure H31 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 November 2014 and 28 February 2015 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015. The SS results in Feb 2015 higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.



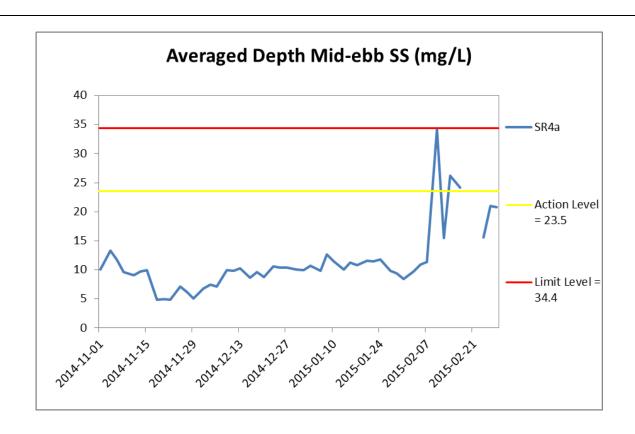
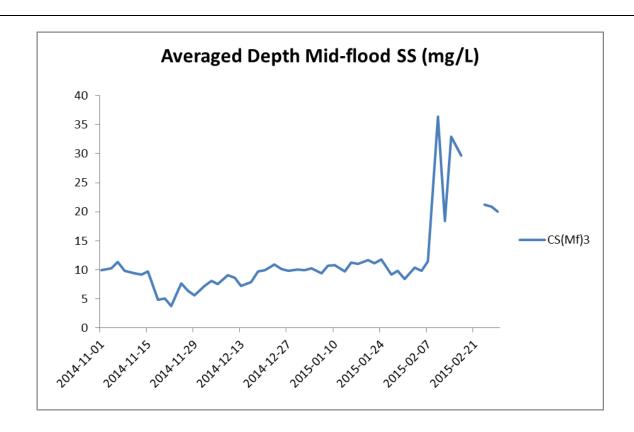


Figure H32 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-ebb tide between 1 November 2014 and 28 February 2015 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015. The SS results in Feb 2015 higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.





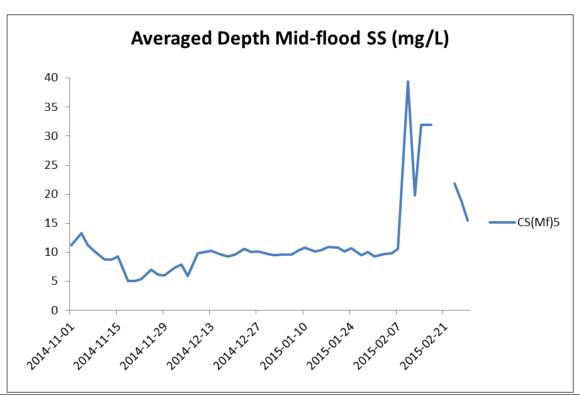
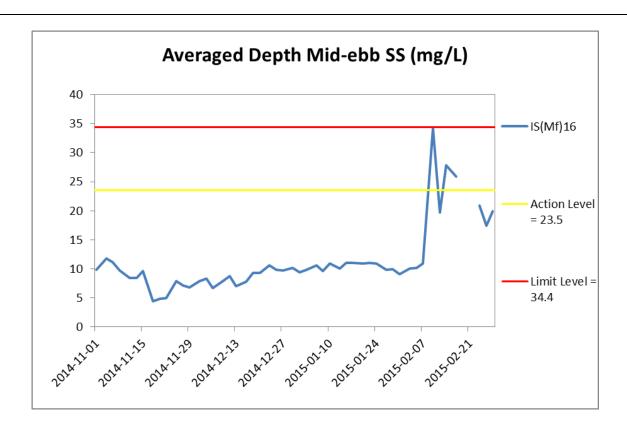


Figure H33 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 November 2014 and 28 February 2015 at CS(Mf)3 and CS(Mf)5.





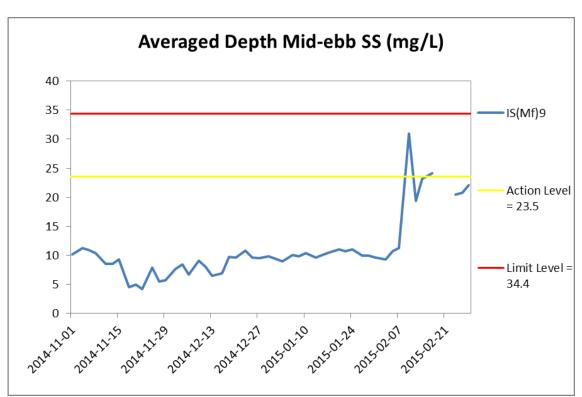
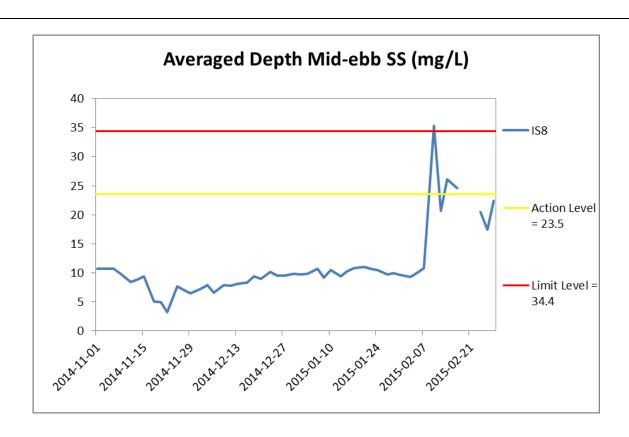


Figure H34 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 November 2014 and 28 February 2015 at IS(Mf)16 and IS(Mf)9.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015. The SS results in Feb 2015 higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.





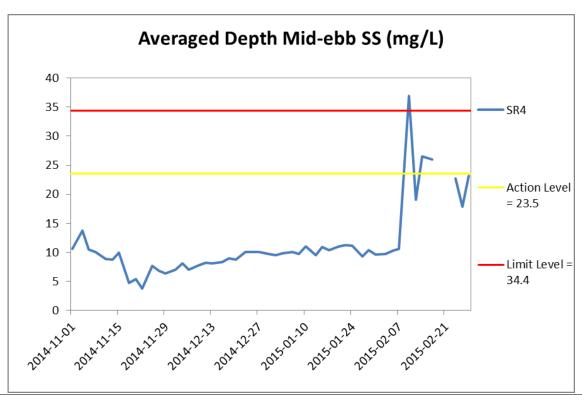


Figure H35 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 November 2014 and 28 February 2015 at IS8 and SR4.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015. The SS results in Feb 2015 higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.



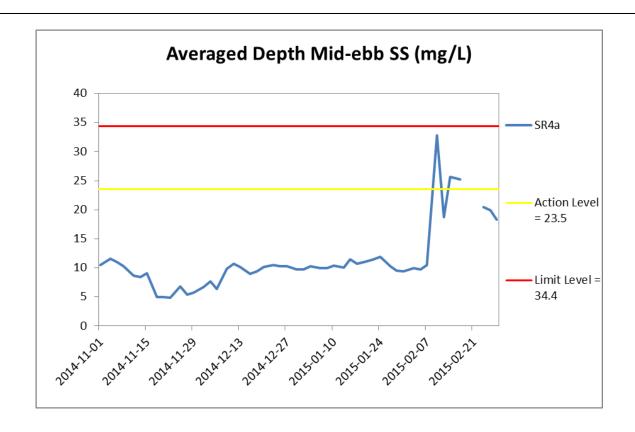


Figure H36 Impact Monitoring – Mean depth-averaged level of Suspended Solids (mg/L) during mid-flood tide between 1 November 2014 and 28 February 2015 at SR4a.

(Weather condition varied between sunny to rainy within the reporting period. Marine works within the reporting period include marine piling platform installation and marine piling.) No marine works was undertaken on 19 and 21 February 2015. The SS results in Feb 2015 higher than Action / Limit Levels were not considered as exceedances as the results were not higher than 120% of upstream control station.



### Appendix I

# Impact Dolphin Monitoring Survey Results



# 香港鯨豚研究計劃

# CONTRACT NO. HY/2012/07 Hong Kong-Zhuhai-Macao Bridge Tuen Mun – Chek Lap Kok Link (Southern Connection Viaduct Section) Dolphin Quarterly Monitoring

5<sup>th</sup> Quarterly Progress Report (December 2014-February 2015) submitted to Gammon Construction Limited

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

2 April 2015

#### 1. Introduction

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



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

- 1.5. From the monitoring results, any changes in dolphin occurrence within the study area will be examined for possible causes, and appropriate actions and additional mitigation measures will be recommended as necessary.
- 1.6. This report is the fifth quarterly progress report under the TM-CLKL construction phase dolphin monitoring programme submitted to the Gammon Construction Limited, summarizing the results of the surveys findings during the period of December 2014 to February 2015, utilizing the survey data collected by HKLR03 project.

#### 2. Monitoring Methodology

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

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

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



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

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



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

#### 2.2. Photo-identification Work

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

#### 2.3. Data Analysis

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



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

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

Secondly, the encounter rates were calculated using both primary and secondary survey effort collected under Beaufort 3 or below condition as in AFCD long-term monitoring study. The encounter rate of sightings and dolphins were deduced by dividing the total number of on-effort sightings (STG) and total number of dolphins (ANI) by the amount of survey effort for the quarterly period of December 2014 to February 2015.

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

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

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



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- 2.3.4. Behavioural analysis When dolphins were sighted during vessel surveys, their behaviour was observed. Different activities were categorized (i.e. feeding, socializing, traveling, and milling/resting) and recorded on sighting datasheets. This data was then input into a separate database with sighting information, which can be used to determine the distribution of behavioural data with a desktop GIS. Distribution of sightings of dolphins engaged in different activities and behaviours would then be plotted on GIS and carefully examined to identify important areas for different activities of the dolphins.
- 2.3.5. Ranging pattern analysis Location data of individual dolphins that occurred during the 3-month impact phase monitoring period were obtained from the dolphin sighting database and photo-identification catalogue. To deduce home ranges for individual dolphins using the fixed kernel methods, the program Animal Movement Analyst Extension, was loaded as an extension with ArcView<sup>©</sup> 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 December 2014 to February 2015, six sets of systematic line-transect vessel surveys were conducted under the HKLR03 monitoring works to cover all transect lines in NWL and NEL survey areas twice per month.
- 3.1.2. From these HKLR03 surveys, a total of 891.50 km of survey effort was collected, with 99.6% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility). Among the two areas, 347.05 km and 544.45 km of survey effort were conducted in NEL and NWL survey areas respectively.
- 3.1.3. The total survey effort conducted on primary lines was 645.44 km, while the effort on secondary lines was 246.06 km. Both survey effort conducted on primary and secondary lines were considered as on-effort survey data. Summary table of the survey effort is shown in Appendix I.
- 3.1.4. During the six sets of HKLR03 monitoring surveys in December 2014 to February 2015, a total of 15 groups of 52 Chinese White Dolphins were sighted. All dolphin sightings were made during on-effort search. Twelve of the 15 on-effort sightings were made on primary lines, while the other three were made on secondary lines. In this quarterly period, all dolphin groups were sighted in NWL, while none of them were sighted in NEL. A summary table of the dolphin sightings is shown in Appendix II.



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#### 3.2. Distribution

- 3.2.1. Distribution of dolphin sightings made during the HKLR03 monitoring surveys in December 2014 to February 2015 is shown in Figure 1. The majority of dolphin sightings made in the present quarter were concentrated in the northwestern end of the North Lantau region, with higher concentration near the northern boundary of the survey area and around Lung Kwu Chau (Figure 1). One exceptional sighting of a lone dolphin was made to the north of the airport, while dolphin did not appear at all in the rest of the North Lantau region.
- 3.2.2. Notably, none of the dolphin groups were sighted in the vicinity of TMCLKL southern viaduct or northern landfall section, as well as the HKLR03/HKBCF reclamation sites (Figure 1).
- 3.2.3. Sighting distribution of the present impact phase monitoring period (December 2015 to February 2015) was compared to the one during the baseline monitoring period (September to November 2011). In the present quarter, dolphins have completely avoided the NEL region, which was in stark contrast to their frequent occurrence around the Brothers Islands and in the vicinity of HKBCF reclamation site during the baseline period (Figure 1). The nearly complete abandonment of NEL region by the dolphins has been consistently recorded in the past quarters, which have resulted in extremely low to zero dolphin encounter rate in this area.
- 3.2.4. In NWL survey area, dolphin occurrence was also drastically different between the baseline and impact phase quarters. During the present impact monitoring period, much fewer dolphins occurred in the middle portion of North Lantau region than during the baseline period, where dolphins supposedly moved between their core areas around Lung Kwu Chau and the Brothers Islands (Figure 1). Moreover, more dolphins were sighted near Sha Chau and Black Point during the baseline period than during the present impact monitoring period (Figure 1). A number of dolphin groups were sighted to the west of Chek Lap Kok airport (especially near the HKLR09 alignment) during the baseline period, but they have disappeared from this area during the present impact phase period.
- 3.2.5. Another comparison in dolphin distribution was made between the three quarterly periods of winter months in 2012-13, 2013-14 and 2014-15 (Figure 2). Among the three winter periods, no dolphin sighting was made in NEL in 2014-15, while there were two sightings made there in 2013-14, and eight sightings in 2012-13 (Figure 2). This clearly indicated a progressive decline in dolphin usage in NEL waters in the past few years.
- 3.2.6. Moreover, dolphins regularly occurred in the middle and western portions of North Lantau waters (especially between Black Point and Lung Kwu Chau, as well as around Sha Chau) during the winter of 2012-13, but such usage has also progressively diminished in 2013-14 and 2014-15 (Figure 2). The temporal trend indicated that dolphin usage in the overall North Lantau region has greatly diminished during the winter months of the past few years.
- 3.3. Encounter rate
- 3.3.1. During the present quarterly period, the encounter rates of Chinese White Dolphins



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

Table 2. Dolphin encounter rates (sightings per 100 km of survey effort) during December 2014 – February 2015

SURVEY AREA	DOLPHIN MONITORING DATES	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)  Primary Lines Only	Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort)  Primary Lines Only
	Set 1 (2 & 9 Dec 2014)	0.00	0.00
	Set 2 (15 & 23 Dec 2014)	0.00	0.00
Northeast	Set 3 (8 & 15 Jan 2015)	0.00	0.00
Lantau	Set 4 (27 & 29 Jan 2015)	0.00	0.00
	Set 5 (5 & 13 Feb 2015)	0.00	0.00
	Set 6 (16 & 25 Feb 2015)	0.00	0.00
	Set 1 (2 & 9 Dec 2014)	2.79	5.58
	Set 2 (15 & 23 Dec 2014)	1.41	1.41
Northwest	Set 3 (8 & 15 Jan 2015)	4.33	21.64
Lantau	Set 4 (27 & 29 Jan 2015)	7.52	37.59
	Set 5 (5 & 13 Feb 2015)	1.40	1.40
	Set 6 (16 & 25 Feb 2015)	0.00	0.00

Table 3. Comparison of average dolphin encounter rates from impact monitoring period (December 2014 – February 2015) and baseline monitoring period (September – November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions)

	Encounter i		Encounter rate (ANI)			
	(no. of on-effort dolph	in sightings per 100	(no. of dolphins from all on-effort sightings			
	km of survey effort)		per 100 km of survey effort)			
	December 2014 –	September -	December 2014 –	September -		
	February 2015	November 2011	February 2015	November 2011		
Northeast Lantau	0.00	6.00 ± 5.05	0.00	22.19 ± 26.81		
Northwest Lantau	2.91 ± 2.69	9.85 ± 5.85	11.27 ± 15.19	44.66 ± 29.85		

3.3.2. To facilitate the comparison with the AFCD long-term monitoring results, the encounter rates were also calculated for the present quarter using both primary and secondary survey effort. The encounter rates of sightings (STG) and dolphins (ANI) in NWL were 2.77



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sightings and 9.62 dolphins per 100 km of survey effort respectively, while the encounter rates of sightings (STG) and dolphins (ANI) in NEL were both nil.

- 3.3.3. In NEL, the average dolphin encounter rates (both STG and ANI) in the present three-month impact monitoring period were zero, and such low occurrence of dolphins in NEL have been consistently recorded in the past eight quarters of HKLR03 monitoring (Table 4). It is a serious concern that dolphin occurrence in NEL in the eight quarters (0.0-1.0 for ER(STG) and 0.0-3.9 for ER(ANI)) have been exceptionally low when compared to the baseline period (Table 4). Dolphins have almost vacated from NEL waters since January 2014, with only one group of four dolphins sighted since then.
- 3.3.4. Moreover, the average dolphin encounter rates (STG and ANI) in NWL during the present impact phase monitoring period were also much lower (reductions of 70.5% and 74.8% respectively) than the ones recorded in the 3-month baseline period, indicating a dramatic decline in dolphin usage of this survey area during the present impact phase period (Table 5).

Table 4. Comparison of average dolphin encounter rates in Northeast Lantau survey area from all quarters of HKLR03 impact monitoring period and baseline monitoring period (September-November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions)

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



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Table 5. Comparison of average dolphin encounter rates in Northwest Lantau survey area from all quarters of HKLR03 impact monitoring period and baseline monitoring period (September-November 2011) (Note: encounter rates deduced from the baseline monitoring period have been recalculated based only on survey effort and on-effort sighting data made along the primary transect lines under favourable conditions)

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

- 3.3.5. Notably, the last eighth consecutive quarters of HKLR03 monitoring have triggered the Action Levels under the Event and Action Plan, while the current quarter has triggered the Limit Level. As discussed recently in Hung (2014), the dramatic decline in dolphin usage of NEL waters in 2012 and 2013 (including the declines in abundance, encounter rate and habitat use in NEL, as well as shifts of individual core areas and ranges away from NEL waters) was possibly related to the HZMB construction works that were commenced in 2012. It appeared that such noticeable decline has already extended to NWL waters progressively in 2013 and 2014.
- 3.3.6. A two-way ANOVA with repeated measures and unequal sample size was conducted to examine whether there were any significant differences in the average encounter rates between the baseline and impact monitoring periods. The two variables that were examined included the two periods (baseline and impact phases) and two locations (NEL and NWL).
- 3.3.7. For the comparison between the baseline period and the present quarter (ninth quarter of the HKLR03 impact phase being assessed), the p-values for the differences in average dolphin encounter rates of STG and ANI were 0.0059 and 0.0330 respectively. If the alpha value is set at 0.05, significant differences were detected between the baseline and present quarters in both dolphin encounter rates of STG and ANI.
- 3.3.8. For the comparison between the baseline period and the cumulative quarters in impact phase (i.e. first nine quarters of the HKLR03 impact phase being assessed), the p-values



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for the differences in average dolphin encounter rates of STG and ANI were 0.0009 and 0.0003 respectively. Even if the alpha value is set at 0.01, significant differences were detected in both the average dolphin encounter rates of STG and ANI (i.e. between the two periods and the locations).

- 3.3.9. As indicated in both dolphin distribution patterns and encounter rates, dolphin usage has been significantly reduced in NEL and NWL waters in the present quarterly period, and such low occurrence has been consistently documented in previous quarters. This raises serious concern, as the decline in dolphin usage in North Lantau waters could possibly link to the HZMB-related construction activities.
- 3.3.10. To ensure the continuous usage of North Lantau waters by the dolphins, every possible measure should be implemented by the contractors and relevant authorities to minimize all disturbances to the dolphins.
- 3.4. Group size
- 3.4.1. Group size of Chinese White Dolphins ranged from one to eight individuals per group in North Lantau region during December 2014 to February 2015. The average dolphin group sizes from these three months were compared with the ones deduced from the baseline period in September to November 2011, as shown in Table 6.

Table 6. Comparison of average dolphin group sizes from impact monitoring period (December 2014 – February 2015) and baseline monitoring period (September – November 2011)

	Average Dolphin Group Size									
	December 2014 – February 2015	September – November 2011								
Overall	3.47 ± 2.29 (n = 15)	3.72 ± 3.13 (n = 66)								
Northeast Lantau	0.00	3.18 ± 2.16 (n = 17)								
Northwest Lantau	3.47 ± 2.29 (n = 15)	3.92 ± 3.40 (n = 49)								

- 3.4.2. The average dolphin group sizes in NWL waters during December 2014 to February 2015 were slightly smaller than the ones recorded during the three-month baseline period (Table 6). Ten of the 15 groups were composed of 1-4 individuals only, while none of the dolphin group had more than 10 individuals.
- 3.4.3. Distribution of dolphins with larger group sizes (five individuals or more per group) during the present quarter is shown in Figure 3, with comparison to the one in baseline period. During the winter of 2014-15, distribution of the few larger dolphin groups were concentrated near Lung Kwu Chau (Figure 3). This distribution pattern was very different from the baseline period, when the larger dolphin groups were distributed more evenly in NWL waters with a few more sighted in NEL waters (Figure 3).



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### 3.5. Habitat use

- 3.5.1. From December 2014 to February 2015, the most heavily utilized habitats by Chinese White Dolphins mainly concentrated around Lung Kwu Chau and the northern end of NWL survey area (Figures 4a and 4b). None of the grids in NEL recorded the presence of dolphins. Moreover, all grids near TMCLKL and HKLR09 alignments as well as the HKLR03/HKBCF reclamation sites did not record any presence of dolphins during on-effort search in the present quarterly period.
- 3.5.2. However, it should be emphasized that the amount of survey effort collected in each grid during the three-month period was fairly low (6-12 units of survey effort for most grids), and therefore the habitat use pattern derived from the three-month dataset should be treated with caution. A more complete picture of dolphin habitat use pattern will be presented when more survey effort for each grid will be collected throughout the impact phase monitoring programme.
- 3.5.3. When compared with the habitat use patterns during the baseline period, dolphin usage in NEL and NWL was dramatically different from the present impact monitoring period (Figure 5). During the baseline period, nine grids between Siu Mo To and Shum Shui Kok recorded moderately high to high dolphin densities, which was in stark contrast to complete absence of dolphins during the present impact phase period (Figure 5).
- 3.5.4. The density patterns between the baseline and impact phase monitoring periods were also very different in NWL, with higher dolphin usage around Sha Chau, near Black Point, to the west of the airport, as well as between Pillar Point and airport platform during the baseline period (Figure 5). During the present impact phase period, the dolphin usage was confined to the northwestern end of the survey area around Lung Kwu Chau.

### 3.6. *Mother-calf pairs*

- 3.6.1. During the present quarterly period, no young calves (i.e. unspotted calves or unspotted juveniles) for the first time among the ten quarters of HKLR03 impact phase monitoring. This absence of young calves is also in stark contrast to their regular occurrence during the baseline period. Their absences should be of a serious concern, and the occurrence of calves should be closely monitored in the upcoming quarters.
- 3.7. Activities and associations with fishing boats
- 3.7.1. Only one dolphin sighting each was associated with feeding and socializing activities respectively during the three-month study period. The percentage of sightings associated with feeding activities during the present quarter (6.7%) was much lower than the one recorded during the baseline period (11.6%). On the other hand, the percentage of socializing activities during the present impact phase monitoring period (6.6%) was slightly higher than the one recorded during the baseline period (5.4%). None of the 15 dolphin groups were engaged in traveling or milling/resting behaviour.
- 3.7.2. Distribution of dolphins engaged in feeding and socializing activities during the present three-month period is shown in Figure 6. The lone sightings associated with feeding and socializing activities were located to the north of the airport and near Lung Kwu Chau



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respectively (Figure 6). Distribution of dolphin sightings associated with these activities during the impact phase was very different from the distribution pattern of these activities during the baseline period (Figure 6).

- 3.7.3. As in the past monitoring quarters, none of the 15 dolphin groups was found to be associated with an operating fishing vessel in North Lantau waters during the present impact phase period. The extremely rare events of fishing boat association in the present and previous quarters were consistently found, and were likely related to the recent trawl ban being implemented in December 2012 in Hong Kong waters.
- 3.8. Summary of photo-identification works
- 3.8.1. From December 2014 to February 2015, over 1,500 digital photographs of Chinese White Dolphins were taken during the HKLR03 impact phase monitoring surveys for the photo-identification work.
- 3.8.2. In total, 24 individuals sighted 32 times altogether were identified (see summary table in Appendix III and photographs of identified individuals in Appendix IV). All of these 32 re-sightings were made in NWL.
- 3.8.3. The majority of identified individuals were sighted only once or twice during the three-month period, with the exception of one individual (CH34) being sighted thrice.
- 3.8.4. Two of these 24 individuals (NL259 and NL285) were also sighted in West Lantau waters during the HKLR09 monitoring surveys for the same three-month period, showing their extensive movement between North and West Lantau regions.
- 3.8.5. Five recognized females (NL98, NL104, NL123, NL202 and WL17) were accompanied with calves during their re-sightings. Some of these mothers were frequently sighted with their calves throughout the HKLR03 impact phase monitoring period since October 2012.
- 3.9. Individual range use
- 3.9.1. Ranging patterns of the 24 individuals identified during the three-month study period were determined by fixed kernel method, and are shown in Appendix V.
- 3.9.2. All identified dolphins sighted in this quarter were utilizing their range use in NWL, but have avoided the NEL waters where many of them have utilized as their core areas in the past (Appendix V). This is in contrary to the extensive movements between NEL and NWL survey areas observed in the earlier impact monitoring quarters as well as during the baseline period.
- 3.9.3. Notably, two individuals (NL259 and NL285) sighted in NWL and NEL waters consistently in the past have extended their range use to WL waters in the present quarter. It should be further monitored to examine whether there has been any consistent shifts of home ranges of individuals from North Lantau to West Lantau, which could also possibly be related to the HZMB-related construction works.



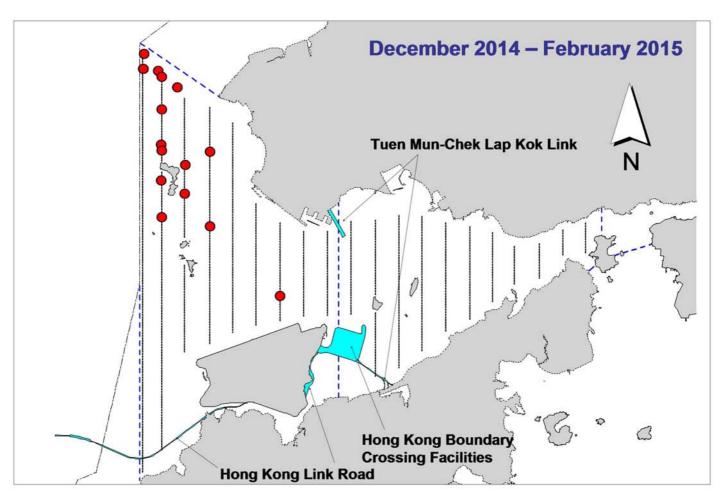
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### 4. Conclusion

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

### 5. References

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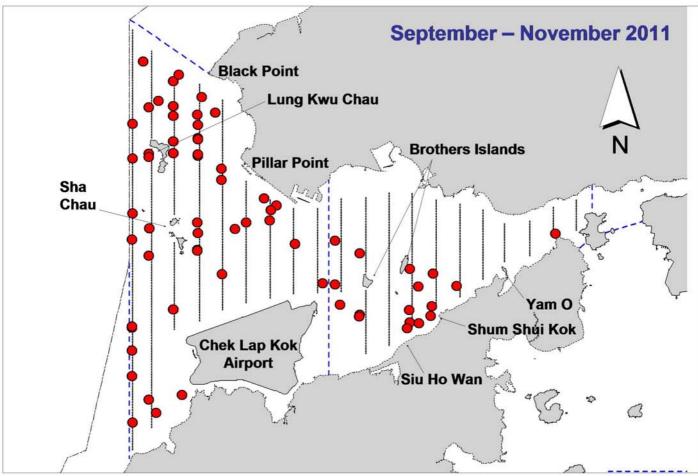


Figure 1. Distribution of Chinese white dolphin sighting in Northwest and Northeast Lantau during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

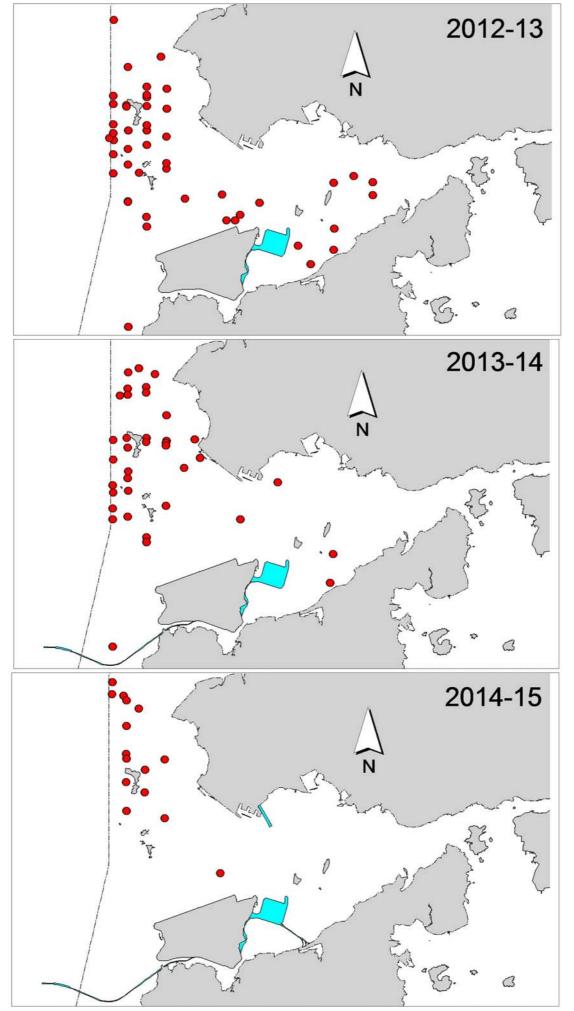
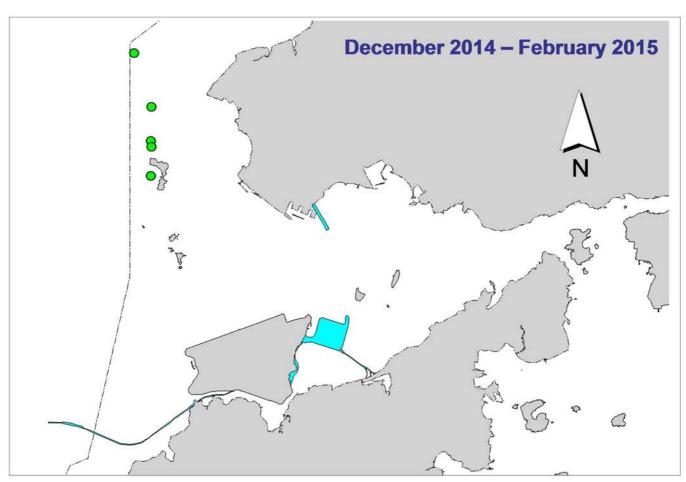


Figure 2. Distribution of Chinese white dolphin sightings in Northwest and Northeast Lantau during the same winter quarters of HKLR03 impact phase in 2012-13, 2013-14 and 2014-15



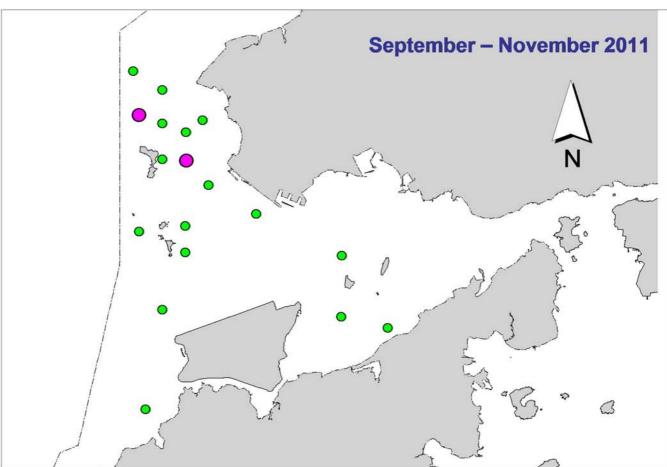


Figure 3. Distribution of Chinese white dolphins with larger group sizes during HKLR03 impact phase (top) and baseline monitoring surveys (bottom) (green dots: group sizes of 5 or more; purple dots: group sizes of 10 or more)

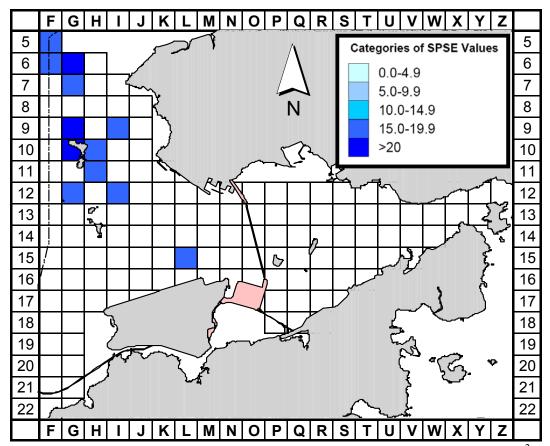


Figure 4a. Sighting density of Chinese white dolphins with corrected survey effort per km<sup>2</sup> in Northeast and Northwest Lantau survey areas, using data collected during HKLR03 impact monitoring period monitoring period (Dec 14-Feb 15) (SPSE = no. of on-effort sightings per 100 units of survey effort)

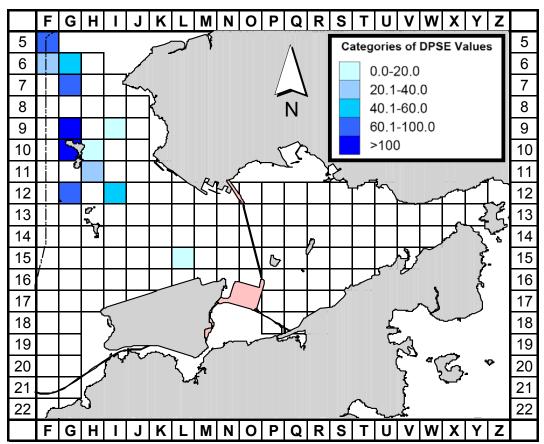


Figure 4b. Density of Chinese white dolphins with corrected survey effort per km<sup>2</sup> in Northeast and Northwest Lantau survey areas, using data collected during HKLR03 impact monitoring period (Dec 14-Feb 15) (DPSE = no. of dolphins per 100 units of survey effort)

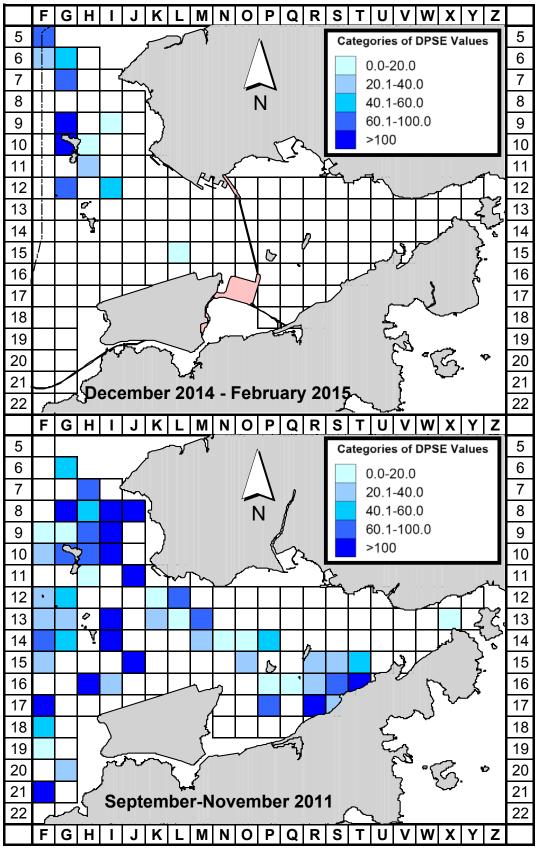
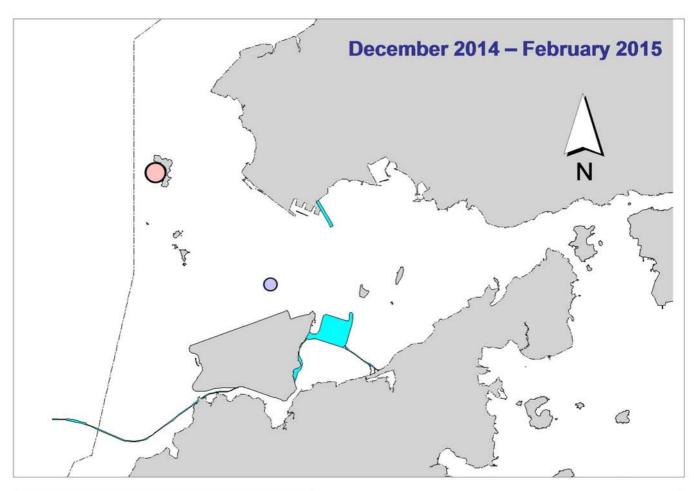


Figure 5. Comparison of density of Chinese white dolphins with corrected survey effort per km<sup>2</sup> in Northwest and Northeast Lantau survey area between the impact monitoring period (September-November 2014) and baseline monitoring period (September-November 2011) (DPSE = no. of dolphins per 100 units of survey effort)



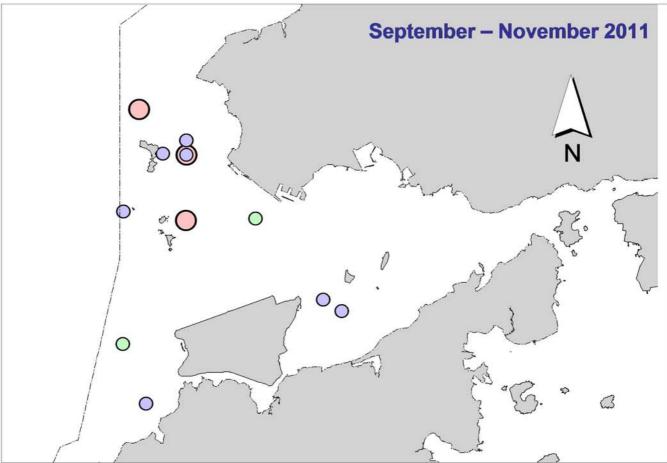


Figure 6. Distribution of Chinese white dolphins engaged in feeding (purple dots), socializing (pink dots) and traveling (green dots) activities during HKLR03 impact phase (top) and baseline monitoring surveys (bottom)

## Appendix I. HKLR03 Survey Effort Database (December 2014 - February 2015)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
2-Dec-14	NE LANTAU	2	15.30	WINTER	STANDARD31516	HKLR	Р
2-Dec-14	NE LANTAU	3	2.28	WINTER	STANDARD31516	HKLR	Р
2-Dec-14	NE LANTAU	2	7.54	WINTER	STANDARD31516	HKLR	S
2-Dec-14	NE LANTAU	3	2.28	WINTER	STANDARD31516	HKLR	S
2-Dec-14	NW LANTAU	2	18.17	WINTER	STANDARD31516	HKLR	Р
2-Dec-14	NW LANTAU	3	23.09	WINTER	STANDARD31516	HKLR	Р
2-Dec-14	NW LANTAU	2	10.54	WINTER	STANDARD31516	HKLR	S
2-Dec-14	NW LANTAU	3	2.10	WINTER	STANDARD31516	HKLR	S
9-Dec-14	NE LANTAU	1	5.79	WINTER	STANDARD31516	HKLR	P
9-Dec-14	NE LANTAU	2	14.41	WINTER	STANDARD31516	HKLR	P
9-Dec-14	NE LANTAU	1	2.20	WINTER	STANDARD31516	HKLR	S
9-Dec-14	NE LANTAU	2	8.30	WINTER	STANDARD31516	HKLR	S
9-Dec-14	NW LANTAU	1	2.11	WINTER	STANDARD31516	HKLR	P
9-Dec-14	NW LANTAU	2	28.31	WINTER	STANDARD31516	HKLR	Р
9-Dec-14	NW LANTAU	2	5.13	WINTER	STANDARD31516	HKLR	S
9-Dec-14	NW LANTAU	3	2.45	WINTER	STANDARD31516	HKLR	S
15-Dec-14	NW LANTAU	2	31.56	WINTER	STANDARD31516	HKLR	P
15-Dec-14 15-Dec-14	NW LANTAU	3	9.34	WINTER	STANDARD31516	HKLR	P
15-Dec-14 15-Dec-14	NW LANTAU	2	12.90	WINTER	STANDARD31516	HKLR	S
15-Dec-14 15-Dec-14	NE LANTAU	1	3.57	WINTER	STANDARD31516 STANDARD31516	HKLR	P
15-Dec-14 15-Dec-14	NE LANTAU	2	13.37	WINTER	STANDARD31516 STANDARD31516	HKLR	Р
15-Dec-14 15-Dec-14	NE LANTAU	1	3.76	WINTER	STANDARD31516 STANDARD31516	HKLR	S
15-Dec-14 15-Dec-14	NE LANTAU	2	6.50	WINTER	STANDARD31516 STANDARD31516	HKLR	S
	NE LANTAU	2					o P
23-Dec-14 23-Dec-14	NE LANTAU NE LANTAU	2	19.81 9.69	WINTER WINTER	STANDARD31516 STANDARD31516	HKLR HKLR	S
	NE LANTAU	3					S
23-Dec-14			0.90	WINTER	STANDARD31516	HKLR	o P
23-Dec-14	NW LANTAU	2	13.36	WINTER	STANDARD31516	HKLR	
23-Dec-14	NW LANTAU	3	16.71	WINTER	STANDARD31516	HKLR	P
23-Dec-14	NW LANTAU	2	5.81	WINTER	STANDARD31516	HKLR	S S
23-Dec-14	NW LANTAU	3 2	1.82	WINTER	STANDARD31516	HKLR	
8-Jan-15	NE LANTAU NE LANTAU	2	20.00	WINTER	STANDARD31516 STANDARD31516	HKLR	S
8-Jan-15			10.40	WINTER		HKLR	o P
8-Jan-15	NW LANTAU	2	10.06	WINTER	STANDARD31516	HKLR	P
8-Jan-15		3	21.99	WINTER	STANDARD31516	HKLR	-
8-Jan-15 8-Jan-15	NW LANTAU NW LANTAU	2	5.53 1.94	WINTER WINTER	STANDARD31516 STANDARD31516	HKLR HKLR	S S
15-Jan-15	NW LANTAU	3 2	0.89	WINTER	STANDARD31516 STANDARD31516	HKLR	o P
15-Jan-15 15-Jan-15	NW LANTAU	3	36.39	WINTER	STANDARD31516 STANDARD31516	HKLR	Р
15-Jan-15	NW LANTAU	2	1.05	WINTER	STANDARD31516	HKLR	S
15-Jan-15	NW LANTAU	3	11.06	WINTER	STANDARD31516	HKLR	S
15-Jan-15	NE LANTAU	2	9.56	WINTER	STANDARD31516	HKLR	P
15-Jan-15	NE LANTAU	3	7.91	WINTER	STANDARD31516	HKLR	P
15-Jan-15	NE LANTAU	2	8.56	WINTER	STANDARD31516	HKLR	S
15-Jan-15	NE LANTAU	3	1.17	WINTER	STANDARD31516	HKLR	S
27-Jan-15	NE LANTAU	2	10.35	WINTER	STANDARD31516	HKLR	Р
27-Jan-15	NE LANTAU	3	7.00	WINTER	STANDARD31516	HKLR	Р
27-Jan-15	NE LANTAU	2	6.55	WINTER	STANDARD31516	HKLR	S
27-Jan-15	NE LANTAU	3	3.90	WINTER	STANDARD31516	HKLR	S
27-Jan-15	NW LANTAU	2	10.38	WINTER	STANDARD31516	HKLR	Р
27-Jan-15	NW LANTAU	3	26.22	WINTER	STANDARD31516	HKLR	Р
27-Jan-15	NW LANTAU	4	3.10	WINTER	STANDARD31516	HKLR	Р

## Appendix I. (cont'd)

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

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
27-Jan-15	NW LANTAU	2	7.53	WINTER	STANDARD31516	HKLR	S
27-Jan-15	<b>NW LANTAU</b>	3	4.15	WINTER	STANDARD31516	HKLR	S
27-Jan-15	<b>NW LANTAU</b>	4	0.80	WINTER	STANDARD31516	HKLR	S
29-Jan-15	<b>NW LANTAU</b>	1	1.41	WINTER	STANDARD31516	HKLR	Р
29-Jan-15	NW LANTAU	2	15.47	WINTER	STANDARD31516	HKLR	Р
29-Jan-15	NW LANTAU	3	13.03	WINTER	STANDARD31516	HKLR	Р
29-Jan-15	NW LANTAU	1	2.34	WINTER	STANDARD31516	HKLR	S
29-Jan-15	NW LANTAU	2	4.25	WINTER	STANDARD31516	HKLR	S
29-Jan-15	NW LANTAU	3	0.60	WINTER	STANDARD31516	HKLR	S
29-Jan-15	NE LANTAU	1	4.67	WINTER	STANDARD31516	HKLR	Р
29-Jan-15	NE LANTAU	2	15.57	WINTER	STANDARD31516	HKLR	Р
29-Jan-15	NE LANTAU	2	10.56	WINTER	STANDARD31516	HKLR	S
5-Feb-15	NE LANTAU	2	11.79	WINTER	STANDARD31516	HKLR	Р
5-Feb-15	NE LANTAU	3	8.03	WINTER	STANDARD31516	HKLR	Р
5-Feb-15	NE LANTAU	1	0.20	WINTER	STANDARD31516	HKLR	S
5-Feb-15	NE LANTAU	2	7.00	WINTER	STANDARD31516	HKLR	S
5-Feb-15	NE LANTAU	3	3.88	WINTER	STANDARD31516	HKLR	S
5-Feb-15	NW LANTAU	2	11.86	WINTER	STANDARD31516	HKLR	P
5-Feb-15	NW LANTAU	3	19.78	WINTER	STANDARD31516	HKLR	P
5-Feb-15	NW LANTAU	2	3.96	WINTER	STANDARD31516	HKLR	S
5-Feb-15	NW LANTAU	3	4.10	WINTER	STANDARD31516	HKLR	S
13-Feb-15	NW LANTAU	1	10.31	WINTER	STANDARD31516	HKLR	P
13-Feb-15	NW LANTAU	2	24.74	WINTER	STANDARD31516	HKLR	P
13-Feb-15	NW LANTAU	3	4.98	WINTER	STANDARD31516	HKLR	P
13-Feb-15	NW LANTAU	1	4.92	WINTER	STANDARD31516	HKLR	S
13-Feb-15	NW LANTAU	2	8.01	WINTER	STANDARD31516	HKLR	S
13-Feb-15	NE LANTAU	2	16.97	WINTER	STANDARD31516	HKLR	P
13-Feb-15	NE LANTAU	2	9.83	WINTER	STANDARD31516	HKLR	S
16-Feb-15	NE LANTAU	2	17.07	WINTER	STANDARD31516	HKLR	P
16-Feb-15	NE LANTAU	1	2.87	WINTER	STANDARD31516	HKLR	S
16-Feb-15	NE LANTAU	2	7.61	WINTER	STANDARD31516	HKLR	S
16-Feb-15	NW LANTAU	1	0.90	WINTER	STANDARD31516	HKLR	P
16-Feb-15	NW LANTAU	2	36.33	WINTER	STANDARD31516	HKLR	P
16-Feb-15	NW LANTAU	3	2.60	WINTER	STANDARD31516	HKLR	P
16-Feb-15	NW LANTAU	2	10.57	WINTER	STANDARD31516	HKLR	S
16-Feb-15	NW LANTAU	3	2.60	WINTER	STANDARD31516	HKLR	S
25-Feb-15	NW LANTAU	2	9.90	WINTER	STANDARD31516	HKLR	P
25-Feb-15	NW LANTAU	3	19.50	WINTER	STANDARD31516	HKLR	Р
25-Feb-15	NW LANTAU	2	3.50	WINTER	STANDARD31516	HKLR	S
25-Feb-15	NW LANTAU	3	4.30	WINTER	STANDARD31516	HKLR	S
25-Feb-15	NE LANTAU	1	1.20	WINTER	STANDARD31516	HKLR	P
25-Feb-15	NE LANTAU	2	16.30	WINTER	STANDARD31516	HKLR	P
25-Feb-15	NE LANTAU	3	2.00	WINTER	STANDARD31516	HKLR	P
25-Feb-15	NE LANTAU	2	10.40	WINTER	STANDARD31516	HKLR	S
20100-10	THE LANTIAG		10.70	VVIIVI LIX		I IIXLIX	5

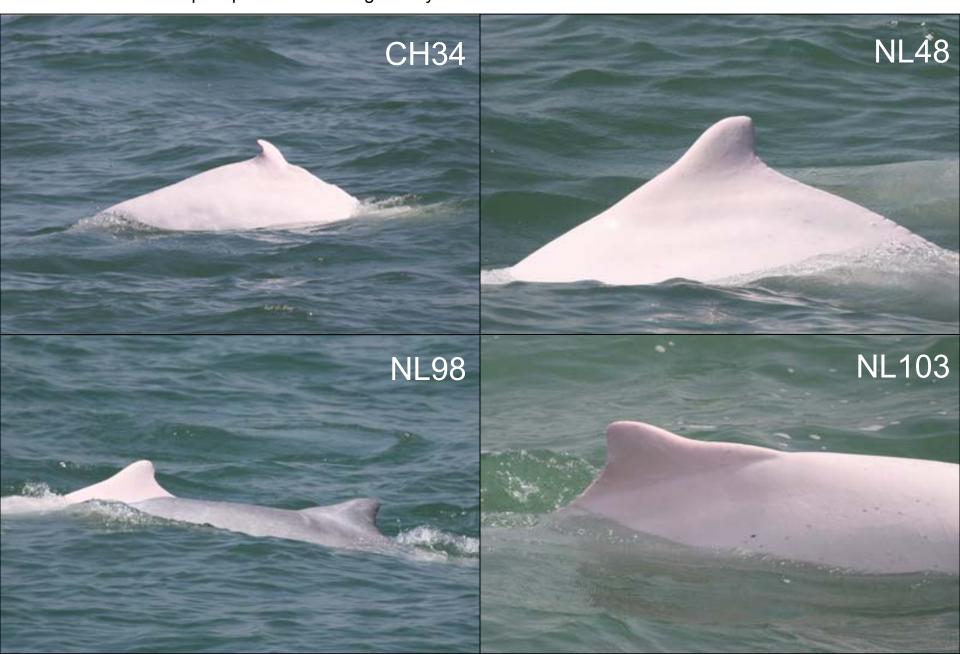
Appendix II. HKLR03 Chinese White Dolphin Sighting Database (December 2014 - February 2015) (Abberviations: STG# = Sighting Number; HRD SZ = Dolphin Herd Size; BEAU = Beaufort Sea State; PSD = Perpendicular Distance; BOAT ASSOC. = Fishing Boat Association P/S: Sighting Made on Primary/Secondary Lines

DATE	STG#	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
2-Dec-14	1	1428	1	NW LANTAU	3	207	ON	HKLR	826916	806457	WINTER	NONE	Р
9-Dec-14	1	1315	3	NW LANTAU	2	280	ON	HKLR	824445	807513	WINTER	NONE	Р
23-Dec-14	1	1335	1	NW LANTAU	3	151	ON	HKLR	827424	807518	WINTER	NONE	Р
8-Jan-15	1	1355	1	NW LANTAU	2	148	ON	HKLR	830029	806123	WINTER	NONE	S
8-Jan-15	2	1421	8	NW LANTAU	3	556	ON	HKLR	827716	805449	WINTER	NONE	Р
15-Jan-15	1	1132	2	NW LANTAU	3	189	ON	HKLR	830762	804693	WINTER	NONE	Р
15-Jan-15	2	1143	5	NW LANTAU	3	24	ON	HKLR	831349	804705	WINTER	NONE	Р
15-Jan-15	3	1156	3	NW LANTAU	3	464	ON	HKLR	830673	805331	WINTER	NONE	S
27-Jan-15	1	1409	2	NW LANTAU	3	163	ON	HKLR	825753	806454	WINTER	NONE	S
27-Jan-15	2	1442	3	NW LANTAU	3	410	ON	HKLR	830429	805475	WINTER	NONE	Р
29-Jan-15	1	1104	4	NW LANTAU	3	63	ON	HKLR	824825	805464	WINTER	NONE	Р
29-Jan-15	2	1128	6	NW LANTAU	2	143	ON	HKLR	826287	805456	WINTER	NONE	Р
29-Jan-15	3	1150	7	NW LANTAU	2	343	ON	HKLR	827483	805469	WINTER	NONE	Р
29-Jan-15	4	1208	5	NW LANTAU	2	143	ON	HKLR	829122	805472	WINTER	NONE	Р
13-Feb-15	1	1344	1	NW LANTAU	2	103	ON	HKLR	821649	810495	WINTER	NONE	Р

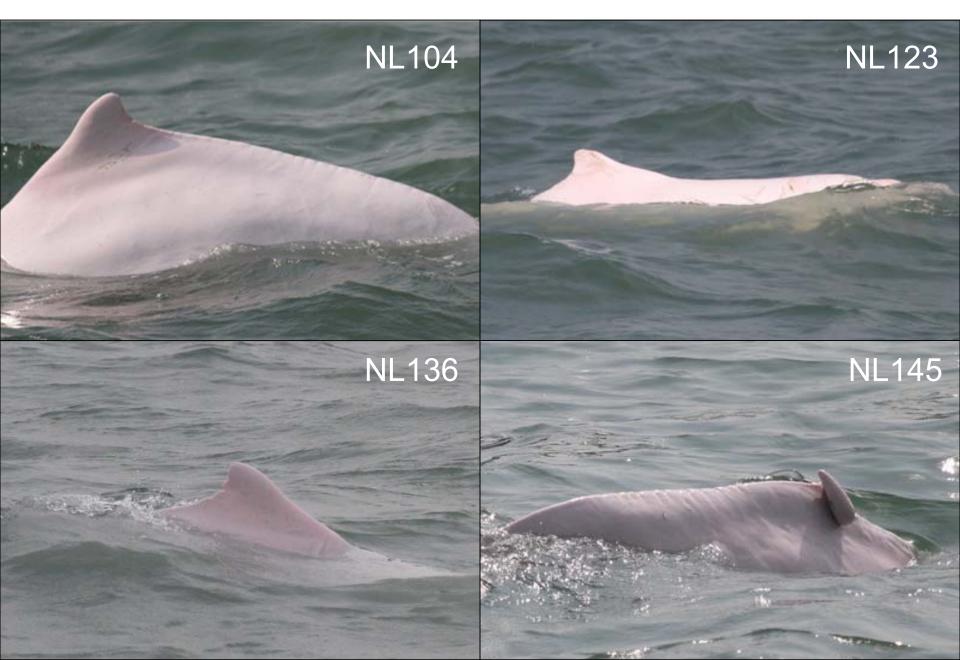
# Appendix III. Individual dolphins identified during HKLR03 monitoring surveys in December 2014 - February 2015

ID#	DATE	STG#	AREA
CH34	15/01/15	1	NW LANTAU
	15/01/15	2	NW LANTAU
	29/01/15	4	NW LANTAU
NL48	23/12/14	1	NW LANTAU
	15/01/15	3	NW LANTAU
NL98	15/01/15	2	NW LANTAU
NL103	29/01/15	2	NW LANTAU
NL104	08/01/15	2	NW LANTAU
NL123	08/01/15	2	NW LANTAU
NL136	02/12/14	1	NW LANTAU
NL145	08/01/15	2	NW LANTAU
	29/01/15	2	NW LANTAU
NL182	15/01/15	1	NW LANTAU
	15/01/15	2	NW LANTAU
NL202	08/01/15	2	NW LANTAU
NL210	29/01/15	2	NW LANTAU
NL214	09/12/14	1	NW LANTAU
NL220	09/12/14	1	NW LANTAU
NL259	15/01/15	3	NW LANTAU
NL261	08/01/15	2	NW LANTAU
NL284	15/01/15	2	NW LANTAU
	29/01/15	2	NW LANTAU
NL285	08/01/15	2	NW LANTAU
NL286	08/01/15	2	NW LANTAU
NL287	29/01/15	1	NW LANTAU
NL306	29/01/15	1	NW LANTAU
	13/02/15	1	NW LANTAU
NL307	09/12/14	1	NW LANTAU
	29/01/15	1	NW LANTAU
WL17	27/01/15	1	NW LANTAU
WL188	29/01/15	2	NW LANTAU
WL231	29/01/15	2	NW LANTAU

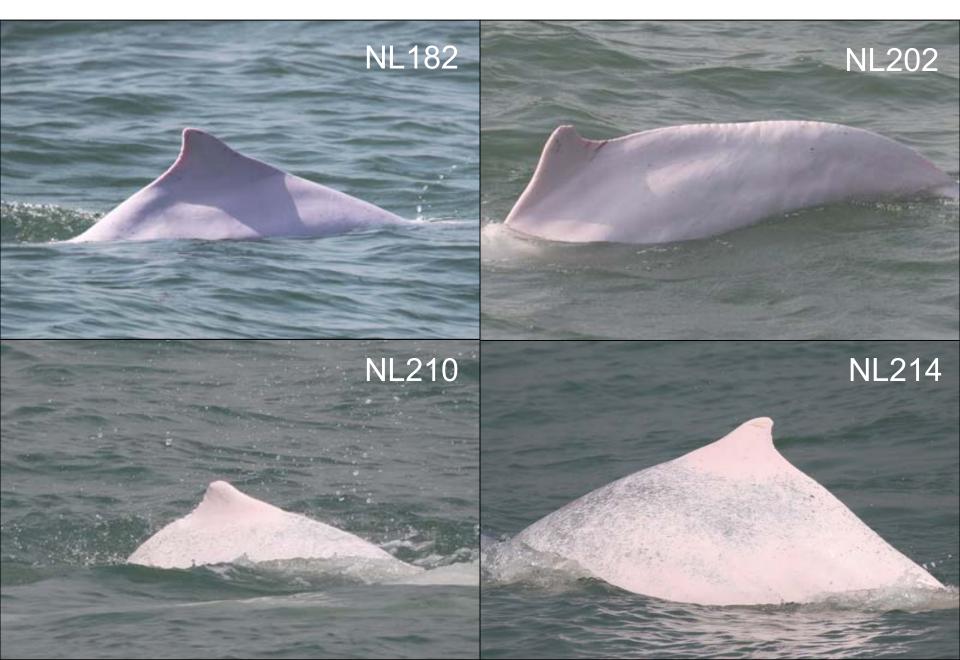
Appendix IV. Twenty-four individual dolphins that were identified during December 2014 – February 2015 under HKLR03 impact phase monitoring surveys



Appendix IV. (cont'd)



Appendix IV. (cont'd)



Appendix IV. (cont'd)



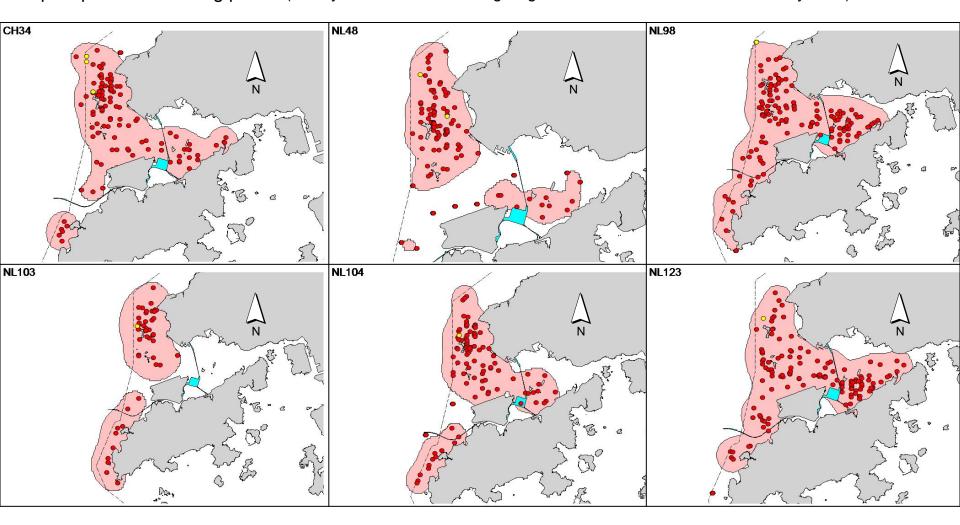
Appendix IV. (cont'd)



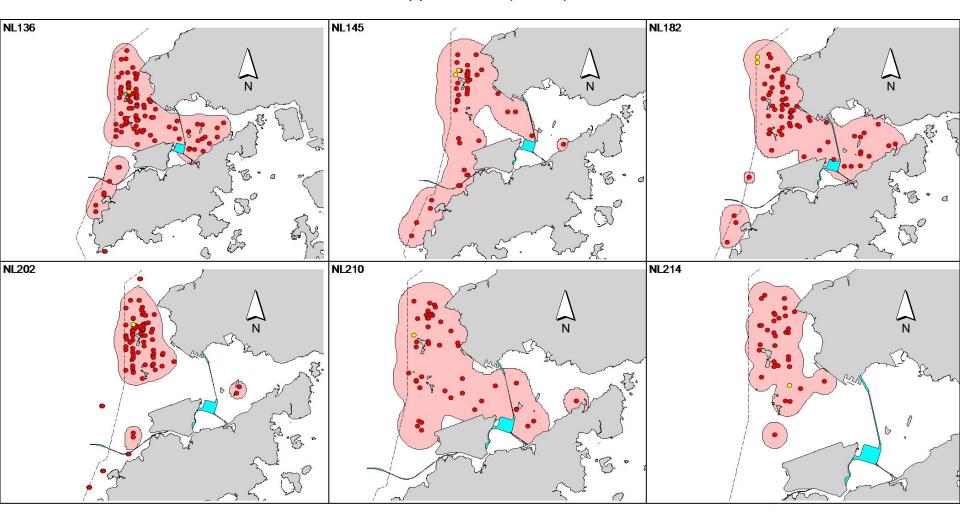
Appendix IV. (cont'd)



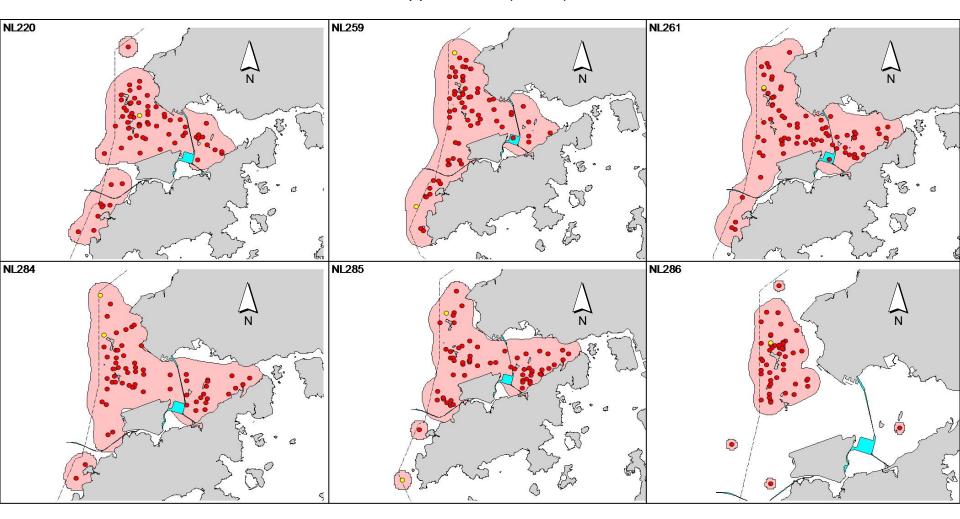
Appendix V. Ranging patterns (95% kernel ranges) of 24 individual dolphins that were sighted during HKLR03 impact phase monitoring period (note: yellow dots indicates sightings made in December 2014 – February 2015)



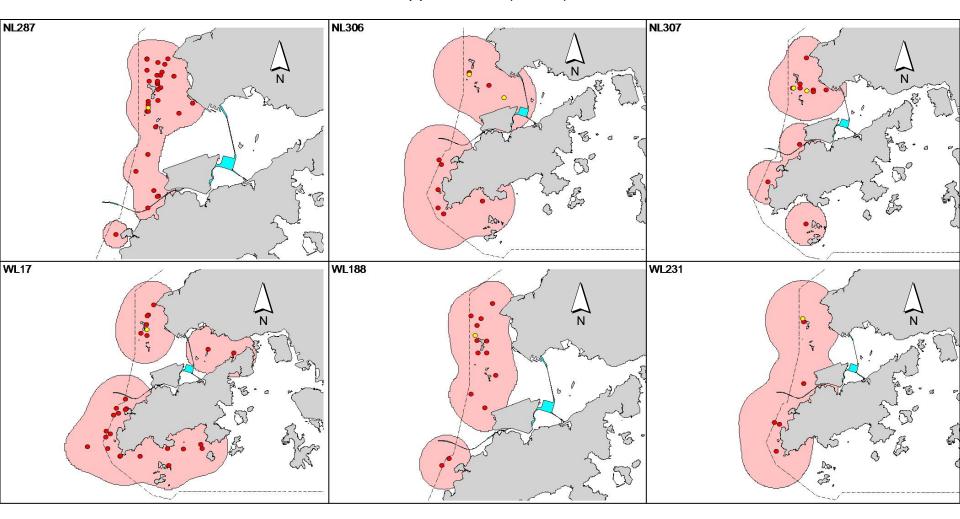
Appendix V. (cont'd)



Appendix V. (cont'd)



Appendix V. (cont'd)



Appendix J

Event Action Plan

Appendix J1 Event/Action Plan for Air Quality

		AC	TION	
EVENT	ET (1)	IEC (1)	SOR <sup>(1)</sup>	Contractor
Action Level				
1. Exceedance for one sample	<ol> <li>Identify the source.</li> <li>Inform the IEC and the SOR.</li> <li>Repeat measurement to confirm finding.</li> <li>Increase monitoring frequency to daily.</li> </ol>	<ol> <li>Check monitoring data submitted by the ET.</li> <li>Check Contractor's working method.</li> </ol>	1. Notify Contractor.	<ol> <li>Rectify any unacceptable practice</li> <li>Amend working methods if appropriate</li> </ol>
2. Exceedance for two or more consecutive samples	<ol> <li>Identify the source.</li> <li>Inform the IEC and the SOR.</li> <li>Repeat measurements to confirm findings.</li> <li>Increase monitoring frequency to daily.</li> <li>Discuss with the IEC and the Contractor on remedial actions required.</li> <li>If exceedance continues, arrange meeting with the IEC and the SOR.</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Check monitoring data submitted by the ET.</li> <li>Check the Contractor's working method.</li> <li>Discuss with the ET and the Contractor on possible remedial measures.</li> <li>Advise the SOR on the effectiveness of the proposed remedial measures.</li> <li>Supervisor implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing.</li> <li>Notify the Contractor.</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol> <li>Submit proposals for remedial actions to IEC within 3 working days of notification</li> <li>Implement the agreed proposals</li> <li>Amend proposal if appropriate</li> </ol>

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

the SOR informed of the results.

8. If exceedance stops cease additional monitoring.

Appendix J2 Event/Action Plan for Construction Noise

		ACTION								
EVENT	ET	IEC	SOR	Contractor						
Action Level	<ol> <li>Notify the IEC and the Contractor.</li> <li>Carry out investigation.</li> </ol>	Review the analysed results submitted by the ET.	Confirm receipt of notification of failure in writing.	Submit noise mitigation proposals to IEC						
	<ol> <li>Report the results of investigation to the IEC and the Contractor.</li> <li>Discuss with the Contractor and formulate remedial measures.</li> <li>Increase monitoring frequency to</li> </ol>	<ol> <li>Review the proposed remedial measures by the Contractor and advise the SOR accordingly.</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Notify the Contractor.</li> <li>Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>Ensure remedial measures are</li> </ol>	Implement noise mitigation proposals						
Limit Level	check mitigation effectiveness.  1. Notify the IEC, the SOR, the DEP	Discuss amongst the SOR, the ET	properly implemented.  1. Confirm receipt of notification of	Take immediate action to avoid						
3.	<ul><li>and the Contractor.</li><li>Identify the source.</li></ul>	and the Contractor on the potential remedial actions.	<ul><li>failure in writing.</li><li>Notify the Contractor.</li></ul>	further exceedance  2. Submit proposals for remedial						
	<ol> <li>Repeat measurement to confirm findings.</li> </ol>	2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise	3. Require the Contractor to propose remedial measures for the analysed noise problem.	<ul><li>actions to IEC within 3 working days of notification</li><li>3. Implement the agreed proposals</li></ul>						
	<ul><li>4. Increase monitoring frequency.</li><li>5. Carry out analysis of Contractor's working procedures to determine</li></ul>	the SOR accordingly.  3. Supervise the implementation of	Ensure remedial measures are properly implemented.	Resubmit proposals if problem still not under control						
	possible mitigation to be implemented.	remedial measures.	5. If exceedance continues, consider what activity of the work is	5. Stop the relevant activity of works as determined by the SOR until the						
	<ol><li>Inform the IEC, the SOR and the DEP the causes &amp; actions taken for the exceedances.</li></ol>		responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	exceedance is abated.						
	7. Assess effectiveness of the Contractor's remedial actions and keep the IEC, the DEP and the SOR informed of the results.	ntractor's remedial actions and pp the IEC, the DEP and the SOR								
	<ol><li>If exceedance stops, cease additional monitoring.</li></ol>									

Appendix J3 Event/Action Plan for Water Quality

Event	ET	Leader		IEC	S	OR		Contractor
Action level being exceeded by one sampling day	1.	Repeat in situ measurement on next day of exceedance to confirm	1.	Check monitoring data submitted by ET and	1.	Confirm receipt of notification of non-compliance in	1.	Inform the SOR and confirm notification of the non-
by one sumpling day		findings;		Contractor's working methods.		writing;		compliance in writing;
	2.	Identify source(s) of impact;			2.	Notify Contractor.	2.	Rectify unacceptable practice;
	3.	Inform IEC, contractor and SOR;					3.	Amend working methods if appropriate.
	4.	Check monitoring data, all plant, equipment and Contractor's working methods.						
Action level being exceeded by two or more consecutive sampling days	1.	Repeat measurement on next day of exceedance to confirm findings;	1.	Check monitoring data submitted by ET and Contractor's working method;	1.	Discuss with IEC on the proposed mitigation measures;	1.	Inform the Supervising Officer and confirm notification of the non-
1 8 19	2.	Identify source(s) of impact;		Q		·		compliance in writing;
	3.	Inform IEC, contractor, SOR and EPD;	2.	Discuss with ET and Contractor on possible remedial actions;	2.	Ensure mitigation measures are properly implemented;	2.	Rectify unacceptable practice;
	4.	Check monitoring data, all plant, equipment and Contractor's working methods;	3.	Review the proposed mitigation measures submitted by Contractor and advise the SOR accordingly;	3.	Assess the effectiveness of the implemented mitigation measures.	3.	Check all plant and equipment and consider changes of working methods;
	5.	Discuss mitigation measures with IEC, SOR and Contractor;	4.	Supervise the implementation of mitigation measures.			4.	Submit proposal of additional mitigation measures to SOR within 3 working days of
	6.	Ensure mitigation measures are implemented;						notification and discuss with ET, IEC and SOR;
	7.	Increase the monitoring frequency to daily until no exceedance of Action level;					5.	Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day	1.	Repeat measurement on next day of exceedance to confirm findings;	1.	Check monitoring data submitted by ET and Contractor's working method;	1.	Confirm receipt of notification of failure in writing;	1.	Inform the SOR and confirm notification of the non-compliance in writing;
	2.	Identify source(s) of impact;	2	-	2.	Discuss with IEC, ET and	2	-
			2.	Discuss with ET and Contractor		Contractor on the proposed	2.	Rectify unacceptable practice;

Event	ET	Leader		IEC	SC	OR		Contractor
	3.	Inform IEC, contractor, SOR and EPD;		on possible remedial actions;		mitigation measures;	3.	Check all plant and
	4.	Check monitoring data, all plant, equipment and Contractor's working methods;	3.	Review the proposed mitigation measures submitted by Contractor and advise the SOR	3.	Request Contractor to review the working methods.	0.	equipment and consider changes of working methods;
	5.	Discuss mitigation measures with IEC, SOR and Contractor;		accordingly.			4.	Submit proposal of mitigation measures to SOR within 3 working days of notification and discuss with ET, IEC and SOR.
Limit level being exceeded by two or more consecutive	1.	Repeat measurement on next day of exceedance to confirm findings;	1.	Check monitoring data submitted by ET and Contractor's working method;		Discuss with IEC, ET and     Contractor on the     proposed mitigation	1.	Take immediate action to avoid further exceedance;
sampling days	2.	Identify source(s) of impact;		-		measures;	2.	Submit proposal of mitigation
	3.	Inform IEC, contractor, SOR and EPD;	2.	Discuss with ET and Contractor on possible remedial actions;		<ol><li>Request Contractor to critically review the working methods;</li></ol>		measures to SOR within 3 working days of notification and discuss with ET, IEC and
	4.	Check monitoring data, all plant, equipment and Contractor's working methods;	3.	Review the Contractor's mitigation measures whenever necessary to assure their		3. Make agreement on the mitigation measures to be implemented;	3.	SOR; Implement the agreed
		incure us,		effectiveness and advise the		4.	٠.	mitigation measures;
	5.	Discuss mitigation measures with IEC, SOR and Contractor;	4	SOR accordingly;		5. Ensure mitigation measures are properly implemented;	4.	Resubmit proposals of
	6.	Ensure mitigation measures are implemented;	4.	Supervise the implementation of mitigation measures.		<ul><li>6.</li><li>7. Consider and instruct, if necessary, the Contractor to slow down or to stop all</li></ul>		mitigation measures if problem still not under control;
	7.	Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days;				or part of the construction activities until no exceedance of Limit level.		As directed by the Supervising Officer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

Appendix J4 Implementation of Event-Action Plan for Dolphin Monitoring

Event	ET Leader	IEC	SC	OR .	Contractor
Action Level	1. Repeat statistical data analysis to confirm findings;	Check monitoring data submitted by ET and Contractor;	l 1.	Discuss monitoring with the IEC and any other measures	1. Inform the SOR and confirm notification of the non-
	2. Review all available and relevant data, including raw data and statistical analysis results of other	2. Discuss monitoring results and		proposed by the ET;	compliance in writing;
	parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences;	findings with the ET and the Contractor.	2.	If SOR is satisfied with the proposal of any other measures, SOR to signify the agreement in writing on the measures to be	2. Discuss with the ET and the IEC and propose measures to the IEC and the SOR;
	3. Identify source(s) of impact;			implemented.	3. Implement the agreed measures.
	4. Inform the IEC, SOR and Contractor;				
	5. Check monitoring data.				
	<ol><li>Review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary.</li></ol>				

Event ET Leader IEC SOR	Contractor
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 submitted by ET and Contractor; 4. Inform the IEC, ER/SOR and Contractor of findings; 6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary; 7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with ET, ER/SOR and Contractor; 3. Attend the meeting to discuss with ET, ER/SOR is satisfied with the proposals for additional dolphin monitoring and any other mitigation measures submitted by ET and Contractor; 3. Attend the meeting to discuss with ET, ER/SOR and Contractor; 4. 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 eata submitted the Contractor; 3. Attend the meeting to discuss with ET, ER/SOR and Contractor; 4. Review proposals for additional monitoring and any other mitigation measures; submitted by ET and Contractor and advertified by ET and Contractor the necessity of additional monitoring and any other mitigation measures. Submitted by ET and Contractor and advertified by ET and Contractor and advertified by ET and Contractor and any other mitigation measures. Submitted by ET and Contractor and advertified by ET and Contractor in the EM&A. Attend the meeting to discuss with ET, ER/SOR is astatisfied with the Contractor,	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

Appendix J5 Event and Action Plan on Dolphin Acoustic Behaviour

EVENT		ACTION							
	ET Leader	IEC	SO	Contractor					
Action Level									
With the numerical values presented in <i>Table 5.7</i> of <i>Baseline Monitoring Report</i> , when any of the response variable for dolphin acoustic behaviour recorded in the construction phase monitoring is 20% lower or higher than that recorded in the baseline monitoring (see <i>Table 5.8</i> of <i>Baseline Monitoring Report</i> ), or when there is a difference of 20% in dolphin acoustic signal detection at nighttime period at Site C1 only, the action level should be triggered	<ol> <li>Repeat statistical data analysis to confirm findings;</li> <li>Review all available and relevant data to ascertain if differences are as a result of natural variation or seasonal differences;</li> <li>Identify source(s) of impact;</li> <li>Inform the IEC, SO and Contractor;</li> <li>Check monitoring data;</li> <li>Carry out audit to ensure all dolphin protective measures are implemented fully and additional</li> </ol>	<ol> <li>Check monitoring data submitted by ET and Contractor;</li> <li>Discuss monitoring with the ET and the Contractor;</li> </ol>	<ol> <li>Discuss with the IEC the repeat monitoring and any other measures proposed by the ET;</li> <li>Make agreement on measures to be implemented.</li> </ol>	<ol> <li>Inform the SO and confirm notification of the non- compliance in writing;</li> <li>Discuss with the ET and the IEC and propose measures to the IEC and the SO;</li> <li>Implement the agreed measures.</li> </ol>					
	measures are implemented fully and additional measures be proposed if necessary								

EVENT	ACTION							
	ET Leader	IEC	SO	Contractor				
Limit Level								
With the numerical values presented in <i>Table 5.7</i> of <i>Baseline Monitoring Report</i> , when any of the response variable for dolphin acoustic behaviour recorded in the construction phase monitoring is 40% lower or higher than that recorded in the baseline monitoring (see <i>Table 5.8</i> of <i>Baseline Monitoring Report</i> ), or when there is a difference of 40% in dolphin acoustic signal detection at nighttime at Site C1 only, the limit level should be triggered	<ol> <li>Repeat statistical data analysis to confirm findings;</li> <li>Review all available and relevant data to ascertain if differences are as a result of natural variation or seasonal differences;</li> <li>Identify source(s) of impact;</li> <li>Inform the IEC, SO and Contractor;</li> <li>Check monitoring data;</li> <li>Carry out audit to ensure all dolphin protective measures are implemented fully and additional measures be proposed if necessary</li> <li>Discuss additional dolphin monitoring and any other potential mitigation measures (eg consider to temporarily stop relevant portion of construction activity) with the IEC and</li> </ol>	<ol> <li>Check monitoring data submitted by ET and Contractor;</li> <li>Discuss monitoring with the ET and the Contractor;</li> <li>Review proposals for additional monitoring and any other measures submitted by the Contractor and advise ER accordingly.</li> </ol>	<ol> <li>Discuss with the IEC         the repeat monitoring         and any other         measures proposed by         the ET;</li> <li>Make agreement on         measures to be         implemented.</li> </ol>	<ol> <li>Inform the SO and confirm notification of the non- compliance in writing;</li> <li>Discuss with the ET and the IEC and propose measures to the IEC and the SO;</li> <li>Implement the agreed measures.</li> </ol>				
	Contractor.							

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

Appendix K

Quarterly Summary of Waste Flow Table Contract No.: HY/2012/07

## Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section Monthly Summary Waste Flow Table for 2014 (Year)

	Actual Quantities of Inert C&D Materials Generation						Actual Quantities of C&D wastes Generation					Actual Quantities of Recyclables Generation			
Month\Material	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills	Imported Fill	Marine Sediment, Cat. L	Marine Sediment, Cat. Mp	Marine Sediment, Cat. Mf	Chemical Waste	General Refuse	Metals	Felled trees	Paper/ cardboard packaging	Plastics
Unit	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan	0.033	0.011	0.003	-	0.030	-	-	-	-	-	22.380	-	10.240	-	-
Feb	4.716	0.010	0.031	-	0.010	4.674	-	-	-	-	10.670	-	0.780	-	-
Mar	2.559	0.009	0.240	-	0.221	2.098	-	-	-	0.275	12.390	-	46.050	-	-
Apr	1.051	0.000	0.020	-	0.118	0.914	-	-	-	-	87.650	-	15.760	-	-
May	2.008	-	0.010	-	1.546	0.451	0.386	0.267	0.055	-	98.030	-	8.460	0.126	-
Jun	5.318	0.021	0.030	2.473	0.357	2.457	0.338	-	-	-	77.290	-	25.340	0.140	-
SUB-TOTAL	15.685	0.051	0.334	2.473	2.283	10.595	0.724	0.267	0.055	0.275	308.410	-	106.630	0.266	-
Jul	6.303	0.129	0.020	-	4.654	1.629	0.847	0.252	0.051	-	87.810	-	27.370	0.126	-
Aug	4.824	0.018	0.265	1.829	2.441	0.288	0.391	0.131	0.033	1.022	98.220	-	21.680	0.126	0.475
Sep	8.037	0.142	0.175	-	7.722	0.140	0.400	0.073	0.060	-	238.01	-	34.190	0.161	-
Oct	15.033	0.083	0.943	-	13.860	0.230	0.441	0.118	0.104	-	268.18	-	-	0.105	-
Nov	16.266	0.268	3.356	-	12.474	0.436	-	0.150	0.084	-	114.37	-	_	0.133	_
Dec	19.007	0.202	2.898	0.122	15.987	-	0.337	0.165	0.110	-	130.97	-	-	0.147	-
TOTAL	85.154	0.894	7.990	4.424	59.422	13.318	3.140	1.156	0.497	1.297	1,245.970	-	189.870	1.064	0.475

#### Notes:

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

Contract No.: HY/2012/07

## Tuen Mun Chek Lap Kok Link – Southern Connection Viaduct Section Monthly Summary Waste Flow Table for 2015 (Year)

		Actual Quantities of Inert C&D Materials Generation						Actual Quant	ities of C&D was	tes Generation		Actual Quantities of Recyclables Generation			
Month\Material	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fills	Imported Fill	Marine Sediment, Cat. L	Marine Sediment, Cat. Mp	Marine Sediment, Cat. Mf	Chemical Waste	General Refuse	Metals	Felled trees	Paper/ cardboard packaging	Plastics
Unit	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000m <sup>3</sup> )	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)
Jan	13.578	0.081	0.990	-	12.474	0.115	0.178	0.229	0.258	-	132.170	-	-	0.091	-
Feb	6.194	0.148	0.436	-	5.759	-	0.801	0.110	0.223	0.400	141.020	-	-	0.112	-
Mar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUB-TOTAL	19.772	0.229	1.426	-	18.232	0.115	0.979	0.339	0.481	0.400	273.190	-	0.000	0.203	-
Jul	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	19.772	0.229	1.426	-	18.232	0.115	0.979	0.339	0.481	0.400	273.190	-	-	0.203	-

### Notes:

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

## Appendix L

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

Appendix L1 Cumulative Statistics on Exceedances

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

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

Reporting Period	Cumulative Statistics							
_	Complaints	Notifications of	Successful					
		Summons	Prosecutions					
This quarter	0	0	0					
Total No. received since project commencement	2	0	0					

**Email** message **Environmental** Resources Management

To ENVIRON - Hong Kong, Limited (ENPO) 16/F Berkshire House, 25 Westlands Road

From

ERM-Hong Kong, Limited

Quarry Bay, Hong Kong Telephone: (852) 2271 3113 Facsimile: (852) 2723 5660 E-mail: jovy.tam@erm.com

Ref/Project number

Contract No. HY/2012/07 Tuen Mun-Chek Lap

Kok Link-Southern Connection Viaduct Section

Subject

Notification of Exceedance for Impact Dolphin

Monitoring

Date 9 April 2015



Dear Sir or Madam,

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

0215660\_Dec2014/Feb2015\_dolphin\_STG&ANI\_NEL&NWL

A total of one limit level exceedance was recorded in the quarterly impact dolphin monitoring data between December 2014 and February 2015.

Regards,

Mr Jovy Tam

Environmental Team Leader



## ERM-Hong Kong, Limited

# CONTRACT NO. HY/2012/07 TUEN MUN - CHEK LAP KOK LINK SOUTHERN CONNECTION VIADUCT SECTION

### Impact Dolphin Monitoring Notification of Exceedance

Log No.	0215660_Dec2014/Feb2015_dolphin_STG&ANI_NEL&NWL						
	[Total No. of Exceedance = 1]						
Date	December 2014 to February 2015 (monitored)						
	2 April 2015 (results received by ERM)						
Monitoring Area	Northeast	Lantau (NEL) and Northwest Lantau (NWL)					
Parameter(s) with	Quarter	y encounter rate of dolphin sightings (STG)					
Exceedance(s)	Quarterly er	ncounter rate of total number of dolphins (ANI)					
Action Levels		NEL: STG < 4.2 & ANI < 15.5					
	North Lantau Social cluster	or NWL: STG < 6.9 & ANI < 31.3					
Limit Levels	North Lantau Social Cluster	NEL: STG < 2.4 & ANI < 8.9					
		and					
D 1 17 1	NET	NWL: STG< 3.9 & ANI < 17.9					
Recorded Levels	NEL	STG = 0.0 & ANI = 0.0					
	NWL	STG = 2.9 & ANI = 11.3					
		ecorded in the quarterly impact dolphin monitoring at NEL and					
	NWL between December 2014 and February 2015. The exceedances were reported in the approved						
	Sixteenth Monthly EM&A Report						
Statistical Analyses	<ul> <li>Further to the review of the available and relevant dolphin monitoring data in the EM&amp;A under this Contract, statistical analyses were conducted as follows:</li> <li>A two-way ANOVA with repeated measures and unequal sample size was conducted using Period (2 levels: baseline vs impact – present impact quarter, December 2014 to February 2015) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the averages encounter rates between the baseline and present impact monitoring quarter. By setting α = 0.05 as the significance level in the statistical tests, significant difference in STG (p = 0.0059) and in ANI (p = 0.0330) between Period were detected.</li> <li>A two-way ANOVA with repeated measures and unequal sample size was conducted using Cumulative Period (2 levels: baseline vs impact – cumulative quarters, December 2012 to February 2015) and Location (2 levels: NEL and NWL) as fixed factors to examine whether there were any significant differences in the averages encounter rates between the baseline and cumulative impact monitoring quarter. By setting α = 0.1 as the significance level in the statistical tests, significant difference in STG (p = 0.0009) and in ANI (p = 0.0003) between</li> </ul>						
	Cumulative Period and Lo * Note: The commencemer	at date under Contract No. HY/2012/07 is 31 October 2013.					
Works Undertaken (in	In the quarter between Decembe	r 2014 and February 2015, the major marine works under Contract					
the monitoring	No. HY/2012/07 included:						
quarter)	<ul> <li>Construction of Pile caps at</li> </ul>						
	<ul> <li>Marine piling platform inst</li> </ul>						
	Marine Piling at Viaducts B						
	Additional marine ground	investigation (GI) and laboratory testing.					

## Possible Reason for Action or Limit Level Exceedance(s)

The exceedance is considered unlikely to be due to the Project, in view of the following:

- The *Monitoring of Marine Mammals in Hong Kong Waters* (2013 14) <sup>(1)</sup> reported that dolphin usage and traveling activities to the northern side of the airport (dolphin traveling corridor) are affected by frequent high-speed ferry traffic from Sky Pier (not related to this project), which is likely a contributing factor for the decrease in dolphin abundances in NEL.
- As per the findings from the EIA report (Section 8.11.9), the major influences on the Chinese white dolphin (CWD) *Sousa chinensis* under this Contract are marine traffics and bored piling works. The Contractor has implemented the marine traffic control as per the requirements in the *EP-354/2009/C* and the updated *EM&A Manual*. Likewise, the bored piling works were undertaken within a metal casing as described in the EP and the approved EIA Report. After reviewing of the bored piling records, the bored piling working rates in this quarter are within the allowable working rate described in the EP (*Clause 3.11*), in which construction works were not undertaken at more than 15 piers sites from December 2014 to February 2015. During this quarter of dolphin monitoring, no unacceptable impact on CWD due to the activities under this Contract was observed.
- According to the findings in the water monitoring results between December 2014 and February 2015, the impact mean level of SS (Mid-ebb: 12.5 mg/L; Mid-flood: 12.4 mg/L) in these 3 months is below the ambient mean level (130% of baseline mean level) of SS (Mid-ebb: 13.3 mg/L; Mid-flood: 15.7 mg/L). In February, some results of SS level were recorded higher than the values of Action/Limit Level, but within 120% of the result of upstream control station at the same tide in same day. This would imply that no unacceptable impact on SS levels was associated with the marine works under this Contract, and thus no indirect impacts on marine habitat quality due to change in water quality is observed in this Contract. High level results of SS in February 2015 were considered as natural variation.

### Actions Taken / To Be Taken

With reference to the site inspection records in this quarter, the respective marine ecological mitigation measures (including 250 m dolphin exclusion zone, Passive Acoustic Monitoring (PAM) for night time works, acoustic decoupling plan, training to workers, marine vessels speed control and offsite travel route control) have been implemented properly by the Contractor throughout the marine works period. No immediate additional action is considered necessary. The ET will monitor for future trends in exceedance(s).

A meeting was held on 27 April 2015 with attendance of ENPO, Resident Site Staff(RSS), Environmental Team and dolphin specialist for Contract No. HY/2010/02, RSS, ET, dolphin specialist and main Contractor for Contract No. HY/2011/03. The discussion/recommendation as recorded in the minutes of the meeting, which might be relevant to this Contract are summarized below. It was concluded that the HZMB works is one of the contributing factors affecting the dolphins. It was also concluded the contribution of impacts due to the HZMB works as a whole (or individual marine contracts) cannot be quantified nor separate from the other stress factors. It was reminded that the ETs shall keep reviewing the implementation status of the dolphin related mitigation measures and remind the contractor to ensure the relevant measures were fully implemented. It was recommended that the marine works of HZMB projects should be completed as soon as possible so as to reduce the overall duration of impacts and allow the dolphins population to recover as early as possible.

### Remarks

The results of impact water quality and impact dolphin monitoring, the status of implemented marine ecological mitigation measures are documented in the approved *Fourteenth* to *Sixteenth EM&A Monthly Reports*.