Room 723 & 725, 7/F, Block B, Profit Industrial Building,

1-15 Kwai Fung Crescent, Kwai Fong, Hong Kong.

Tel Fax Email

: (852)-24508238 : (852)-24508032 : mcl@fugro.com.hk



Report No.: 0165/15/ED/0365

QUARTERLY ENVIRONMENTAL MONITORING & AUDIT REPORT (Rev. 1)

December 2015 to February 2016

Client:

China Harbour Engineering Co., Ltd.

Project:

Contract No. HY/2013/03

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Boundary Crossing Facilities -

Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Report No.:

0165/15/ED/0365

Prepared by: Sandra Pang

Reviewed by: Bong Yu

Certified by:

Arthur Cheng

Environmental Team Leader



Ref.: HYDHZMBEEM00_0_4091L.16

20 April 2016

By Fax (3468 2076) and By Post

AECOM Asia Co. Ltd. The PRE's Office 5 Ying Hei Road, Tung Chung, Lantau Hong Kong

Attention: Mr. Michael Tovey

Dear Sir,

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/2013/03 - HZMB HKBCF - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Quarterly EM&A Report No.2 for December 2015 to February 2016

Reference is made to the Environmental Team's submission of Quarterly Environmental Monitoring & Audit Report No.2 for December 2015 to February 2016 (Rev. 1) certified by the ET Leader (ET's ref.: "MCL/ED/0206/2016/C" dated 19 April 2016) and provided to us via email on 19 April 2016.

We are pleased to inform you that we have no adverse comment on the captioned report. We write to verify the captioned submission in accordance with Section 16.4.1 of the Updated EM&A Manual (2011).

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours faithfully, For and on behalf of Ramboll Environ Hong Kong Limited

Raymond Dai

Independent Environmental Checker

anjut

c.c. HyD Mr. Matthew Fung (By Fax: 3188 6614)
HyD Mr. Ken Woo (By Fax: 3188 6614)
MCL Mr. Arthur Cheng (By Fax: 2450 8032)
CHEC Mr. Johnason Ko (By Fax: 2887 3014)

Internal: DY, YH, CL, ENPO Site



Room 723 & 725, 7/F, Block B,

Profit Industrial Building,

1-15 Kwai Fung Crescent, Kwai Fong,

Hong Kong

: +852-2450 8238 Tel Fax : +852-2450 8032

E-mail: mcl@fugro.com.hk Website: www.materialab-consultant.com

Ramboll Environ Hong Kong Limited (formerly ENVIRON Hong Kong Limited) Room 2403, 24/F, Jubilee Centre, 18 Fenwick Street, Wan Chai, Hong Kong

Attn.: Mr. Raymond Dai, IEC

Date

19 April 2016

Our Ref.

MCL/ED/0206/2016/C

BY HAND

Dear Sir.

Quarterly EM&A Report for December 2015 to February 2016 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities -Vehicle Clearance Plazas and Ancillary Buildings and Facilities (Contract No. HY/2013/03)

Pursuant to Section 16.4 of the updated EM&A Manual for Hong Kong Boundary Crossing Facilities (Version 1.0) covering the captioned contract, we are pleased to submit the certified Quarterly EM&A Report for December 2015 to February 2016 (Rev.1) for your verification.

Should you require further information, please do not hesitate to contact our Ms Sandra Pang at 3565 4156 or the undersigned at 3565 4115.

Yours faithfully, for and on behalf of MATERIALAB CONSULTANTS LIMITED

Arthur Chena

Environmental Team Leader

AC/by

Encl.

C.C.

AECOM - Mr. P.K. Lee, Mr. W.S. Ng, Ms. Miranda Wong RAMBOLL ENVIRON - Mr. Ray Yan, Mr. Andy Wong

CHEC - Mr. Marko Chan

Room 723 & 725, 7/F, Block B, Profit Industrial Building,

Profit Industrial Building, Tel : (852)-24508238 1-15 Kwai Fung Crescent, Kwai Fong, Fax : (852)-24508032 Hong Kong. Email : mcl@fugro.com.hk



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Room 723 & 725, 7/F, Block B, Profit Industrial Building,

Tel : (852)-24508238 1-15 Kwai Fung Crescent, Kwai Fong, Fax : (852)-24508032 Email : mcl@fugro.com.hk Hong Kong.



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Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.

E

Tel : (852)-24508238 Fax : (852)-24508032 Email : mcl@fugro.com.hk



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EXECUTIVE SUMMARY

This Quarterly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2013/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities" (hereafter referred to as "the Contract") for the Highways Department of Hong Kong Special Administrative Region (HKSAR). The Contract was awarded to China Harbour Engineering Co. Limited (hereafter referred to as "the Contractor") and MateriaLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by the Contractor.

The Contract is part of the "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities" (HZMB HKBCF) Project which is a "Designated Project" under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/J, was issued on 25 February 2016. These documents are available through the EIA Ordinance Register. Commencement of the Contract took place on 10 April 2015 while the construction works and the EM&A programme of this Contract commenced on 29 August 2015.

MateriaLab Consultants Limited (MCL) has been appointed by the Contractor to implement the Environmental Monitoring & Audit (EM&A) programme for the Contract in accordance with the Updated EM&A Manual for HKBCF (Version 1.0) and will be providing environmental team services for the Contract. This is the 2nd Quarterly EM&A Report for the Contract which summaries findings of the EM&A works during the reporting period from 1 December 2015 to 29 February 2016 (the "reporting period").

Environmental Monitoring and Audit Progress

The EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2010/02 "Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works" and Contract No. HY/2011/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF". The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7 and noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract Nos. HY/2010/02 and HY/2011/03. However, this is subject to ENPO's final decision on which ET should carry out the monitoring work at these stations.

The dates of site inspection during the reporting period are listed below:

Environmental Site Inspection:

- 3, 10, 17, 23 and 31 December 2015
- 7, 14, 20 and 28 January 2016
- 4, 12, 18 and 26 February 2016

Breaches of Action and Limit Levels

Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 is reported in the monthly EM&A report prepared by Contract No. HY/2011/03.

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7A for December 2015, AMS7 for January 2016 and February 2016 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

Room 723 & 725, 7/F, Block B, Profit Industrial Building,

1-15 Kwai Fung Crescent, Kwai Fong, Hong Kong.

Tel : (852)-24508238 Fax : (852)-24508032 Email : mcl@fugro.com.hk



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There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

There was no marine works conducted during the reporting period and therefore, no water quality impact monitoring result is reported.

There was no marine works conducted during the reporting period and therefore, no ecology monitoring result is reported.

Complaint Log

There were no complaints received in relation to the environmental impact during the reporting period.

Notifications of Summons and Successful Prosecutions

There were no notifications of summons or prosecutions received during this reporting period.

Reporting Changes

The relocation of air monitoring station AMS7A (Chu Kong Air-Sea Union Transportation Co. Ltd.) back to the original location AMS7 (Hong Kong SkyCity Marriott Hotel) was approved by EPD. The relocation was completed in 30 December 2015 and the air monitoring at AMS7 was started from January 2016.

The application for variation of EP for the HZMB HKBCF Project was made on 18 February 2016 and granted by EPD on 25 February 2016, and the latest EP No. for the HZMB HKBCF Project is EP-353/2009/J.

Room 723 & 725, 7/F, Block B, Profit Industrial Building,

1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.

Tel : (852)-24508238 Fax : (852)-24508032 Email : mcl@fugro.com.hk



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1. INTRODUCTION

1.1 Basic Project Information

- 1.1.1 This Quarterly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2013/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities Vehicle Clearance Plazas and Ancillary Buildings and Facilities" (hereafter referred to as "the Contract") for the Highways Department of Hong Kong Special Administrative Region (HKSAR). The Contract was awarded to China Harbour Engineering Co. Limited (hereafter referred to as "the Contractor") and MateriaLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by the Contractor.
- 1.1.2 The Contract is part of the "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities" (HZMB HKBCF) Project which is a "Designated Project" under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/J, was issued on 25 February 2016. These documents are available through the EIA Ordinance Register. Commencement of the Contract took place on 10 April 2015 and the construction works commenced on 29 August 2015. The works areas of the contract are shown in **Appendix A**.
- 1.1.3 This is the 2nd Quarterly EM&A Report summarising the findings of EM&A activities conducted under the Contract from 1 December 2015 to 29 February 2016 (the "reporting period") and is submitted to fulfil Condition 16.4 of the Updated EM&A Manual for HKBCF.

1.2 Project Organisation

1.2.1 The organisation chart and lines of communication with respect to the on-site environmental management structure together with the contact information of the key personnel are shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Position	Contact Person	Telephone No.	Fax No.
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Mr. Michael Tovey	3985 7470	3902 8800
Environmental Project Office /	Environmental Project Office Leader	Mr. Y. H. Hui	3547 2133	3465 2899
Independent Environmental Checker	Independent Environmental Checker (IEC)	Mr. Raymond Dai	3465 2888	34652899
(Ramboll Environ Hong Kong Limited)	Engineer or Engineer's Representative (AECOM Asia Co. Ltd.) Environmental Project Office / Independent Environmental Checker (Ramboll Environ Hong Kong Limited) Contractor (China Harbour Engineering Co. Ltd) Environmental Checker (China Harbour Engineering Co. Ltd) Environmental Team (MateriaLab Chief Resident Environmental Project Office Leader Independent Environmental Environmental Site Supervisor Site Agent Environmental Officer Environmental Team Leader		5181 8165	3465 2899
	Site Agent	Mr. Paul Pui	9125 0700	2512 0427
Engineering Co. Ltd)	Environmental Officer	Mr. Marko Chan	9427 2879	2512 0427
Environmental Team (MateriaLab Consultants Limited)	Leader	Mr. Arthur Cheng	3565 4115	2450 8032
			5236 7111	

Room 723 & 725, 7/F, Block B, Profit Industrial Building,

Profit Industrial Building, Tel : (852)-24508238 1-15 Kwai Fung Crescent, Kwai Fong, Fax : (852)-24508032 Hong Kong. Email : mcl@fugro.com.hk



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1.3 Construction Programme

1.3.1 The Construction Works Programme of the Project is provided in **Appendix C**.

1.4 Construction Works undertaken during the Reporting Period

1.4.1 A summary of the construction activities undertaken during this reporting period is shown below:

December 2015

- Site Investigation at Portion A1, A2 & G;
- Piling at Portion A1, A6, A7a;
- Building & Drainage at Portion A1; and
- CUE Construction at Portion B.

January 2016

- Site Investigation at Portion A1, J & G;
- Piling at Portion A1, STP, Pumping Station, B & G (Bridge A1, AS2, A6 & A7a);
- Building at Portion A1 & G;
- Drainage at Portion B;
- CUE Construction at Portion B; and
- Marine sediment excavation activities from the land-based works and corresponding disposal at the designated disposal sites within Hong Kong as allocated by the Marine Fill Committee.

February 2016

- Site Investigation at Portion A1, J & G;
- Piling at Portion A1, STP, Pumping Station, B & G (Bridge A1, AS2, A6 & A7a);
- Building at Portion A1, B & G;
- Drainage at Portion B;
- CUE Construction at Portion B; and
- Marine sediment excavation activities from the land-based works and corresponding disposal at the designated disposal sites within Hong Kong as allocated by the Marine Fill Committee.

Room 723 & 725, 7/F, Block B, Profit Industrial Building,

Profit Industrial Building,
1-15 Kwai Fung Crescent, Kwai Fong,
Hong Kong.

E

Tel : (852)-24508238 Fax : (852)-24508032 Email : mcl@fugro.com.hk



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2. EM&A REQUIREMENTS

2.1 Summary of EM&A Requirements

- 2.1.1 The EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2010/02 "Hong Kong-Zhuhai-Macao Bridge HKBCF Reclamation Works" and Contract No. HY/2011/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road Section between Scenic Hill and HKBCF". The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7 and noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract Nos. HY/2010/02 and HY/2011/03. However, this is subject to ENPO's final decision on which ET should carry out the monitoring work at these stations.
- 2.1.2 A summary of air and noise monitoring locations are presented in **Table 2.1**. The location of air quality and noise monitoring stations are shown as in **Figure 1** and **Figure 2**, respectively. The relocation of air monitoring station AMS7A (Chu Kong Air-Sea Union Transportation Co. Ltd.) back to the original location AMS7 (Hong Kong SkyCity Marriott Hotel) was approved by EPD. The relocation was completed in 30 December 2015 and the air monitoring at AMS7 was started from January 2016.

Table 2.1 Air Quality and Noise Monitoring Locations

Environmental Monitoring	Identification No.	Location Description
	AMS6(1)	Dragonair/CNAC (Group) Building (A80)
Air Quality	AMS7(1)	Hong Kong SkyCity Marriott Hotel
	AMS7A(1)	Chu Kong Air-Sea Union Transportation Co. Ltd.
Noise	NMS2(2)	Seaview Crescent
Noise	NMS3B(2) (3)	Site Boundary of Site Office Area at WA2

Remarks:

2.2 Monitoring Requirements

2.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared for Contract Nos. HY/2010/02 and HY/2011/03.

2.3 Action and Limit Levels

2.3.1 The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2.2** and **Table 2.3** respectively.

Table 2.2 Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level (µg/m³)	Limit Level (µg/m³)
AMS6	360	
AMS7	370	500
AMS7A	370	

⁽¹⁾ The ET of this Contract should conduct impact air quality monitoring at the AMS listed in the table as part of EM&A programme according to latest notification from ENPO when the monitoring station(s) is/are no longer covered by another ET of the HZMB project.

⁽²⁾ The ET of this Contract should conduct impact noise monitoring at the NMS listed in the table as part of EM&A programme according to the latest notification from ENPO when the monitoring station(s) is/are no longer covered by another ET of the HZMB project.

⁽³⁾ The Action and Limit Levels for schools will be applied for this alternative monitoring location.

Room 723 & 725, 7/F, Block B,

Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, Hong Kong.

Tel : (852)-24508238 Fax : (852)-24508032 Email : mcl@fugro.com.hk



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Table 2.3 Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level (µg/m³)	Limit Level (µg/m³)
AMS6	173	
AMS7	183	260
AMS7A	183	

- 2.3.2 If exceedance(s) at these stations is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the quarterly EM&A Report.
- 2.3.3 The Action and Limit Levels for construction noise are defined in **Table 2.4**.

Table 2.4 Action and Limit Level for Construction Noise

Monitoring Station	Action Level	Limit Level						
For the Time	For the Time Period 0700-1900 hrs. on Normal Weekdays							
NMS2	When one documented	75.0 dB (A) Leq (30 min.)						
NMS3B	complaint is received	70.0 dB (A) Leq (30 min.)*						

Notes:

2.3.4 If exceedance(s) at these stations is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the quarterly EM&A Report.

2.4 Event and Action Plans

2.4.1 The event and action plans for air quality and noise are provided in **Appendix D**.

2.5 Mitigation Measures

2.5.1 Environmental mitigation measures for the contract were recommended in the approved EIA Report. **Appendix E** lists the recommended mitigation measures and the implementation status.

If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

^{*} Reduce to 70 dB(A) for schools and 65 dB(A) during school examination period.

Room 723 & 725, 7/F, Block B, Profit Industrial Building,

Tel : (852)-24508238 1-15 Kwai Fung Crescent, Kwai Fong, : (852)-24508032 Fax Email : mcl@fuaro.com.hk Hong Kong.



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3. **ENVIRONMENTAL MONITORING AND AUDIT**

3.1 **Air Quality Monitoring Results**

- The monitoring results for AMS6, AMS7A for December 2015, AMS7 for January 2016 and 3.1.1 February 2016 are reported in the monthly EM&A Reports (for December 2015, January 2016 and February 2016) prepared for Contract Nos. HY/2011/03 and HY/2010/02 respectively.
- 3.1.2 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 is reported in the monthly EM&A Reports (for December 2015, January 2016 and February 2016) prepared by Contract No. HY/2011/03.
- 3.1.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7A for December 2015, AMS7 for January 2016 and February 2016 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

3.2 **Noise Monitoring Results**

- The monitoring results for NMS2 and NMS3B are reported in the monthly EM&A Reports (for 3.2.1 December 2015, January 2016 and February 2016) prepared for Contract No. HY/2010/02.
- 3.2.2 No noise exceedances were recorded at stations NMS2 and NMS3B by the ET of Contract No. HY/2010/02 during the reporting period.

3.3 **Water Quality Monitoring Results**

- 3.3.1 There was no marine works conducted during the reporting period and therefore, no relevant monitoring result is reported. However, ET of the Contract shall closely monitor on the status of marine works, which shall conduct monitoring when marine works commence in the future.
- The ET of the Contract is required to conduct impact water quality monitoring as part of EM&A 3.3.2 programme if water quality monitoring is no longer covered by another ET of the HZMB project. The ETL shall review and obtain IEC, ENPO and EPD agreement on the contract specific water quality monitoring works at least a month before the commencement of any marine works.
- With respect to condition 3.26A of EP-353/2009/J approved by EPD on 25 February 2016, the 3.3.3 numbers and operating periods of floating grout production facilities and floating concrete batching plants on-site to review on the compliance to this EP condition were checked. No floating grout production facilities and floating concrete batching plants were operated on-site during the reporting period.

3.4 **Ecology Monitoring Results**

- 3.4.1 There was no marine works conducted, which impacted to the ecology during the reporting period and therefore, no relevant monitoring result is reported. However, ET of the Contract shall closely monitor on the status of marine works, which shall conduct monitoring when marine works commence in the future.
- The ET of the Contract is required to conduct ecology monitoring as part of EM&A programme 3.4.2 if ecology monitoring is no longer covered by another ET of the HZMB project. The ETL shall review and obtain IEC, ENPO, AFCD and EPD agreement on the contract specific marine ecology monitoring works at least a month before the commencement of any marine works.

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Profit Industrial Building, Tel : (852)-24508238 1-15 Kwai Fung Crescent, Kwai Fong, Fax : (852)-24508032 Hong Kong. Email : mcl@fugro.com.hk



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3.4.3 With respect to condition 3.26A of EP-353/2009/J approved by EPD on 25 February 2016, the numbers and operating periods of floating grout production facilities and floating concrete batching plants on-site to review on the compliance to this EP condition were checked. No floating grout production facilities and floating concrete batching plants were operated on-site during the reporting period.

3.5 Implementation of Environmental Measures

- 3.5.1 In response to the site audit findings, the Contractor carried out corrective actions. Details of site audit findings and the corrective actions during the reporting period are presented in **Appendix F**.
- 3.5.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix E**. All necessary mitigation measures at this stage of works were implemented properly.
- 3.5.3 Implementation status of Regular Marine Travel Route Plan (RMTRP) was checked. Training of marine travel route for marine vessels operator was given to relevant staff and relevant records were kept properly. The marine traffic records and geographical plots of all the vessels tracks to demonstrate the conformance of the vessel to the proposed route in January 2016 and February 2016 were provided to ER, ETL, IEC/ENPO for checking within the month of March 2016.

3.6 Advice on the Solid and Liquid Waste Management Status

- 3.6.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 3.6.2 No extracted marine sediment was treated using cement solidification/stabilisation (Cement S/S) techniques under Contract No. HY/2013/03 during this reporting period. The marine sediment extracted from this Contract was disposed to the Marine Fill Committee (MFC) allocated disposal sites directly without treatment during this reporting period. As a practical means, the disposal operation is managed by one contractor who is also responsible for applying dumping permit and its subsequent extension applications from EPD. Contract No. HY/2013/03 has been assigned to coordinate and arrange for disposal of extracted marine sediment from all three Contracts (Contract Nos. HY/2013/02, HY/2013/03 and HY/2013/04).
- 3.6.3 The barge for disposal of marine sediment was morn at the temporary loading and unloading at the east shore of the HKBCF Island, which has been being used by reclamation contractor (Contract No. HY/2010/02) for reclamation activities. In terms of safety consideration and to avoid mixing of sediment between contracts, each dumping date was allocated to one Contract. The quantity of marine sediment disposed on each date was from one Contract.
- 3.6.4 During dumping, Contractor of Contract No. HY/2013/03 is responsible for transporting the marine sediment from the site area of Contract No. HY/2013/03 to the barge. The estimated quantity of marine sediment in each truck is confirmed by Resident Site Staff of Contract Nos. HY/2013/02, HY/2013/03 and HY/2013/04. The trip tickets for transportation and disposal of marine sediment are collected and checked. Contract No. HY/2013/03 as the dumping permit holder is responsible for reporting to EPD the quantity disposed of as the condition stipulated in the dumping permit. The disposal site allocated to this Project is the Mud Pit CMP2 of the

Room 723 & 725, 7/F, Block B.

Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, Fax Email Hong Kong.

Tel : (852)-24508238 : (852)-24508032 : mcl@fugro.com.hk



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Confined Marine Sediment Disposal Facility to the South of The Brothers during this reporting period.

3.6.5 Marine sediment extracted from bored piling from this Contract was disposed to allocated dumping site during this reporting period. The summary of marine sediment disposed during this reporting period is shown in the following table:

Table 3.1 Summary of Marine Sediment Disposed to Dumping Site

Month/Year	Quantity dispos	Quantity disposed (in'000m³)								
	HY/2013/02	HY/2013/03	HY/2013/04	Total						
Dec 2015	0.000	0.000	0.000	0.000						
Jan 2016	1.272	1.950	0.800	4.022						
Feb 2016	2.816	2.328	0.704	5.848						
Total	4.088	4.278	1.504	9.870						

The summary of waste flow table is detailed in **Appendix G**. 3.6.6

3.7 **Environmental Licences and Permits**

3.7.1 The valid environmental licences and permits during the reporting period are summarized in Appendix H.

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: (852)-24508238 Tel 1-15 Kwai Fung Crescent, Kwai Fong, Fax : (852)-24508032 Email : mcl@fuaro.com.hk Hong Kong.



Report No.: 0165/15/ED/0365

SUMMARY OF EXCEEDANCES, COMPLAINTS, NOTIFICATION OF SUMMONS AND 4. SUCCESSFUL PROSECUTION

4.1 Summary of Exceedance of the Environmental Quality Performance Limit

- Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 4.1.1 is reported in the monthly EM&A Reports (for December 2015, January 2016 and February 2016) prepared by Contract No. HY/2011/03.
- There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS7A for December 2015, AMS7 for January 2016 and February 2016 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.
- There was no Action and Limit Level exceedance for noise recorded at station NMS2 and 4.1.3 station NMS3B by the Environmental Team of Contract No. HY/2010/02 during the reporting period.
- 4.1.4 There was no marine works conducted during the reporting period and therefore, no relevant monitoring result is reported.
- 4.1.5 There was no marine works conducted during the reporting period and therefore, no ecology monitoring result is reported.

4.2 Summary of Complaints, Notification of Summons and Successful Prosecution

- 4.2.1 There were no complaints received in relation to the environmental impact during the reporting period. The details of cumulative statistics of Environmental Complaints are provided in Appendix I.
- 4.2.2 No notification of summons or prosecutions was received during the reporting period.
- 4.2.3 Statistics on notifications of summons and successful prosecutions are summarized in Appendix I.

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5. COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

5.1 Comments

- 5.1.1 According to the environmental site inspections undertaken during the reporting period, the following recommendations were provided:
 - CHEC was reminded for temporary stockpiling of untreated marine mud shall be lined with impermeable sheeting, bunded and with proper leachate control measurers implemented at Portion A.
 - CHEC was reminded to remove stagnant water within site boundary.
 - CHEC was reminded to maintain good housekeeping practice at CUE works area.
 - CHEC was reminded to replace drip tray for the generator at CUE works area.
 - CHEC was reminded for temporary stockpiling of untreated marine mud shall be lined with impermeable sheeting, bunded and with proper leachate control measurers implemented at CUE works area.
 - CHEC was reminded to supplement the details of the CNP at CUE works area.
 - CHEC was reminded to provide drip tray for chemical storage at CUE works area.
 - CHEC was reminded to provide a new drip tray with adequate size for generator at CUE works area.
 - CHEC was reminded to remove the construction wastes accumulated in the tray at CUE works area.
 - CHEC was reminded to remove the stagnant water accumulated at CUE works area.
 - CHEC was reminded to remove the stagnant water at Area 1.
 - CHEC was reminded to properly store chemicals at CUE works area.
 - CHEC was reminded to maintain good housekeeping practice on site.
 - CHEC was reminded to clear and prevent the oil spillage from generator's drip tray at CUE works area.
 - CHEC was reminded to clear and prevent the oil spillage on site at STP works area.
 - CHEC was reminded to cover the excavated marine sediment properly with tarpaulin sheets at STP works area.
 - CHEC was reminded to maintain housekeeping practice at Area 1.
 - CHEC was reminded to remove the stagnant water accumulated at the generator's drip tray at CUE works area and the concreted area at Area 1.
 - CHEC was reminded to provide drip tray for chemical containers or handle as chemical waste at Area 1.
- 5.1.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix E**. All necessary mitigation measures at this stage of works were implemented properly.

5.2 Recommendations

- 5.2.1 With implementation of the recommended environmental mitigation measures, the contract's environmental impacts were considered environmentally acceptable. The weekly environmental site inspections ensured that all the environmental mitigation measures recommended were effectively implemented.
- 5.2.2 The recommended environmental mitigation measures, as included in the EM&A programme, effectively minimize the potential environmental impacts from the contract. Also, the EM&A programme effectively monitored the environmental impacts from the construction activities and

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ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

5.3 Conclusions

- Commencement of the Contract took place on 10 April 2015 and the construction works of the Contract commenced on 29 August 2015. This is the 2nd Quarterly EM&A Report summarising the findings of EM&A activities conducted under the Contract from 1 December 2015 to 29 February 2016.
- 5.3.2 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A Reports (for December 2015, January 2016 and February 2016) prepared by Contract No. HY/2011/03.
- There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level 5.3.3 recorded at station AMS7A for December 2015, AMS7 for January 2016 and February 2016 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.
- There was no Action and Limit Level exceedance for noise recorded at station NMS2 and 5.3.4 station NMS3B by the Environmental Team of Contract No. HY/2010/02 during the reporting period.
- There was no marine works conducted during the reporting period and therefore, no water 5.3.5 quality impact monitoring result is reported.
- 5.3.6 There was no marine works conducted during the reporting period and therefore, no ecology monitoring result is reported.
- Environmental site inspection was carried out on 3, 10, 17, 23 and 31 December 2015, 7, 14, 5.3.7 20 and 28 January 2016, and 4, 12, 18 and 26 February 2016. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspections.
- 5.3.8 There were no complaints received in relation to the environmental impact during the reporting period.
- 5.3.9 There were no notifications of summons or prosecutions received during the reporting period.

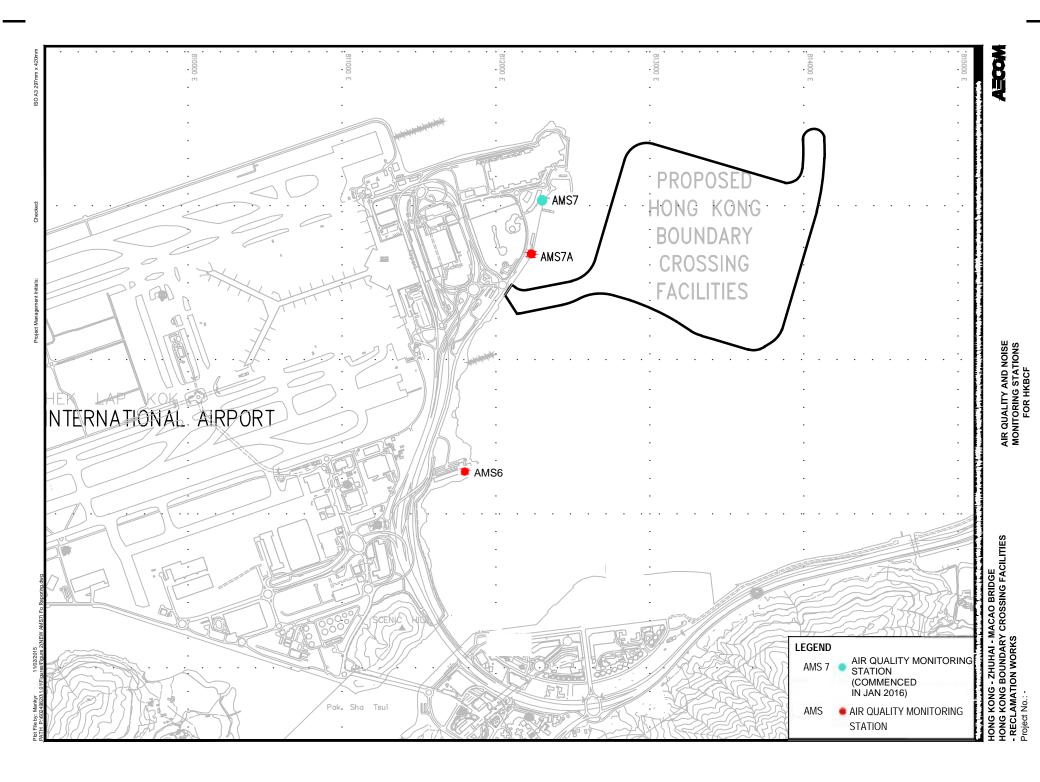
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Figure 1

Air Quality Monitoring Stations



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Figure 2

Noise Monitoring Stations

AIR QUALITY AND NOISE MONITORING STATIONS FOR HKBCF

HONG KONG - ZHUHAI - MACAO BRIDGE HONG KONG BOUNDARY CROSSING FACILITIES - RECLAMATION WORKS

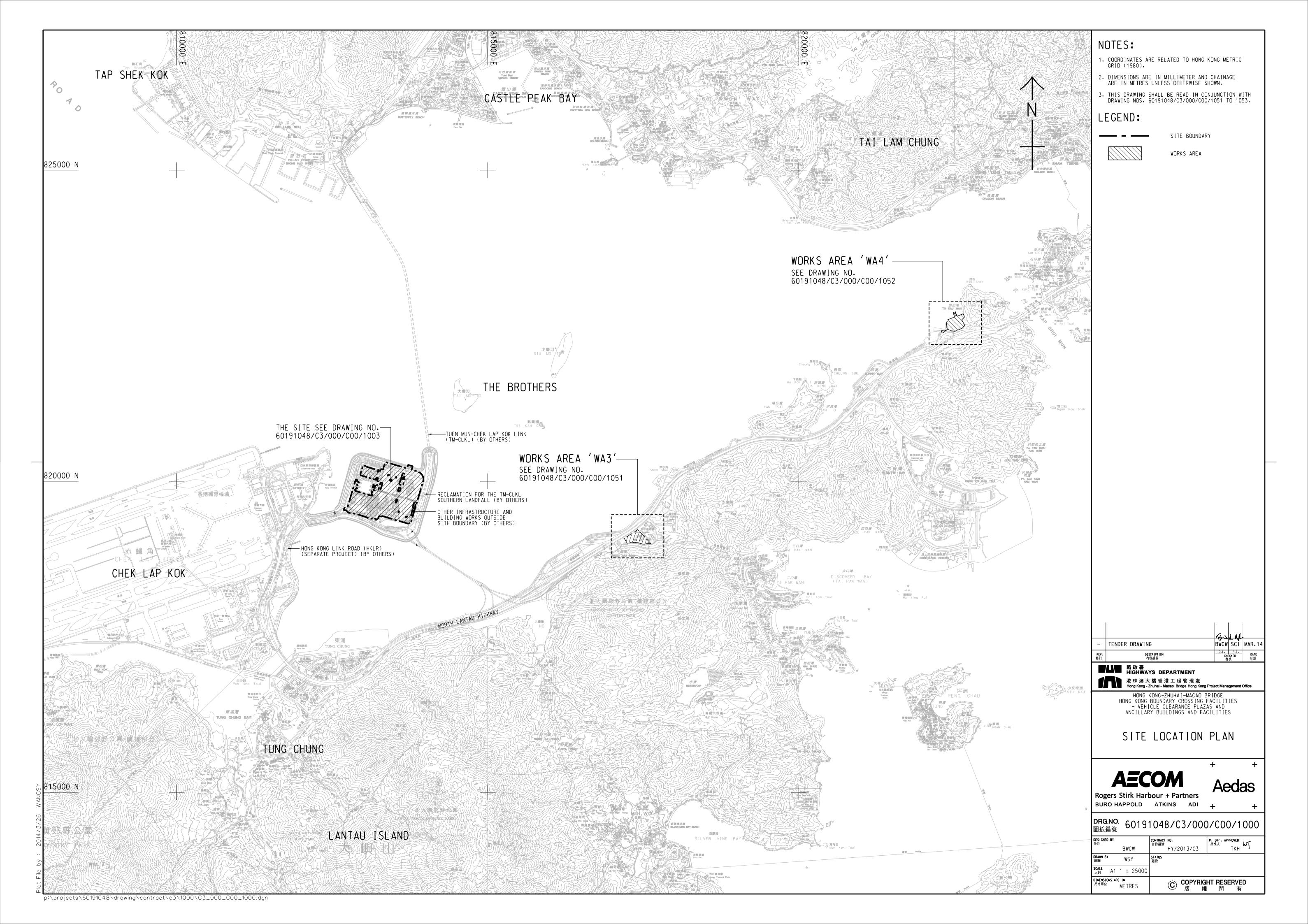
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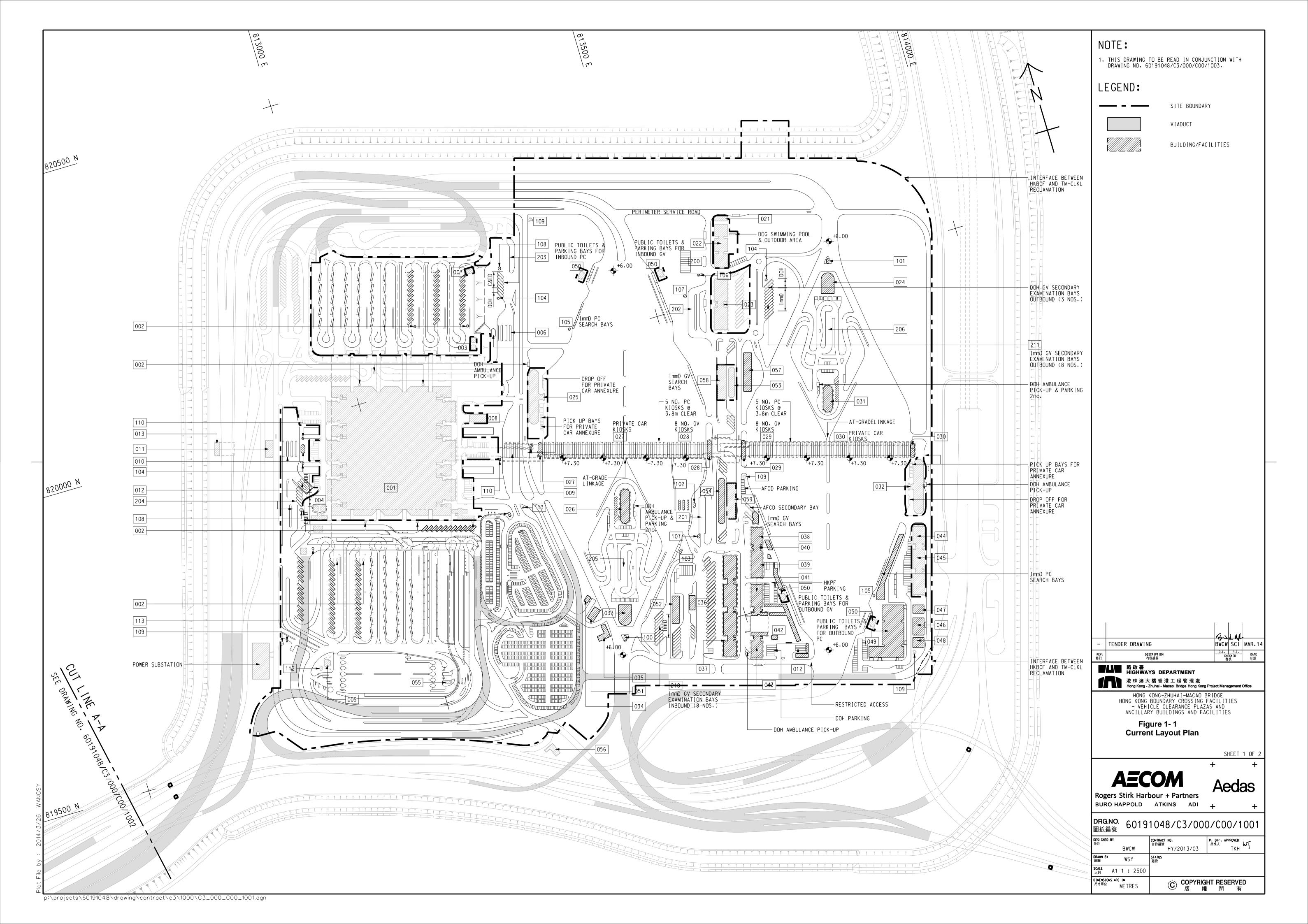
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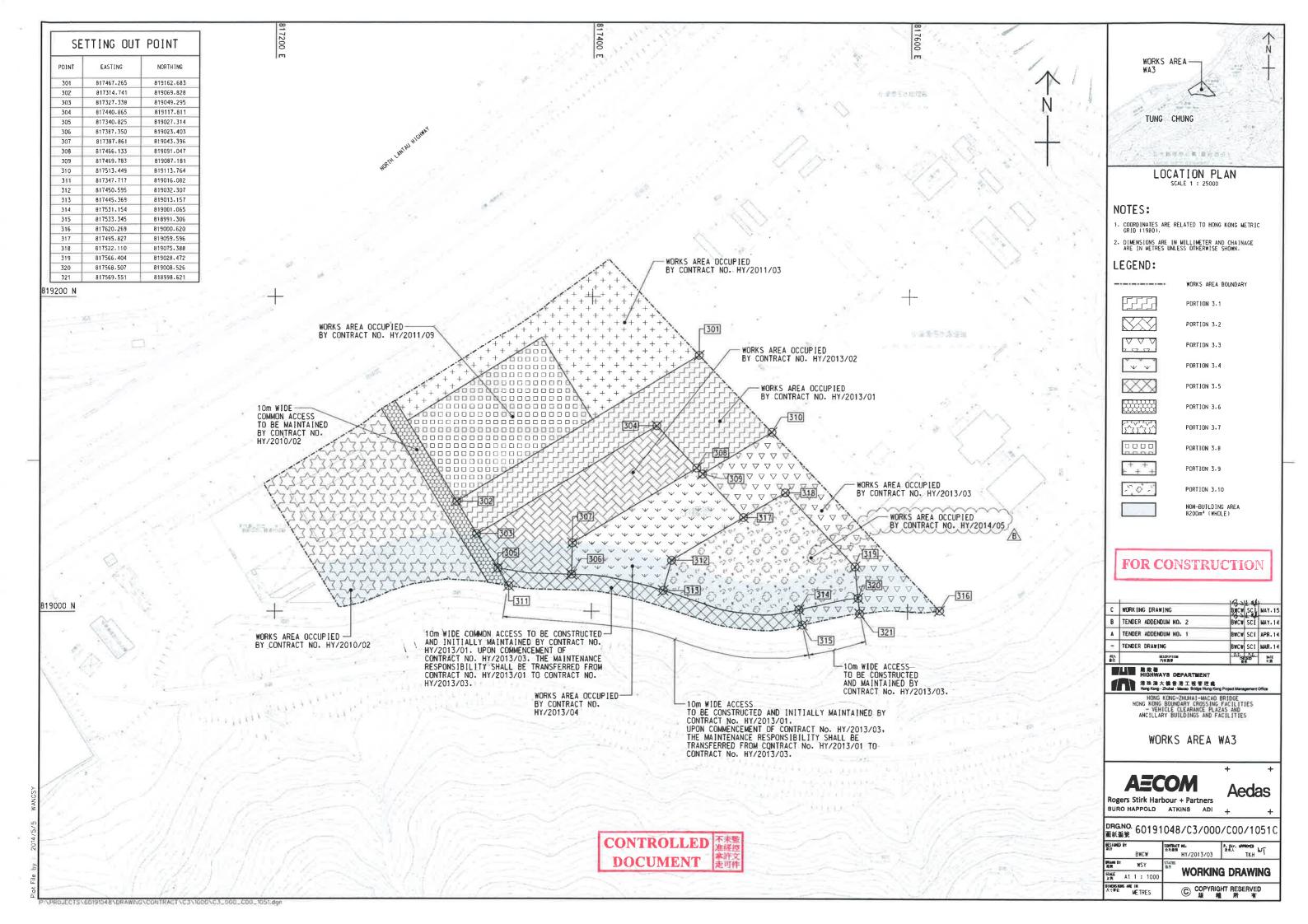
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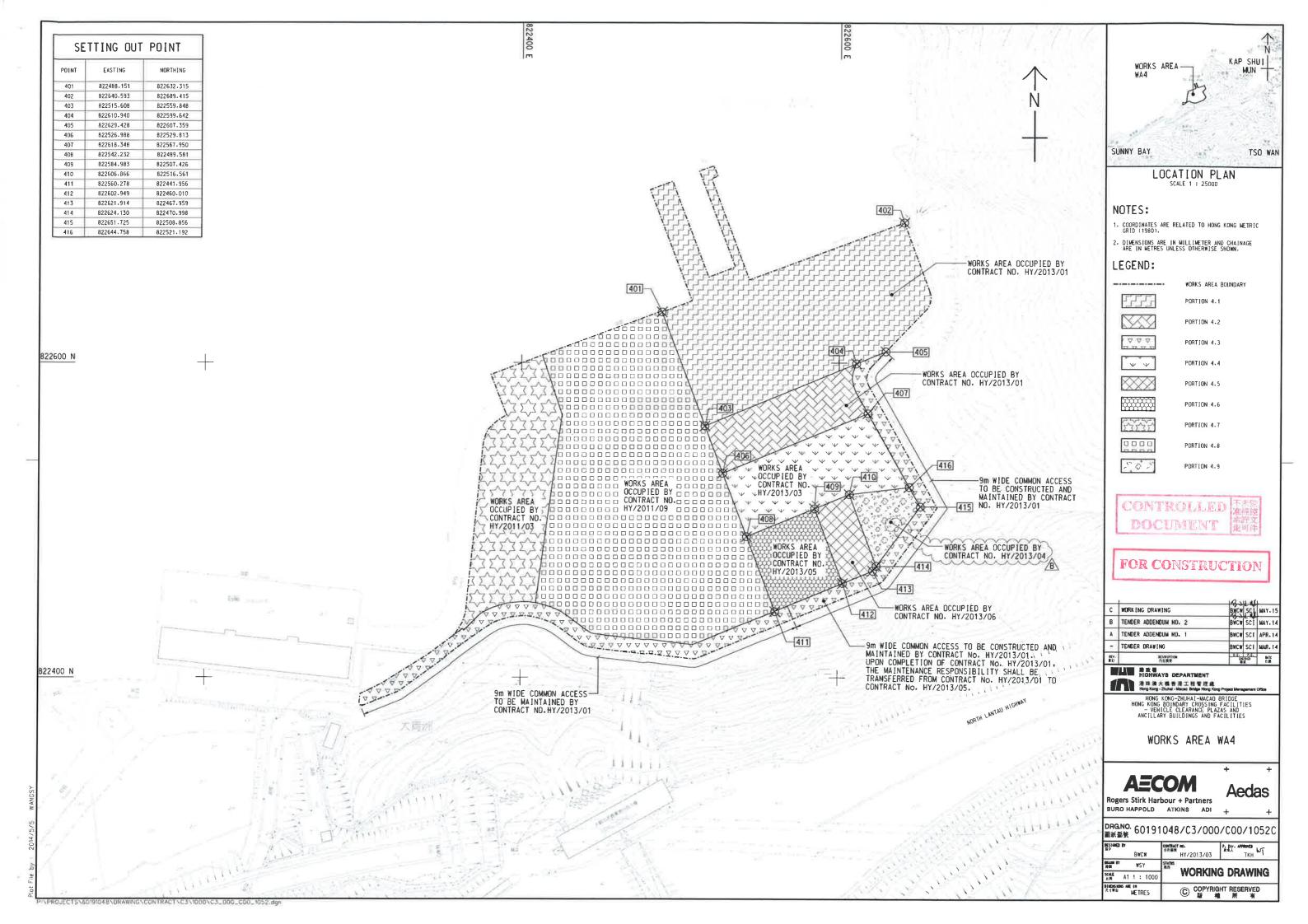
Appendix A

Location of Works Areas









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Appendix B

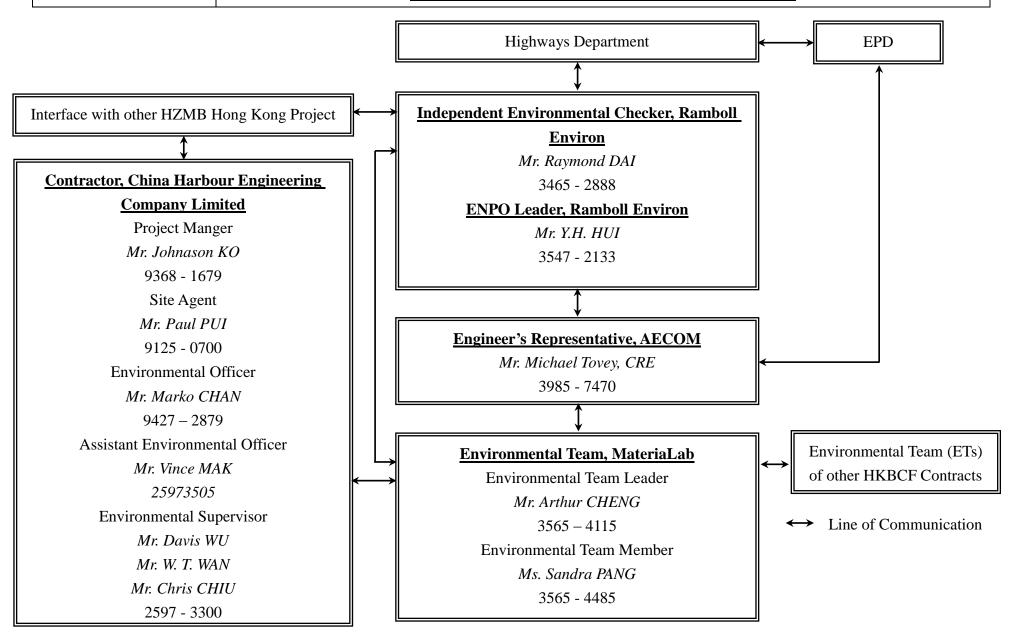
Project Organization for Environmental Works

CHINA HARBOUR ENGINEERING COMPANY LIMITED



Contract No. HY/2013/03 Hong Kong-Zhuhai-Macao Bridge, Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Projects Organization for Environmental Works



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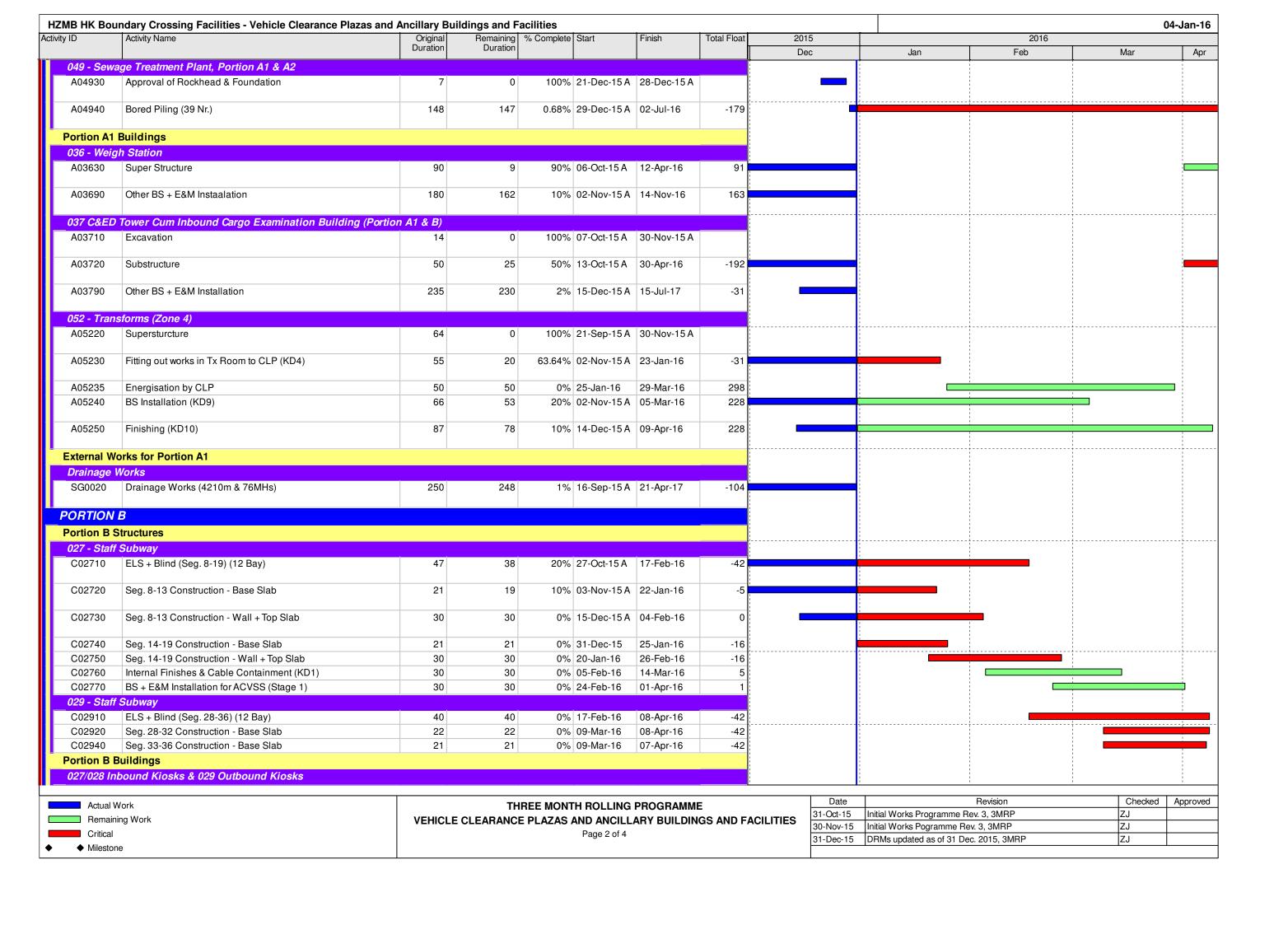


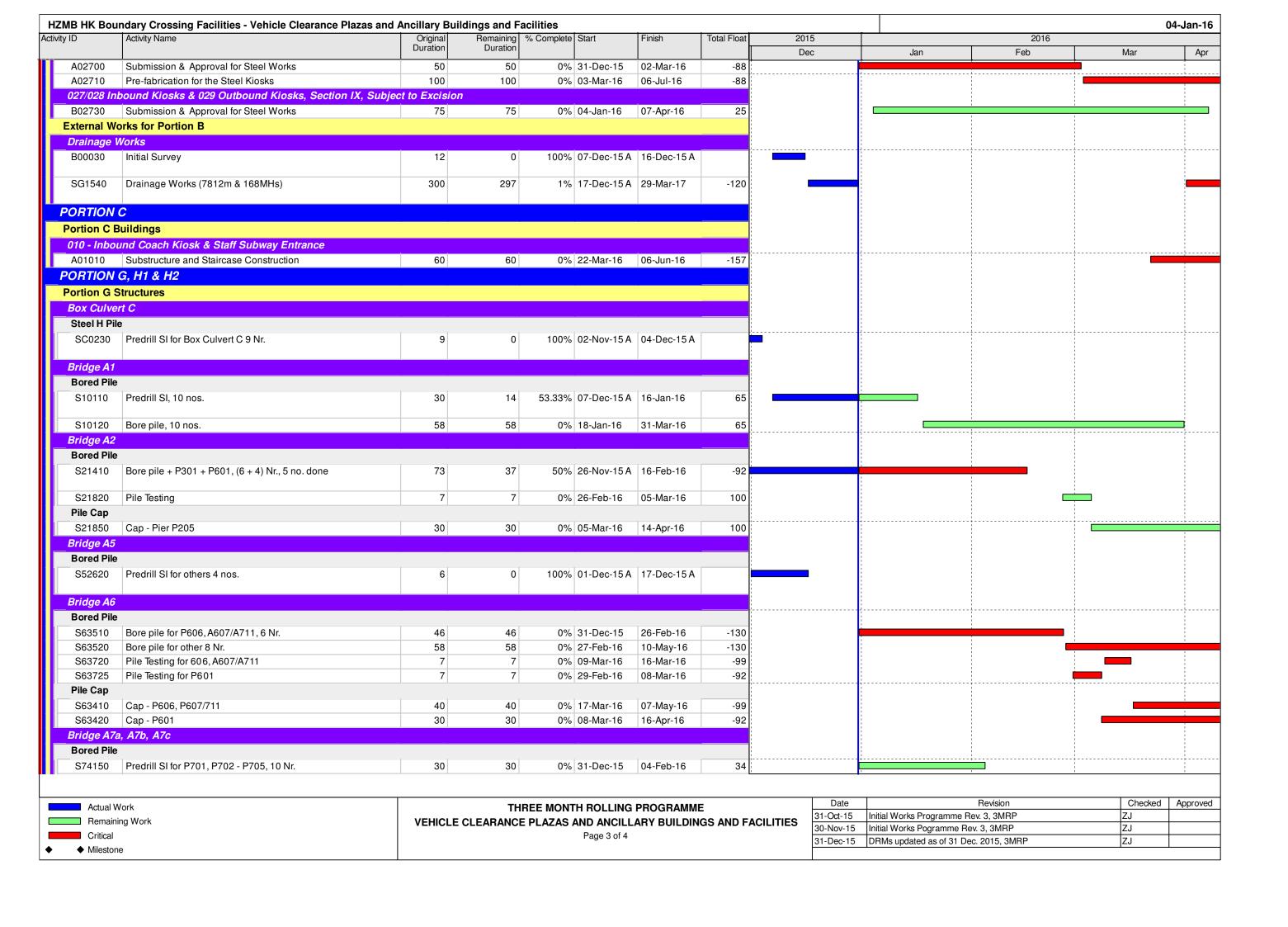
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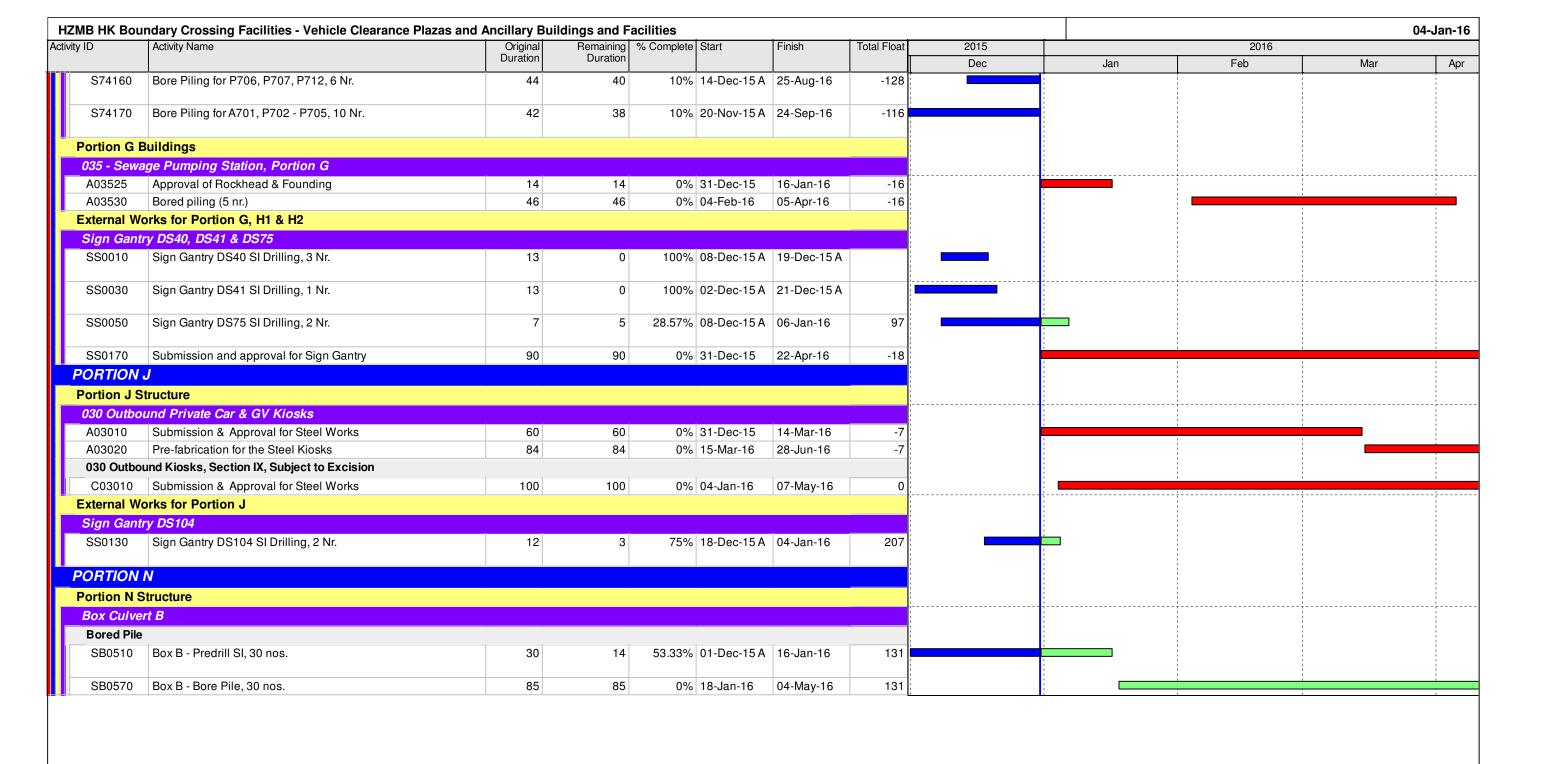
Appendix C

Construction Programme

y ID	Activity Name	Original	Remaining %	6 Complete Start	Finish	Total Float	2015		2016		04-Jan-
,		Duration	Duration				Dec	Jan	Feb	Mar	A
KBCF - V	CP DRMs Programme, (IWP 04), UD 311215										
	CT DATES										
Key Dates											
A1040	KD4 Achievement of Stage 3B of the Works (250 days; 15 Dec. 15)	0	0	0%	23-Jan-16*	-39		♦ KD	4 Achievement of Stage 3	3 of the Works (250 da	ays; 15 l
Site Access	s & Possession										
	on of Portion of Site										
A0090	Possession of Portion H1 (<=273 days)	0	0	0%	15-Jan-16*	-8		◆ Possession	on of Portion H1 (<=273 da	ıvs)	
	age Subject to Excision	0	0	0 70	10 0411 10					,	
A0710	Contract Date for Section IA (273 days, latest date when the Engineer may order)	0	0	0% 07-Jan-16*		0		◆ Contract Date fo	r Section IA (273 days, late	st date when the Engi	ineer m
A0720	Contract Date for Section IB (273 days, latest date when the Engineer may order)	0	0	0% 07-Jan-16*		0		◆ Contract Date fo	r Section IB (273 days, late	st date when the Engi	neer m
A0730	Contract Date for Section IIA (345 days, latest date when the Engineer may order)	0	0	0% 19-Mar-16*		0				◆ Contr	ract Da
A0740	Contract Date for Section IIB (100 days, latest date when the Engineer may order)	0	0	0% 31-Dec-15*		-166		Contract Date for Section	ion IIB (100 days, latest da	e when the Engineer r	may o
A0750	Contract Date for Section IIC (320 days, latest date when the Engineer may order)	0	0	0% 23-Feb-16*		0			◆ Cor	ntract Date for Section	IIC (32
A0760	Contract Date for Section III (273 days, latest date when the Engineer may order)	0	0	0% 07-Jan-16*		0		◆ Contract Date fo	r Section III (273 days, late	st date when the Engir	neer n
A0810	Contract Date for Section IX (270 days, latest date when the Engineer may order)	0	0	0% 04-Jan-16*		0		◆ Contract Date for S	ection IX (270 days, latest	date when the Engine	er ma
A0820	Contract Date for Section X (270 days, latest date when the Engineer may order)	0	0	0% 04-Jan-16*		0		◆ Contract Date for S	ection X (270 days, latest	late when the Enginee	er may
A0830	Contract Date for Stage 20 (270 days, latest date when the Engineer may order)	0	0	0% 04-Jan-16*		0		◆ Contract Date for S	tage 20 (270 days, latest d	ate when the Enginee	r may
A0840	Contract Date for Stage 21 (270 days, latest date when the Engineer may order)	0	0	0% 04-Jan-16*		0		◆ Contract Date for S	tage 21 (270 days, latest d	ate when the Enginee	r may
A0850	Contract Date for Stage 22 (270 days, latest date when the Engineer may order)	0	0	0% 04-Jan-16*		0			tage 22 (270 days, latest d		
A0860	Contract Date for Stage 23 (270 days, latest date when the Engineer may order)	0	0	0% 04-Jan-16*		0			tage 23 (270 days, latest d	_	
A0870	Contract Date for Stage 24 (270 days, latest date when the Engineer may order)	0	0	0% 04-Jan-16*		0		◆ Contract Date for S	tage 24 (270 days, latest d	ate when the Enginee	r may
RELIMIN			,	,	,						-
\ 0610	Mobilization of Plant	70	35	50% 10-Apr-15 A	03-Feb-16*	-230					
<mark>Precast Yar</mark> A0620	rd for Bridge Segment Engineering Service and Factory Preparation	120	96	20% 01-Dec-15 A	29-Apr-16	-137					į
		120	30	20% 01 Bec 10%	20 / (p) 10	107					
ORTION A	Structures					1					
Bridge A9											- 1
Bored Pile											
S91010	Predrill SI, 10 nos.	30	0	100% 10-Nov-15 A	04-Dec-15 A						
Box Culve											
Bored Pile		100	100	450/ 05 0 : 45 :	44 4 10						_
SD0040	Bored Piling for Box Culvert D 45 nr. (5 no. done)	128	109	15% 05-Oct-15 A	11-Aug-16	-34					-
Actual V	Vork		THR	EE MONTH ROLLING	PROGRAMM	 E	Date		Revision	Checked	Appr
Remaini	ing Work	VEHICLE		PLAZAS AND ANCILI			31-Oct-15			ZJ	
Critical		-		Page 1 of 4			30-Nov-1			ZJ	<u> </u>
◆ Mileston				5 ·			31-Dec-1	5 DRMs updated as of 31 I	Jec. 2015, 3MRP	ZJ	<u> </u>

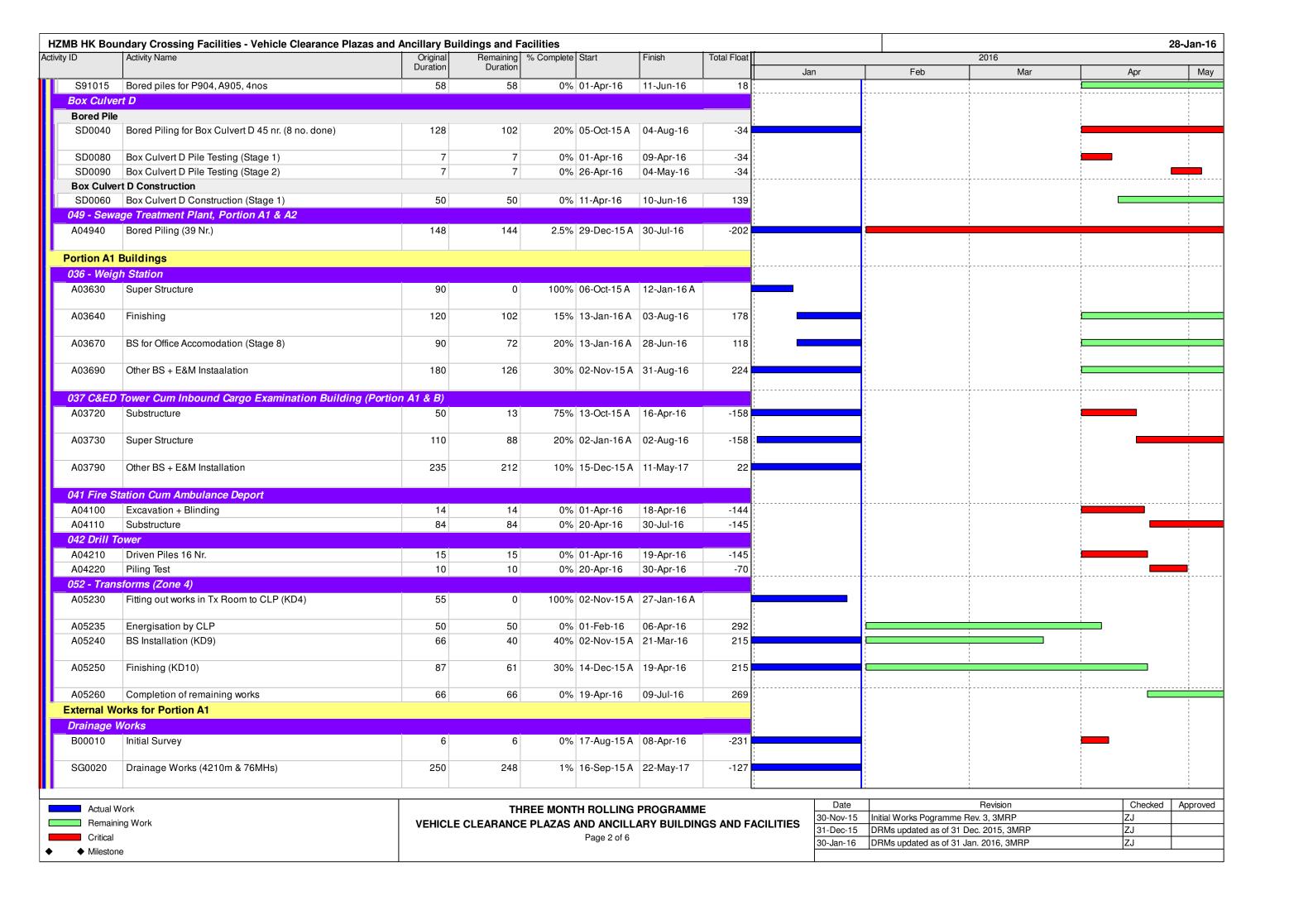


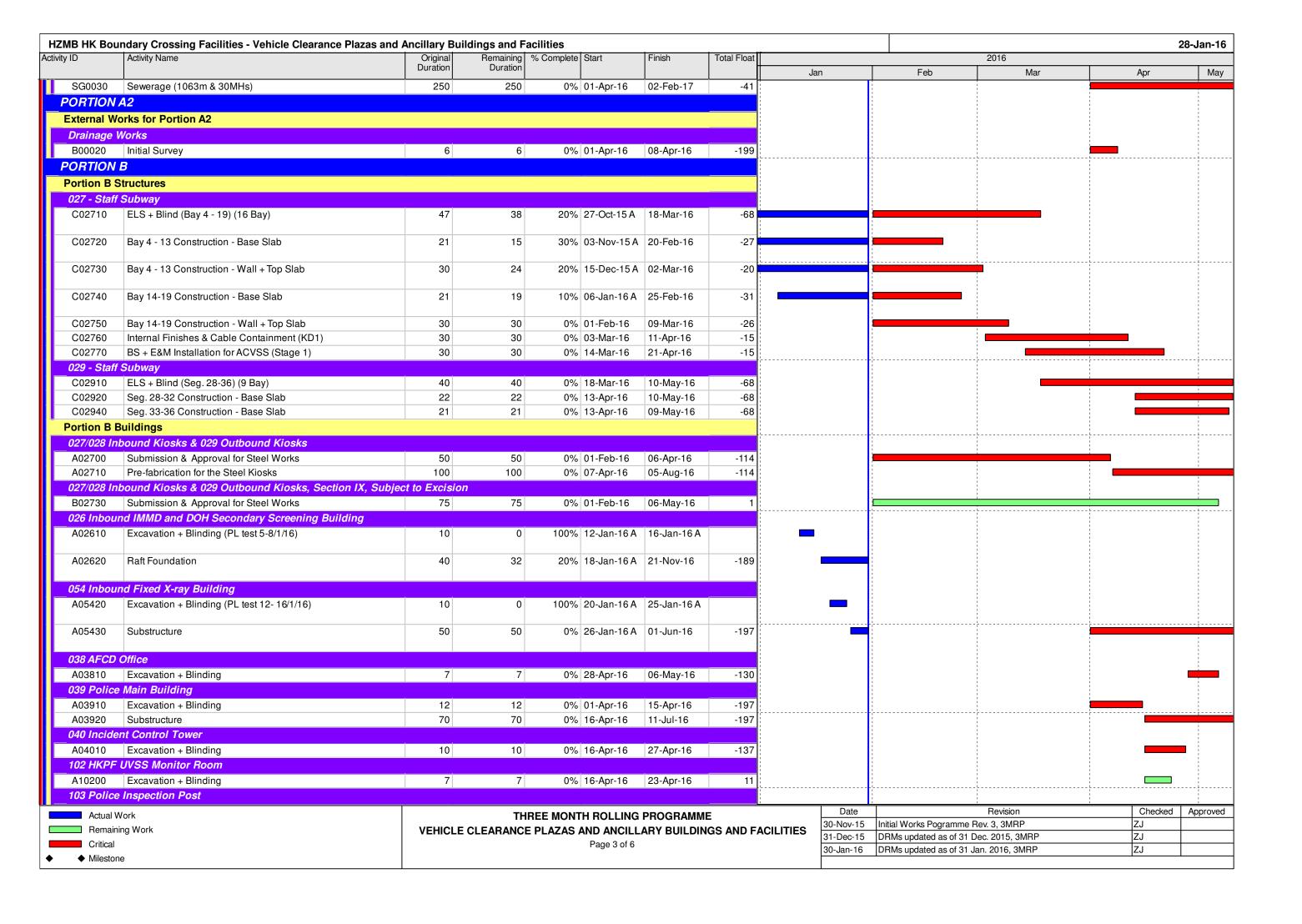


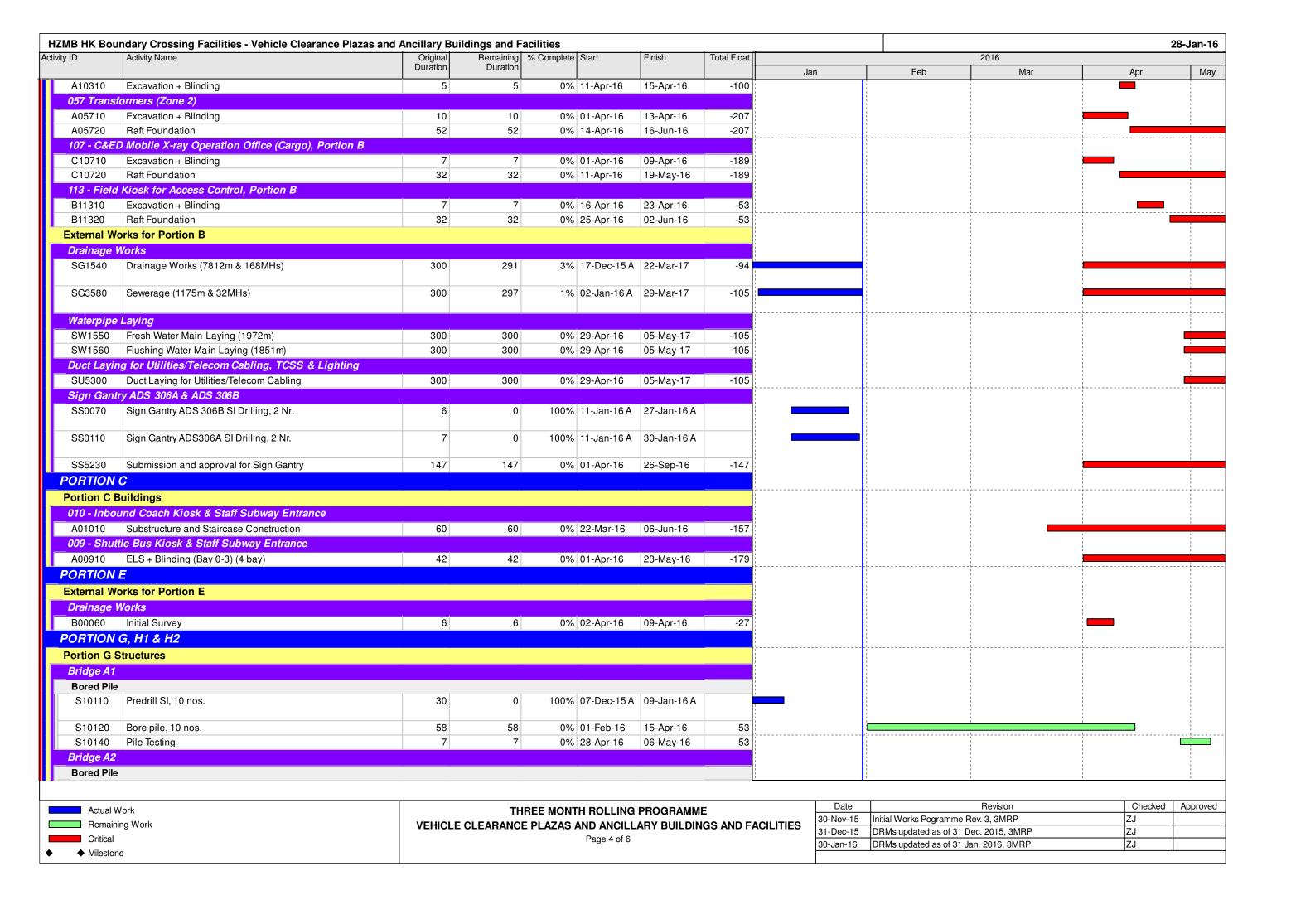


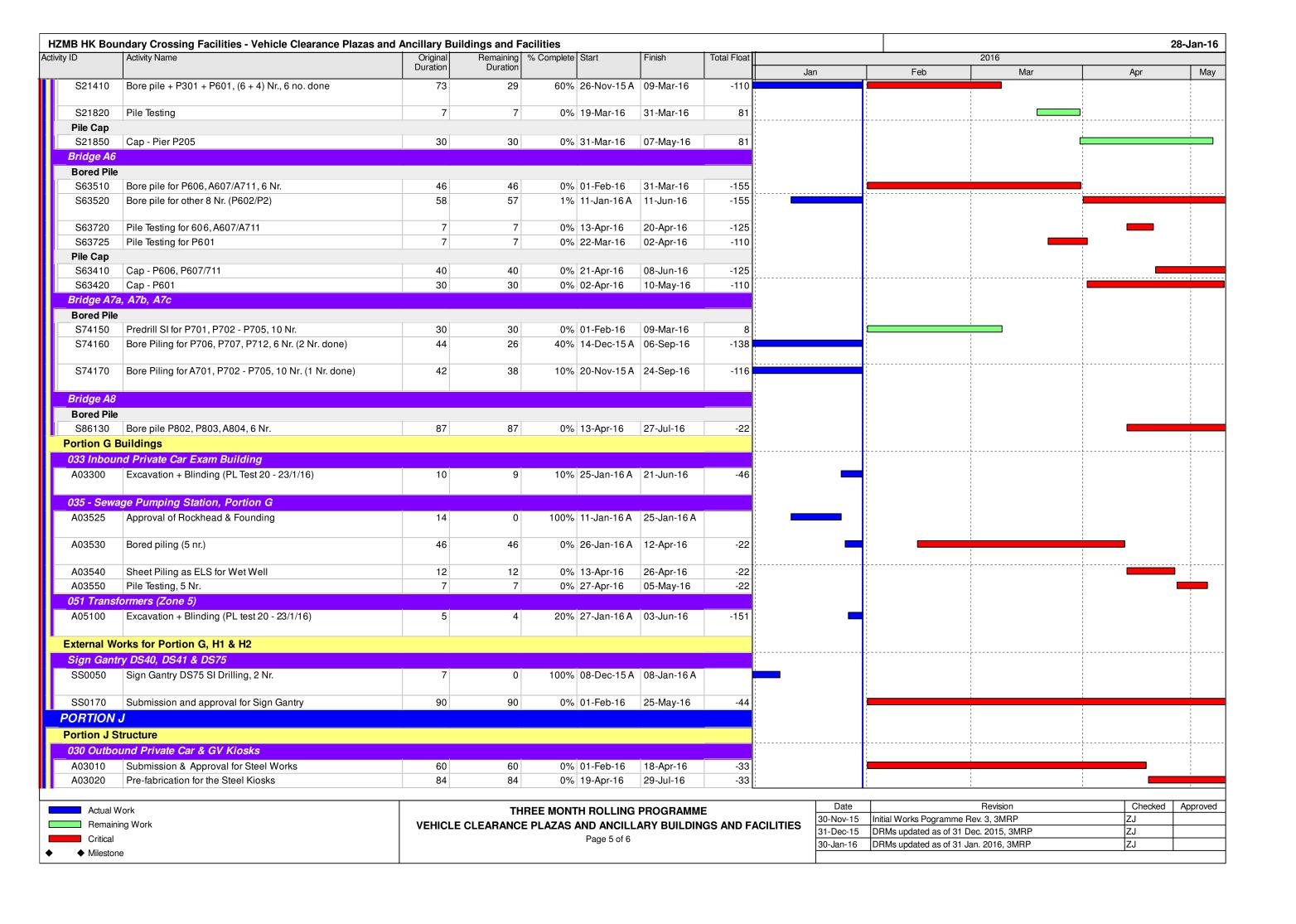
Actual Work Remaining Work		-	Revision Initial Works Programme Rev. 3, 3MRP Initial Works Pogramme Rev. 3, 3MRP	Checked ZJ ZJ	Approved
Critical ◆ Milestone	Page 4 of 4	31-Dec-15	DRMs updated as of 31 Dec. 2015, 3MRP	ZJ	

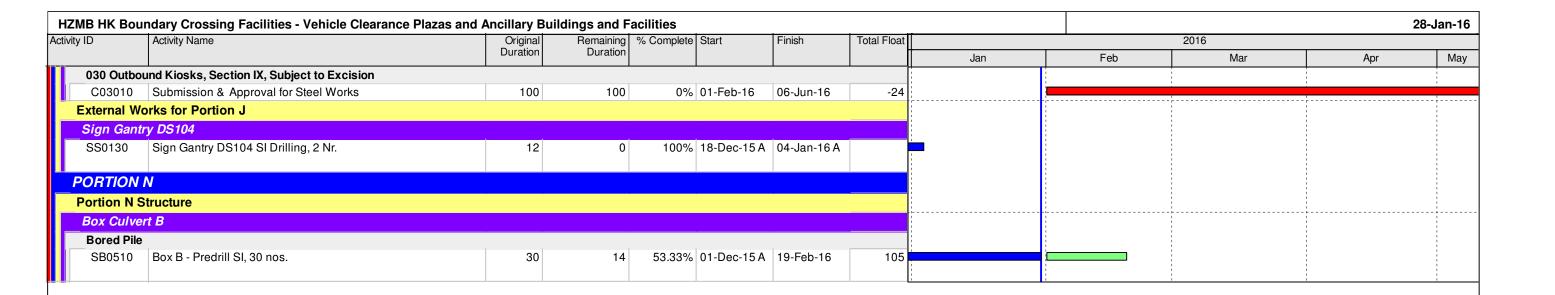
ity ID	undary Crossing Facilities - Vehicle Clearance Plazas and Activity Name	Original	Remaining		Start	Finish	Total Float				2016		28-Jan-1
, 12	round hame	Duration	Duration	70 Complete	Otart		Total Float	Jan		Feb	Mar	Apr	Ma
IKBCF - V	/CP DRMs Programme, (IWP 04), UD 310116											· · · · · · · · · · · · · · · · · · ·	
	CT DATES							1 1 1					
								1 1 1		 			
Key Dates								1 1					
A1040	KD4 Achievement of Stage 3B of the Works (250 days; 15 Dec. 15)	0	0	0%		31-Jan-16*	-46		•	♦ KD4 Achievement of Si	age 3B of the Works (250	days; 15 Dec. 15)	
Site Acces	s & Possession							 		 			
Possessi	on of Portion of Site									!			
A0010	Possession of Portion A1 (<= 70 days)	0	0	0%		31-Mar-16*	-287			1 1 1	•	Possession of Portion	on A1 (<
A0020	Possession of Portion A2 (<= 75 days)	0	0	0%		31-Mar-16*	-282	 		 	•	Possession of Portion	on A2 (<
A0030	Possession of Portion B (<=100 days)	0	0	0%		31-Mar-16*	-257	1 1 1		 	•	Possession of Portion	วท B ≀(<
A0060	Possession of Portion E (<=160 days)	0	0	0%		01-Apr-16*	-198	1 1 1		1 1 1		Possession of Porti	ion E (<
A0090	Possession of Portion H1 (<=273 days)	0	0	0%		31-Jan-16*	-23	 		Possession of Portion	H1 (<=273 days)		
A0100	Possession of Portion H2 (<=273 days)	0	0	0%		31-Mar-16*	-84	 		 	•	Possession of Portion	on H2 (<
Section/St	tage Subject to Excision							1 1		 	; ; ;		į
A0710	Contract Date for Section IA (273 days, latest date when the Engineer may order)	0	0	100%	04-Jan-16 A			◆ Contract Da	te for Se	ction IA (273 days, latest o	ate when the Engineer m	ay order)	1
A0720	Contract Date for Section IB (273 days, latest date when the Engineer may order)	0	0	100%	04-Jan-16 A			◆ Contract Da	te for Se	ction IB (273 days, latest	date when the Engineer m	ay order)	1
A0730	Contract Date for Section IIA (345 days, latest date when the Engineer may order)	0	0	0%	19-Mar-16*		0				◆ Contract	Date for Section IIA (3	345 days
A0740	Contract Date for Section IIB (100 days, latest date when the Engineer may order)	0	0	0%	31-Jan-16*		-197		,	Contract Date for Secti	on IIB (100 days, latest dat	e when the Engineer	may ord
A0750	Contract Date for Section IIC (320 days, latest date when the Engineer may order)	0	0	0%	23-Feb-16*		0			◆ Coi	tract Date for Section IIC (320 days, latest date	when th
A0760	Contract Date for Section III (273 days, latest date when the Engineer may order)	0	0	0%	31-Jan-16*		-24		•	Contract Date for Secti	on III (273 days, latest date	when the Engineer r	nayord
A0810	Contract Date for Section IX (270 days, latest date when the Engineer may order)	0	0	0%	31-Jan-16*		-27		•	Contract Date for Secti	on IX (270 days, latest date	when the Engineer i	may ord
A0820	Contract Date for Section X (270 days, latest date when the Engineer may order)	0	0	100%	04-Jan-16 A			◆ Contract Da	te for Se	ction X (270 days, latest c	ate when the Engineer ma	y order)	
A0830	Contract Date for Stage 20 (270 days, latest date when the Engineer may order)	0	0	0%	31-Jan-16*		-27		•	Contract Date for Stage	20 (270 days, latest date	when the Engineer m	nay orde
A0840	Contract Date for Stage 21 (270 days, latest date when the Engineer may order)	0	0	0%	31-Jan-16*		-27		•	Contract Date for Stage	21 (270 days, latest date	when the Engineer m	nay orde
A0850	Contract Date for Stage 22 (270 days, latest date when the Engineer may order)	0	0	0%	31-Jan-16*		-27		•	Contract Date for Stage	22 (270 days, latest date	when the Engineer m	nay orde
A0860	Contract Date for Stage 23 (270 days, latest date when the Engineer may order)	0	0	100%	04-Jan-16 A			1 1 1			ate when the Engineer ma	,	
A0870	Contract Date for Stage 24 (270 days, latest date when the Engineer may order)	0	0	100%	04-Jan-16 A			◆ Contract Da	te for Sta	ge 24 (270 days, latest d	ate when the Engineer ma	y order)	1
PRELIMIN	IARY							1 1 1		 			1
A0610	Mobilization of Plant	70	30	57.14%	10-Apr-15 A	29-Feb-16*	-256	1 1 1		 			: 1 1 1 1
	ard for Bridge Segment							1 1 1 1					
A0620	Engineering Service and Factory Preparation	120	71	40.83%	01-Dec-15 A	30-Apr-16	-138						
PORTION	IA1							, , , ,			,		
Portion A1	Structures							1 1		 	; ; ;		į
Bridge AS										 			
Bored Pile										 			
						DD0.00	_	·	Date	<u>'</u>	Revision	Checked	Appro
Actual		,,				PROGRAMM		30)-Nov-15	Initial Works Pogramme F		ZJ	
	ning Work	VEHICLE	CLEARANCE	PLAZAS A		ARY BUILDIN	GS AND FA	4CH H H S ←	1-Dec-15	DRMs updated as of 31 D		ZJ	
Critical					Page 1 of 6)-Jan-16	DRMs updated as of 31 Ja		ZJ	
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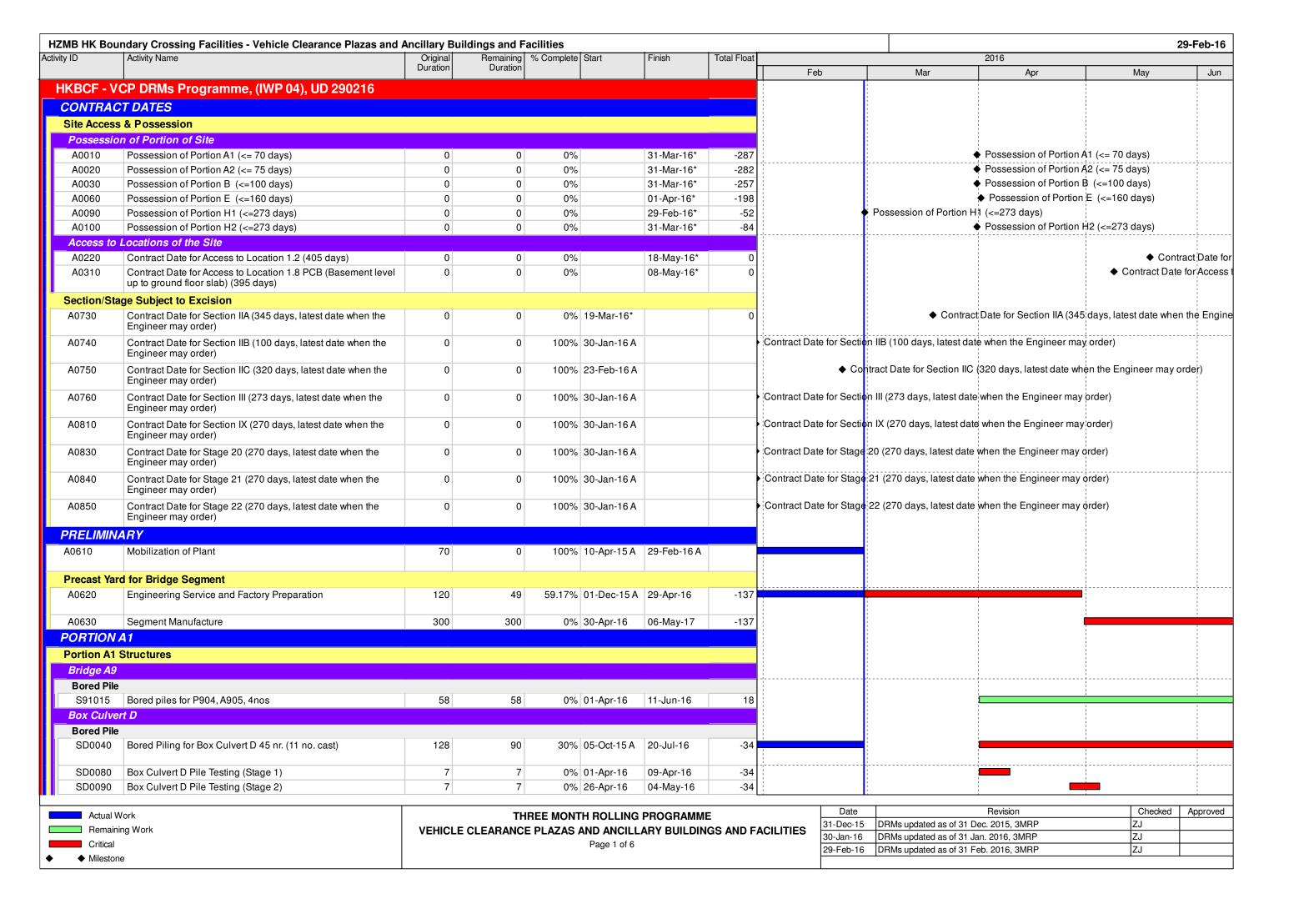


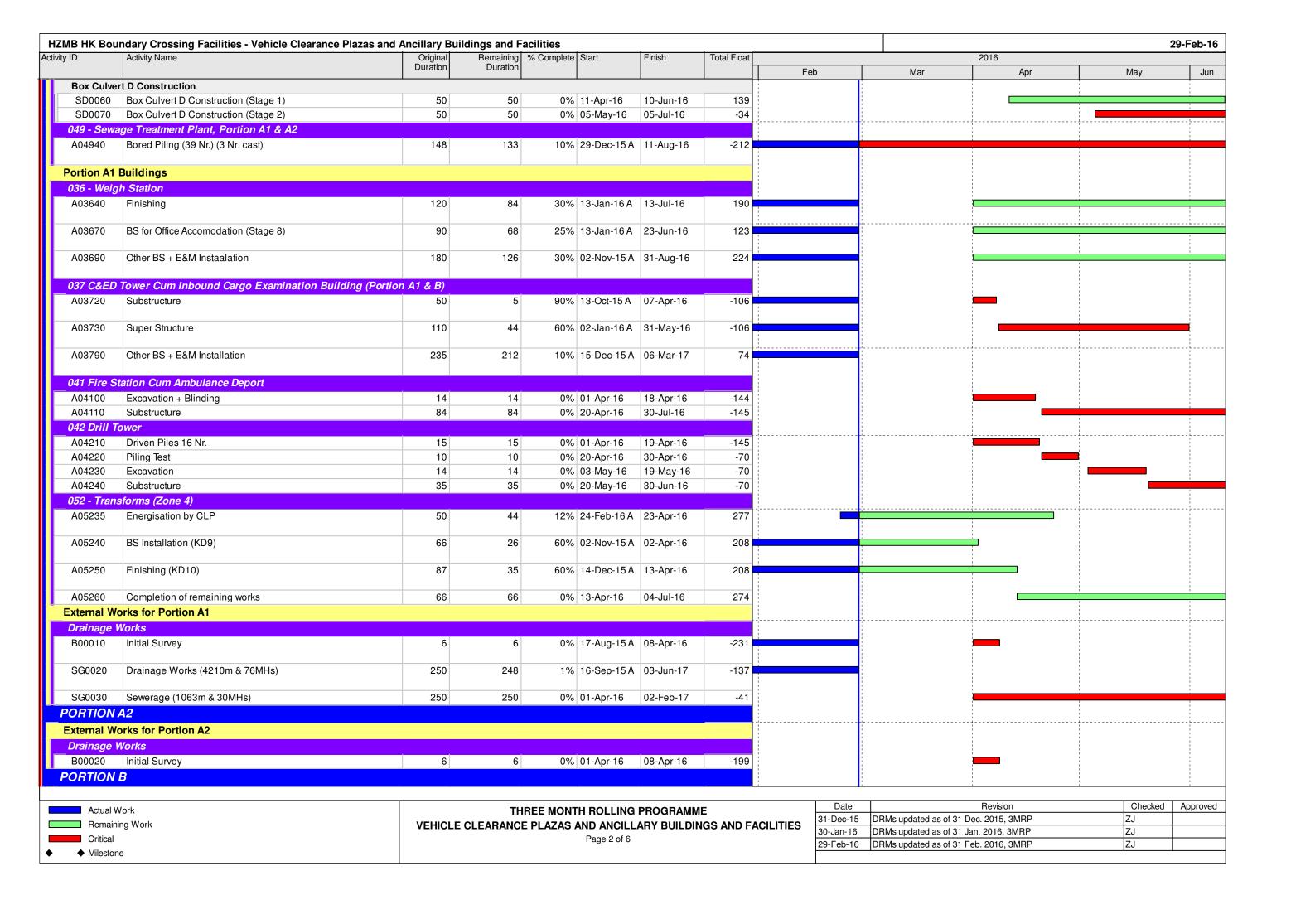


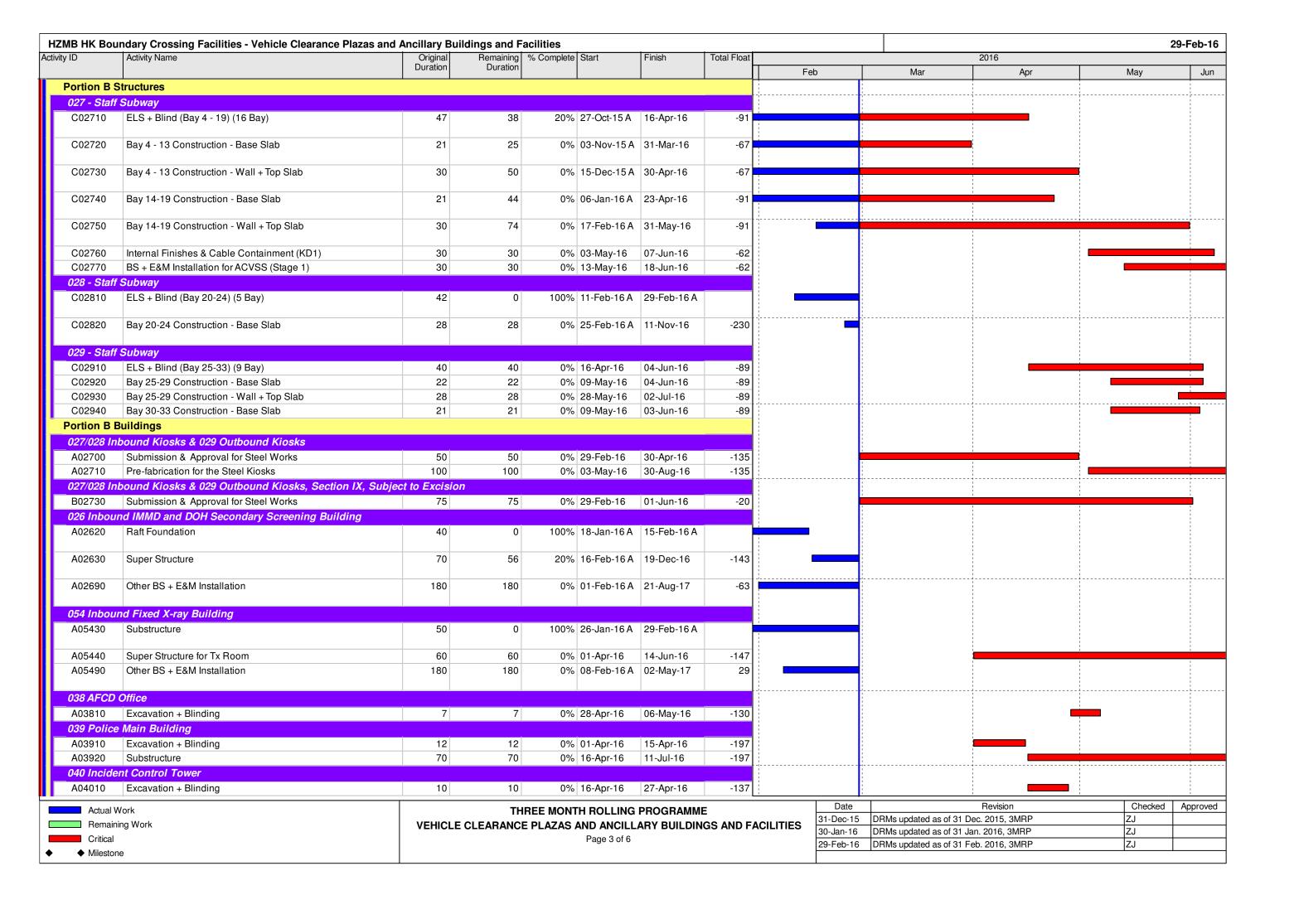


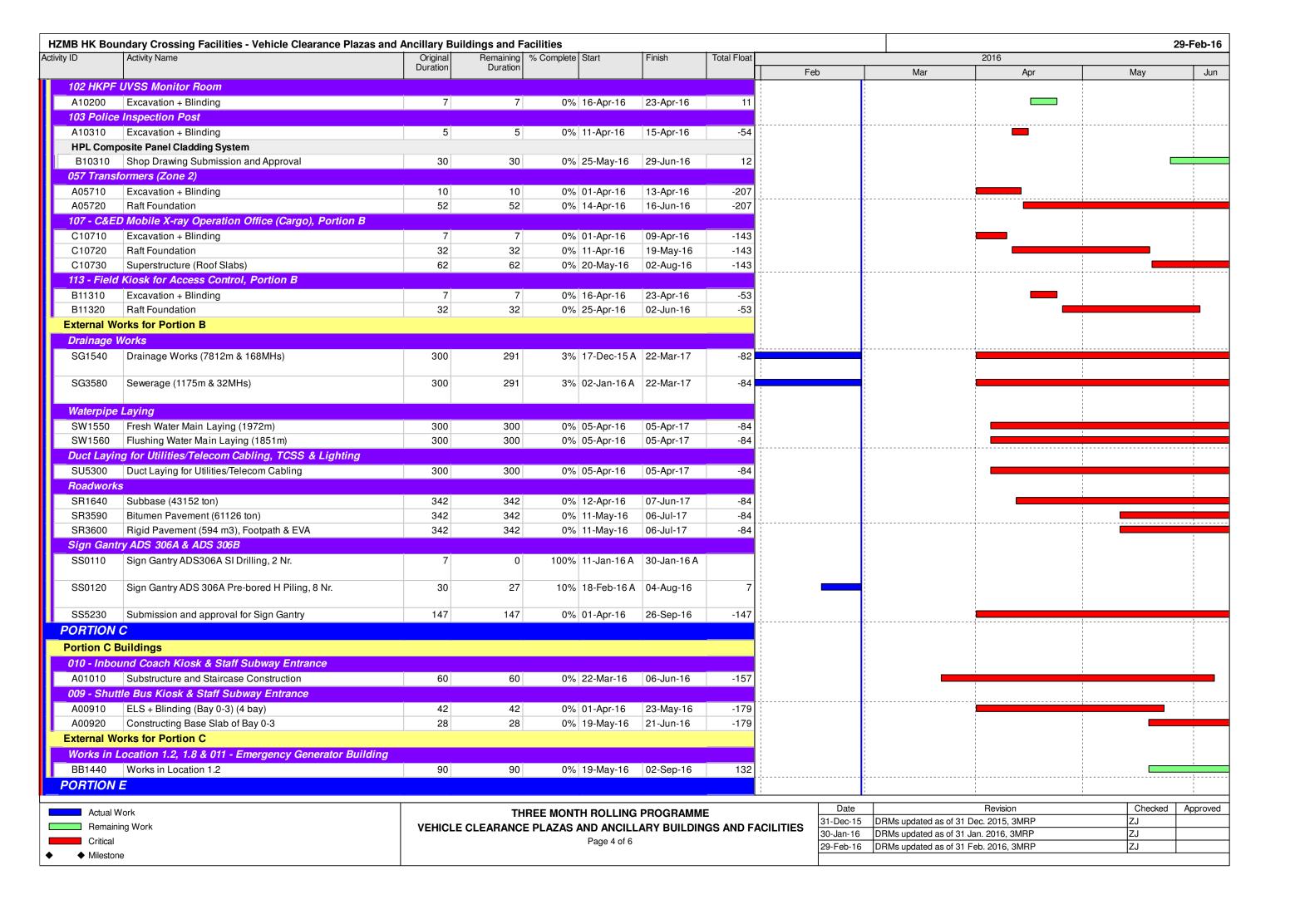
Actual Work	THREE MONTH ROLLING PROGRAMME
Remaining Work	VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES
Critical	Page 6 of 6
◆ Milestone	

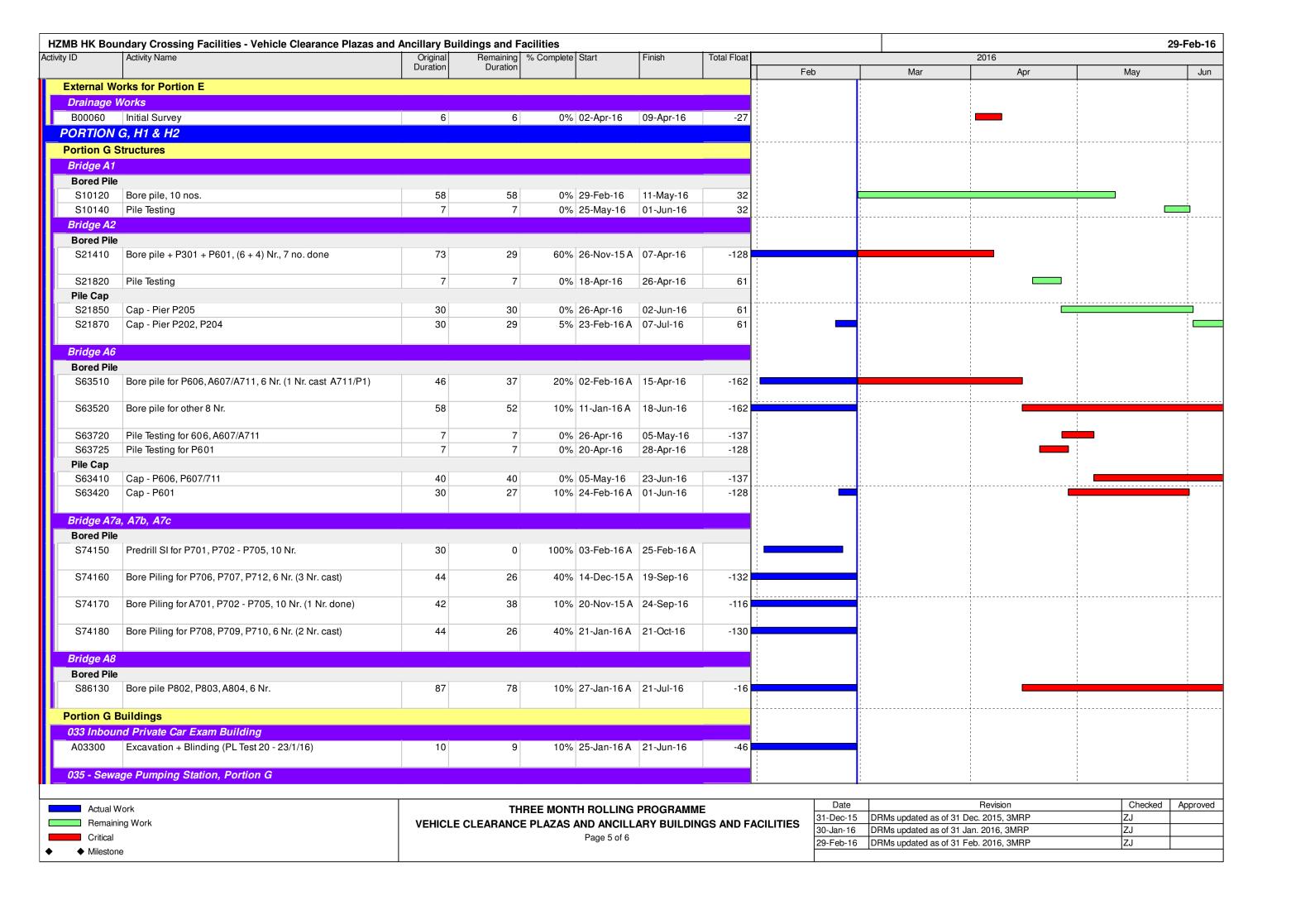
Date	Revision	Checked	Approved
30-Nov-15	Initial Works Pogramme Rev. 3, 3MRP	ZJ	
31-Dec-15	DRMs updated as of 31 Dec. 2015, 3MRP	ZJ	
30-Jan-16	DRMs updated as of 31 Jan. 2016, 3MRP	ZJ	

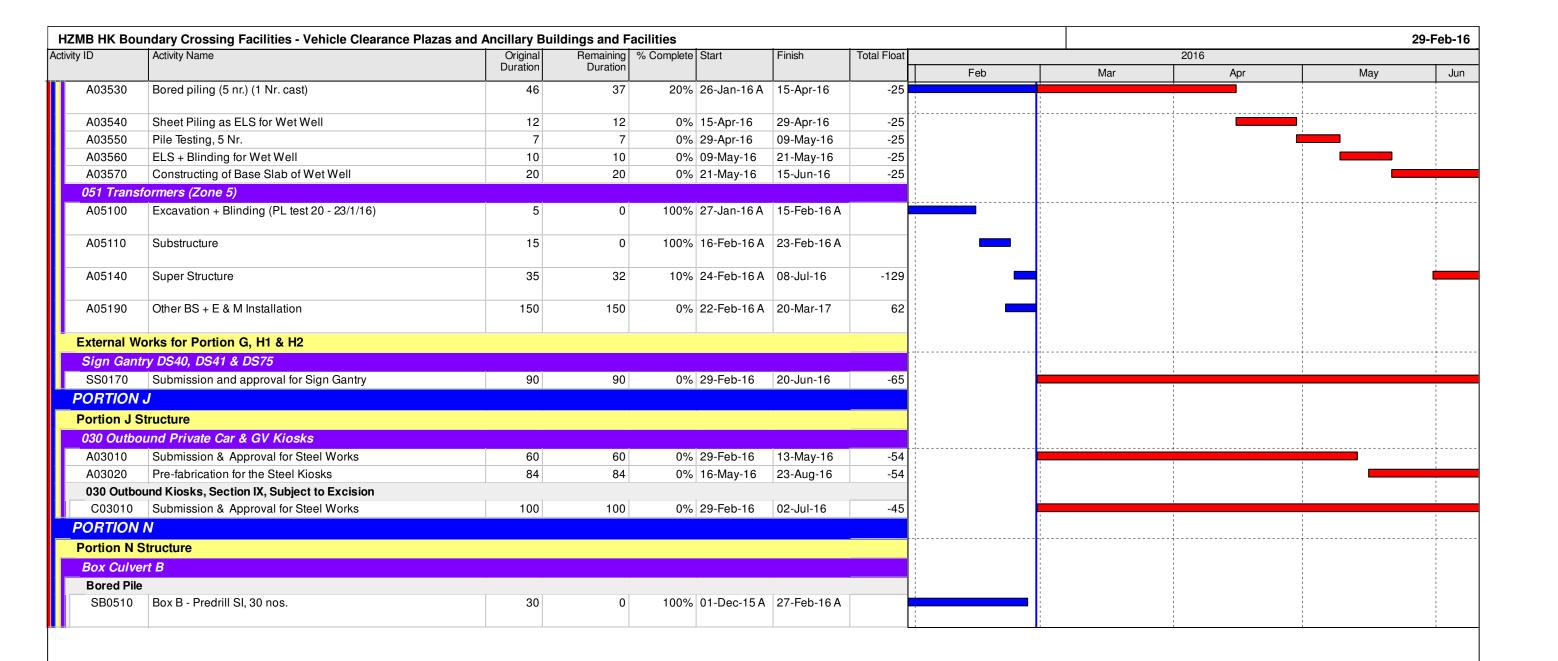












Actual Work	THREE MONTH ROLLING PROGRAMME
Remaining Work	VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES
Critical	Page 6 of 6
♦ Milestone	

Date	Revision	Checked	Approved
31-Dec-15	DRMs updated as of 31 Dec. 2015, 3MRP	ZJ	
30-Jan-16	DRMs updated as of 31 Jan. 2016, 3MRP	ZJ	
29-Feb-16	DRMs updated as of 31 Feb. 2016, 3MRP	ZJ	
	•		

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Report No.: 0165/15/ED/0365

Appendix D

Event / Action Plan

Appendix D -

Event / Action Plan for Air Quality and Noise Monitoring

Event / Action Plan for Air Quality

Event	Action				
	ET	IEC	ER	Contractor	
Action Level					
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measureme nt to confirm finding; 4. Increase monitoring frequency to daily.	 Check monitoring data submitted by ET; Check Contractor's working method. 	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.	

Event	Action			
	ET	IEC	ER	Contractor
Exceedance for two or more consecutive samples	 Identify source; Inform IEC and ER; Advise the ER on the effectiveness of the proposed remedial measures; Repeat measurement s to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial actions required; If exceedanc e continues, arrange meeting with IEC and ER; If exceedanc e stops, cease additional monitoring. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise Implementatio n of remedial measures. 	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

Event	Action				
	ET	IEC	ER	Contractor	
Limit Level					
1. Exceedance for one sample	 Identify source, investigate the causes of exceedance a nd propose remedial measures; Inform ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise implementatio n of remedial measures. 	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate. 	

Event	Action				
Event	ET	IEC	ER	Contractor	
2. Exceedance for two or more consecutive samples	 Notify IEC, ER, Contractor and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and ER to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; If exceedance stops, cease additional monitoring. 	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	 Confirm receipt of notification of failure in writing; Notify Contractor; In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedances abated. 	

Event / Action Plan for Construction Noise Monitoring

Event	Action				
	ET	IEC	ER	Contractor	
Action Level	1. Notify IEC and Contractor; 2. Identify source, investigate the causes of exceedance and propose remedial measures; 3. Report the results of investigation to the IEC,ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented.	1.Submit noise mitigation proposals to IEC; 2.Implement noise mitigation proposals.	

Event	Action					
	ET	IEC	ER	Contractor		
Limit Level	1.Inform IEC, ER, EPD and Contractor; 2.Identify source; 3.Repeat measurements to confirm findings; 4.Increase monitoring frequency; 5.Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6.Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7.Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8.If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1.Confirm receipt of notification of failure in writing; 2.Notify Contractor; 3.Require Contractor to propose remedial measures for the analysed noise problem; 4.Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.		

Room 723 & 725, 7/F, Block B,

Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, Tel : (852)-24508238 : (852)-24508032 Fax Hong Kong. Email : mcl@fugro.com.hk



Report No.: 0165/15/ED/0365

Appendix E

Implementation Schedule for Environmental Mitigation Measures (EMIS)

Appendix E – Implementation Schedule of Environmental Mitigation Measures (EMIS)

EIA Ref.	EM&A Log	Recommended Mitigation Measures	Location of the	Implementation Status
	Ref.		measures	
Air Quality		T.,	1	Γ.,
S5.5.6.1	A1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	All construction sites	V
\$5.5.6.2	A2	 2) Proper watering of exposed spoil should be undertaken throughout the construction phase: Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with 	All construction sites	V
\$5.5.6.2	A2	 concrete, bituminous materials or hardcores; When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials, Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally enclosed by impervious sheeting; Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the 	All construction sites	V
\$5.5.6.2	A2	 Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk 	All construction sites	N/A

EIA Ref.	EM&A	Recommended Mitigation Measures	Location of	Implementation
	Log Ref.		the measures	Status
		enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction,		
		turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site r part of the construction site where the exposed earth lies		
S5.5.6.3	A3	The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	All construction sites	V
\$5.5.6.4	A4	Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the contractor's attention to the relevant latest Practice Notes issued by EPD.	All construction sites	V
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Selected Represent- ative dust monitoring station	V
S5.5.7.1	A6	The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant; Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system; All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP; Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system; The materials which may generate airborne dusty emissions should be wetted by water spray system; All receiving hoppers should be enclosed on three sides up to 3m above unloading point;	Selected Represent- ative dust monitoring station	N/A
		 All conveyor transfer points should be totally enclosed; All access and route roads within the premises should be paved and wetted; and Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body 		
S5.5.2.7	A7	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: All road surface within the barging facilities will be paved; Dust enclosures will be provided for the loading ramp; Vehicles will be required to pass through designated wheels wash facilities; and Continuous water spray at the loading points	All construction sites	V
Construction			LAU	V
\$6.4.10	N1	1) Use of good site practices to limit noise emissions by considering the following: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;	All construction sites	V

EIA Ref.	EM&A	Recommended Mitigation Measures	Location of	Implementation
	Log Ref.		the measures	Status
	IXCI.	• mobile plant should be sited as far away from NSRs as	measures	
		possible and practicable;		
		material stockpiles, mobile container site officer and other		
		structures should be effectively utilised, where		
		practicable, to screen noise from on-site construction activities.		
S6.4.11	N2	Install temporary hoarding located on the site boundaries	All	V
		between noisy construction activities and NSRs. The	construction	
		conditions of the hoardings shall be properly maintained	sites	
S6.4.12	N3	throughout the construction period. 3) Install movable noise barriers (typically density@14kg/m	For plant	N/A
00.1.12	110	acoustic mat or full enclosure close to noisy plants	items	14/71
		including compressor, generators, saw.	listed	
			in Appendix	
			6D of the	
			EIA report	
			at all	
			construction	
S6.4.13	N4	4) Select "Quiet plants" which comply with the BS 5228 Part	sites For plant	V
JU.4. 13	11-4	1 or TM standards.	items	,
			listed in	
			Appendix	
			6D of the EIA	
			report	
			at all	
			construction	
S6.4.14	N5	5) Sequencing operation of construction plants where	site All	V
30.4.14	INS	practicable	construction	V
			sites where	
	110		practicable	.,
S5.1	N6	6) Implement a noise monitoring under EM&A programme.	Selected representat-	V
			ive	
			noise	
			monitoring	
Sediment			station	
S7.3	S1	1) The requirements as recommended in ETWB TC 34/2002	All	V
		Management of Dredged/Excavated Sediment shall be	construction	
Mosta Mana		included in the Particular Specification as appropriate.	sites	
S8.3.8	wm1	Construction Waste) Construction and Demolition Material	All	V
50.0.0	******	The following mitigation measures should be implemented	construction	Ĭ
		in handling the waste:	sites	
		Maintain temporary stockpiles and reuse excavated fill		
		material for backfilling and reinstatement;		
		Carry out on-site sorting;Make provisions in the Contract documents to allow and		
		promote the use of recycled aggregates where		
		appropriate;		
		 Implement a trip-ticket system for each works contract to 		
		ensure that the disposal of C&D materials are properly		
		documented and verified; and Implement an enhanced Waste Management Plan similar		
		to E7WBTC (Works) No. 19/2005 - "Environmental		
		Management on Construction Sites" to encourage on-site		
		sorting of C&D materials and to minimize their generation		
		during the course of construction.		
		• In addition, disposal of the C&D materials onto any		
		sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final		
		be avoided. The Contractor shall propose the final		

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
	IXCI.	disposal sites to the Project Proponent and get its	measures	
S8.3.9-	WM2	approval before implementation C&D Waste	All	V
S8.3.91 S8.3.11	VVIVIZ	Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such	construction sites	V
C0 2 42	10/042	segregation and storage.	All	V
\$8.2.12- \$8.3.15	WM3	 Chemical Waste Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labeled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 	All construction sites	
S8.3.16	WM4	Sewage Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly.	All construction sites	V
\$8.3.17	WM5	General Refuse General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by	All construction sites	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the	Implementation Status
	Ret.	le	measures	
		law. • Aluminium cans are often recovered from the waste		
		stream by individual collectors if they are segregated and		
		made easily accessible. Separate labelled bins for their		
		deposit should be provided if feasible.		
		Office wastes can be reduced through the recycling of		
		paper if volumes are large enough to warrant collection.		
		Participation in a local collection scheme should be		
		considered by the Contractor.		
		Training should be provided to workers about the		
		concepts of site cleanliness and appropriate waste		
		management procedure, including reduction, reuse and		
		recycling of wastes.		
Water Quali	ty (Constr	uction Phase)		
S9.11.1.7	W2	Land Works	Land-based	V
		General construction activities on land should also be	works area	
		governed by standard good working practice. Specific		
		measures to be written into the works contracts should		
		include:		
		wastewater from temporary site facilities should be controlled to provent direct displaces to surface or marine.		
		controlled to prevent direct discharge to surface or marine		
		waters; - sewage effluent and discharges from on-site kitchen		
		facilities shall be directed to Government sewer in		
		accordance with the requirements of the WPCO or		
		collected for disposal offsite. The use of soakaways shall		
		be avoided:		
		storm drainage shall be directed to storm drains via		
		adequately designed sand/silt removal facilities such as		
		sand traps, silt traps and sediment basins. Channels,		
		earth bunds or sand bag barriers should be provided on		
		site to properly direct stormwater to such silt removal		
		facilities. Catchpits and perimeter channels should be		
		constructed in advance of site formation works and		
		earthworks;		
		• silt removal facilities, channels and manholes shall be		
		maintained and any deposited silt and grit shall be		
		removed regularly, including specifically at the onset of and after each rainstorm:		
		• temporary access roads should be surfaced with crushed		
		stone or gravel;		
		 rainwater pumped out from trenches or foundation 		
		excavations should be discharged into storm drains via		
		silt removal facilities;		
		measures should be taken to prevent the washout of		
		construction materials, soil, silt or debris into any drainage		
		system;		
		open stockpiles of construction materials (e.g. aggregates)		
		and sand) on site should be covered with tarpaulin or		
		similar fabric during rainstorms;		
		 manholes (including any newly constructed ones) should 		
		always be adequately covered and temporarily sealed so		
		as to prevent silt, construction materials or debris from		
		getting into the drainage system, and to prevent storm		
		run-off from getting into foul sewers;		
		discharges of surface run-off into foul sewers must always		
		be prevented in order not to unduly overload the foul		
C0 11 1 7	WO	sewerage system;	Land bass-	V
S9.11.1.7	W2	• all vehicles and plant should be cleaned before they leave	Land-based works area	v v
		the construction site to ensure that no earth, mud or	works alea	
		debris is deposited by them on roads. A wheel washing		
		bay should be provided at every site exit; wheel wash overflow shall be directed to silt removal		
		facilities before being discharged to the storm drain;		
		the section of construction road between the wheel		

EIA Ref.	EM&A	Recommended Mitigation Measures	Location of	Implementation
	Log Ref.		the measures	Status
	11011	washing bay and the public road should be surfaced with	casa.rss	
		crushed stone or coarse gravel;		
		 wastewater generated from concreting, plastering, Internal decoration, cleaning work and other similar 		
		activities, shall be screened to remove large objects;		
		 vehicle and plant servicing areas, vehicle wash bays and 		
		lubrication facilities shall be located under roofed areas.		
		The drainage in these covered areas shall be connected		
		to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site		
		disposal;		
		the contractors shall prepare an oil / chemical cleanup		
		plan and ensure that leakages or spillages are contained		
		and cleaned up immediately; • waste oil should be collected and stored for recycling or		
		disposal, in accordance with the Waste Disposal		
		Ordinance;		
		all fuel tanks and chemical storage areas should be		
		provided with locks and be sited on sealed areas. The		
		storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the		
		largest tank; and		
		• surface run-off from bunded areas should pass through		
		oil/grease traps prior to discharge to the stormwater		
Ecology (Co	nstruction	system.		
S10.7	E4	Watering to reduce dust generation; prevention of siltation	Land-based	V
		of freshwater habitats; Site runoff should be desilted, to	works areas	
		reduce the potential for suspended sediments, organics		
		and other contaminants to enter streams and standing freshwater		
S10.7	E5	Good site practices, including strictly following the	Land-based	V
		permitted works hours, using quieter machines where	works areas	
		practicable, and avoiding excessive lightings during night		
S10.7	E8	time Control vessel speed	Marine	V
010.7		Skipper training	Traffic	V
		 Predefined and regular routes for working vessels; avoid 		
		Brother Islands.		
Fisheries	l =4	Maritima Oil Caill Decrease Play (MOCDD):	LIKDOE	T 1/
S11.7	F4	Maritime Oil Spill Response Plan (MOSRP); Contingency plan.	HKBCF	V
Landscape	& Visual (D	Detailed Design Phase)		
S14.3.3.1	LV1	General design measures include:	HKBCF	V
		Roadside planting and planting along the edge of the		
		HKBCF Island is proposed;		
		 Transplanting of mature trees in good health and amenity value where appropriate and reinstatement of areas 		
		disturbed during construction by compensatory hydro-		
		seeding and planting;		
		Protection measures for the trees to be retained during		
		construction activities;		
		 Optimizing the sizes and spacing of the bridge columns; Fine-tuning the location of the bridge columns to avoid 		
		visually-sensitive locations;		
		Providing planting area around peripheral of HKBCF for		
		tree planting screening effect;		
		Providing salt-tolerant native trees along the planter strip off sate decoupiling and possible real specific and possib		
		at affected seawall and newly reclaimed coastline; • For HKBCF, providing aesthetic architectural design on		
		the related buildings (e.g. similar materials for PCB		
		building facade to Airport buildings, roof planting and		
		subtle materials for other facilities buildings and so on),		
		and the related infrastructure (e.g. parapet planting and		

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF; and Fine-tuning the sizes of the structural members to minimize the bulkiness of buildings and adjustment of building arrangement to minimise disturbance to surrounding vegetation in the HKBCF.		
		onstruction Phase)	· · · · · · · · · · · · · · · · · · ·	
S14.3.3.3	LV2	 Mitigate both Landscape and Visual Impacts G1. Grass-hydroseed bare soil surface and stock pile areas. G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge footbridge to screen bridge and traffic. G3. Not applicable as this is for HKLR. G4. For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF G5. Vegetation reinstatement and upgrading to disturbed areas G6. Maximizing new tree shrub and other vegetation planting to compensate tree felled and vegetation removed G7. Providing planting area around peripheral of HKBCF for tree planting screening effect; G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall. G9. Reserve of loose natural granite rocks for re-use, Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of the new coastline. 	HKBCF	N/A
S14.3.3.3	LV3	Mitigate Visual Impacts V1. Minimize time for construction activities during construction period. V2. Provide screen hoarding at the portion of the project site / works areas / storage areas near VSRs who have close low-level views to the Project during HKBCF construction.	HKBCF	N/A
EM&A	ı		I	
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual	All construction sites	V
S15.5 – S15.6	EM2	An Environmental Team needs to be employed as per the EM&A Manual. Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	All construction sites	V

Legend: V = implemented;

Room 723 & 725, 7/F, Block B, Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, : (852)-24508238 : (852)-24508032 Tel Fax Hong Kong. Email : mcl@fugro.com.hk **MateriaLab**

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Appendix F

Site Audit Findings and Corrective Actions

Room 723 & 725, 7/F, Block B, Profit Industrial Building,

Tel : (852)-24508238 1-15 Kwai Fung Crescent, Kwai Fong, : (852)-24508032 Fax Email : mcl@fugro.com.hk Hong Kong.



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Appendix F - Site Audit Findings and Corrective Actions

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. During the reporting period, 13 site inspections were carried out on 3, 10, 17, 23 and 31 December 2015, 7, 14, 20 and 28 January 2016, and 4, 12, 18 and 26 February 2016.

Particular observations during the site inspections are described below.

20 November 2015

- 1. CHEC was reminded that good housekeeping practice shall be maintained on site. Subsequently, good housekeeping practice was maintained on site. The observation was closed on 3 December 2015.
- 2. CHEC was reminded that stagnant water was found in manhole. Subsequently, Manhole was filled. The observation was closed on 3 December 2015.
- 3. CHEC was reminded that construction materials and stagnant water were found in the wells of rooftop. Subsequently, Construction Materials and stagnant water were removed in the wells of rooftop. The observation was closed on 3 December 2015.

23 November 2015

1. CHEC was reminded to fully cover the tarpaulin sheets properly for the exposed earth slope at CUE's works area. Subsequently, the exposed earth slope was fully covered with tarpaulin sheets properly at CUE's works area. The observation was closed on 3 December 2015.

3 December 2015

1. CHEC was reminded for temporary stockpiling of untreated marine mud shall be lined with impermeable sheeting, bunded and with proper leachate control measurers implemented at Portion A. Subsequently, the temporary stockpiling of untreated marine mud was removed at Portion A. The observation was closed on 10 December 2015.

10 December 2015

- 1. CHEC was reminded to remove stagnant water within site boundary. Subsequently, stagnant water was removed properly within site boundary. The observation was closed on 17 December 2015.
- 2. CHEC was reminded to maintain good housekeeping practice at CUE. Subsequently, housekeeping performance was improved at CUE. The observation was closed on 17 December 2015.
- 3. CHEC was reminded to replace drip tray for the generator at CUE. Subsequently, the generator was removed from CUE. The observation was closed on 17 December 2015.
- 4. CHEC was reminded for temporary stockpiling of untreated marine mud shall be lined with impermeable sheeting, bunded and with proper leachate control measurers implemented at CUE. Subsequently, the temporary stockpiling of untreated marine mud was removed and the piling works previously conducted at CUE was completed. The observation was closed on 17 December 2015.

17 December 2015

1. CHEC was reminded to supplement the details of the CNP at CUE. Subsequently, the details of the CNP were supplemented at CUE. The observation was closed on 23 December 2015.

23 December 2015

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Profit Industrial Building, Tel : (852)-24508238
1-15 Kwai Fung Crescent, Kwai Fong, Fax : (852)-24508032
Hong Kong. Email : mcl@fugro.com.hk



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- 1. CHEC was reminded to provide drip tray for chemical storage at CUE works area. Subsequently, chemical storage was removed at CUE works area. The observation was closed on 31 December 2015.
- 2. CHEC was reminded to provide a new drip tray with adequate size for generator at CUE works area. Subsequently, a new drip tray with adequate size was provided for generator at CUE works area. The observation was closed on 31 December 2015.

31 December 2015

- 1. CHEC was reminded to remove the construction wastes accumulated in the tray at CUE works area. The observation was closed on 7 January 2016.
- 2. CHEC was reminded to remove the stagnant water accumulated at CUE works area. The observation was closed on 7 January 2016.

7 January 2016

- 1. CHEC was reminded to maintain good housekeeping practice at CUE works area. Subsequently, good housekeeping practice was maintained on site. The observation was closed on 14 January 2016.
- 2. CHEC was reminded to remove the stagnant water at Area 1. Subsequently, stagnant water was removed on site. The observation was closed on 28 January 2016.
- 3. CHEC was reminded to properly store chemicals at CUE works area. Subsequently, chemicals were stored properly on site. The observation was closed on 14 January 2016.

14 January 2016

- 1. CHEC was reminded to remove the stagnant water at CUE works area. Subsequently, stagnant water was removed on site. The observation was closed on 28 January 2016.
- 2. CHEC was reminded to remove the stagnant water at Area 1. Subsequently, stagnant water was removed on site. The observation was closed on 28 January 2016.

20 January 2016

 CHEC was reminded to maintain good housekeeping practice at CUE works area. Subsequently, good housekeeping practice was maintained on site. The observation was closed on 28 January 2016.

28 January 2016

- 1. CHEC was reminded to clear and prevent the oil spillage from generator's drip tray at CUE works area. Subsequently, the oil was cleared at CUE works area. The observation was closed on 4 February 2016.
- 2. CHEC was reminded to clear and prevent the oil spillage on site at STP works area. Subsequently, the oil was cleared on site at STP works area. The observation was closed on 4 February 2016.
- 3. CHEC was reminded to cover the excavated marine sediment properly with tarpaulin sheets at STP works area. Subsequently, the excavated marine sediment was removed at STP works area. The observation was closed on 4 February 2016.

4 February 2016

- 1. CHEC was reminded to maintain housekeeping practice at Area 1. Subsequently, housekeeping practice was maintained at Area 1. The observation was closed on 12 February 2016.
- 2. CHEC was reminded to remove stagnant water at Area 1. Subsequently, stagnant water was removed at Area 1. The observation was closed on 12 February 2016.

12 February 2016

1. No particular finding.

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Profit Industrial Building, Tel : (852)-24508238
1-15 Kwai Fung Crescent, Kwai Fong, Fax : (852)-24508032
Hong Kong. Email : mcl@fugro.com.hk



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18 February 2016

 CHEC was reminded to maintain good housekeeping practice at CUE works area. Subsequently, housekeeping practice was maintained at CUE works area. The observation was closed on 26 February 2016.

26 February 2016

- 1. CHEC was reminded to remove the stagnant water accumulated at the generator's drip tray at CUE works area and the concreted area at Area 1. Follow-up actions for outstanding observation will be checked in the upcoming site inspections and reported in the coming reporting period.
- 2. CHEC was reminded to provide drip tray for chemical containers or handle as chemical waste at Area 1. Follow-up actions for outstanding observation will be checked in the upcoming site inspections and reported in the coming reporting period.

The Contractor has rectified most of the observations as identified during environmental site inspections during the reporting period. Follow-up actions for outstanding observations will be inspected during the next site inspections.

Room 723 & 725, 7/F, Block B, Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, : (852)-24508238 : (852)-24508032 Tel Fax Hong Kong. Email : mcl@fugro.com.hk



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Appendix G

Waste Flow Table



Contract No. HY/2013/03
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities
- Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Monthly Summary of Waste Flow Table for <u>2015</u> (year)

Name of Person completing the Record: Marko Chan

	Actual Qu	antities of Ine	ert C&D Materi	ials Generate	d Monthly	Actual Quantities of Non-inert C&D Wastes Generated Monthly					
Month	Total Quantity	Broken Concrete	Reused in the Contract	Reused in other	Disposed as Public Fill	Metals	Paper/ cardboard	Plastics	Chemical Waste	Others, e.g. general	
	Generated	(see Note 1)		Projects			packaging	(see Note 2)		refuse	
	(in '000m ³)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000m ³)					
Jan											
Feb											
Mar											
Apr	0	0	0	0	0	0	0	0	0	0	
May	0	0	0	0	0	0	0	0	0	0	
Jun	0.003	0	0	0	0.003	0	0	0	0	0.063	
Jul	0.402	0	0	0	0.402	0	0	0	0	0.029	
Aug	0.100	0	0	0	0.100	0	0	0	0	0.044	
Sept	0	0	0	0	0	0	0	0	0	0.034	
Oct	0	0	0	0	0	0	0	0	0	0.024	
Nov	0	0	0	0	0	0	0	0	0	0.034	
Dec	0	0	0	0	0	0	0	0	0	0.044	
Total	0.505	0	0	0	0.505	0	0	0	0	0.272	

Notes: (1) Broken concrete for recycling into aggregates.

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



Contract No. HY/2013/03
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities
- Vehicle Clearance Plazas and Ancillary Buildings and Facilities

Monthly Summary of Waste Flow Table for 2016 (year)

Name of Person completing the Record: Marko Chan

	Actual Qu	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
Month	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other	Disposed as Public Fill	Metals	Paper/ cardboard	Plastics	Chemical Waste	Others, e.g. general		
	Contract	(see Note 1)	ano commuer	Projects	1 00.101		packaging	packaging	(see Note 2)		refuse	
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000m ³)		
Jan	0.000	0	0	0	0.000	0	0	0.992	0	0.073		
Feb	0.000	0	0	0	0.000	0	0	0	0	0.093		
Mar												
Apr												
May												
Jun												
Jul												
Aug												
Sept												
Oct												
Nov								_				
Dec												
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.992	0.000	0.166		

Notes: (1) Broken concrete for recycling into aggregates.

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

Monthly Summary of Excavated Marine Sediment for 2016 (year)

Month	Total Quantity of Excavated Marine Sediment Generated	Reused in this contract	Reused in other Projects	Disposed of at CMP
WOTH	in '000m ³	in '000m ³	in '000m ³	in '000m ³
Jan	1.950	0	0	1.950
Feb	2.328	0	0	2.328
Mar				
Apr				
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
Total	4.278	0.000	0.000	4.278

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Appendix H

Environmental Licenses and Permits

Appendix H - Environmental Permit / Licences Summary for Contract No. HY/2013/03

T4	Demoit/Lieuwe Desistanties	Dame's Na	337 A	A = 11 = 41 = 11 D = 4 =	Janes Data	Valid Date		Status	Remark
Item	Permit/Licence Registration	Permit No.	Work Area	Application Date	Issue Date	From	То	Status	
1	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/I	HKBCF	30-Jun-15	17-Jul-15	17-Jul-15	Nil	Superseded By EP-353/2009/J	
2	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/J	HKBCF	18-Feb-16	25-Feb-16	25-Feb-16	Nil	Valid	
3	Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	Ref No. 387703	Main Site Area	02-Apr-15	15-Apr-15	15-Apr-15	Nil	Valid	
4	Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	Ref No. 387735	Works Area WA3	02-Apr-15	15-Apr-15	15-Apr-15	Nil	Valid	
5	Billing A/C for Construction Waste Disposal Pursuant to Section 6 & 9 of the Waste Disposal (Charges for Disposal of Construction waste) Regulation	A/C No. 7022228	Main Site Area, WA3 & 4	14-Apr-15	06-May-15	06-May-15	Nil	Valid	
6	Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation	5213-951-C1186-28	Main Site Area	24-Apr-15	01-Jun-15	01-Jun-15	Nil	Valid	
7	Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation	5213-974-C3597-03	Works Area WA4	24-Apr-15	01-Jun-15	01-Jun-15	Nil	Valid	
8	Water Discharge License Pursuant to Water Pollution Control Ordinance (Cap 358)	WT00022180-2015	Works Area WA3	28-Apr-15	04-Aug-15	03-Aug-15	31-Aug-20	Valid	
9	Water Discharge License Pursuant to Water Pollution Control Ordinance (Cap 358)	WT00022391-2015	Main Site Area	05-May-15	04-Sept-15	04-Sept-15	30-Sept-20	Valid	
10	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0999-15	CUE	28-Aug-15	11-Sept-15	14-Sept-15	10-Dec-15	Superseded By GW-RS1388-15	
11	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1065-15	Portion A1	15-Sept-15	29-Sept-15	30-Sept-15	31-Dec-15	Superseded By GW-RS1388-15	
12	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1203-15	CUE	20-Oct-15	03-Nov-15	02-Nov-15	31-Jan-16	Superseded By GW-RS1388-15	

Teams	Downit/License Designation	Down it No	Work Anso	Application Data	Isana Data	Valid Date		Status	Remark
Item	Permit/Licence Registration	Permit No.	Work Area	Application Date	Issue Date	From	То	Status	
13	Construction Noise Permit	GW-RS1315-15	Portion G	12-Nov-15	26-Nov-15	28-Nov-15	28-Feb-16	Valid until	
	Pursuant to Section 8(6) of the Noise Control Ordinance							28-Feb-16	
14	Construction Noise Permit	PP-RS0029-15	Drill Tower	27-Nov-15	11-Dec-15	14-Dec-15	13-Apr-16	Valid	
17	Pursuant to Section 8(6) of the Noise Control Ordinance	11-K5002 <i>)</i> -13	Dilli Tower	27-1107-13	11-Dec-13	14-Dec-13	13-Apr-10	vand	
15	Construction Noise Permit	GW-RS1388-15	Main Site Area	02-Dec-15	16-Dec-15	21-Dec-15	18-Mar-16	Valid	
13	Pursuant to Section 8(6) of the Noise Control Ordinance	OW-K51500-15	Main Site Area	02-Dec-13	10-Dec-13	21-000-13	10 1444 10	vana	
16	Construction Noise Permit	GW-RS0035-16	Main Site Area	31-Dec-15	14-Jan-16	18-Jan-16	17-Mar-16	Valid	
10	Pursuant to Section 8(6) of the Noise Control Ordinance	OW-K30033-10	Main Site Area	31-Dec-13	14- J an-10	10-Jan-10	17-Wai-10	vanu	
177		ED/MD/17 101	South of Brothers	26.0 + 15	17 D 15	10 D 15	17 1 16	Valid until	
17	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-121	(CMP2)	26-Oct-15	17-Dec-15	18-Dec-15	17-Jan-16	17-Jan-16	
1.0			South of Brothers	20.5.15	15 7 10	20 1 16	10 11 16	Valid until	
18	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-161	(CMP2)	29-Dec-15	15-Jan-16	20-Jan-16	19-Feb-16	19-Feb-16	
10	Downit issued Under the Dumning at See Ordinance	ED/MD/16 177	South of Brothers	27 Ion 16	11 Ech 16	20 Fab 16	10 Man 16	Valid	
19	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-177	(CMP2)	27-Jan-16 11-Feb-16	20-Feb-16	19-Mar-16	Valid		

Room 723 & 725, 7/F, Block B,

Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, Tel : (852)-24508238 : (852)-24508032 Fax Hong Kong. Email : mcl@fugro.com.hk



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Appendix I

Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

Room 723 & 725, 7/F, Block B, Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Fong, : (852)-24508238 Tel : (852)-24508032 Fax Hong Kong. Email : mcl@fugro.com.hk



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Appendix I -

Statistics on Environmental Complaints, Notifications of Summons and Successful **Prosecutions**

	Cumulative Statistics								
Reporting Period	Complaints	Notifications of	Successful						
		Summons	Prosecutions						
This reporting period	0	0	0						
From commencement	1	0	0						
date of construction to									
end of reporting period									