

Ref.: HYDHZMBEEM00_0_7476L.19.doc

25 June 2019

By Fax (3468 2076) and By Post

AECOM Asia Co. Ltd.
The PRE's Office
550 Cheung Tung Road, Lantau
Hong Kong

Attention: Mr. Jason Yu

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**

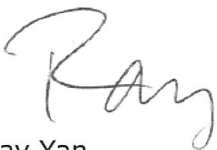
**Contract No. HY/2013/03
HZMB HKBCF – Vehicle Clearance Plazas and Ancillary Buildings and Facilities
Final EM&A Report**

Reference is made to the ET's submission of the Final EM&A Report certified by the ET Leader (ET's ref.: "MCL/ED/0312/2019/C" dated 25 June 2019) and provided to us via e-mail on 25 June 2019.

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

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 Hong Kong Limited



Ray Yan
Independent Environmental Checker

c.c.	HyD	Mr. Cheng Pan	(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: 2597 3368)

Internal: DY, YH, DF, HW, ENPO Site



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Website : www.fugro.com

Date 25 June 2019

Our Ref. MCL/ED/0312/2019/C

Ramboll Hong Kong Limited
(formerly Ramboll Environ Hong Kong Limited)
21/F, BEA Harbour View Centre
56 Gloucester Road, Wan Chai
Hong Kong

BY HAND

Attn.: Mr. Ray Yan, IEC

Dear Sir,

**Final EM&A Review Report
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 16.5 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 Final EM&A Review Report for your verification.

Should you require further information, please do not hesitate to contact our Mr. Vincent Lu at 3565 4158 or the undersigned at 3565 4115.

Yours faithfully,
for and on behalf of
MATERIALAB CONSULTANTS LIMITED

Arthur Cheng
Environmental Team Leader

AC/vl

Encl.

c.c. AECOM – Mr. P.K. Lee, Mr. C.Y. Yu
RAMBOLL ENVIRON – Mr. Harris Wong
CHEC – Mr. Marko Chan

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Report No.: 0165/15/ED/1178

**FINAL ENVIRONMENTAL MONITORING & AUDIT
REVIEW REPORT**

September 2015 to January 2019

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/1178

Prepared by: Vincent Lu

Reviewed by: Bong Yu

Certified by:

A handwritten signature in black ink, appearing to read "Arthur Cheng".

Arthur Cheng
Environmental Team Leader

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Report No.: 0165/15/ED/1178

CONTENTS

EXECUTIVE SUMMARY

1. INTRODUCTION
 - 1.1 Basic Project Information
 - 1.2 Project Organisation
 - 1.3 Construction Programme
2. EM&A REQUIREMENTS
 - 2.1 Summary of EM&A Requirements
 - 2.2 Monitoring Requirements
 - 2.3 Action and Limit Levels
 - 2.4 Event and Action Plans
 - 2.5 Mitigation Measures
3. ENVIRONMENTAL MONITORING AND AUDIT
 - 3.1 Air Quality Monitoring Results
 - 3.2 Noise Monitoring Results
 - 3.3 Water Quality Monitoring Results
 - 3.4 Ecology Monitoring Results
 - 3.5 Implementation of Environmental Measures
 - 3.6 Advice on the Solid and Liquid Waste Management Status
 - 3.7 Environmental Licenses and Permits
4. SUMMARY OF EXCEEDANCES, COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION
 - 4.1 Summary of Exceedance of the Environmental Quality Performance Limit
 - 4.2 Summary of Complaints, Notification of Summons and Successful Prosecution
5. COMMENTS, RECOMMENDATIONS AND CONCLUSIONS
 - 5.1 Comments
 - 5.2 Recommendations
 - 5.3 Conclusions

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APPENDICES

- A Location of Works Areas
- B Project Organization for Environmental Works
- C Construction Program
- D Event / Action Plan
- E Implementation Schedule for Environmental Mitigation Measures (EMIS)
- F Waste Flow Table
- G Environmental Licenses and Permits
- H Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

FIGURES

- Figure 1 Air Quality Monitoring Stations
- Figure 2 Noise Monitoring Stations
- Figure 3 Water Quality Monitoring Stations
- Figure 4 Ecological Monitoring Transect Line and Layout Map

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Report No.: 0165/15/ED/1178

EXECUTIVE SUMMARY

This Final Environmental Monitoring and Audit (EM&A) Review 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” (includes the construction works of Contract No. HY/2013/06 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System” within Contract No. HY/2013/03 works area) (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 (construction works of Contract No. HY/2013/06 was awarded to ATAL Technologies Limited within Contract No. HY/2013/03 works area) (hereafter referred to as “the Contractor”) and MaterialLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by the Contractor.

Contract No. HY/2013/03 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) 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/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. Commencement of Contract No. HY/2013/03 took place on 10 April 2015 while the construction works and the EM&A programme of Contract No. HY/2013/03 commenced on 29 August 2015 (commencement of Contract No. HY/2013/06 took place on 14 August 2015 while the construction works and the EM&A programme of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area commenced on 13 September 2016).

MaterialLab 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 Final EM&A Review Report for the Contract which summaries findings of the EM&A works during the reporting period from 29 August 2015 to 31 January 2019 (includes the findings of the EM&A programme of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area during the reporting period from 13 September 2016 to 31 January 2019) (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” (from September 2015 to August 2017), Contract No. HY/2013/01 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Passenger Clearance Building” (from September 2017 to September 2018), Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao Bridge HKBCF - Infrastructure Works Stage II (Southern Portion)” (from October 2018 to January 2019) and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF” (from September 2015 to January 2019). The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS2, AMS3C, AMS6 and AMS7B, noise monitoring at NMS2 and NMS3C, water quality monitoring at the locations shown in **Figure 3** and ecological monitoring as shown in **Figure 4** as part of EM&A programme if these monitoring stations are no longer covered

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Report No.: 0165/15/ED/1178

under Contract Nos. HY/2013/04 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 following tables state the specific air quality and noise monitoring stations at which the responsibilities for implementation of the corresponding environmental monitoring were undertaken by which Environmental Teams during specific periods between September 2015 and January 2019.

Air Quality Monitoring

Contract No. (Environmental Teams responsible for implementation of the corresponding environmental monitoring)	Air Quality Monitoring Station and Monitoring Period						
	AMS2	AMS3B	AMS3C#	AMS6	AMS7	AMS7A	AMS7B
HY/2010/02	N/A	N/A	N/A	N/A	From Jan 2016 to Aug 2017	From Sep 2015 to Dec 2015	N/A
HY/2013/01	From Sep 2017 to Sep 2018	From Sep 2017 to Aug 2018	N/A	N/A	From Sep 2017 to Jan 2018	N/A	From Feb 2018 to Sep 2018
HY/2013/04	From Oct 2018 to Jan 2019	N/A	From Aug 2018 to Jan 2019	N/A	N/A	N/A	From Oct 2018 to Jan 2019
HY/2011/03	N/A	N/A	N/A	From Sep 2015 to Jan 2019	N/A	N/A	N/A

The monitoring data for AMS3C and NMS3C recorded between 20 Aug 2018 and 30 Sep 2018 were reported in the relevant EM&A reports prepared under Contract No. HY/2013/01 though the implementation of air quality and noise monitoring at such monitoring stations was undertaken by the ET for Contract No. HY/2013/04

Noise Monitoring

Contract No. (Environmental Teams responsible for implementation of the corresponding environmental monitoring)	Noise Monitoring Station and Monitoring Period		
	NMS2	NMS3B	NMS3C#
HY/2010/02	From Sep 2015 to Aug 2017	From Sep 2015 to Aug 2017	N/A
HY/2013/01	From Sep 2017 to Sep 2018	From Sep 2017 to Aug 2018	N/A
HY/2013/04	From Oct 2018 to Jan 2019	N/A	From Aug 2018 to Jan 2019

The monitoring data for AMS3C and NMS3C recorded between 20 Aug 2018 and 30 Sep 2018 were reported in the relevant EM&A reports prepared under Contract No. HY/2013/01 though the implementation of air quality and noise monitoring at such monitoring stations was undertaken by the ET for Contract No. HY/2013/04

The dates of site inspection for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area and start from 15 September 2016) during the reporting period are listed below:

Environmental Site Inspection:

- 02, 11, 17 and 25 September 2015
- 02, 08, 15, 23 and 29 October 2015

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- 05, 13, 20 and 23 November 2015
- 03, 10, 17, 23 and 31 December 2015
- 07, 14, 20 and 28 January 2016
- 04, 12, 18 and 26 February 2016
- 04, 11, 17, 24 and 31 March 2016
- 07, 14, 22 and 29 April 2016
- 06, 13, 20 and 27 May 2016
- 03, 10, 17, 24 and 30 June 2016
- 08, 15, 22 and 29 July 2016
- 05, 12, 19 and 26 August 2016
- 01, 08, 15, 22 and 28 September 2016
- 06, 13, 27 and 28 October 2016 (Environmental site inspection of 21 October 2016 was cancelled due to hoisting of typhoon signal no. 8 on 21 October 2016 and re-scheduled to 28 October 2016)
- 03, 10, 17 and 25 November 2016
- 02, 08, 15, 22 and 29 December 2016
- 05, 12, 20 and 26 January 2017
- 02, 09, 16 and 24 February 2017
- 02, 09, 16, 24 and 30 March 2017
- 05, 12, 20 and 28 April 2017
- 05, 11, 18 and 26 May 2017
- 01, 08, 15, 22 and 30 June 2017
- 06, 13, 21 and 27 July 2017
- 03, 10, 18, 25 and 31 August 2017
- 08, 15, 21 and 25 September 2017
- 06, 12, 19 and 27 October 2017
- 02, 09, 16, 23 and 30 November 2017
- 07, 15, 22 and 28 December 2017
- 04, 12, 19 and 25 January 2018
- 01, 09, 15 and 22 February 2018
- 01, 08, 16, 22 and 29 March 2018
- 06, 12, 20 and 26 April 2018
- 03, 10, 17, 25 and 31 May 2018
- 07, 14, 20 and 28 June 2018
- 05, 13, 20 and 26 July 2018
- 02, 06, 17, 23 and 30 August 2018
- 06, 14, 20 and 27 September 2018
- 04, 11, 18 and 25 October 2018
- As all the sections under Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) were handed over to the relevant authorities on 24 October 2018 and the site had been changed to a closed area, no site inspection was conducted from November 2018.

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 (from September 2015 to January 2019).

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There was one Action Level exceedance of 24-hr TSP level recorded at station AMS3B by the Environmental Team of Contract No. HY/2013/01 on 28 November 2017, one Action Level exceedance of 24-hr TSP level recorded at station AMS3B by the Environmental Team of Contract No. HY/2013/01 on 23 December 2017, and two Action Level exceedances of 24-hr TSP level recorded at station AMS2 and AMS3B by the Environmental Team of Contract No. HY/2013/01 on 17 January 2018 during the reporting period. After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03.

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded on other monitoring dates at station AMS2, AMS3B/AMS3C, and AMS7/AMS7A/AMS7B by the Environmental Team of Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.

There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B/NMS3C by the Environmental Team of Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.

Summary of Action and Limit Level exceedance of water quality at the monitoring stations as shown at **Table 2.2** shall be referred to the monthly EM&A Reports (marine works were conducted as silt curtain was installed on 11 May 2017 for Contract No. HY/2013/03 and therefore, water quality impact monitoring result is reported from May 2017) prepared by Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019).

There were Action and Limit Level exceedances recorded at different WQM stations recorded on 90 days by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) during reporting period. The following table summarized the number of exceedance on each sampling date:

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Sampling Date	No. of Exceedances					
	DO		Turbidity		SS	
	Action	Limit	Action	Limit	Action	Limit
12 Jul 2017	0	0	0	0	1	0
14 Jul 2017	0	0	0	0	1	0
Total: 2 Days	0	0	0	0	2	0
01 Sep 2017	8	0	0	0	0	0
06 Sep 2017	4	4	1	0	3	0
08 Sep 2017	24	4	4	0	2	1
11 Sep 2017	30	3	0	0	0	0
13 Sep 2017	13	3	0	0	0	0
15 Sep 2017	10	2	0	1	0	0
18 Sep 2017	8	2	0	0	1	0
20 Sep 2017	3	2	0	0	1	0
22 Sep 2017	17	4	0	0	0	0
25 Sep 2017	1	1	0	0	1	0
27 Sep 2017	6	1	0	0	0	0
29 Sep 2017	13	0	0	0	0	0
02 Oct 2017	3	1	0	0	0	0
04 Oct 2017	3	4	0	0	0	0
06 Oct 2017	1	2	0	0	0	0
09 Oct 2017	0	1	0	0	0	0
18 Oct 2017	0	0	0	0	1	0
20 Oct 2017	0	0	0	0	3	0
23 Oct 2017	0	0	0	0	1	0
03 Nov 2017	0	0	0	0	3	1
06 Nov 2017	0	0	0	0	5	0
08 Nov 2017	0	0	0	0	2	2
13 Nov 2017	0	0	0	0	1	0
15 Nov 2017	0	0	0	0	1	0
20 Nov 2017	0	0	0	0	1	0
22 Nov 2017	0	0	0	0	1	1
24 Nov 2017	0	0	0	0	1	0
Total: 27 Days	144	34	5	1	28	5
04 Dec 2017	0	0	0	0	3	0
06 Dec 2017	0	0	0	0	4	0
08 Dec 2017	0	0	0	0	4	0
11 Dec 2017	0	0	0	0	1	0
13 Dec 2017	0	0	0	0	1	0
20 Dec 2017	0	0	0	0	1	0
22 Dec 2017	0	0	0	0	2	0
31 Jan 2018	0	0	0	0	1	0
02 Feb 2018	0	0	0	0	2	0
Total: 9 Days	0	0	0	0	19	0
02 Mar 2018	0	0	0	0	1	0
16 Mar 2018	0	0	0	0	1	0
21 Mar 2018	0	0	0	0	1	0
30 Mar 2018	0	0	0	0	1	0
02 Apr 2018	0	0	0	0	1	0
18 Apr 2018	0	0	0	0	2	0
20 Apr 2018	0	0	0	0	1	0
23 Apr 2018	0	0	0	0	1	0
13 May 2018	0	0	2	0	0	0

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Sampling Date	No. of Exceedances					
	DO		Turbidity		SS	
	Action	Limit	Action	Limit	Action	Limit
25 May 2018	1	0	0	0	0	0
28 May 2018	1	0	0	0	0	0
Total: 11 Days	2	0	2	0	9	0
01 Jun 2018	2	0	0	0	0	0
11 Jun 2018	1	0	0	0	0	0
13 Jun 2018	2	0	0	0	0	0
15 Jun 2018	4	0	0	0	0	0
25 Jun 2018	1	0	1	0	0	0
27 Jun 2018	5	0	0	0	0	0
29 Jun 2018	3	2	0	0	0	0
02 Jul 2018	6	0	0	0	0	0
04 Jul 2018	5	0	0	0	0	0
06 Jul 2018	8	5	0	0	0	0
09 Jul 2018	12	9	0	0	0	0
11 Jul 2018	2	0	1	0	0	0
13 Jul 2018	4	2	0	0	3	0
16 Jul 2018	2	2	0	0	2	0
27 Jul 2018	0	0	0	0	1	0
06 Aug 2018	12	4	0	0	0	0
08 Aug 2018	23	4	0	0	0	0
10 Aug 2018	3	2	0	0	4	0
13 Aug 2018	8	3	0	0	1	0
15 Aug 2018	2	1	1	0	0	0
17 Aug 2018	4	3	0	0	0	0
20 Aug 2018	22	2	0	0	0	0
22 Aug 2018	10	0	0	0	0	0
24 Aug 2018	3	0	0	0	1	0
27 Aug 2018	2	1	0	0	0	0
29 Aug 2018	4	1	0	0	0	0
31 Aug 2018	0	1	0	0	1	0
Total: 27 Days	150	42	3	0	13	0
03 Sep 2018	30	4	0	0	0	0
05 Sep 2018	21	5	0	0	0	0
07 Sep 2018	21	1	0	0	0	0
10 Sep 2018	48	12	0	0	1	0
12 Sep 2018	27	2	0	0	1	0
14 Sep 2018	6	4	0	0	0	0
28 Sep 2018	0	1	0	0	0	0
10 Oct 2018	0	0	0	0	1	0
24 Oct 2018	0	0	1	0	0	0
23 Nov 2018	0	0	0	0	3	0
26 Nov 2018	0	0	0	0	2	0
Total: 11 Days	153	29	1	0	8	0
07 Dec 2018	0	0	0	0	1	0
10 Dec 2018	0	0	0	0	1	0
12 Dec 2018	0	0	0	0	3	1
Total: 3 Days	0	0	0	0	5	1

After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03.

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There was no Action and Limit Level exceedance recorded on other monitoring dates at the monitoring stations shown at **Table 2.2** by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.

Ecological monitoring results at all transects are reported in the EM&A Reports (marine works were conducted as silt curtain was installed on 11 May 2017 for Contract No. HY/2013/03 and therefore, ecological monitoring result is reported from May 2017) prepared by Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019).

Eight Limit Level exceedances were recorded for ecological monitoring at all transects by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period. The following table summarized the number of exceedance during the reporting period:

Dolphin Monitoring

Parameters	Action Level	Limit Level
Quarterly Analysis (Mar 2017 to May 2017)	0	1
Quarterly Analysis (Jun 2017 to Aug 2017)	0	1
Quarterly Analysis (Sep 2017 to Nov 2017)	0	1
Quarterly Analysis (Dec 2017 to Feb 2018)	0	1
Quarterly Analysis (Mar 2018 to May 2018)	0	1
Quarterly Analysis (Jun 2018 to Aug 2018)	0	1
Quarterly Analysis (Sep 2018 to Nov 2018)	0	1
Quarterly Analysis (Dec 2018 to Feb 2019)	0	1

There was no Action Level exceedance recorded on other monitoring dates for ecological monitoring at all transects by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.

Complaint Log

There were fifteen complaints received in relation to the environmental impact during the reporting period (Log No. 001 was received after the commencement of Contract No. HY/2013/03 on 10 April 2015 and before the construction works and the EM&A programme of Contract No. HY/2013/03 which commenced on 29 August 2015).

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Report No.: 0165/15/ED/1178

Log No.	Environmental Complaint Ref. No.	Date of Complaint Receipt	Description
001	ENPO-C0086	11 July 2015	Noise
002	ENPO-C0093	23 October 2015	Air & Noise
003	ENPO-C0100	22 September 2016	Water
004	ENPO-C0102	10 November 2016	Water
005	ENPO-C0107	14 December 2016	Noise
006	ENPO-C0108	28 December 2016	Hygiene on site
007	ENPO-C0110	21 March 2017	Water pollution
008	ENPO-C0113	28 March 2017	Noise and water pollution
009	ENPO-C0119	01 June 2017	Air pollution
010	ENPO-C0120	02 June 2017	Air pollution
011	ENPO-C0121	06 June 2017	Air pollution
012	ENPO-C0122	09 August 2017	Air pollution and water discharge
013	ENPO-C0127	27 October 2017	Water discharge
014	ENPO-C0128	23 November 2017	Air pollution
015	ENPO-C0135	13 June 2018	Water pollution

After investigation, it was concluded that all the complaints were not related to Contract No. HY/2013/03.

Notifications of Summons and Successful Prosecutions

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

Reporting Changes

The environmental impact assessment (EIA) reports (Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities – EIA Report (Register No. AEIAR-145/2009) (HKBCFEIA) and the environmental monitoring and audit (EM&A) Manual for the Project was approved by Environmental Protection Department (EPD) in October 2009. EPD subsequently issued the Environmental Permit (EP) for HKBCF in November 2009 (EP-353/2009) and the Variation of Environmental Permit (VEP) in June 2010 (EP-353/2009/A), November 2010 (EP-353/2009/B), November 2011 (EP-353/2009/C), March 2012 (EP-353/2009/D), October 2012 (EP-353/2009/E), April 2013 (EP-353/2009/F), August 2013 (EP-353/2009/G), January 2015 (EP-353/2009/H), July 2015 (EP-353/2009/I), February 2016 (EP-353/2009/J) and April 2016 (EP-353/2009/K). The following table summarized the environmental permits and valid in the reporting period.

Environmental Permit Summary for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area)

Permit No.	Work Area	Application Date	Issue Date	Valid Date		Status
				From	To	
EP-353/2009/H	HKBCF	16 Jan 2015	19 Jan 2015	19 Jan 2015	Nil	Superseded
EP-353/2009/I	HKBCF	30 Jun 2015	17 Jul 2015	17 Jul 2015	Nil	Superseded
EP-353/2009/J	HKBCF	18 Feb 2016	25 Feb 2016	25 Feb 2016	Nil	Superseded
EP-353/2009/K	HKBCF	24 Mar 2016	11 Apr 2016	11 Apr 2016	Nil	Valid

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Report No.: 0165/15/ED/1178

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.

Changes on the EM&A programme were justified and verified by the ET Leader for Contract No. HY/2010/02 and the IEC respectively on 24 March 2017, and it was approved by EPD on 12 May 2017. The changes to the EM&A programme for the HKBCF project effective from 15 May 2017 are shown in the following:

Water Quality Monitoring

Current and Alternative WQM Stations

WQM Station	Description	East	North
CS(Mf)3	Control Station	809989	821117
CS(Mf)3(N)	Control Station	808814	822355
SR5	Sensitive receiver (Artificial Reef in NE Airport)	811489	820455
SR5(N)	Sensitive receiver (Artificial Reef in NE Airport)	812569	821475
IS10	Impact Station (Close to HKBCF construction site)	812577	820670
IS10(N)	Impact Station (Close to HKBCF construction site)	812942	820881

Remarks: CS(Mf)3(N), SR5(N) and IS10(N) are alternative WQM Stations.

The locations of current and alternative WQM stations are shown in **Figure 3**.

Dolphin Monitoring

Co-ordinates of Vessel-based Transect Lines (changes are underlined):

Line No.		Easting	Northing
2	Start Point	805476	<u>820800</u>
2	End Point	805476	826654
3	Start Point	806464	<u>821150</u>
3	End Point	806464	822911
4	Start Point	807518	<u>821500</u>
4	End Point	807518	829230
5	Start Point	808504	<u>821850</u>
5	End Point	808504	828602
6	Start Point	809490	822150
6	End Point	809490	825352
7	Start Point	810499	822000
7	End Point	810499	824613
24	Start Point	805476	815900
24	End Point	<u>805476</u>	<u>819100</u>

Remarks: Line No. 24 is a new vessel-based transect line for dolphin monitoring

The original co-ordinates for the transect lines and layout map before the changes of the EM&A programme are shown in **Figure 4** and the new co-ordinates for the transect lines and layout map after the changes of the EM&A programme with effect from 15 May 2017 are shown in **Figure 4**.

The implementation of environmental monitoring for air quality, noise, water quality and marine ecology (dolphin monitoring) have been conducting by the ET for Contract No. HY/2013/01 of which the noise

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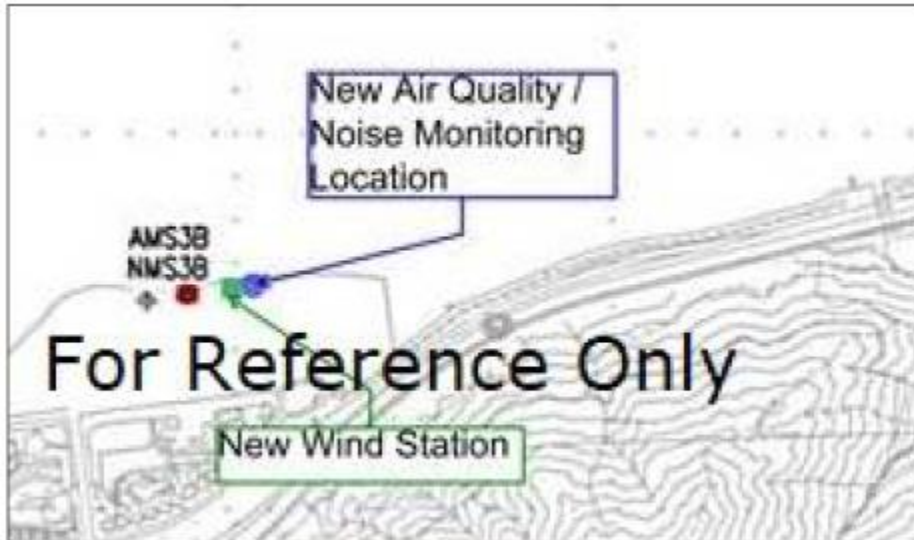
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Report No.: 0165/15/ED/1178

monitoring station (NMS3B) and the meteorological station have been slightly re-located to AECOM PRE's Office without re-branding since 01 September 2017 as shown below:



The implementation of environmental monitoring for air quality, noise, water quality and marine ecology (dolphin monitoring) have been conducting by the ET for Contract No. HY/2013/01 of which the water quality monitoring stations (SR3, SR10A and SR10B(N)) have been slightly re-located since 22 December 2017 as shown below:

WQM Station	Description	East	North
SR3	Sensitive receivers (San Tau SSSI)	810525	816456
SR3(N)	Sensitive receivers (San Tau SSSI)	810689	816591
SR10A	Sensitive receivers (Ma Wan FCZ) 1	823741	823495
SR10A(N)	Sensitive receivers (Ma Wan FCZ) 1	823644	823484
SR10B(N)	Sensitive receivers (Ma Wan FCZ) 2	823683	823187
SR10B(N2)	Sensitive receivers (Ma Wan FCZ) 2	823689	823159

According to the revised Contract Specific EM&A Manual (Rev. 9), the monitoring results for AMS2 and AMS3B will be reported in the monthly EM&A Reports prepared for Contract Nos. HY/2013/03 start from February 2018. The locations of AMS2 and AMS3B are shown as below:

Air Monitoring Station	Location
AMS2	Tung Chung Development Pier
AMS3B	Site Boundary of Site Office Area at Work Area WA2

The implementation of environmental monitoring for air quality, noise, water quality and marine ecology (dolphin monitoring) have been conducting by the ET for Contract No. HY/2013/01 of which the air quality monitoring stations (AMS7) have been re-located since 06 February 2018 as shown below:

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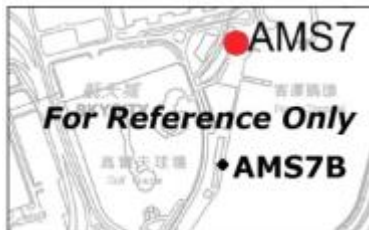
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Report No.: 0165/15/ED/1178

Air Monitoring Station	Location
AMS7	Hong Kong SkyCity Marriott Hotel
AMS7B	3RS Site Offices

Remarks: AMS7B is the alternative AQM Station.

Figure for Current and Alternative AQM Stations:



According to the notification from IEC, the air quality monitoring at AMS3B, noise monitoring at NMS3B, and wind data monitoring retrieved from the meteorological station situated at Site Boundary of Site Office Area at Work Area WA2, being carried out by the ET for Contract No. HY/2013/01, under the EM&A programme for the HZMB HKBCF Project have been proposed to be carried out at alternative monitoring stations by the ET for Contract No. HY/2013/04 as a result of the re-location of Site Boundary of Site Office Area at Work Area WA2 to WA3 and suspension of electricity supplies at WA2 after 15 August 2018.

The implementation of environmental monitoring for air quality, noise have been conducting by the ET for Contract No. HY/2013/01 of which the air quality monitoring station (AMS3B) and noise monitoring station (NMS3B) have been re-located since 20 August 2018 as shown below:

Air Monitoring Station	Location
AMS3B	Site Boundary of Site Office Area at Work Area WA2
AMS3C	Ying Tung Estate Market Rooftop

Remarks: AMS3C is the alternative AQM Station.

Noise Monitoring Station	Location
NMS3B	Site Boundary of Site Office Area at Work Area WA2
NMS3C	Ying Tung Estate Refuse Collection Point

Remarks: NMS3C is the alternative NM Station.

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Report No.: 0165/15/ED/1178

Figure for Current and Alternative AQM and NM Stations:



The Contract taking up the impact air quality monitoring at AMS2 and AMS7B, noise monitoring at NMS2, water quality monitoring at the locations shown in **Figure 3** and ecological monitoring as shown in **Figure 4** has been changed from Contract No. HY/2013/01 to HY/2013/04 commencing on 01 October 2018 (air quality and noise monitoring at AMS3C and NMS3C are covered by Contract No. HY/2013/04 since 20 August 2018).

As informed by the Contractor, all major construction activities for Contract No. HY/2013/03 have been substantially completed and only minor maintenance works will be carried out on site upon request. All land areas have been handed over to relevant responsible parties. The EM&A requirement of landscape soft works for establishment phase was appropriately arranged. After reviewing the existing environmental conditions of the site, it is considered that the potential environmental impacts associated with the remaining works are insignificant and therefore propose to terminate the Construction Phase EM&A Programme under Contract No. HY/2013/03. Independent Environmental Checker (IEC) verified the proposal for termination of EM&A programme under Contract No. HY/2013/03 on 30 November 2018. Environmental Protection Department's (EPD's) memo reference () in E771/E1/100 dated 01 February 2019 informing no comment on the proposal for termination of EM&A programme for Contract No. HY/2013/03.

Report No.: 0165/15/ED/1178

1. INTRODUCTION

1.1 Basic Project Information

1.1.1 This Final Environmental Monitoring and Audit (EM&A) Review 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” (includes the construction works of Contract No. HY/2013/06 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System” within Contract No. HY/2013/03 works area) (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 (construction works of Contract No. HY/2013/06 was awarded to ATAL Technologies Limited within Contract No. HY/2013/03 works area) (hereafter referred to as “the Contractor”) and MaterialLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by the Contractor.

1.1.2 Contract No. HY/2013/03 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) 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/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. Commencement of Contract No. HY/2013/03 took place on 10 April 2015 while the construction works and the EM&A programme of Contract No. HY/2013/03 commenced on 29 August 2015 (commencement of Contract No. HY/2013/06 took place on 14 August 2015 while the construction works and the EM&A programme of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area commenced on 13 September 2016). The works areas of the contract are shown in **Appendix A**.

1.1.3 This is the Final EM&A Review Report summarising the findings of EM&A activities conducted under Contract No. HY/2013/03 from 29 August 2015 to 31 January 2019 (from 13 September 2016 to 31 January 2019 for the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) (the “reporting period”) and is submitted to fulfil Condition 16.5 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** and **Table 1.2**.

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Report No.: 0165/15/ED/1178

Table 1.1 Contact Information of Key Personnel (for Contract No. HY/2013/03)

Party	Position	Contact Person	Telephone No.	Fax No.
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer (until 30 Apr 2017)	Mr. Michael Tovey	3985 7470	3902 8800
	Chief Resident Engineer (from 01 May 2017 to 31 Oct 2018)	Mr. W. S. Ng	3958 7400	3902 8800
	Chief Resident Engineer (from 01 Nov 2018)	Mr. Jason C. Y. Yu	3152 5102	3902 8800
Environmental Project Office / Independent Environmental Checker (Ramboll Hong Kong Limited)	Environmental Project Office Leader	Mr. Y. H. Hui	3547 2133	3465 2899
	Independent Environmental Checker (IEC) (until 31 Dec 2018)	Mr. Raymond Dai	3465 2888	3465 2899
	Independent Environmental Checker (IEC) (from 01 Jan 2019)	Mr. Ray Yan	3465 2836	3465 2899
	Environmental Site Supervisor (until 31 Dec 2018)	Mr. Ray Yan	5181 8165	3465 2899
	Environmental Site Supervisor (from 01 Jan 2019)	Mr. Harris Wong	5181 8709	3465 2899
Contractor (China Harbour Engineering Co. Ltd)	Site Agent	Mr. Paul Pui	9125 0700	2512 0427
	Environmental Officer	Mr. Marko Chan	9427 2879	2512 0427
Environmental Team (Materialab Consultants Limited)	Environmental Team Leader (ETL)	Mr. Arthur Cheng	3565 4115	2450 8032
24-hr Complaint Hotline	--	--	5236 7111	--

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Table 1.2 Contact Information of Key Personnel (for Contract No. HY/2013/06 within Contract No. HY/2013/03 works area)

Party	Position	Contact Person	Telephone No.	Fax No.
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer (until 30 Apr 2017)	Mr. Michael Tovey	3985 7470	3902 8800
	Chief Resident Engineer (from 01 May 2017 to 31 Oct 2018)	Mr. W. S. Ng	3958 7400	3902 8800
	Chief Resident Engineer (from 01 Nov 2018)	Mr. Jason C. Y. Yu	3152 5102	3902 8800
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	Independent Environmental Checker (IEC) (from 01 Jan 2019)	Mr. Ray Yan	3465 2836	3465 2899
	Environmental Site Supervisor (until 31 Dec 2018)	Mr. Ray Yan	5181 8165	3465 2899
	Environmental Site Supervisor (from 01 Jan 2019)	Mr. Harris Wong	5181 8709	3465 2899
Contractor (ATAL Technologies Limited)	Site Agent	Mr. Eric Yim	2565 3355	3162 5217
	Environmental Officer	Mr. W. Li	2565 3137	3162 5217
Environmental Team (Materialab Consultants Limited)	Environmental Team Leader (ETL)	Mr. Arthur Cheng	3565 4115	2450 8032
24-hr Complaint Hotline	--	--	5236 7111	--

1.3 Construction Programme

- 1.3.1 The construction programme for Contract No. HY/2013/03 (includes the construction works of HY/2013/06 within Contract No. HY/2013/03 works area) are provided in **Appendix C**.

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Report No.: 0165/15/ED/1178

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” (from September 2015 to August 2017), HY/2013/01 “Hong Kong-Zhuhai-Macao-Bridge HKBCF – Passenger Clearance Building” (from September 2017 to September 2018), Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao Bridge HKBCF - Infrastructure Works Stage II (Southern Portion)” (from October 2018 to January 2019) and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF” (from September 2015 to January 2019). The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS2, AMS3C, AMS6 and AMS7B, and noise monitoring at NMS2 and NMS3C, water quality monitoring at the locations shown in **Figure 3** and ecological monitoring as shown in **Figure 4** as part of EM&A programme if these monitoring stations are no longer covered under Contract Nos. HY/2013/04 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 The following tables state the specific air quality and noise monitoring stations at which the responsibilities for implementation of the corresponding environmental monitoring were undertaken by which Environmental Teams during specific periods between September 2015 and January 2019.

Table 2A Air Quality Monitoring

Contract No. (Environmental Teams responsible for implementation of the corresponding environmental monitoring)	Air Quality Monitoring Station and Monitoring Period						
	AMS2	AMS3B	AMS3C#	AMS6	AMS7	AMS7A	AMS7B
HY/2010/02	N/A	N/A	N/A	N/A	From Jan 2016 to Aug 2017	From Sep 2015 to Dec 2015	N/A
HY/2013/01	From Sep 2017 to Sep 2018	From Sep 2017 to Aug 2018	N/A	N/A	From Sep 2017 to Jan 2018	N/A	From Feb 2018 to Sep 2018
HY/2013/04	From Oct 2018 to Jan 2019	N/A	From Aug 2018 to Jan 2019	N/A	N/A	N/A	From Oct 2018 to Jan 2019
HY/2011/03	N/A	N/A	N/A	From Sep 2015 to Jan 2019	N/A	N/A	N/A

The monitoring data for AMS3C and NMS3C recorded between 20 Aug 2018 and 30 Sep 2018 were reported in the relevant EM&A reports prepared under Contract No. HY/2013/01 though the implementation of air quality and noise monitoring at such monitoring stations was undertaken by the ET for Contract No. HY/2013/04

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Report No.: 0165/15/ED/1178

Table 2B Noise Monitoring

Contract No. (Environmental Teams responsible for implementation of the corresponding environmental monitoring)	Noise Monitoring Station and Monitoring Period		
	NMS2	NMS3B	NMS3C#
HY/2010/02	From Sep 2015 to Aug 2017	From Sep 2015 to Aug 2017	N/A
HY/2013/01	From Sep 2017 to Sep 2018	From Sep 2017 to Aug 2018	N/A
HY/2013/04	From Oct 2018 to Jan 2019	N/A	From Aug 2018 to Jan 2019

The monitoring data for AMS3C and NMS3C recorded between 20 Aug 2018 and 30 Sep 2018 were reported in the relevant EM&A reports prepared under Contract No. HY/2013/01 though the implementation of air quality and noise monitoring at such monitoring stations was undertaken by the ET for Contract No. HY/2013/04

2.1.3 The ET of the Contract or another ET of the HZMB project is required to conduct impact ecological monitoring at 24 transects as part of EM&A programme if these transects are no longer covered under Contract No. HY/2013/04. The impact ecological monitoring should adopt line-transect vessel survey method. The survey follows pre-set and fixed transect lines in the two areas defined by Agriculture, Fisheries and Conservation Department (AFCD) as: Northeast Lantau survey area and Northwest Lantau survey area. The co-ordinates for the transect lines and layout map are shown as in **Figure 4**.

2.1.4 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.

Table 2.1 Air Quality and Noise Monitoring Locations

Environmental Monitoring	Identification No.	Location Description
Air Quality	AMS2 (1) (4)	Tung Chung Development Pier (from Feb 2018)
	AMS3B (1) (4) ^	Site Boundary of Site Office Area at Work Area WA2 (from Feb 2018 to Aug 2018)
	AMS3C (1) (4) (6)	Ying Tung Estate Market Rooftop (from Aug 2018)
	AMS6 (1)	Dragonair/CNAC (Group) Building (A80)
	AMS7 (1) #	Hong Kong SkyCity Marriott Hotel (from Jan 2016 to Jan 2018)
	AMS7A (1) #	Chu Kong Air-Sea Union Transportation Co. Ltd. (until Dec 2015)
	AMS7B (1) (5)	3RS Site Offices (from Feb 2018)
Noise	NMS2 (2)	Seaview Crescent
	NMS3B (2) (3) ^	Site Boundary of Site Office Area at WA2 (until Aug 2018)
	NMS3C (2) (3) (7)	Ying Tung Estate Refuse Collection Point (from Aug 2018)

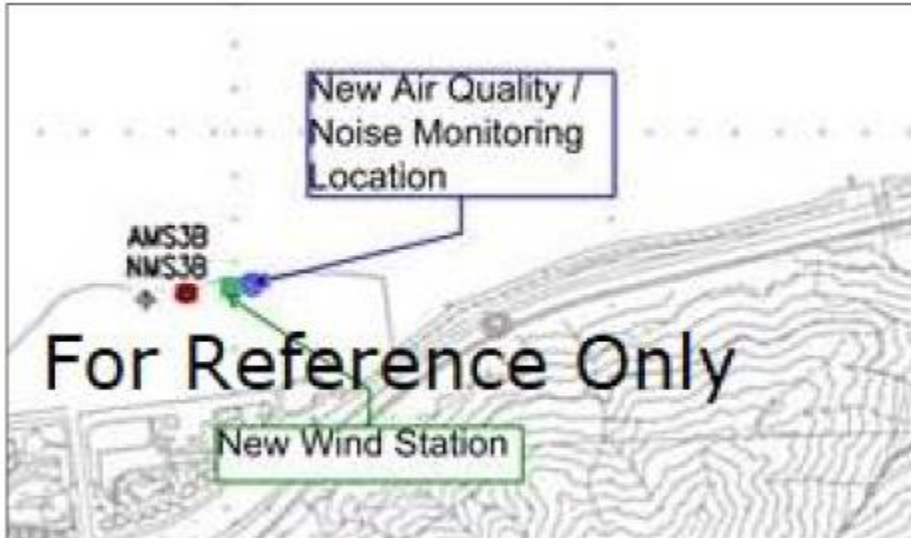
Remarks:

- (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 Limit Level for schools will be applied for this alternative monitoring location.
 - (4) According to the revised Contract Specific EM&A Manual (Rev. 9), the monitoring results for AMS2 and AMS3B will be reported in the monthly EM&A Reports prepared for Contract Nos. HY/2013/03 start from Feb 2018.
 - (5) Air quality monitoring station (AMS7) have been re-located to the alternative air quality monitoring station (AMS7B) since 06 Feb 2018.
 - (6) Air quality monitoring station (AMS3B) have been re-located to the alternative air quality monitoring station (AMS3C) since 20 Aug 2018.
 - (7) Noise monitoring station (NMS3B) have been re-located to the alternative noise monitoring station (NMS3C) since 20 Aug 2018.
- # 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 Dec 2015 and the air monitoring at AMS7 was started from Jan 2016.

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- ^ The implementation of environmental monitoring for air quality, noise, water quality and marine ecology (dolphin monitoring) have been conducting by the ET for Contract No. HY/2013/01 of which the noise monitoring station (NMS3B) and the meteorological station have been slightly re-located to AECOM PRE's Office without re-branding since 01 Sept 2017 as shown below:



2.1.5 The water monitoring works for the Contract (marine works were conducted as silt curtain was installed on 11 May 2017 for Contract No. HY/2013/03 and therefore, water quality impact monitoring result is reported from May 2017) are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works” (from May 2017 to August 2017), Contract No. HY/2013/01 “Hong Kong-Zhuhai-Macao-Bridge HKBCF – Passenger Clearance Building” (from September 2017 to September 2018), and Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao Bridge HKBCF - Infrastructure Works Stage II (Southern Portion)” (from October 2018 to January 2019). A summary of water quality monitoring stations are presented in **Table 2.2**. The location of water quality monitoring stations are shown as in **Figure 3**.

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Report No.: 0165/15/ED/1178

Table 2.2 Water Quality Monitoring Stations

Station	Description	East	North
IS5	Impact Station (Close to HKBCF construction site)	811579	817106
IS(Mf)6	Impact Station (Close to HKBCF construction site)	812101	817873
IS7	Impact Station (Close to HKBCF construction site)	812244	818777
IS8	Impact Station (Close to HKBCF construction site)	814251	818412
IS(Mf)9	Impact Station (Close to HKBCF construction site)	813273	818850
IS10(N)	Impact Station (Close to HKBCF construction site)	812942	820881
IS(Mf)11	Impact Station (Close to HKBCF construction site)	813562	820716
IS(Mf)16	Impact Station (Close to HKBCF construction site)	814328	819497
IS17	Impact Station (Close to HKBCF construction site)	814539	820391
SR3(N)	Sensitive receivers (San Tau SSSI)	810689	816591
SR4(N)	Sensitive receivers (Tai Ho)	814705	817859
SR5(N)	Sensitive receivers (Artificial Reef in NE Airport)	812569	821475
SR6	Sensitive receivers (Sha Chau and Lung Kwu Chau Marine Park)	805837	821818
SR7	Sensitive receivers (Tai Mo Do)	814293	821431
SR10A(N) ⁽¹⁾	Sensitive receivers (Ma Wan FCZ) 1	823644	823484
SR10B(N2) ⁽¹⁾	Sensitive receivers (Ma Wan FCZ) 2	823689	823159
CS(Mf)3(N)	Control Station	808814	822355
CS(Mf)5	Control Station	817990	821129
CS4	Control Station	810025	824004
CS6	Control Station	817028	823992
CSA ⁽²⁾	Control Station	818103	823064

Note:

- (1) Additional monitoring station for Ma Wan FCZ
- (2) Additional control monitoring station for Ma Wan FCZ

Remarks:

The ET of the Contract should conduct impact water quality monitoring at the WQMs listed in the table as part of EM&A programme according to latest notification from ENPO if water quality monitoring is no longer covered by another ET of the HZMB project. The ET of the Contract shall communicate and share the monitoring data to the ET(s) of the other contracts if the water quality monitoring station(s) is/are as part of EM&A programme. SR3(N), SR10A(N) and SR10B(N2) are alternative WQM Stations.

- 2.1.6 Changes on the EM&A programme were justified and verified by the ET Leader for Contract No. HY/2010/02 and the IEC respectively on 24 March 2017, and it was approved by EPD on 12 May 2017. The changes to the EM&A programme for the HKBCF project effective from 15 May 2017 are shown in the following:

Water Quality Monitoring

Current and Alternative WQM Stations

WQM Station	Description	East	North
CS(Mf)3	Control Station	809989	821117
CS(Mf)3(N)	Control Station	808814	822355
SR5	Sensitive receiver (Artificial Reef in NE Airport)	811489	820455
SR5(N)	Sensitive receiver (Artificial Reef in NE Airport)	812569	821475
IS10	Impact Station (Close to HKBCF construction site)	812577	820670
IS10(N)	Impact Station (Close to HKBCF construction site)	812942	820881

Remarks: CS(Mf)3(N), SR5(N) and IS10(N) are alternative WQM Stations.

The locations of current and alternative WQM stations are shown in **Figure 3**.

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Dolphin Monitoring

Co-ordinates of Vessel-based Transect Lines (changes are underlined):

Line No.		Easting	Northing
2	Start Point	805476	<u>820800</u>
2	End Point	805476	<u>826654</u>
3	Start Point	806464	<u>821150</u>
3	End Point	806464	<u>822911</u>
4	Start Point	807518	<u>821500</u>
4	End Point	807518	<u>829230</u>
5	Start Point	808504	<u>821850</u>
5	End Point	808504	<u>828602</u>
6	Start Point	809490	<u>822150</u>
6	End Point	809490	<u>825352</u>
7	Start Point	810499	<u>822000</u>
7	End Point	810499	<u>824613</u>
24	Start Point	<u>805476</u>	<u>815900</u>
24	End Point	<u>805476</u>	<u>819100</u>

Remarks: Line No. 24 is a new vessel-based transect line for dolphin monitoring

- 2.1.7 The original co-ordinates for the transect lines and layout map before the changes of the EM&A programme are shown in **Figure 4** and the new co-ordinates for the transect lines and layout map after the changes of the EM&A programme with effect from 15 May 2017 are shown in **Figure 4**.
- 2.1.8 The implementation of environmental monitoring for air quality, noise, water quality and marine ecology (dolphin monitoring) have been conducting by the ET for Contract No. HY/2013/01 of which the water quality monitoring stations (SR3, SR10A and SR10B(N)) have been slightly re-located since 22 December 2017 as shown below:

WQM Station	Description	East	North
SR3	Sensitive receivers (San Tau SSSI)	810525	816456
SR3(N)	Sensitive receivers (San Tau SSSI)	810689	816591
SR10A	Sensitive receivers (Ma Wan FCZ) 1	823741	823495
SR10A(N)	Sensitive receivers (Ma Wan FCZ) 1	823644	823484
SR10B(N)	Sensitive receivers (Ma Wan FCZ) 2	823683	823187
SR10B(N2)	Sensitive receivers (Ma Wan FCZ) 2	823689	823159

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 by Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), Contract No. HY/2013/04 (from October 2018 to January 2019) and Contract No. HY/2011/03 (from September 2015 to January 2019).

2.3 Action and Limit Levels

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Report No.: 0165/15/ED/1178

2.3.1 The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2.3** and **Table 2.4** respectively.

Table 2.3 Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AMS2	374	500
AMS3B	368	
AMS3C	368	
AMS6	360	
AMS7	370	
AMS7A	370	
AMS7B	370	

Table 2.4 Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AMS2	176	260
AMS3B	167	
AMS3C	167	
AMS6	173	
AMS7	183	
AMS7A	183	
AMS7B	183	

2.3.2 The Action and Limit Levels for construction noise are defined in **Table 2.5**.

Table 2.5 Action and Limit Level for Construction Noise

Monitoring Station	Action Level	Limit Level
For the Time Period 0700-1900 hrs. on Normal Weekdays		
NMS2	When one documented complaint is received	75.0 dB (A) Leq (30 min.)
NMS3B		70.0 dB (A) Leq (30 min.)*
NMS3C		70.0 dB (A) Leq (30 min.)*

Notes:

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.

2.3.3 The Action and Limit Levels for Water Quality are provided in **Table 2.6**.

Report No.: 0165/15/ED/1178

Table 2.6 Action and Limit Levels for Water Quality

Parameters	Action	Limit
DO in mg/L (Surface, Middle & Bottom)	Surface and Middle 5.0 Bottom 4.7	Surface and Middle = 4.2 (except 5 mg/L for FCZ) Bottom = 3.6
SS in mg/L (depth-averaged) at all monitoring stations and control stations	23.5 and 120% of upstream control station's SS at the same tide of the same day*	34.4 and 130% of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes*
Turbidity in NTU (depth averaged)	27.5 and 120% of upstream control station's turbidity at the same tide of the same day*	47.0 and 130% of upstream control station's turbidity at the same tide of the same day*

* Remarks: Reference is made to EPD approval of adjustment of water quality assessment criteria issued and became effective on 18 February 2013.

Notes:

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

2.3.4 The Action and Limit Levels for Ecological Monitoring are provided in **Table 2.7** and **Table 2.8**.

Table 2.7 Action and Limit Levels for Ecological Monitoring - Approach to Define Action Level (AL) and Limit Level (LL)

	North Lantau Social Cluster	
	NEL	NWL
Action Level	(STG < 70% of baseline) & (ANI < 70% of baseline)	(STG < 70% of baseline) & (ANI < 70% of baseline)
Limit Level	[(STG < 40% of baseline) & (ANI < 40% of baseline)] AND [(STG < 40% of baseline) & (ANI < 40% of baseline)]	

For North Lantau Social Cluster, action level will be trigger if either NEL or NWL fall below the criteria; limit level will be triggered if both NEL and NWL fall below the criteria.

Table 2.8 Derived Value of Action Level (AL) and Limit Level (LL) for Ecological Monitoring

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

The ET of this Contract should conduct impact ecological monitoring as part of EM&A programme according to latest notification from ENPO when the monitoring transect(s) is/are no longer covered by another ET of the HZMB project.

2.3.5 If exceedance(s) at these transect(s) 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 monthly EM&A Report.

2.4 Event and Action Plans

2.4.1 The event and action plans are provided in **Appendix D**.

2.5 Mitigation Measures

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Report No.: 0165/15/ED/1178

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.

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3. ENVIRONMENTAL MONITORING AND AUDIT

3.1 Air Quality Monitoring Results

- 3.1.1 The monitoring results for AMS6 are reported in the monthly EM&A Reports prepared for Contract No. HY/2011/03 (from September 2015 to January 2019). The monitoring results for AMS2, AMS3B/AMS3C and AMS7/AMS7A/AMS7B are reported in the monthly EM&A Reports prepared for Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).
- 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 (from September 2015 to January 2019) prepared by Contract No. HY/2011/03.
- 3.1.3 There was one Action Level exceedance of 24-hr TSP level recorded at station AMS3B by the Environmental Team of Contract No. HY/2013/01 on 28 November 2017, one Action Level exceedance of 24-hr TSP level recorded at station AMS3B by the Environmental Team of Contract No. HY/2013/01 on 23 December 2017, and two Action Level exceedances of 24-hr TSP level recorded at station AMS2 and AMS3B by the Environmental Team of Contract No. HY/2013/01 on 17 January 2018 during the reporting period. After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03.
- 3.1.4 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded on other monitoring dates at station AMS2, AMS3B/AMS3C and AMS7/AMS7A/AMS7B by the Environmental Team of Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).

3.2 Noise Monitoring Results

- 3.2.1 The monitoring results for NMS2 and NMS3B/NMS3C are reported in the monthly EM&A Report prepared for Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).
- 3.2.2 No noise exceedances were recorded at station NMS2 and NMS3B/NMS3C by the ET of Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).

3.3 Water Quality Monitoring Results

- 3.3.1 The monitoring and investigation results for the monitoring stations shown in **Table 2.2** were reported in the monthly EM&A Reports (marine works were conducted as silt curtain was installed on 11 May 2017 for Contract No. HY/2013/03 and therefore, water quality impact monitoring result is reported from May 2017) prepared for Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018),

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Report No.: 0165/15/ED/1178

and Contract No. HY/2013/04 (from October 2018 to January 2019). There were Action and Limit Level exceedances recorded at different WQM stations recorded on 90 days. The following table summarized the number of exceedance on each sampling date:

Table 3.1 Summary of Exceedance for Water Quality Monitoring

Sampling Date	No. of Exceedances					
	DO		Turbidity		SS	
	Action	Limit	Action	Limit	Action	Limit
12 Jul 2017	0	0	0	0	1	0
14 Jul 2017	0	0	0	0	1	0
Total: 2 Days	0	0	0	0	2	0
01 Sep 2017	8	0	0	0	0	0
06 Sep 2017	4	4	1	0	3	0
08 Sep 2017	24	4	4	0	2	1
11 Sep 2017	30	3	0	0	0	0
13 Sep 2017	13	3	0	0	0	0
15 Sep 2017	10	2	0	1	0	0
18 Sep 2017	8	2	0	0	1	0
20 Sep 2017	3	2	0	0	1	0
22 Sep 2017	17	4	0	0	0	0
25 Sep 2017	1	1	0	0	1	0
27 Sep 2017	6	1	0	0	0	0
29 Sep 2017	13	0	0	0	0	0
02 Oct 2017	3	1	0	0	0	0
04 Oct 2017	3	4	0	0	0	0
06 Oct 2017	1	2	0	0	0	0
09 Oct 2017	0	1	0	0	0	0
18 Oct 2017	0	0	0	0	1	0
20 Oct 2017	0	0	0	0	3	0
23 Oct 2017	0	0	0	0	1	0
03 Nov 2017	0	0	0	0	3	1
06 Nov 2017	0	0	0	0	5	0
08 Nov 2017	0	0	0	0	2	2
13 Nov 2017	0	0	0	0	1	0
15 Nov 2017	0	0	0	0	1	0
20 Nov 2017	0	0	0	0	1	0
22 Nov 2017	0	0	0	0	1	1
24 Nov 2017	0	0	0	0	1	0
Total: 27 Days	144	34	5	1	28	5
04 Dec 2017	0	0	0	0	3	0
06 Dec 2017	0	0	0	0	4	0
08 Dec 2017	0	0	0	0	4	0
11 Dec 2017	0	0	0	0	1	0
13 Dec 2017	0	0	0	0	1	0
20 Dec 2017	0	0	0	0	1	0
22 Dec 2017	0	0	0	0	2	0
31 Jan 2018	0	0	0	0	1	0
02 Feb 2018	0	0	0	0	2	0
Total: 9 Days	0	0	0	0	19	0
02 Mar 2018	0	0	0	0	1	0
16 Mar 2018	0	0	0	0	1	0
21 Mar 2018	0	0	0	0	1	0
30 Mar 2018	0	0	0	0	1	0

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Report No.: 0165/15/ED/1178

Sampling Date	No. of Exceedances					
	DO		Turbidity		SS	
	Action	Limit	Action	Limit	Action	Limit
02 Apr 2018	0	0	0	0	1	0
18 Apr 2018	0	0	0	0	2	0
20 Apr 2018	0	0	0	0	1	0
23 Apr 2018	0	0	0	0	1	0
13 May 2018	0	0	2	0	0	0
25 May 2018	1	0	0	0	0	0
28 May 2018	1	0	0	0	0	0
Total: 11 Days	2	0	2	0	9	0
01 Jun 2018	2	0	0	0	0	0
11 Jun 2018	1	0	0	0	0	0
13 Jun 2018	2	0	0	0	0	0
15 Jun 2018	4	0	0	0	0	0
25 Jun 2018	1	0	1	0	0	0
27 Jun 2018	5	0	0	0	0	0
29 Jun 2018	3	2	0	0	0	0
02 Jul 2018	6	0	0	0	0	0
04 Jul 2018	5	0	0	0	0	0
06 Jul 2018	8	5	0	0	0	0
09 Jul 2018	12	9	0	0	0	0
11 Jul 2018	2	0	1	0	0	0
13 Jul 2018	4	2	0	0	3	0
16 Jul 2018	2	2	0	0	2	0
27 Jul 2018	0	0	0	0	1	0
06 Aug 2018	12	4	0	0	0	0
08 Aug 2018	23	4	0	0	0	0
10 Aug 2018	3	2	0	0	4	0
13 Aug 2018	8	3	0	0	1	0
15 Aug 2018	2	1	1	0	0	0
17 Aug 2018	4	3	0	0	0	0
20 Aug 2018	22	2	0	0	0	0
22 Aug 2018	10	0	0	0	0	0
24 Aug 2018	3	0	0	0	1	0
27 Aug 2018	2	1	0	0	0	0
29 Aug 2018	4	1	0	0	0	0
31 Aug 2018	0	1	0	0	1	0
Total: 27 Days	150	42	3	0	13	0
03 Sep 2018	30	4	0	0	0	0
05 Sep 2018	21	5	0	0	0	0
07 Sep 2018	21	1	0	0	0	0
10 Sep 2018	48	12	0	0	1	0
12 Sep 2018	27	2	0	0	1	0
14 Sep 2018	6	4	0	0	0	0
28 Sep 2018	0	1	0	0	0	0
10 Oct 2018	0	0	0	0	1	0
24 Oct 2018	0	0	1	0	0	0
23 Nov 2018	0	0	0	0	3	0
26 Nov 2018	0	0	0	0	2	0
Total: 11 Days	153	29	1	0	8	0
07 Dec 2018	0	0	0	0	1	0
10 Dec 2018	0	0	0	0	1	0
12 Dec 2018	0	0	0	0	3	1
Total: 3 Days	0	0	0	0	5	1

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Report No.: 0165/15/ED/1178

3.3.2 After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03.

3.3.3 There was no Action and Limit Level exceedance recorded on other monitoring dates at the monitoring stations shown at **Table 2.2** by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).

3.4 Ecology Monitoring Results

3.4.1 The dolphin survey results for all transects were reported in the monthly EM&A Reports (marine works were conducted as silt curtain was installed on 11 May 2017 for Contract No. HY/2013/03 and therefore, ecological monitoring result is reported from May 2017) prepared by Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).

3.4.2 Eight Limit Level exceedances were recorded for ecological monitoring at all transects by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period. The following table summarized the number of exceedance during the reporting period:

Table 3.1A Summary of Exceedance for Dolphin Monitoring

Parameters	Action Level	Limit Level
Quarterly Analysis (Mar 2017 to May 2017)	0	1
Quarterly Analysis (Jun 2017 to Aug 2017)	0	1
Quarterly Analysis (Sep 2017 to Nov 2017)	0	1
Quarterly Analysis (Dec 2017 to Feb 2018)	0	1
Quarterly Analysis (Mar 2018 to May 2018)	0	1
Quarterly Analysis (Jun 2018 to Aug 2018)	0	1
Quarterly Analysis (Sep 2018 to Nov 2018)	0	1
Quarterly Analysis (Dec 2018 to Feb 2019)	0	1

3.4.3 There was no Action Level exceedance recorded on other monitoring dates for ecological monitoring at all transects by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) 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 monthly EM&A Reports (from September 2015 to January 2019) for Contract No. HY/2013/03 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area).

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Report No.: 0165/15/ED/1178

- 3.5.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix E**. All necessary mitigation measures were implemented properly during the reporting period.
- 3.5.3 Implementation status of Regular Marine Travel Route Plan (RMTRP) was checked by ET. Training of marine travel route for marine vessels operator was given to relevant staff and relevant records were kept properly. Marine traffic records which indicated the number of trips data for pelican barge, hopper barge, tug boat, floating concrete batching plant and derrick lighter on the implementation of RMTRP were checked by ET. Marine traffic records and geographical plots of all the vessels tracks to demonstrate the conformance of the vessel to the proposed route were provided by Contractor to ER, ETL, IEC/ENPO for checking during the reporting period. The implementation of marine traffic follows the Regular Marine Travel Route Plan with respect to ET's checking on the marine traffic records for the reporting period. As confirmed by RSS, all surplus filling materials transported from Contract No. HY/2013/03 to other projects by marine vessels have been completed with the last batch delivered on 07 May 2018.
- 3.5.4 With respect to condition 3.26A of EP-353/2009/K approved by EPD on 11 April 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 during the reporting period.
- 3.5.5 Dolphin Watching Plan (DWP) was implemented as silt curtain was installed on 11 May 2017. Implementation status of DWP was checked by ET. Before the installation of silt curtain, ET conducted visual inspection of the presence of dolphins in the surrounding water. Besides, dolphin watching training was provided to the representatives of the Contractor during April 2017. The records of dolphin watching training, regular inspection of the silt curtains and visual inspection of waters surrounded by the silt curtain were provided to ER, ETL, IEC/ENPO for checking during the reporting period. The status of silt curtain was reviewed by ET and there was no change on the status of silt curtain during the reporting period. As all the works in Box Culvert B had been completed, the silt curtain was uninstalled. The Dolphin Watching Plan (DWP) is no longer applicable.
- 3.5.6 The landscape work of greenroof for Contract No. HY/2013/03 was commenced on 07 November 2017. The landscape work of all areas at ground level for Contract No. HY/2013/03 was commenced at early February 2018. Detail commencement date of each building were shown in **Table 3.2**. The implementation of mitigation measures for landscape and visual resources recommended in the EIA Report were monitoring during the reporting period (until 24 October 2018). Landscape and visual mitigation measures in accordance with the EP, EIA and EM&A Manual were implemented by the Contractor. As all the sections under Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) were handed over to the relevant authorities on 24 October 2018 and the site had been changed to a closed area, the implementation of mitigation measures for landscape and visual resources recommended in the EIA Report could not be monitored from 24 October 2018.

Report No.: 0165/15/ED/1178

Table 3.2 Commencement date of green roof for each building

Building No. of Green Roof	Commencement dates of <u>planting</u> for roof greening
037	07 Nov 2017
043	20 Dec 2017
041	27 Dec 2017
026	22 Jan 2018
039	22 Jan 2018
All areas at ground level	Early Feb 2018
031	08 Mar 2018
046	08 Mar 2018

3.6 Advice on the Solid and Liquid Waste Management Status

- 3.6.1 The Contractor of Contract No. HY/2013/03 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. Marine sediment extracted from this Contract was disposed to the Marine Fill Committee (MFC) allocated disposal sites directly without treatment during the reporting period. As a practical mean, 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 are the Mud Pit CMP Va and the Mud Pit CMP2 of the Confined Marine Sediment Disposal Facility to the South of The Brothers, and Mud Pit CMP Vd of the Confined Marine Sediment Disposal Facility to the East of Sha Chau (ESC) during the reporting period.
- 3.6.5 Marine sediment extracted from bored piling from this Contract was disposed to allocated dumping site during the reporting period. As confirmed by RSS, all marine sediments extracted from HY/2013/02, HY/2013/03 and HY/2013/04 have been completed with the last batch

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Report No.: 0165/15/ED/1178

disposal on 30 August 2017. The summary of marine sediment disposed during this reporting period is shown in the following table:

Table 3.3 Summary of Marine Sediment Disposed to Dumping Site

Month/Year	Quantity disposed (in'000m ³)			Total
	HY/2013/02	HY/2013/03	HY/2013/04	
Jan 2016	1.272	1.950	0.800	4.022
Feb 2016	2.816	2.328	0.704	5.848
Mar 2016	0.600	2.464	3.942	7.006
Apr 2016	5.128	5.602	5.028	15.758
May 2016	0.000	0.000	0.000	0.000
Jun 2016	1.200	4.584	1.578	7.362
Sub-Total	11.016	16.928	12.052	39.996
Jul 2016	0.728	10.728	3.690	15.146
Aug 2016	1.784	1.544	4.428	7.756
Sep 2016	2.328	6.816	3.888	13.032
Oct 2016	1.096	2.376	5.286	8.758
Nov 2016	0.000	0.000	0.000	0.000
Dec 2016	1.568	4.960	2.538	9.066
Cat L in Dec 2016	0.000	2.792	3.570	6.362
Sub-Total	18.520	46.144	35.452	100.116
Jan 2017	0.000	0.656	6.552	7.208
Feb 2017	0.088	0.264	1.380	1.732
Mar 2017	0.000	0.000	0.000	0.000
Apr 2017	0.624	1.288	0.000	1.912
May 2017	0.000	1.440	0.000	1.440
Jun 2017	1.432	0.000	0.000	1.432
Jul 2017	0.000	0.000	0.000	0.000
Aug 2017	0.000	0.248	0.000	0.248
Total	20.664	50.040	43.384	114.088

Note: All sediments are in Type II disposal method except Cat L (in Type I)

3.6.6 The summary of waste flow table for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) is detailed in **Appendix F**.

3.6.7 Contract No. HY/2013/03 has been assigned to arrange for delivery of surplus filling materials from Contract No. HY/2013/03 to other projects, including Tuen Mun - Chek Lap Kok Link (TM-CLKL) project of HZMB, the Airport Authority Hong Kong's Three Runway (3RS) Project, Wan Chai Development Phase II project, Contract No. HY/2013/02 of HKBCF and Hong Kong Link Road (HKLR) project of HZMB. As confirmed by RSS, all surplus filling materials delivery to other projects have been completed with the last batch on 07 May 2018. The total transported quantity up to the last batch is 379.48358 (in'000m³). The summary of surplus filling materials delivered to other projects up to the end of May 2018 is shown in **Table 3.4**.

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Report No.: 0165/15/ED/1178

Table 3.4 Summary of Surplus Filling Materials Delivered from Contract No. HY/2013/03 to other projects

Month/Year	Density (in tonnes/m ³)	Quantity disposed (in '000m ³)					Total
		To HY/2013/02	To TM-CLKL Project	To 3RS Project	To WDII Project	To HKLR Project	
May 2017	2.3	0	12.637	0	0	0	12.637
Jun 2017	2.63925	0	14.769	11.238	0	0	26.007
Jul 2017	1.9	0	4.406	34.875	10.048	0.760	50.089
Aug 2017	1.9	0.480	0	67.942	2.761	7.455	78.638
Sep 2017	1.9	5.544	0	62.770	0	4.648	72.962
Oct 2017	/	3.384	0	45.92809	0	0	49.31209
Nov 2017	/	5.412	0	5.507	0	0	10.919
Dec 2017	/	12.57173	0	0	0	0	12.57173
Jan 2018	/	10.228	0	0	0	0	10.228
Feb 2018	/	0	0	0	0	0	0
Mar 2018	/	0.45276	0	0	0	0	0.45276
Apr 2018	/	0	42.544	0	0	0	42.544
May 2018	/	0	13.123	0	0	0	13.123
Total	/	38.07249	87.479	228.26009	12.809	12.863	379.48358

Remarks:

- The variation in density is due to different compositions of surplus filling materials
- There may be discrepancies in the total quantities with the quantities of inert C&D materials stated in **Appendix F**, due to rounding errors
- No density was given from October 2017 to May 2018 due to the direct volume figures as provided and confirmed by the RSS

3.6.8 Contractor of Contract No. HY/2013/03's site arrangement for disposal of bentonite slurry to Tseung Kwan O Area 137 Fill Bank was checked by ET and formal consent has been obtained from Tseung Kwan O Area 137 Fill Bank for receiving used bentonite slurry generated from Contract No. HY/2013/03.

3.7 Environmental Licences and Permits

3.7.1 The valid environmental licences and permits for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) during the reporting period are summarized in **Appendix G**. The Contractor of Contract No. HY/2013/06 was advised to register as a chemical waste producer when chemical waste is expected to generate for the foreseeable future from the operations (For Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation).

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Report No.: 0165/15/ED/1178

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

4.1 Summary of Exceedance of the Environmental Quality Performance Limit

- 4.1.1 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 prepared by Contract No. HY/2011/03 (from September 2015 to January 2019).
- 4.1.2 There was one Action Level exceedance of 24-hr TSP level recorded at station AMS3B by the Environmental Team of Contract No. HY/2013/01 on 28 November 2017, one Action Level exceedance of 24-hr TSP level recorded at station AMS3B by the Environmental Team of Contract No. HY/2013/01 on 23 December 2017, and two Action Level exceedances of 24-hr TSP level recorded at station AMS2 and AMS3B by the Environmental Team of Contract No. HY/2013/01 on 17 January 2018 during the reporting period. After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03.
- 4.1.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded on other monitoring dates at station AMS2, AMS3B/AMS3C and AMS7/AMS7A/AMS7B by the Environmental Team of Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019). Although the exceedances were not relevant to Contract No. HY/2013/03, the Contractor was reminded to continue to fully maintain all air quality mitigation measures and prevent any air quality impact.
- 4.1.4 There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B/NMS3C by the Environmental Team of Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.
- 4.1.5 There were Action and Limit Level exceedances recorded at different WQM stations recorded on 90 days during the reporting period. The following table summarized the number of exceedance on each sampling date:

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Report No.: 0165/15/ED/1178

Table 4.1 Summary of Exceedance for Water Quality Monitoring

Sampling Date	No. of Exceedances					
	DO		Turbidity		SS	
	Action	Limit	Action	Limit	Action	Limit
12 Jul 2017	0	0	0	0	1	0
14 Jul 2017	0	0	0	0	1	0
Total: 2 Days	0	0	0	0	2	0
01 Sep 2017	8	0	0	0	0	0
06 Sep 2017	4	4	1	0	3	0
08 Sep 2017	24	4	4	0	2	1
11 Sep 2017	30	3	0	0	0	0
13 Sep 2017	13	3	0	0	0	0
15 Sep 2017	10	2	0	1	0	0
18 Sep 2017	8	2	0	0	1	0
20 Sep 2017	3	2	0	0	1	0
22 Sep 2017	17	4	0	0	0	0
25 Sep 2017	1	1	0	0	1	0
27 Sep 2017	6	1	0	0	0	0
29 Sep 2017	13	0	0	0	0	0
02 Oct 2017	3	1	0	0	0	0
04 Oct 2017	3	4	0	0	0	0
06 Oct 2017	1	2	0	0	0	0
09 Oct 2017	0	1	0	0	0	0
18 Oct 2017	0	0	0	0	1	0
20 Oct 2017	0	0	0	0	3	0
23 Oct 2017	0	0	0	0	1	0
03 Nov 2017	0	0	0	0	3	1
06 Nov 2017	0	0	0	0	5	0
08 Nov 2017	0	0	0	0	2	2
13 Nov 2017	0	0	0	0	1	0
15 Nov 2017	0	0	0	0	1	0
20 Nov 2017	0	0	0	0	1	0
22 Nov 2017	0	0	0	0	1	1
24 Nov 2017	0	0	0	0	1	0
Total: 27 Days	144	34	5	1	28	5
04 Dec 2017	0	0	0	0	3	0
06 Dec 2017	0	0	0	0	4	0
08 Dec 2017	0	0	0	0	4	0
11 Dec 2017	0	0	0	0	1	0
13 Dec 2017	0	0	0	0	1	0
20 Dec 2017	0	0	0	0	1	0
22 Dec 2017	0	0	0	0	2	0
31 Jan 2018	0	0	0	0	1	0
02 Feb 2018	0	0	0	0	2	0
Total: 9 Days	0	0	0	0	19	0
02 Mar 2018	0	0	0	0	1	0
16 Mar 2018	0	0	0	0	1	0
21 Mar 2018	0	0	0	0	1	0
30 Mar 2018	0	0	0	0	1	0

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Sampling Date	No. of Exceedances					
	DO		Turbidity		SS	
	Action	Limit	Action	Limit	Action	Limit
02 Apr 2018	0	0	0	0	1	0
18 Apr 2018	0	0	0	0	2	0
20 Apr 2018	0	0	0	0	1	0
23 Apr 2018	0	0	0	0	1	0
13 May 2018	0	0	2	0	0	0
25 May 2018	1	0	0	0	0	0
28 May 2018	1	0	0	0	0	0
Total: 11 Days	2	0	2	0	9	0
01 Jun 2018	2	0	0	0	0	0
11 Jun 2018	1	0	0	0	0	0
13 Jun 2018	2	0	0	0	0	0
15 Jun 2018	4	0	0	0	0	0
25 Jun 2018	1	0	1	0	0	0
27 Jun 2018	5	0	0	0	0	0
29 Jun 2018	3	2	0	0	0	0
02 Jul 2018	6	0	0	0	0	0
04 Jul 2018	5	0	0	0	0	0
06 Jul 2018	8	5	0	0	0	0
09 Jul 2018	12	9	0	0	0	0
11 Jul 2018	2	0	1	0	0	0
13 Jul 2018	4	2	0	0	3	0
16 Jul 2018	2	2	0	0	2	0
27 Jul 2018	0	0	0	0	1	0
06 Aug 2018	12	4	0	0	0	0
08 Aug 2018	23	4	0	0	0	0
10 Aug 2018	3	2	0	0	4	0
13 Aug 2018	8	3	0	0	1	0
15 Aug 2018	2	1	1	0	0	0
17 Aug 2018	4	3	0	0	0	0
20 Aug 2018	22	2	0	0	0	0
22 Aug 2018	10	0	0	0	0	0
24 Aug 2018	3	0	0	0	1	0
27 Aug 2018	2	1	0	0	0	0
29 Aug 2018	4	1	0	0	0	0
31 Aug 2018	0	1	0	0	1	0
Total: 27 Days	150	42	3	0	13	0
03 Sep 2018	30	4	0	0	0	0
05 Sep 2018	21	5	0	0	0	0
07 Sep 2018	21	1	0	0	0	0
10 Sep 2018	48	12	0	0	1	0
12 Sep 2018	27	2	0	0	1	0
14 Sep 2018	6	4	0	0	0	0
28 Sep 2018	0	1	0	0	0	0
10 Oct 2018	0	0	0	0	1	0
24 Oct 2018	0	0	1	0	0	0
23 Nov 2018	0	0	0	0	3	0
26 Nov 2018	0	0	0	0	2	0
Total: 11 Days	153	29	1	0	8	0
07 Dec 2018	0	0	0	0	1	0
10 Dec 2018	0	0	0	0	1	0
12 Dec 2018	0	0	0	0	3	1
Total: 3 Days	0	0	0	0	5	1

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- 4.1.6 The monitoring and investigation results for the monitoring stations showed in **Table 2.2** are reported in the monthly EM&A Reports (marine works were conducted as silt curtain was installed on 11 May 2017 for Contract No. HY/2013/03 and therefore, water quality impact monitoring result is reported from May 2017) prepared for Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).
- 4.1.7 There was no Action and Limit Level exceedance recorded on other monitoring dates at the monitoring stations as shown at **Table 2.2** by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.
- 4.1.8 Although the exceedances were not relevant to Contract No. HY/2013/03, the Contractor was reminded to continue to fully maintain all water quality mitigation measures and prevent any water quality impact.
- 4.1.9 Ecological monitoring results at all transects are reported in the EM&A Reports (marine works were conducted as silt curtain was installed on 11 May 2017 for Contract No. HY/2013/03 and therefore, ecological monitoring result is reported from May 2017) prepared by Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).
- 4.1.10 Eight Limit Level exceedances were recorded for ecological monitoring at all transects by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period. The following table summarized the number of exceedance during the reporting period:

Table 4.1A Summary of Exceedance for Dolphin Monitoring

Parameters	Action Level	Limit Level
Quarterly Analysis (Mar 2017 to May 2017)	0	1
Quarterly Analysis (Jun 2017 to Aug 2017)	0	1
Quarterly Analysis (Sep 2017 to Nov 2017)	0	1
Quarterly Analysis (Dec 2017 to Feb 2018)	0	1
Quarterly Analysis (Mar 2018 to May 2018)	0	1
Quarterly Analysis (Jun 2018 to Aug 2018)	0	1
Quarterly Analysis (Sep 2018 to Nov 2018)	0	1
Quarterly Analysis (Dec 2018 to Feb 2019)	0	1

- 4.1.11 There was no Action Level exceedance recorded on other monitoring dates for ecological monitoring at all transects by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.

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Report No.: 0165/15/ED/1178

4.1.12 Although the exceedance was not relevant to Contract No. HY/2013/03, the Contractor was reminded to ensure provision of ongoing maintenance to the silt curtains and to carry out maintenance work once defects were found.

4.2 Summary of Complaints, Notification of Summons and Successful Prosecution

4.2.1 There were fifteen complaints received in relation to the environmental impact during the reporting period (Log No. 001 was received after the commencement of Contract No. HY/2013/03 on 10 April 2015 and before the construction works and the EM&A programme of Contract No. HY/2013/03 which commenced on 29 August 2015). The summary of environmental complaints is presented in **Table 4.2**. The details of cumulative statistics of Environmental Complaints are provided in **Appendix H**.

Table 4.2 Summary of Environmental Complaints for the Reporting Period

Log No.	Environmental Complaint Ref. No.	Date of Complaint Receipt	Description
001	ENPO-C0086	11 July 2015	Noise
002	ENPO-C0093	23 October 2015	Air & Noise
003	ENPO-C0100	22 September 2016	Water
004	ENPO-C0102	10 November 2016	Water
005	ENPO-C0107	14 December 2016	Noise
006	ENPO-C0108	28 December 2016	Hygiene on site
007	ENPO-C0110	21 March 2017	Water pollution
008	ENPO-C0113	28 March 2017	Noise and water pollution
009	ENPO-C0119	01 June 2017	Air pollution
010	ENPO-C0120	02 June 2017	Air pollution
011	ENPO-C0121	06 June 2017	Air pollution
012	ENPO-C0122	09 August 2017	Air pollution and water discharge
013	ENPO-C0127	27 October 2017	Water discharge
014	ENPO-C0128	23 November 2017	Air pollution
015	ENPO-C0135	13 June 2018	Water pollution

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 H**.

Report No.: 0165/15/ED/1178

5. COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

5.1 Comments

- 5.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Contract. During the reporting period, 165 site inspections (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) were carried out from September 2015 to October 2018 (As all the sections under Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) were handed over to the relevant authorities on 24 October 2018 and the site had been changed to a closed area, no site inspection was conducted from November 2018).
- 5.1.2 Particular observations during the site inspections are described in the monthly EM&A Reports for Contract No. HY/2013/03 (from September 2015 to January 2019). The Contractor has rectified most of the observations as identified during environmental site inspections during the reporting period.
- 5.1.3 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix E**. All necessary mitigation measures were implemented properly during the reporting period.

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

5.3 Conclusions

- 5.3.1 Commencement of Contract No. HY/2013/03 took place on 10 April 2015 and the construction works of Contract No. HY/2013/03 commenced on 29 August 2015 (commencement of Contract No. HY/2013/06 took place on 14 August 2015 and the construction works of Contract No. HY/2013/06 commenced on 13 September 2016 within Contract No. HY/2013/03 works area). This is the Final EM&A Review Report summarising the findings of EM&A activities conducted under Contract No. HY/2013/03 from 29 August 2015 to 31 January 2019 (includes the findings of EM&A activities conducted under Contract No. HY/2013/06 within Contract No. HY/2013/03 works area from 13 September 2016 to 31 January 2019).
- 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 (from September 2015 to January 2019) prepared by Contract No. HY/2011/03.

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Report No.: 0165/15/ED/1178

- 5.3.3 There was one Action Level exceedance of 24-hr TSP level recorded at station AMS3B by the Environmental Team of Contract No. HY/2013/01 on 28 November 2017, one Action Level exceedance of 24-hr TSP level recorded at station AMS3B by the Environmental Team of Contract No. HY/2013/01 on 23 December 2017, and two Action Level exceedances of 24-hr TSP level recorded at station AMS2 and AMS3B by the Environmental Team of Contract No. HY/2013/01 on 17 January 2018 during the reporting period. After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03.
- 5.3.4 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded on other monitoring dates at station AMS2, AMS3B/AMS3C and AMS7/AMS7A/AMS7B by the Environmental Team of Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).
- 5.3.5 There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3B/NMS3C by the Environmental Team of Contract No. HY/2010/02 (from September 2015 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.
- 5.3.6 There were Action and Limit Level exceedances recorded at different WQM stations recorded on 90 days (marine works were conducted as silt curtain was installed on 11 May 2017 for Contract No. HY/2013/03 and therefore, water quality impact monitoring result is reported from May 2017) by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period. The following table summarized the number of exceedance on each sampling date:

Table 5.1 Summary of Exceedance for Water Quality Monitoring

Sampling Date	No. of Exceedances					
	DO		Turbidity		SS	
	Action	Limit	Action	Limit	Action	Limit
12 Jul 2017	0	0	0	0	1	0
14 Jul 2017	0	0	0	0	1	0
Total: 2 Days	0	0	0	0	2	0
01 Sep 2017	8	0	0	0	0	0
06 Sep 2017	4	4	1	0	3	0
08 Sep 2017	24	4	4	0	2	1
11 Sep 2017	30	3	0	0	0	0
13 Sep 2017	13	3	0	0	0	0
15 Sep 2017	10	2	0	1	0	0
18 Sep 2017	8	2	0	0	1	0
20 Sep 2017	3	2	0	0	1	0
22 Sep 2017	17	4	0	0	0	0
25 Sep 2017	1	1	0	0	1	0
27 Sep 2017	6	1	0	0	0	0
29 Sep 2017	13	0	0	0	0	0
02 Oct 2017	3	1	0	0	0	0

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Report No.: 0165/15/ED/1178

Sampling Date	No. of Exceedances					
	DO		Turbidity		SS	
	Action	Limit	Action	Limit	Action	Limit
04 Oct 2017	3	4	0	0	0	0
06 Oct 2017	1	2	0	0	0	0
09 Oct 2017	0	1	0	0	0	0
18 Oct 2017	0	0	0	0	1	0
20 Oct 2017	0	0	0	0	3	0
23 Oct 2017	0	0	0	0	1	0
03 Nov 2017	0	0	0	0	3	1
06 Nov 2017	0	0	0	0	5	0
08 Nov 2017	0	0	0	0	2	2
13 Nov 2017	0	0	0	0	1	0
15 Nov 2017	0	0	0	0	1	0
20 Nov 2017	0	0	0	0	1	0
22 Nov 2017	0	0	0	0	1	1
24 Nov 2017	0	0	0	0	1	0
Total: 27 Days	144	34	5	1	28	5
04 Dec 2017	0	0	0	0	3	0
06 Dec 2017	0	0	0	0	4	0
08 Dec 2017	0	0	0	0	4	0
11 Dec 2017	0	0	0	0	1	0
13 Dec 2017	0	0	0	0	1	0
20 Dec 2017	0	0	0	0	1	0
22 Dec 2017	0	0	0	0	2	0
31 Jan 2018	0	0	0	0	1	0
02 Feb 2018	0	0	0	0	2	0
Total: 9 Days	0	0	0	0	19	0
02 Mar 2018	0	0	0	0	1	0
16 Mar 2018	0	0	0	0	1	0
21 Mar 2018	0	0	0	0	1	0
30 Mar 2018	0	0	0	0	1	0
02 Apr 2018	0	0	0	0	1	0
18 Apr 2018	0	0	0	0	2	0
20 Apr 2018	0	0	0	0	1	0
23 Apr 2018	0	0	0	0	1	0
13 May 2018	0	0	2	0	0	0
25 May 2018	1	0	0	0	0	0
28 May 2018	1	0	0	0	0	0
Total: 11 Days	2	0	2	0	9	0
01 Jun 2018	2	0	0	0	0	0
11 Jun 2018	1	0	0	0	0	0
13 Jun 2018	2	0	0	0	0	0
15 Jun 2018	4	0	0	0	0	0
25 Jun 2018	1	0	1	0	0	0
27 Jun 2018	5	0	0	0	0	0
29 Jun 2018	3	2	0	0	0	0
02 Jul 2018	6	0	0	0	0	0
04 Jul 2018	5	0	0	0	0	0
06 Jul 2018	8	5	0	0	0	0
09 Jul 2018	12	9	0	0	0	0
11 Jul 2018	2	0	1	0	0	0
13 Jul 2018	4	2	0	0	3	0
16 Jul 2018	2	2	0	0	2	0
27 Jul 2018	0	0	0	0	1	0

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Report No.: 0165/15/ED/1178

Sampling Date	No. of Exceedances					
	DO		Turbidity		SS	
	Action	Limit	Action	Limit	Action	Limit
06 Aug 2018	12	4	0	0	0	0
08 Aug 2018	23	4	0	0	0	0
10 Aug 2018	3	2	0	0	4	0
13 Aug 2018	8	3	0	0	1	0
15 Aug 2018	2	1	1	0	0	0
17 Aug 2018	4	3	0	0	0	0
20 Aug 2018	22	2	0	0	0	0
22 Aug 2018	10	0	0	0	0	0
24 Aug 2018	3	0	0	0	1	0
27 Aug 2018	2	1	0	0	0	0
29 Aug 2018	4	1	0	0	0	0
31 Aug 2018	0	1	0	0	1	0
Total: 27 Days	150	42	3	0	13	0
03 Sep 2018	30	4	0	0	0	0
05 Sep 2018	21	5	0	0	0	0
07 Sep 2018	21	1	0	0	0	0
10 Sep 2018	48	12	0	0	1	0
12 Sep 2018	27	2	0	0	1	0
14 Sep 2018	6	4	0	0	0	0
28 Sep 2018	0	1	0	0	0	0
10 Oct 2018	0	0	0	0	1	0
24 Oct 2018	0	0	1	0	0	0
23 Nov 2018	0	0	0	0	3	0
26 Nov 2018	0	0	0	0	2	0
Total: 11 Days	153	29	1	0	8	0
07 Dec 2018	0	0	0	0	1	0
10 Dec 2018	0	0	0	0	1	0
12 Dec 2018	0	0	0	0	3	1
Total: 3 Days	0	0	0	0	5	1

- 5.3.7 After investigation, it was concluded that all exceedances were not relevant to Contract No. HY/2013/03. There was no Action and Limit Level exceedance recorded on other monitoring dates at the monitoring stations as shown at **Table 2.2** by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.
- 5.3.8 Ecological monitoring results at all transects are reported in the EM&A Reports (marine works were conducted as silt curtain was installed on 11 May 2017 for Contract No. HY/2013/03 and therefore, ecological monitoring result is reported from May 2017) prepared by Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018), and Contract No. HY/2013/04 (from October 2018 to January 2019).
- 5.3.9 Eight Limit Level exceedances were recorded for ecological monitoring at all transects by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period. The following table summarized the number of exceedance during the reporting period:

Report No.: 0165/15/ED/1178

Table 5.1A Summary of Exceedance for Dolphin Monitoring

Parameters	Action Level	Limit Level
Quarterly Analysis (Mar 2017 to May 2017)	0	1
Quarterly Analysis (Jun 2017 to Aug 2017)	0	1
Quarterly Analysis (Sep 2017 to Nov 2017)	0	1
Quarterly Analysis (Dec 2017 to Feb 2018)	0	1
Quarterly Analysis (Mar 2018 to May 2018)	0	1
Quarterly Analysis (Jun 2018 to Aug 2018)	0	1
Quarterly Analysis (Sep 2018 to Nov 2018)	0	1
Quarterly Analysis (Dec 2018 to Feb 2019)	0	1

- 5.3.10 There was no Action Level exceedance recorded on other monitoring dates for ecological monitoring at all transects by the Environmental Team of Contract No. HY/2010/02 (from May 2017 to August 2017), Contract No. HY/2013/01 (from September 2017 to September 2018) and Contract No. HY/2013/04 (from October 2018 to January 2019) during the reporting period.
- 5.3.11 Environmental site inspection was carried out during the reporting period (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area). Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspections.
- 5.3.12 There were fifteen complaints received in relation to the environmental impact during the reporting period. After investigation, all the complaints were not related to Contract No. HY/2013/03.
- 5.3.13 There were no notifications of summons or prosecutions received during the reporting period.
- 5.3.14 As informed by the Contractor, all major construction activities for Contract No. HY/2013/03 have been substantially completed and only minor maintenance works will be carried out on site upon request. All land areas have been handed over to relevant responsible parties. The EM&A requirement of landscape soft works for establishment phase was appropriately arranged. After reviewing the existing environmental conditions of the site, it is considered that the potential environmental impacts associated with the remaining works are insignificant and therefore propose to terminate the Construction Phase EM&A Programme under Contract No. HY/2013/03. Independent Environmental Checker (IEC) verified the proposal for termination of EM&A programme under Contract No. HY/2013/03 on 30 November 2018. Environmental Protection Department's (EPD's) memo reference () in E771/E1/100 dated 01 February 2019 informing no comment on the proposal for termination of EM&A programme for Contract No. HY/2013/03.

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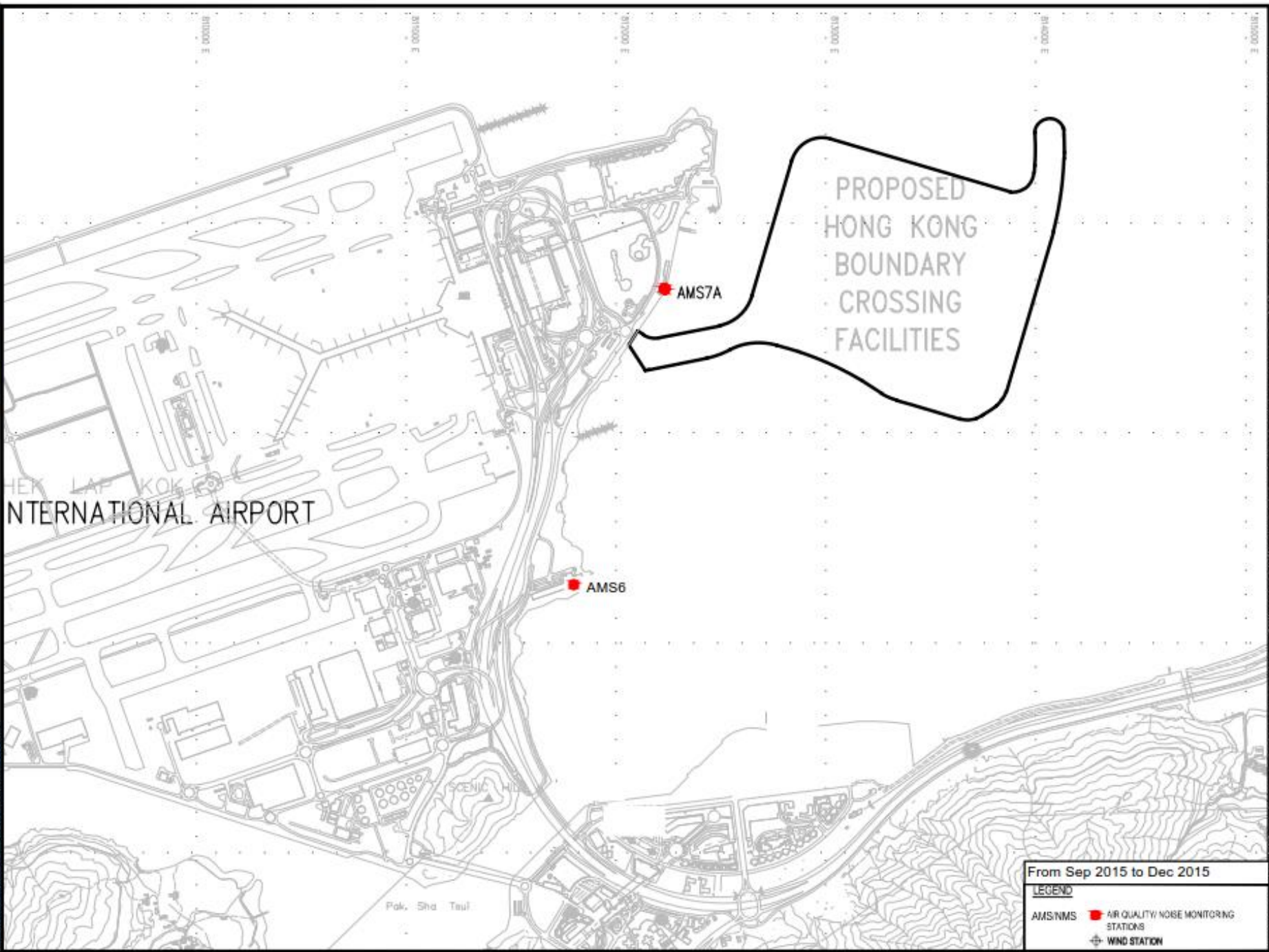
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Report No.: 0165/15/ED/1178

Figure 1

Air Quality Monitoring Stations



HEI LAP KOK INTERNATIONAL AIRPORT

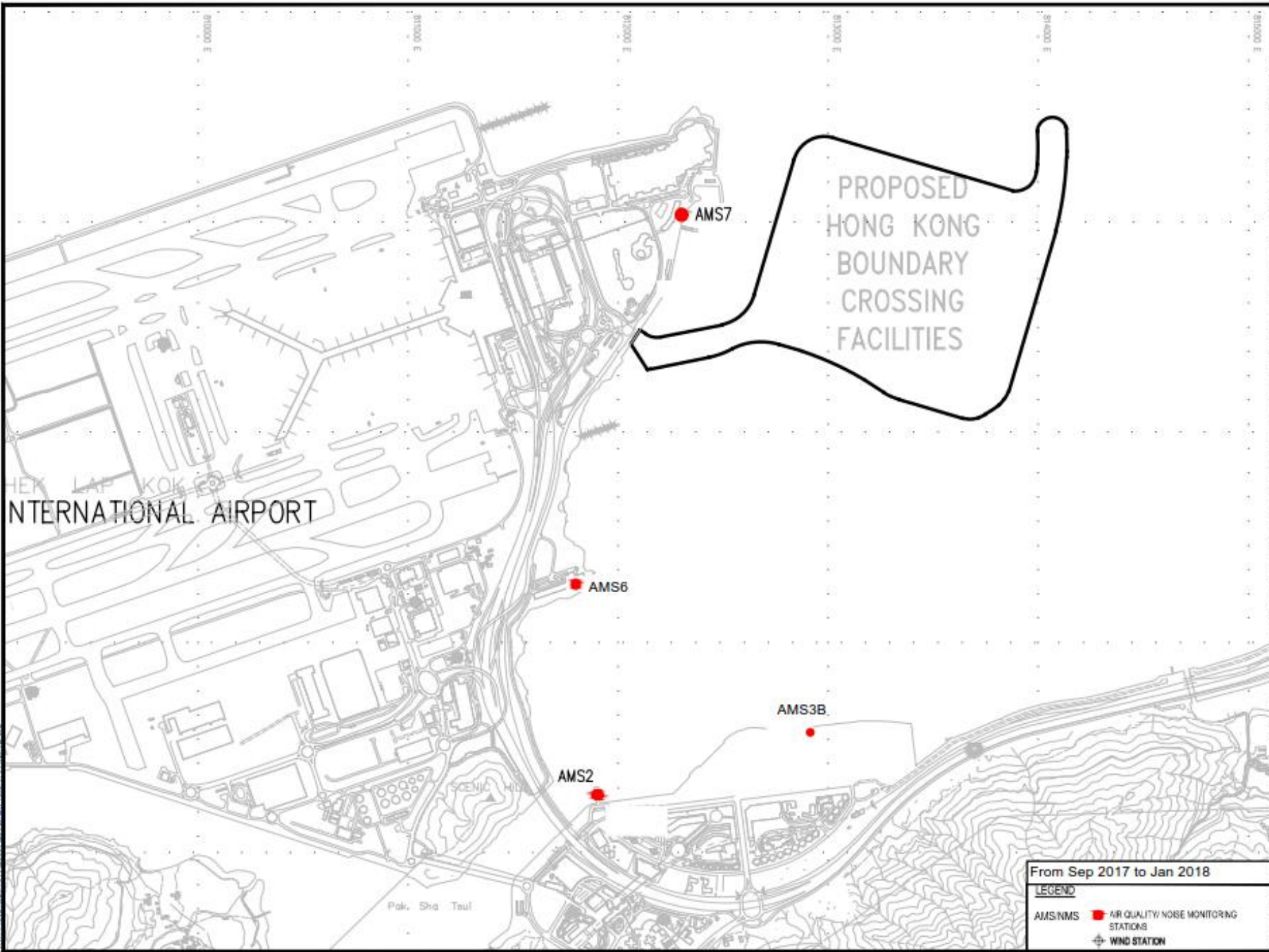
AMS7A

AMS6

PROPOSED HONG KONG BOUNDARY CROSSING FACILITIES

From Sep 2015 to Dec 2015

LEGEND	
AMS/NMS	AIR QUALITY NOISE MONITORING STATIONS
+	WIND STATION



From Sep 2017 to Jan 2018

LEGEND

AMS/NMS ■ AIR QUALITY/NOISE MONITORING STATIONS

+ WIND STATION

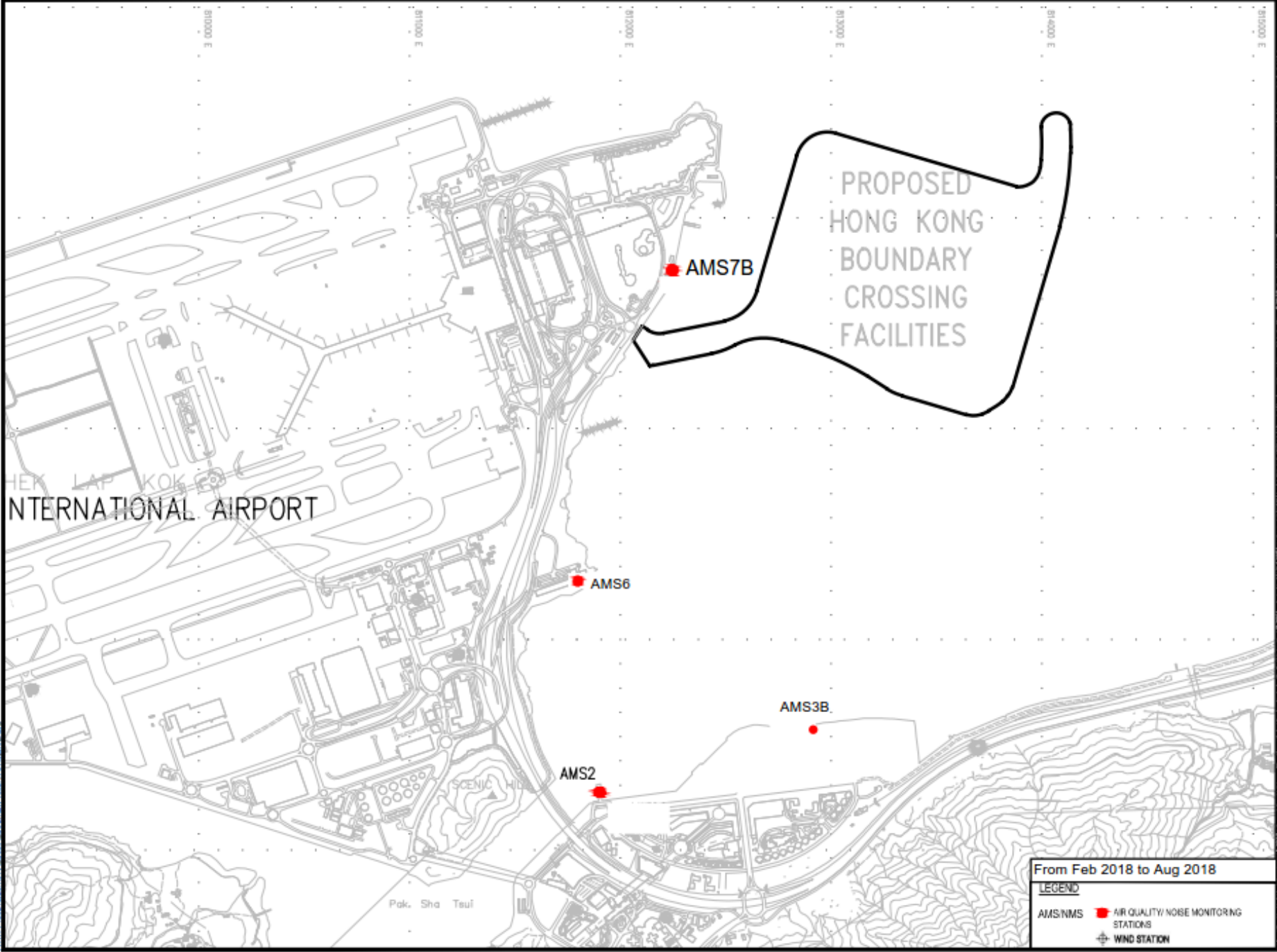
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Checked

Project Management Unit

11/02/2018
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AIR QUALITY AND NOISE
MONITORING STATIONS
FOR HKBCF

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

Project No. 13

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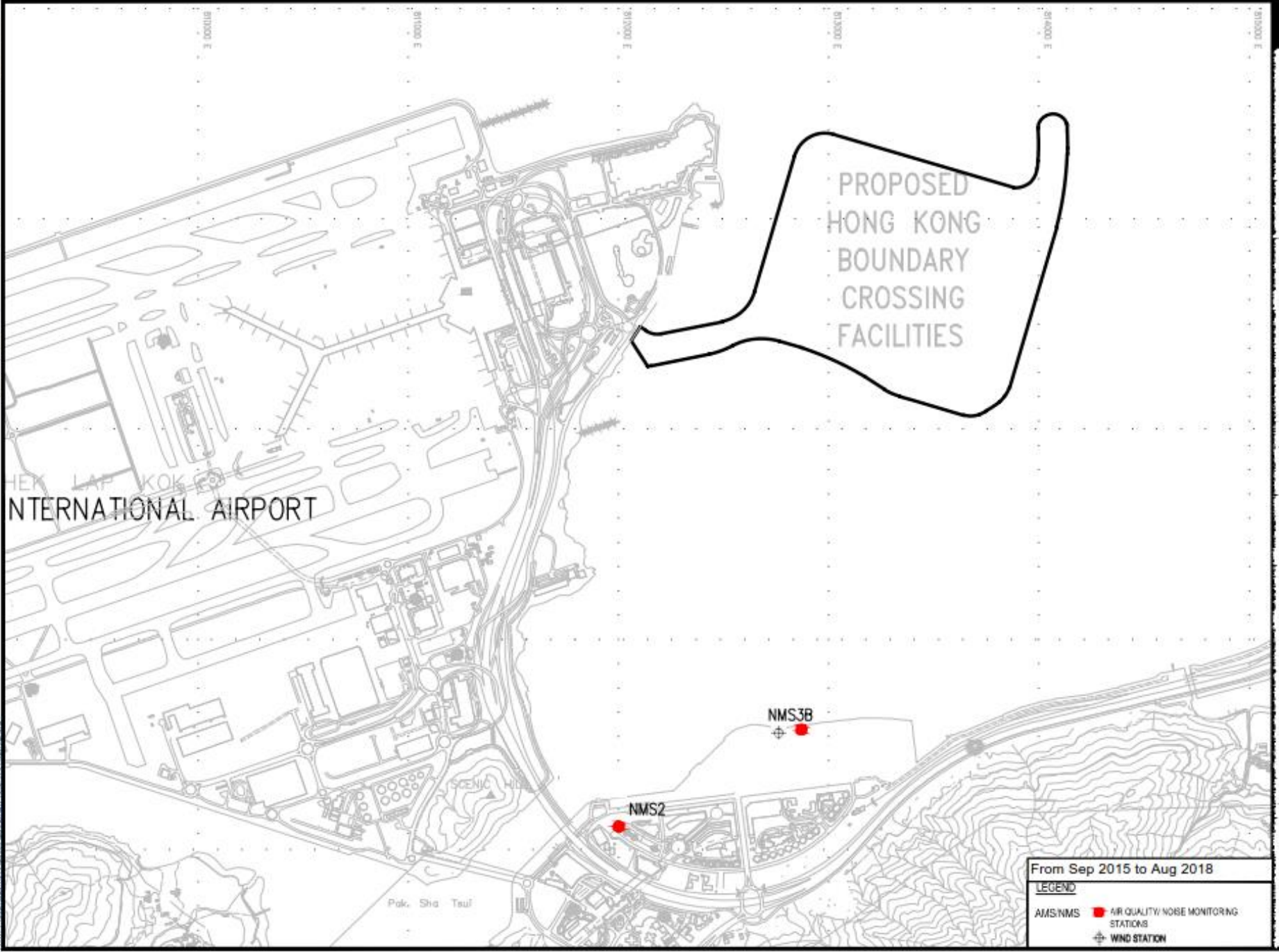
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Report No.: 0165/15/ED/1178

Figure 2

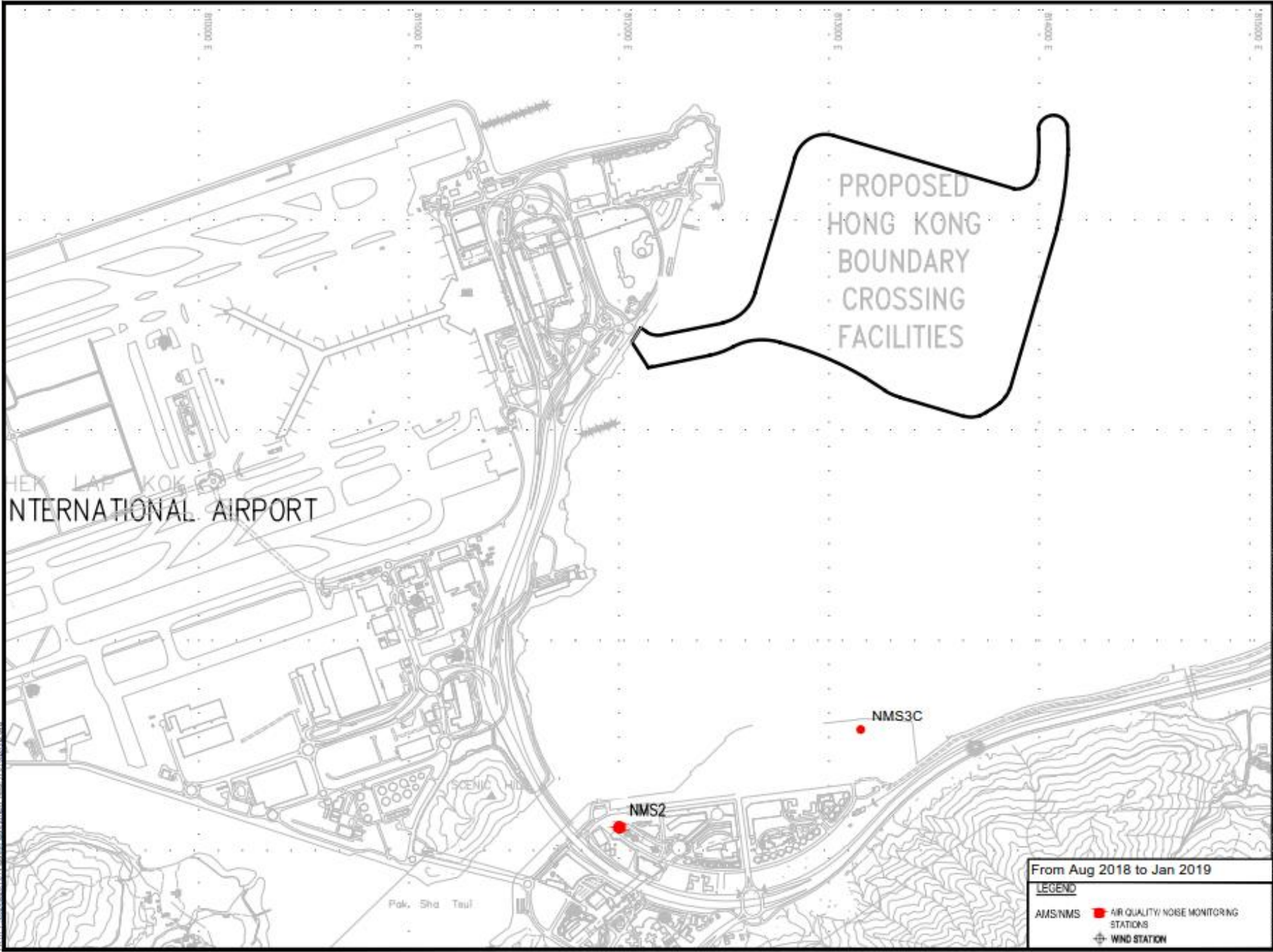
Noise Monitoring Stations



From Sep 2015 to Aug 2018

LEGEND

- AMS/NMS ■ AIR QUALITY AND NOISE MONITORING STATIONS
- + WIND STATION



From Aug 2018 to Jan 2019

LEGEND

AMS/NMS ● AIR QUALITY NOISE MONITORING STATIONS

+ WIND STATION

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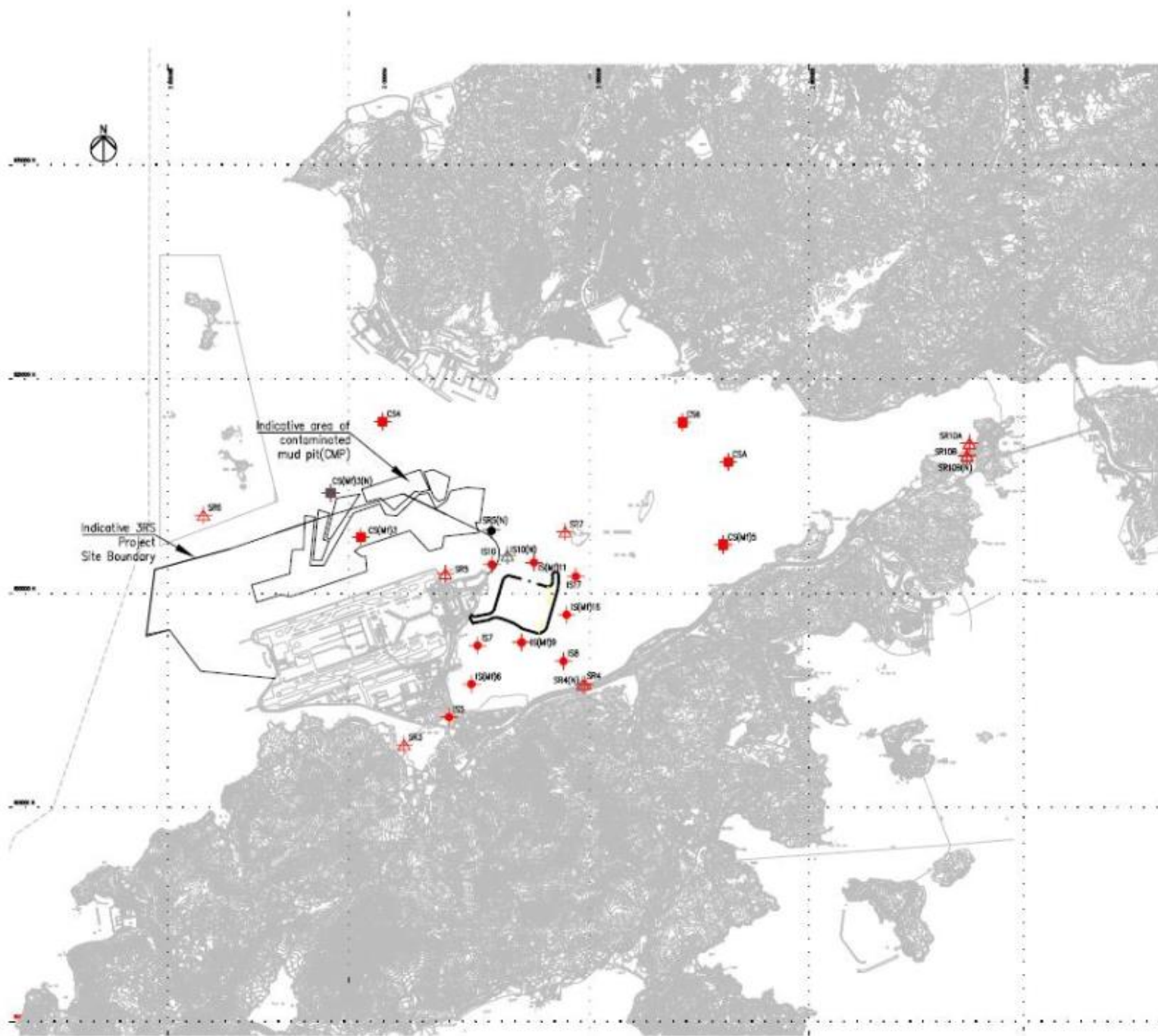
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Figure 3

Water Quality Monitoring Stations



LEGEND (From May 2017 to Dec 2017)

- ◆ IS IMPACT STATIONS
- CS CONTROL / FAR FIELD STATIONS
- ▲ SR SENSITIVE RECEIVERS STATIONS
- ◆ IS IMPACT STATIONS (RELOCATED)
- ▲ SR SENSITIVE RECEIVERS STATIONS (RELOCATED)
- CS CONTROL / FAR FIELD STATIONS (RELOCATED)

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS3	811576	817106
IS(W)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(W)9	813273	818850
SR5(N)	812569	821475
IS(W)11	813362	820716
IS(W)16	814308	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
IS10(N)	812942	820881
SR6	805637	821818
SR7	814263	821431
SR10A	823741	823495
SR10B(N)	823683	823187
CS(W)3(N)	808814	822355
CS(W)5	817990	821129
CS4	810025	824004
CS6	817028	823942
CSA	818103	823064
IS9	812577	820670
SR5	811489	820455
CS(W)3	809889	821117



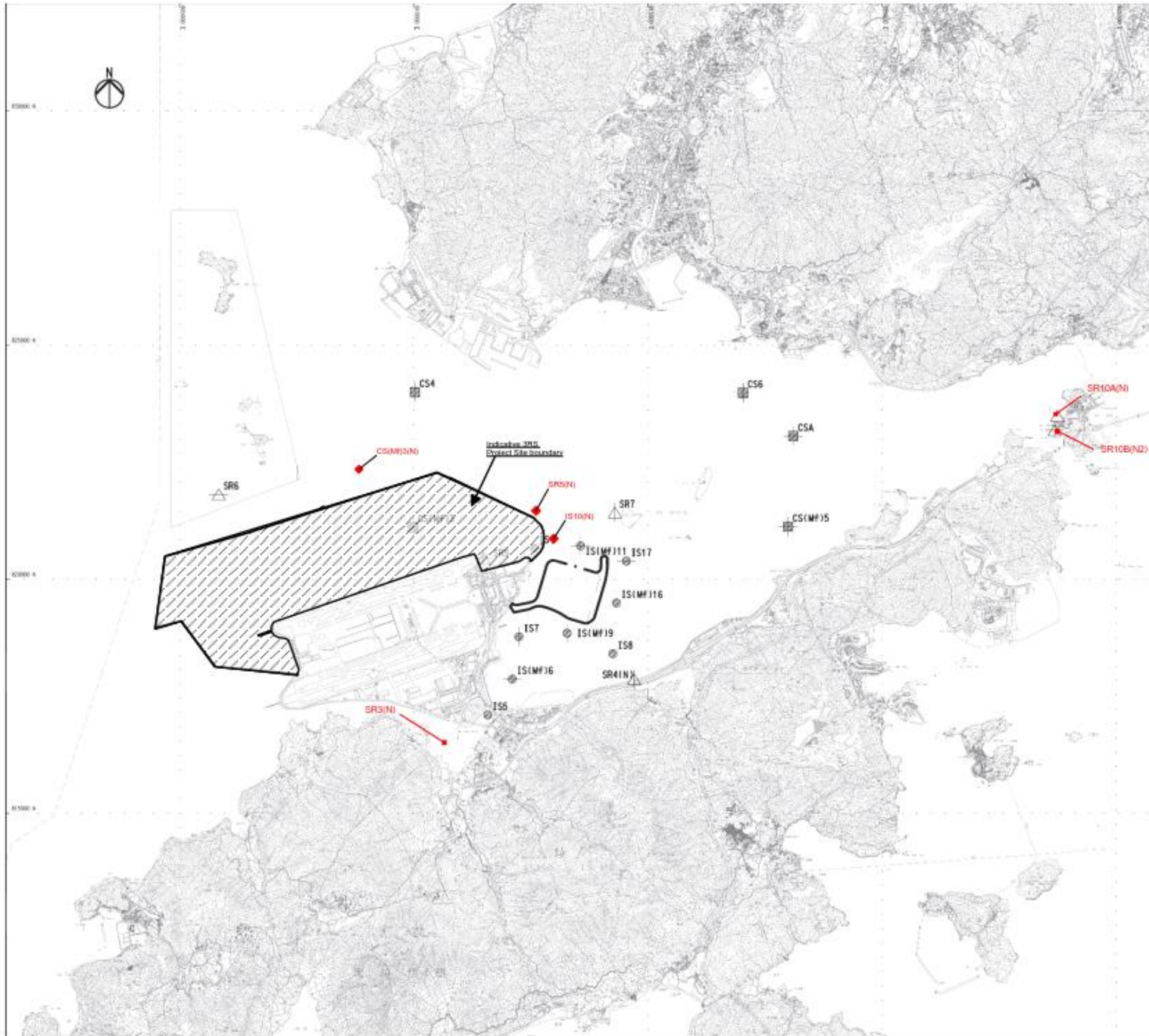
LEGEND (From Dec 2017 to Feb 2018)

- IS IMPACT STATIONS
- CS CONTROL / FAR FIELD STATIONS
- △ SR SENSITIVE RECEIVERS STATIONS

FIGURE 4.1– LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(MF)16	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(MF)19	813273	818850
IS10	812577	820670
IS10(N)	812942	820455
IS(MF)11	813562	820716
IS(MF)116	814328	819497
IS17	814539	820391
SR3	810525	816456
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A	823741	823495
SR10B(N)	823683	820881
CS(MF)33	809989	821117
CS(MF)13(N)	808814	822355
CS(MF)15	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064
SR3(N)	810008	810591
SR10A(N)	823844	823404
SR10B(N2)	823689	823109



(From Mar 2018 to Jan 2019)

- LEGEND**
- IS IMPACT STATIONS
 - CS CONTROL / FAR FIELD STATIONS
 - SR SENSITIVE RECEIVERS STATIONS

FIGURE 4.1– LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CD-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(MF)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(MF)9	813273	818850
IS10	812577	820670
IS10(N)	812942	820495
IS(MF)11	813562	820716
IS(MF)16	814328	819497
IS17	814539	820391
SR3(N)	810059	810591
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A(N)	823044	823404
SR10B(N2)	823009	823109
CS(MF)3	809989	821117
CS(MF)3(N)	808814	822355
CS(MF)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064

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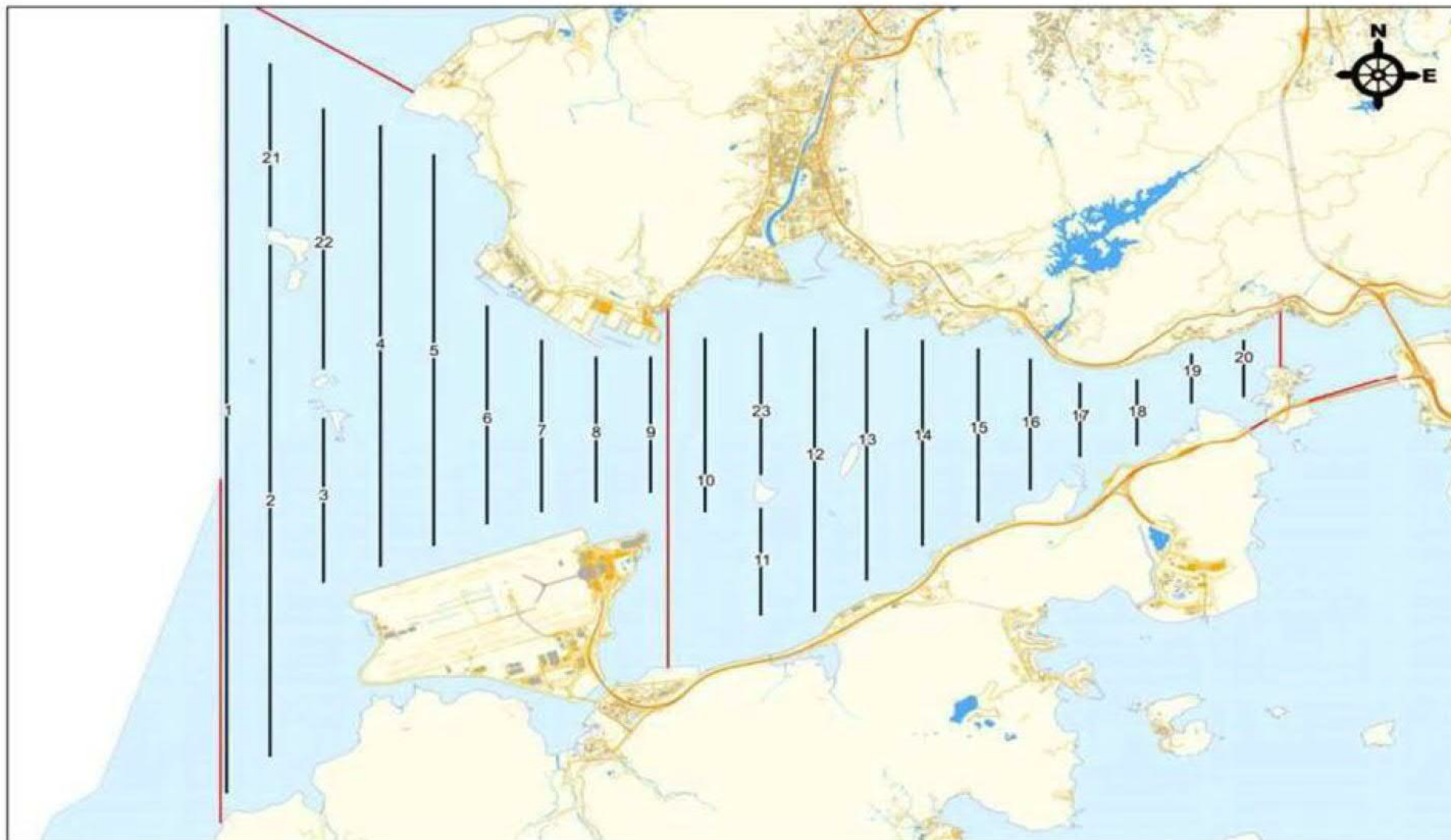
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Figure 4

Ecological Monitoring Transect Line and Layout Map



Remarks:

*Transect 10 is now 3.6km in length due to the HKBCF construction site.

^Coordinates for transect lines 1, 2, 7, 8, 9 and 11 have been updated in respect to the Proposal for Alteration of Transect Line for Dolphin Monitoring approved by EPD on 19 August 2015. The total transect length for both NEL and NWL combined is 108km.

Dolphin Monitoring Transect Line and Layout Map

(Original Ecological Monitoring Transect Line and Layout Map before the Changes of EM&A Programme)

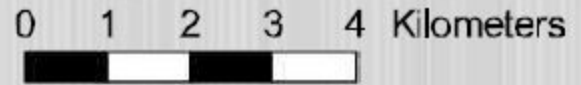
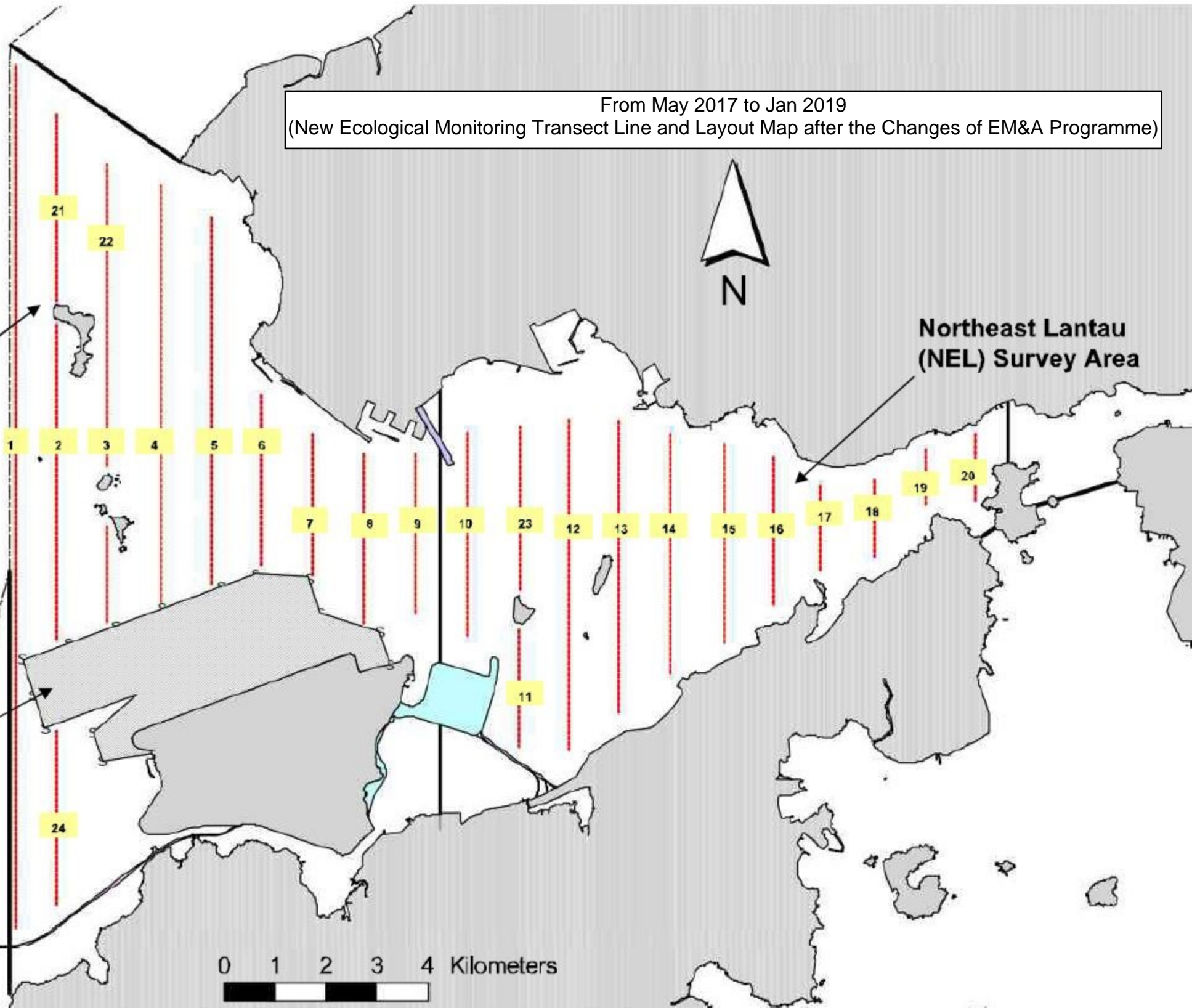
From May 2017 to Jan 2019
(New Ecological Monitoring Transect Line and Layout Map after the Changes of EM&A Programme)



Northwest Lantau (NWL) Survey Area

Northeast Lantau (NEL) Survey Area

Works area in relation to third runway construction



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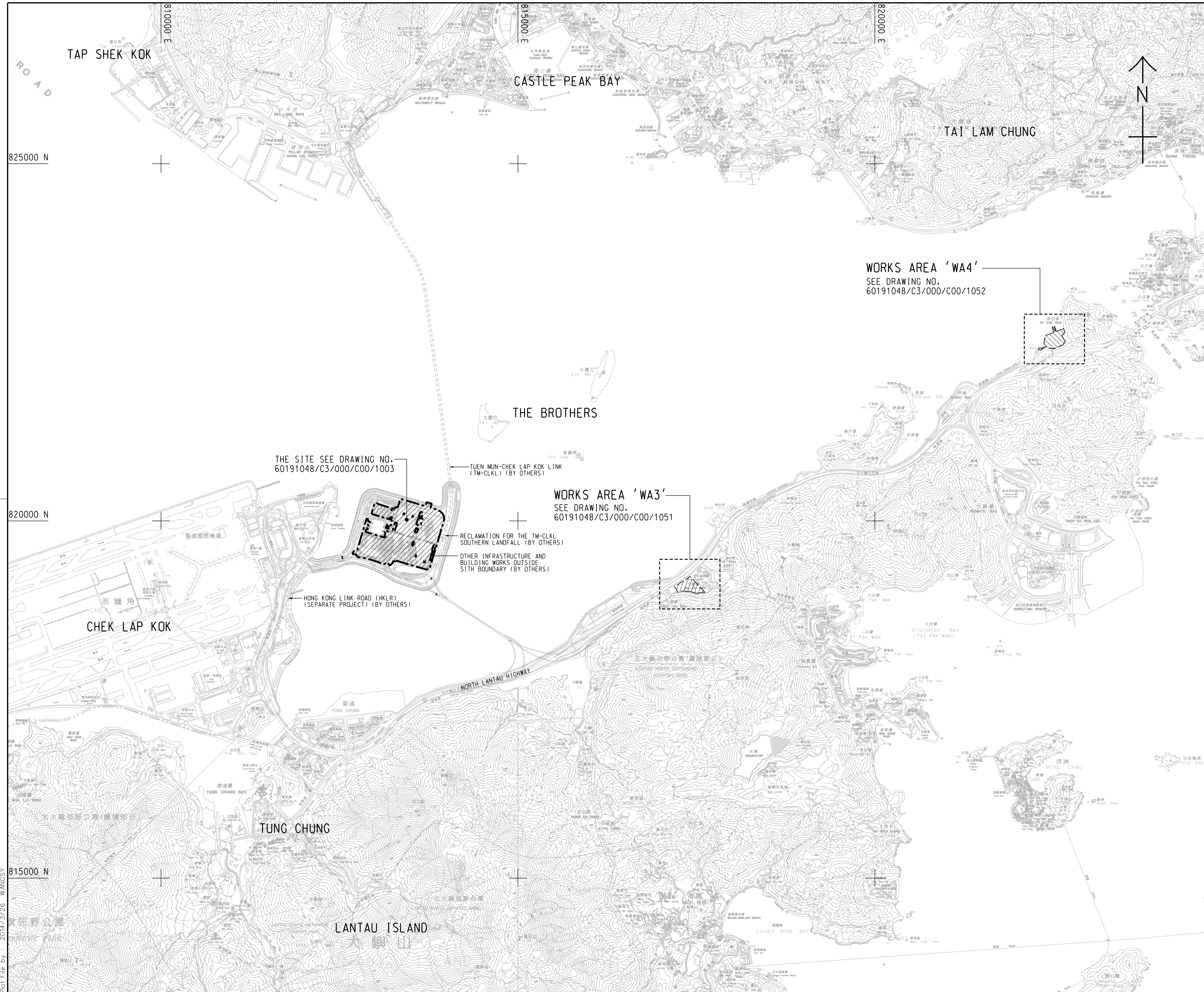
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Appendix A

Location of Works Areas



- NOTES:**
- COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
 - DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
 - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

- LEGEND:**
- SITE BOUNDARY
 - ▨ WORKS AREA

THE SITE SEE DRAWING NO. 60191048/C3/000/C00/1003

TUEN MUN-CHEK LAP KOK LINK (TM-CLKL) (BY OTHERS)

WORKS AREA 'WA3'
SEE DRAWING NO. 60191048/C3/000/C00/1051

RECLAMATION FOR THE TM-CLKL SOUTHERN LANDFALL (BY OTHERS)
OTHER INFRASTRUCTURE AND BUILDING WORKS OUTSIDE SITE BOUNDARY (BY OTHERS)

HONG KONG LINK ROAD (HKLR) (SEPARATE PROJECT) (BY OTHERS)

WORKS AREA 'WA4'
SEE DRAWING NO. 60191048/C3/000/C00/1052

- TENDER DRAWING		BSC	SCI	MAR. 14
REV. 修改	DESCRIPTION 內容摘要	D.C. 審核	C.C. 校對	DATE 日期

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - VEHICLE CLEARANCE PLAZAS AND
 ANCILLARY BUILDINGS AND FACILITIES

SITE LOCATION PLAN

AECOM +
 Rogers Stirk Harbour + Partners
Aedas
 BURO HAPPOLD ATKINS ADI +

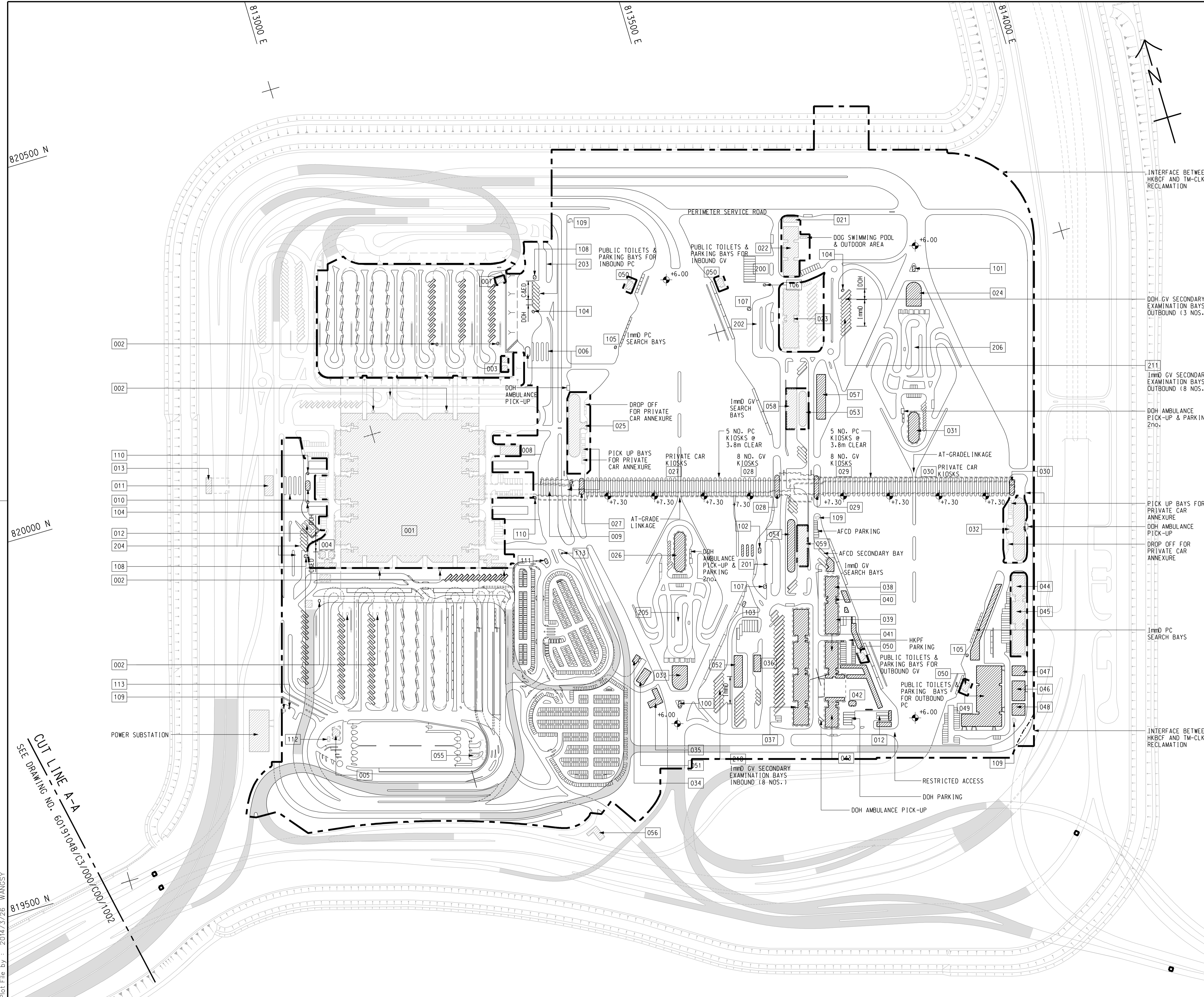
DRG. NO. 60191048/C3/000/C00/1000
 圖紙編號

DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. APPROVED 批准人
BWCW	HY/2013/03	TKH

DRAWN BY 繪圖	STATUS 階段
WSY	

SCALE 比例 A1 1 : 25000
 DIMENSIONS ARE IN 尺寸單位 METRES
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Plot File by : 2014/3/26 WANGSY



NOTE :

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60191048/C3/000/C00/1003.

LEGEND :

- SITE BOUNDARY
- VIADUCT
- BUILDING/FACILITIES

INTERFACE BETWEEN HKBCF AND TM-CLKL RECLAMATION

DOH GV SECONDARY EXAMINATION BAYS OUTBOUND (3 NOS.)

1mm0 GV SECONDARY EXAMINATION BAYS OUTBOUND (8 NOS.)

DOH AMBULANCE PICK-UP & PARKING 2no.

PICK UP BAYS FOR PRIVATE CAR ANNEXURE

DOH AMBULANCE PICK-UP

1mm0 PC SEARCH BAYS

INTERFACE BETWEEN HKBCF AND TM-CLKL RECLAMATION

CUT LINE A-A
SEE DRAWING NO. 60191048/C3/000/C00/1002

Plot File by : 2014/3/26 WANGSY

- TENDER DRAWING		BWCW SCI	MAR. 14
REV. 修改	DESCRIPTION 内容摘要	D.C. 核准	DATE 日期

路政署 HIGHWAYS DEPARTMENT
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 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - VEHICLE CLEARANCE PLAZAS AND
 ANCILLARY BUILDINGS AND FACILITIES

Figure 1-1
Current Layout Plan

SHEET 1 OF 2

AECOM **Aedas**
 Rogers Stirk Harbour + Partners
 BURO HAPPOLD ATKINS ADI

DRG. NO. 60191048/C3/000/C00/1001
 圖紙編號

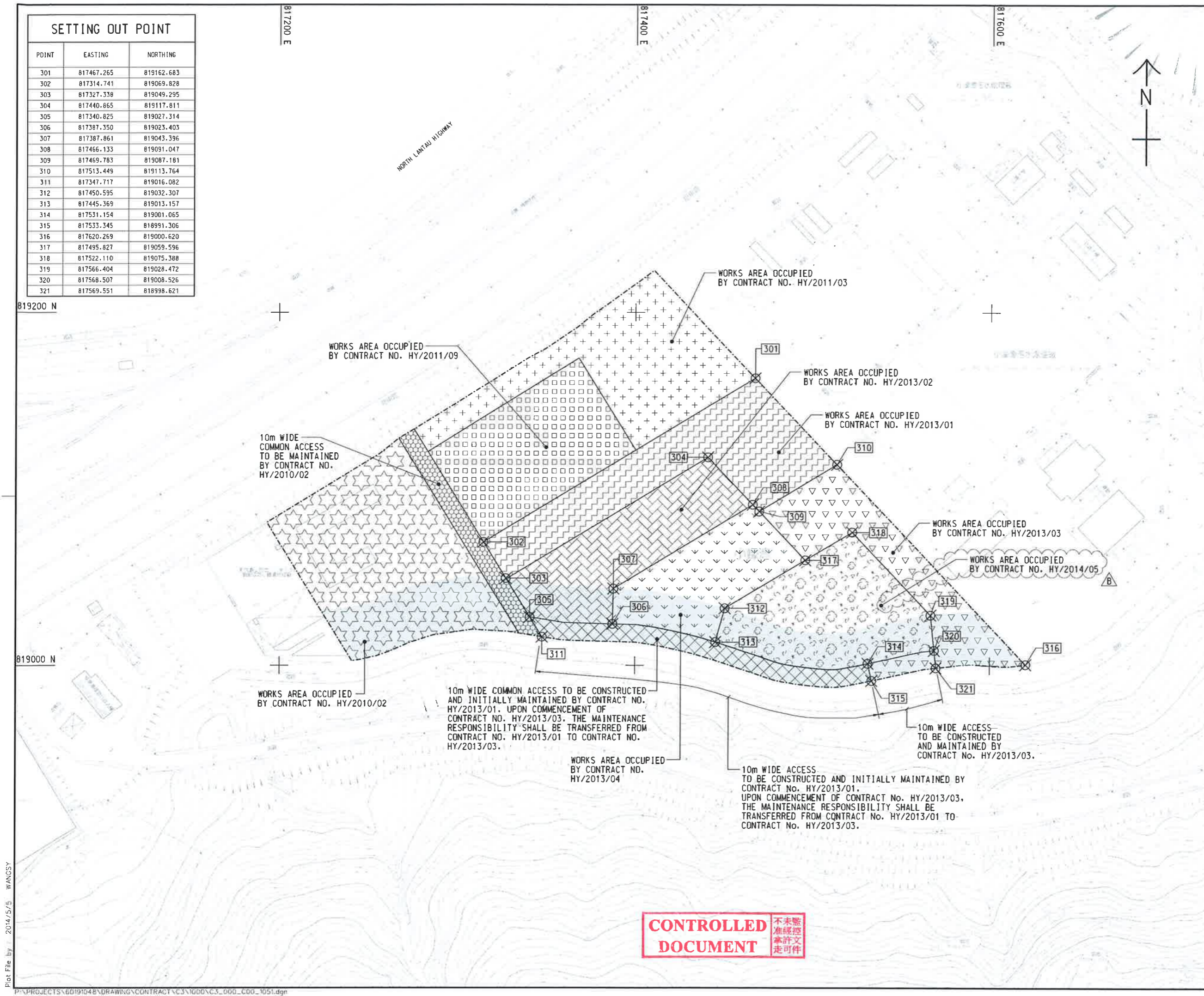
DESIGNED BY 設計	CONTRACT NO. 合約編號	P. DIR. APPROVED 批准人
BWCW	HY/2013/03	TKH

DRAWN BY 繪圖	STATUS 階段
WSY	初步

SCALE 比例 A1 1 : 2500
 DIMENSIONS ARE IN 尺寸單位 METRES
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SETTING OUT POINT

POINT	EASTING	NORTHING
301	817467.265	819162.683
302	817314.741	819069.828
303	817327.338	819049.295
304	817440.865	819117.811
305	817340.825	819027.314
306	817387.350	819023.403
307	817387.861	819043.396
308	817466.133	819091.047
309	817469.783	819087.181
310	817513.449	819113.764
311	817347.717	819016.082
312	817450.595	819032.307
313	817445.369	819013.157
314	817531.154	819001.065
315	817533.345	818991.306
316	817620.269	819000.620
317	817495.827	819059.596
318	817522.110	819075.388
319	817566.404	819028.472
320	817568.507	819008.526
321	817569.551	818998.621



LOCATION PLAN
SCALE 1 : 25000

- NOTES:**
- COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
 - DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

	WORKS AREA BOUNDARY
	PORTION 3.1
	PORTION 3.2
	PORTION 3.3
	PORTION 3.4
	PORTION 3.5
	PORTION 3.6
	PORTION 3.7
	PORTION 3.8
	PORTION 3.9
	PORTION 3.10
	NON-BUILDING AREA 8200m ² (WHOLE)

FOR CONSTRUCTION

C	WORKING DRAWING	BWCW SCI	MAY. 15
B	TENDER ADDENDUM NO. 2	BWCW SCI	MAY. 14
A	TENDER ADDENDUM NO. 1	BWCW SCI	APR. 14
-	TENDER DRAWING	BWCW SCI	MAR. 14
REV.	DESCRIPTION	REV. NO.	DATE

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 香港路政處
 香港、珠海、澳門大橋工程管理局
 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - VEHICLE CLEARANCE PLAZAS AND
 ANCILLARY BUILDINGS AND FACILITIES

WORKS AREA WA3

AECOM +
Aedas +
 Rogers Stirk Harbour + Partners
 BURO HAPPOLD ATKINS ADI +

DRG. NO. 60191048/C3/000/C00/1051C
 圖紙編號

DESIGNED BY 設計	CONTRACT NO. 合約編號	A. BY APPROVED 審核人
BWCW	HY/2013/03	TKH
DRAWN BY 圖則	STATUS 圖則	
WSY		
SCALE 比例	WORKING DRAWING	
A1 : 1000	© COPYRIGHT RESERVED 版權所有	
DIMENSIONS ARE IN 尺寸單位	METRES	

CONTROLLED DOCUMENT
 不准隨意
 准線控制
 拿許文
 走可伴

Plot File by 2014/5/5 WANGSY

SETTING OUT POINT

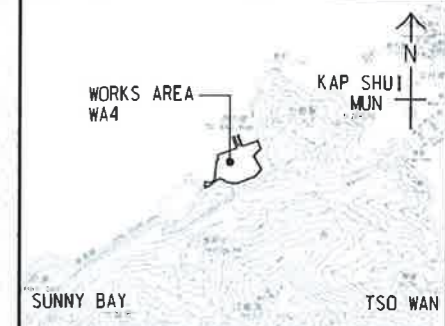
POINT	EASTING	NORTHING
401	822488.151	822632.315
402	822640.593	822689.415
403	822515.608	822559.848
404	822610.940	822599.642
405	822629.428	822607.359
406	822526.988	822529.813
407	822618.348	822567.950
408	822542.232	822489.581
409	822584.983	822507.426
410	822606.866	822516.561
411	822560.278	822441.956
412	822602.949	822460.010
413	822621.914	822467.959
414	822624.130	822470.998
415	822651.725	822508.856
416	822644.758	822521.192

822600 N

822400 N

822400 E

822600 E



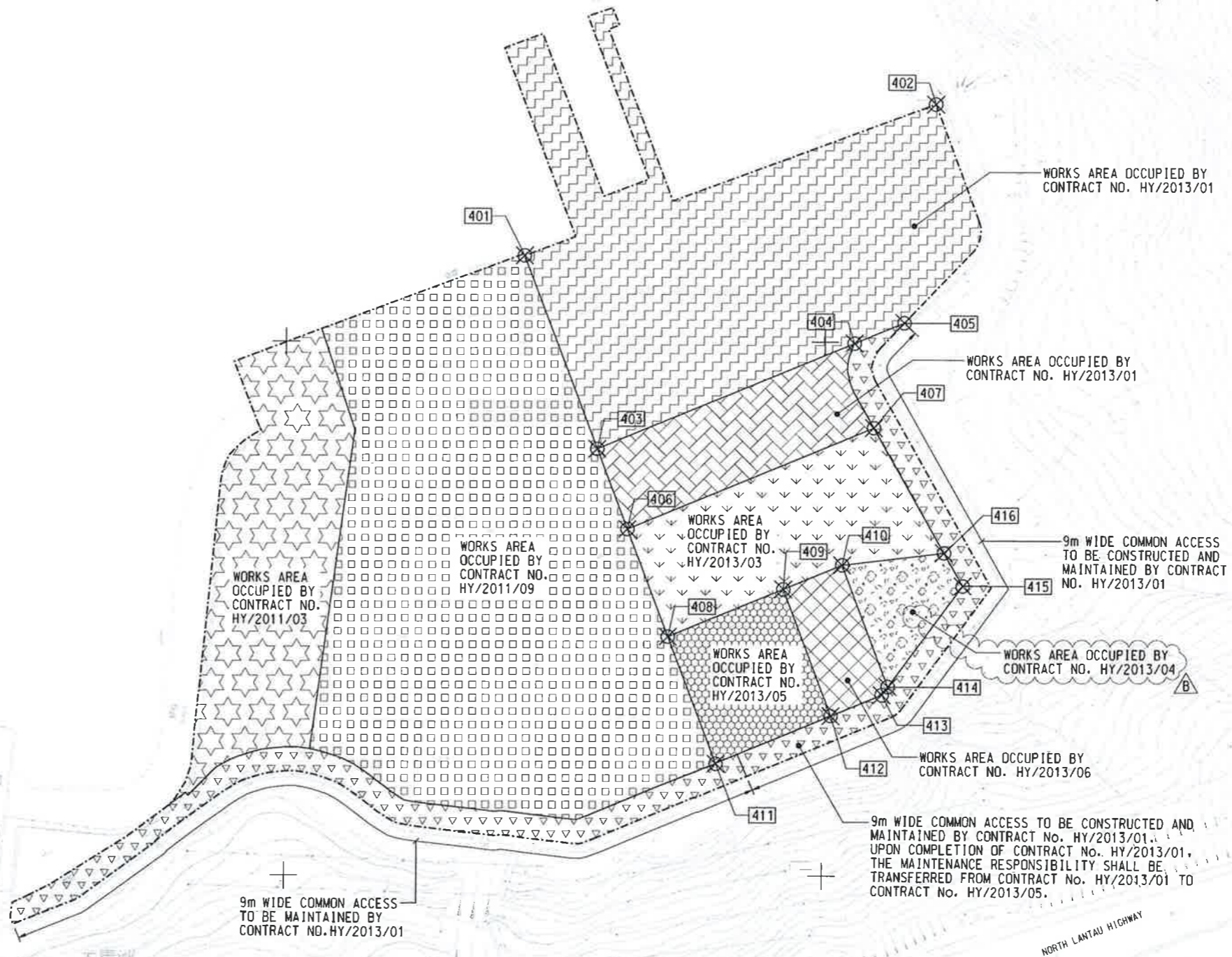
LOCATION PLAN
SCALE 1 : 25000

- NOTES:
- COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
 - DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

	WORKS AREA BOUNDARY
	PORTION 4.1
	PORTION 4.2
	PORTION 4.3
	PORTION 4.4
	PORTION 4.5
	PORTION 4.6
	PORTION 4.7
	PORTION 4.8
	PORTION 4.9

CONTROLLED DOCUMENT 不准隨意複製
FOR CONSTRUCTION



C	WORKING DRAWING	BWCW SCI	MAY. 15
B	TENDER ADDENDUM NO. 2	BWCW SCI	MAY. 14
A	TENDER ADDENDUM NO. 1	BWCW SCI	APR. 14
-	TENDER DRAWING	BWCW SCI	MAR. 14

HONG KONG HIGHWAYS DEPARTMENT
 香港路政處
 HONG KONG-ZHUIHAI-MACAO BRIDGE PROJECT MANAGEMENT OFFICE
 港珠澳大橋香港管理處

HONG KONG-ZHUIHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES

WORKS AREA WA4

AECOM Aedas
 Rogers Stirk Harbour + Partners
 BURO HAPPOLD ATKINS ADI

DRGNO. 圖紙編號: 60191048/C3/000/C00/1052C

DESIGNED BY 設計人	BWCW	CONTRACT NO. 合約編號	HY/2013/03	APPROVED BY 校核人	TKH
DRAWN BY 繪圖人	WSY	STATUS 圖則	WORKING DRAWING		
SCALE 比例	A1 1 : 1000	© COPYRIGHT RESERVED 版權所有			

MATERIALAB CONSULTANTS LIMITED

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

MaterialLab

Report No.: 0165/15/ED/1178

Appendix B

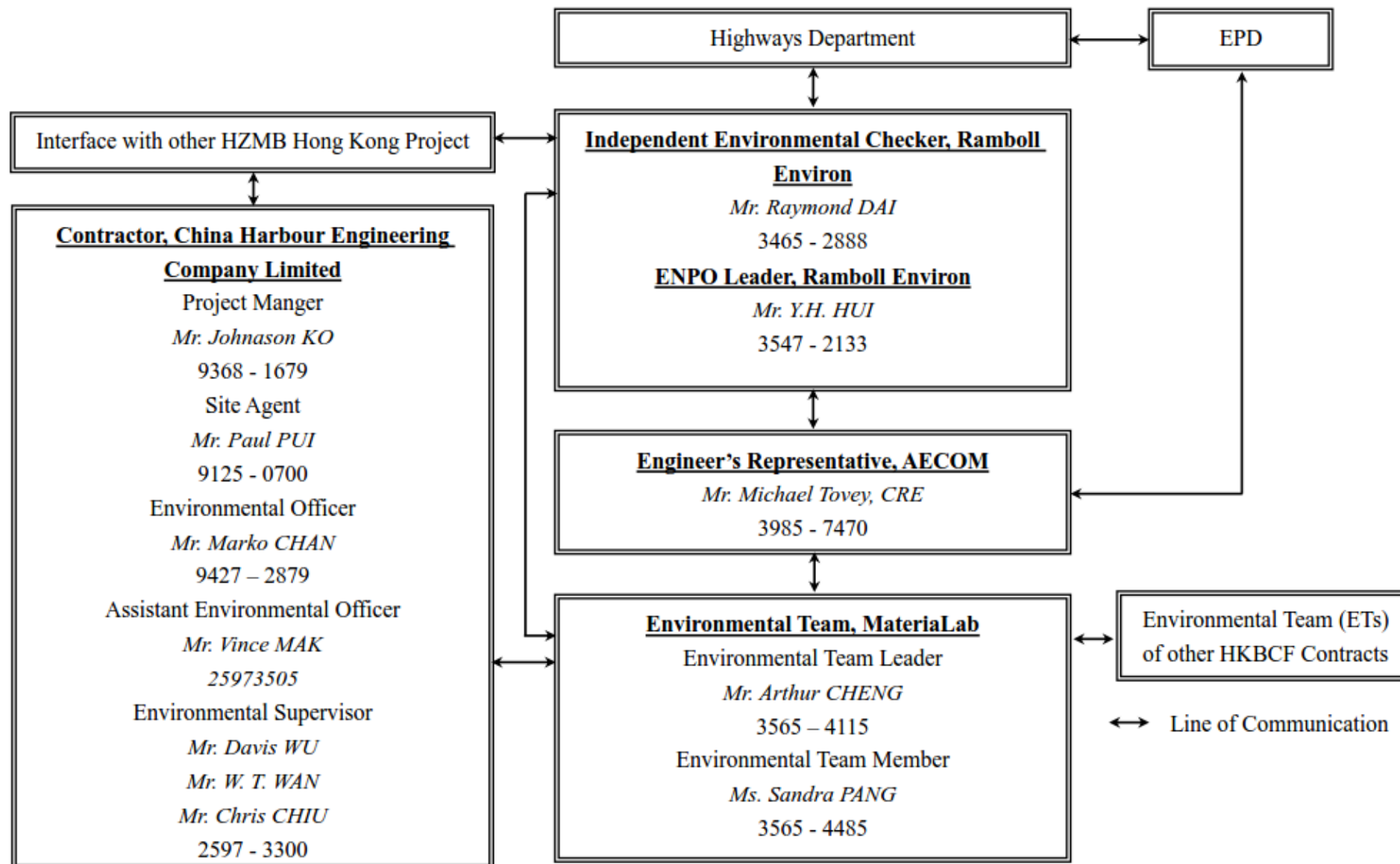
Project Organization for Environmental Works

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 (from Sep 2015 to Nov 2016)

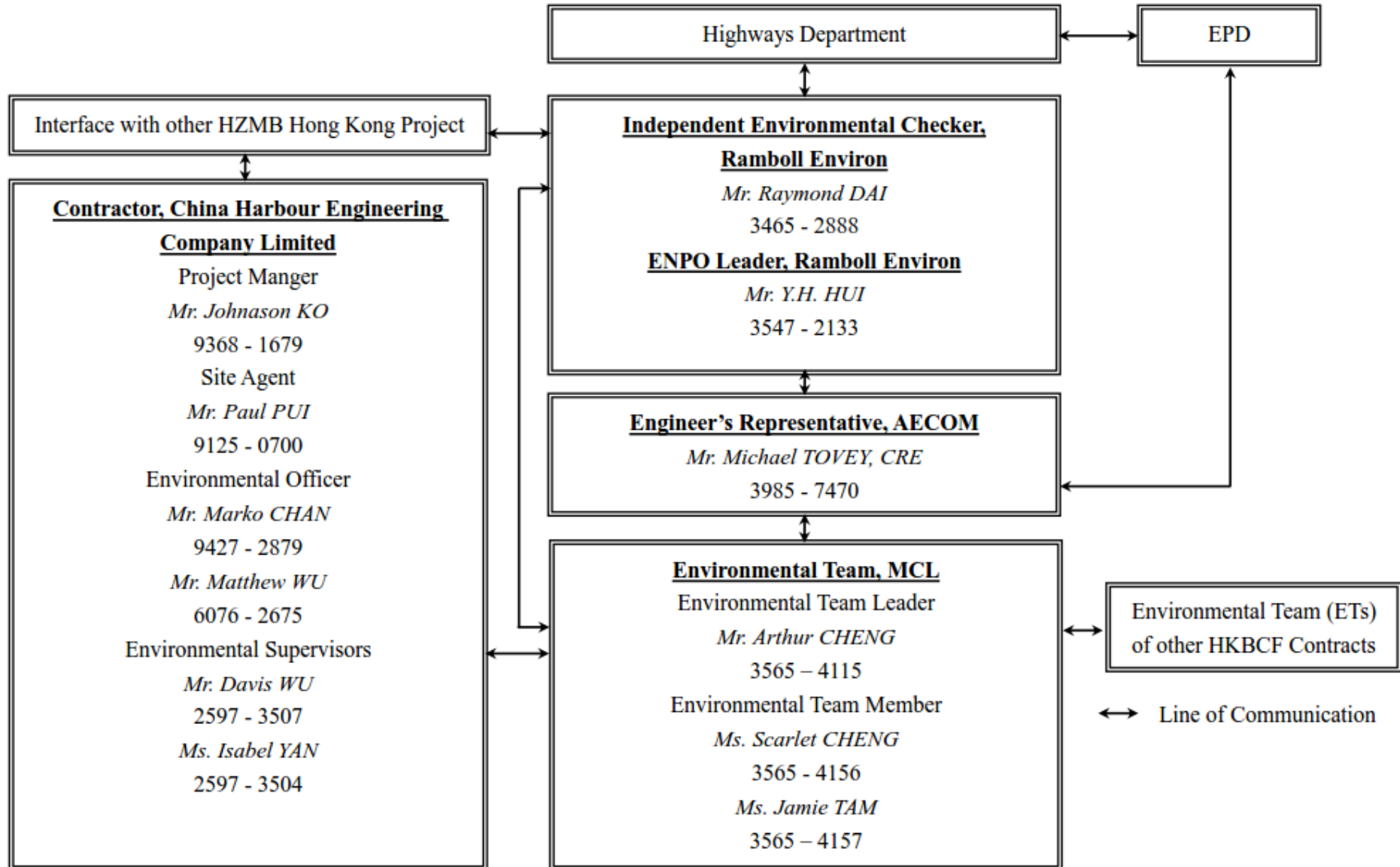


CHINA HARBOUR ENGINEERING COMPANY LIMITED



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 (from Dec 2016 to Feb 2017)

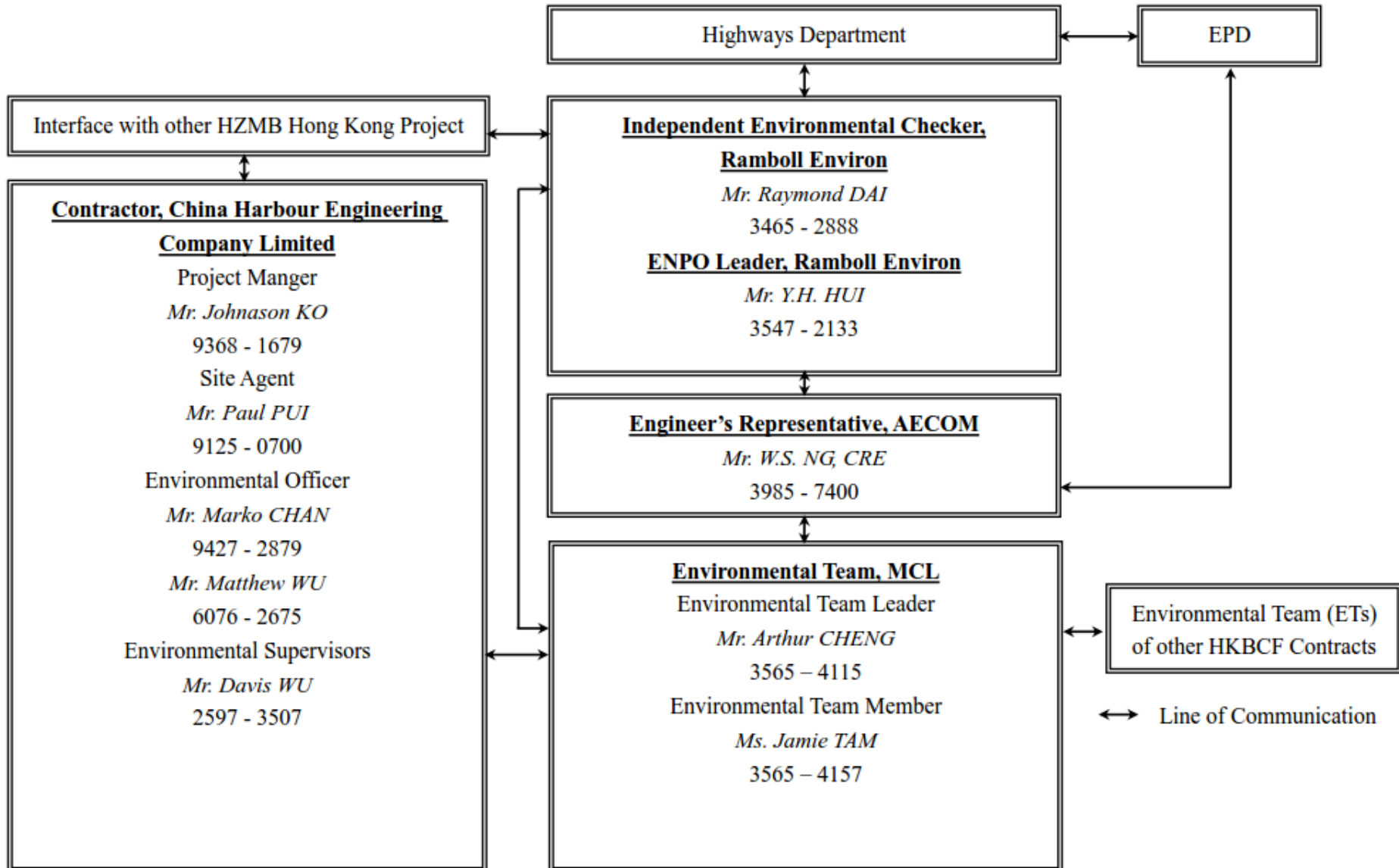


CHINA HARBOUR ENGINEERING COMPANY LIMITED



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 (from Mar 2017 to Sep 2017)

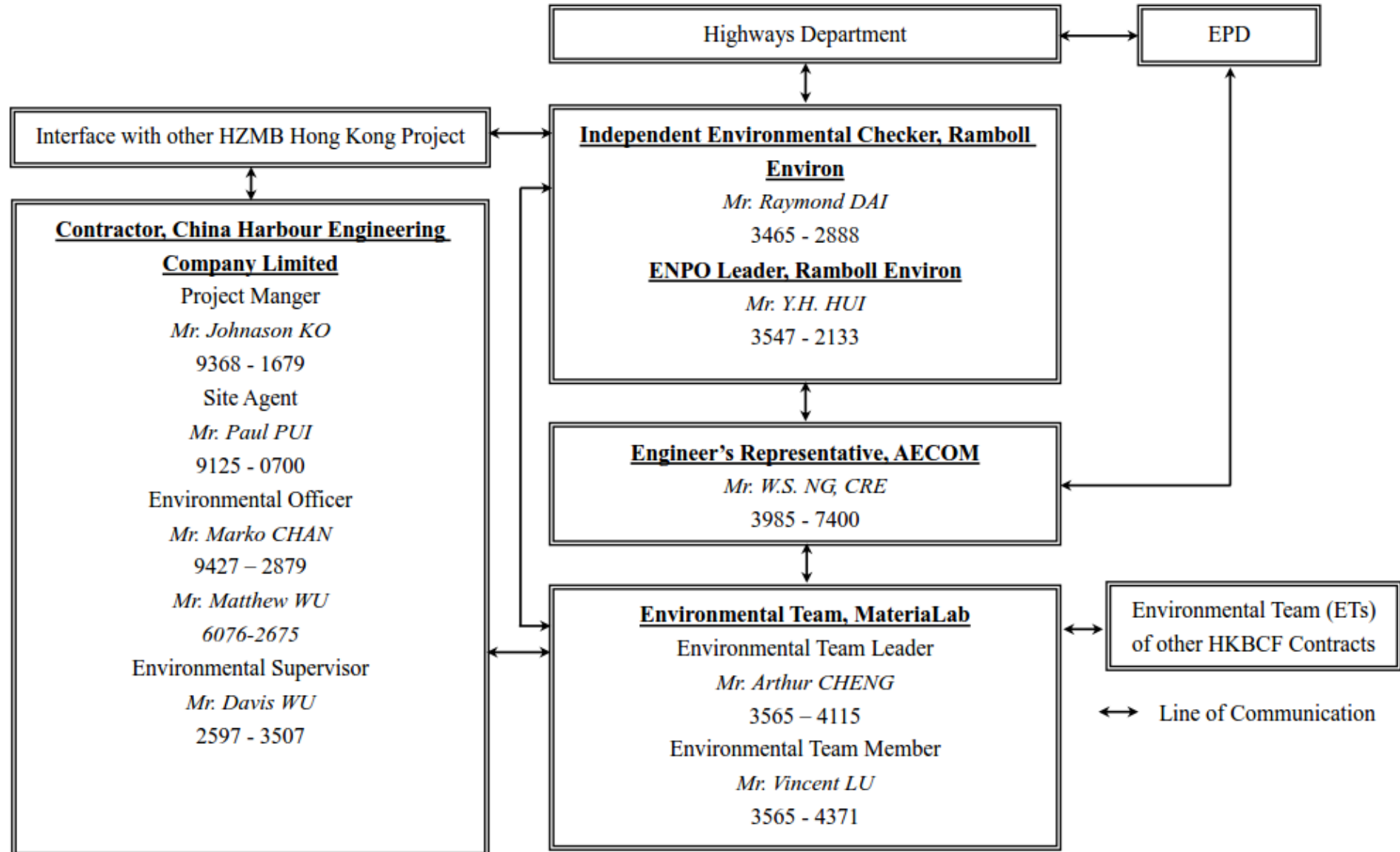


CHINA HARBOUR ENGINEERING COMPANY LIMITED



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 (from Oct 2017 to Dec 2017)

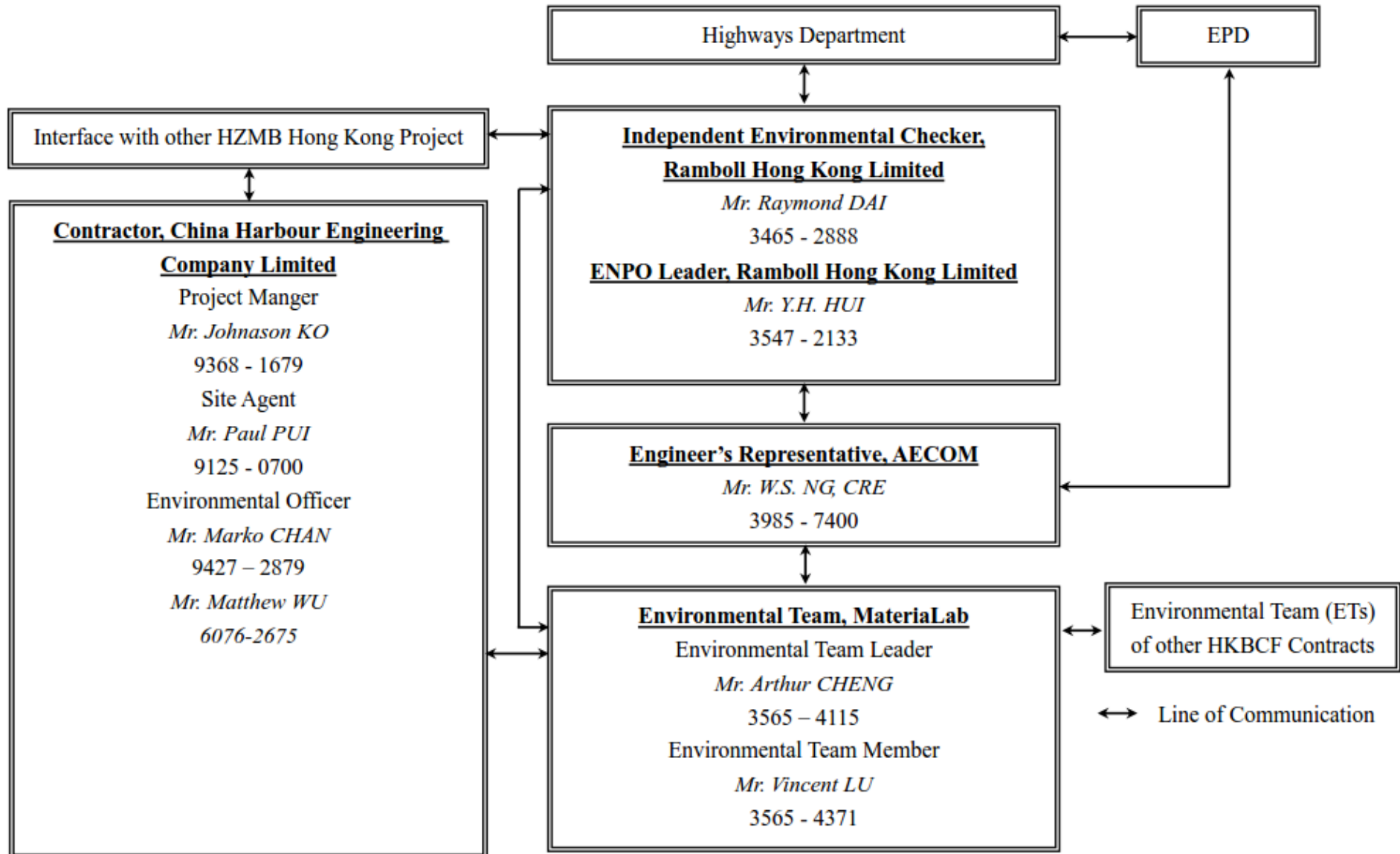


CHINA HARBOUR ENGINEERING COMPANY LIMITED



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 (from Mar 2018 to Oct 2018)

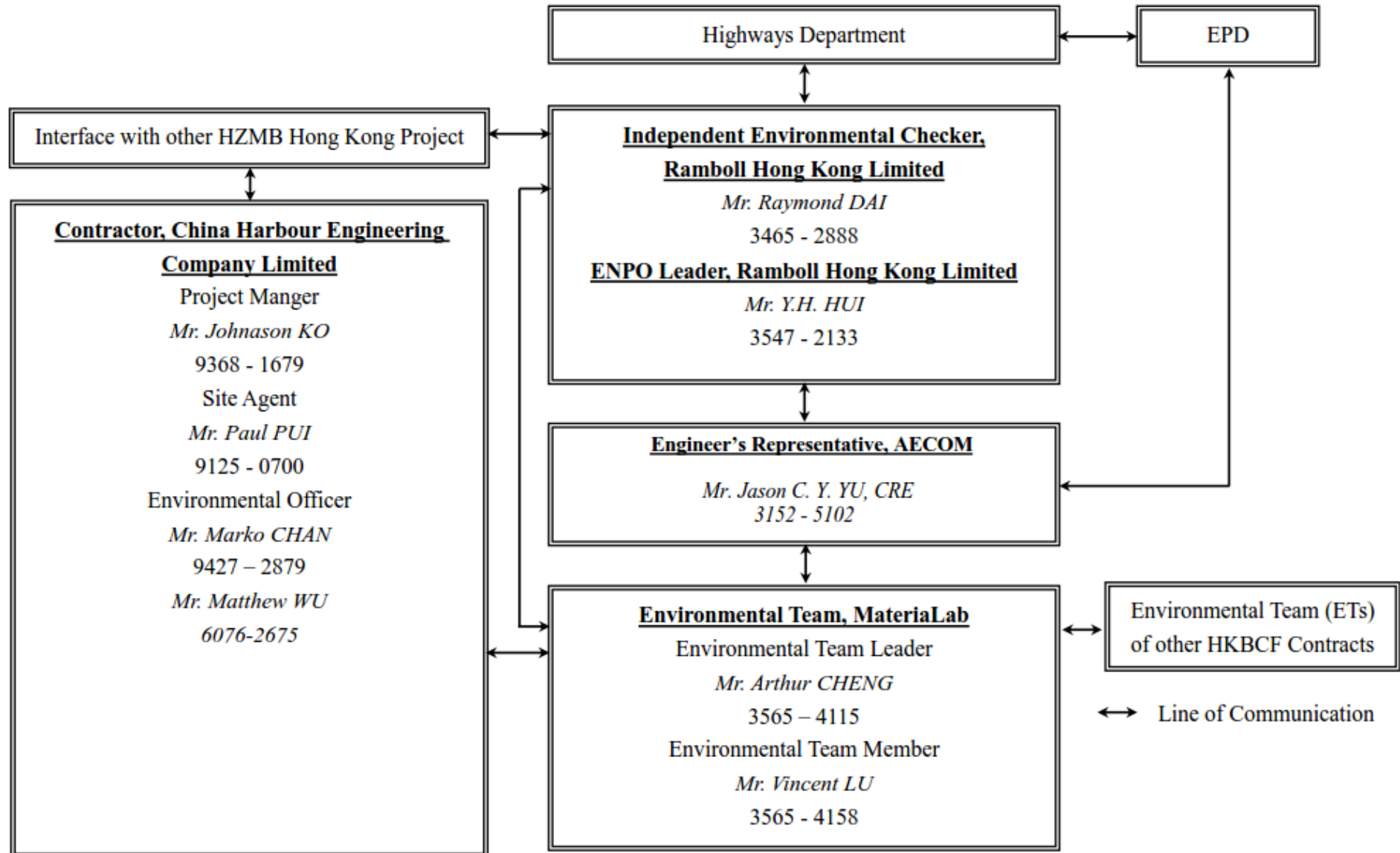


CHINA HARBOUR ENGINEERING COMPANY LIMITED



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 (from Nov 2018 to Dec 2018)

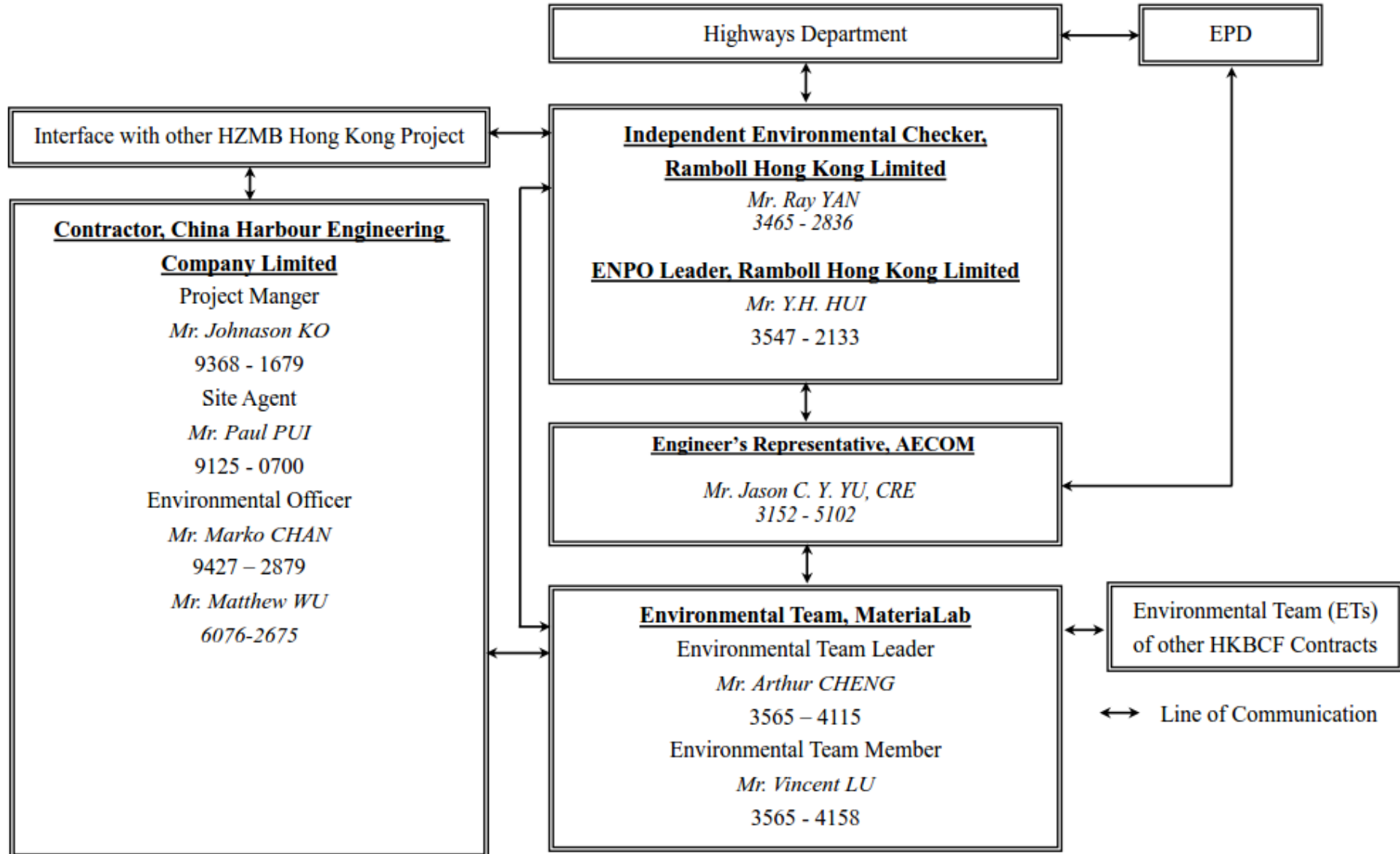


CHINA HARBOUR ENGINEERING COMPANY LIMITED

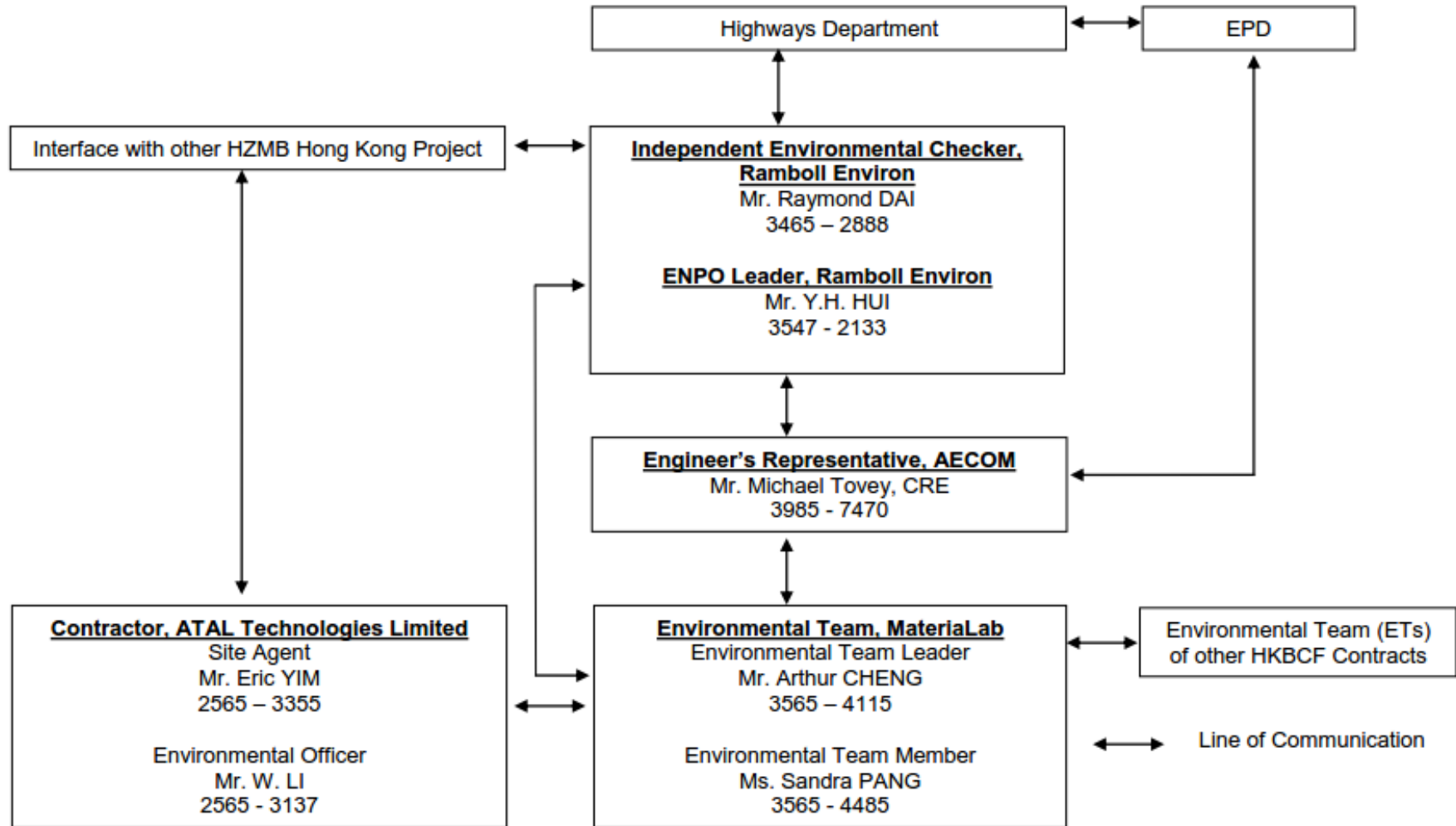


Contract No. HY/2013/03 Hong Kong-Zhuhai-Macao Bridge, Hong Kong Boundary Crossing
Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

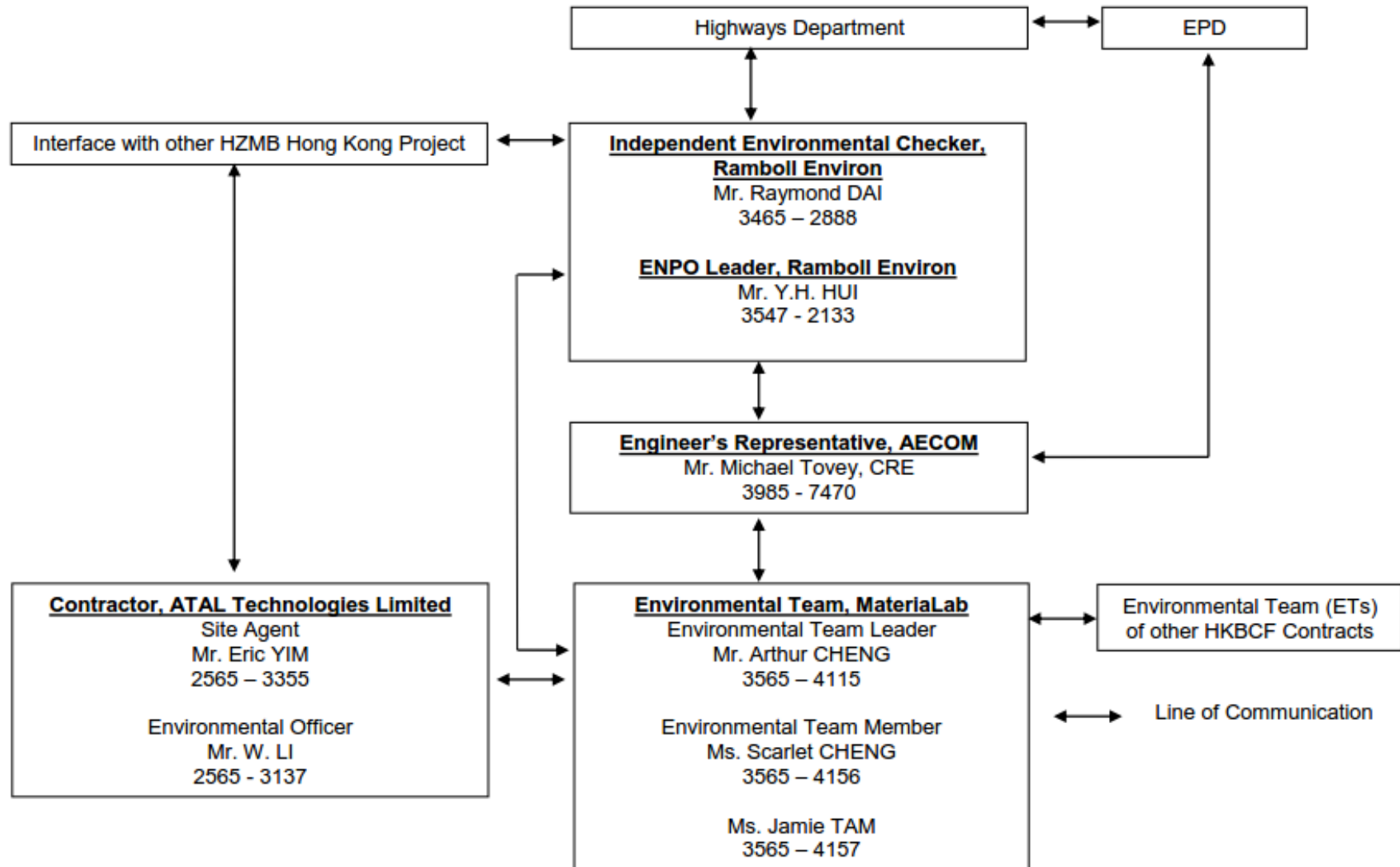
Projects Organization for Environmental Works (for Jan 2019)



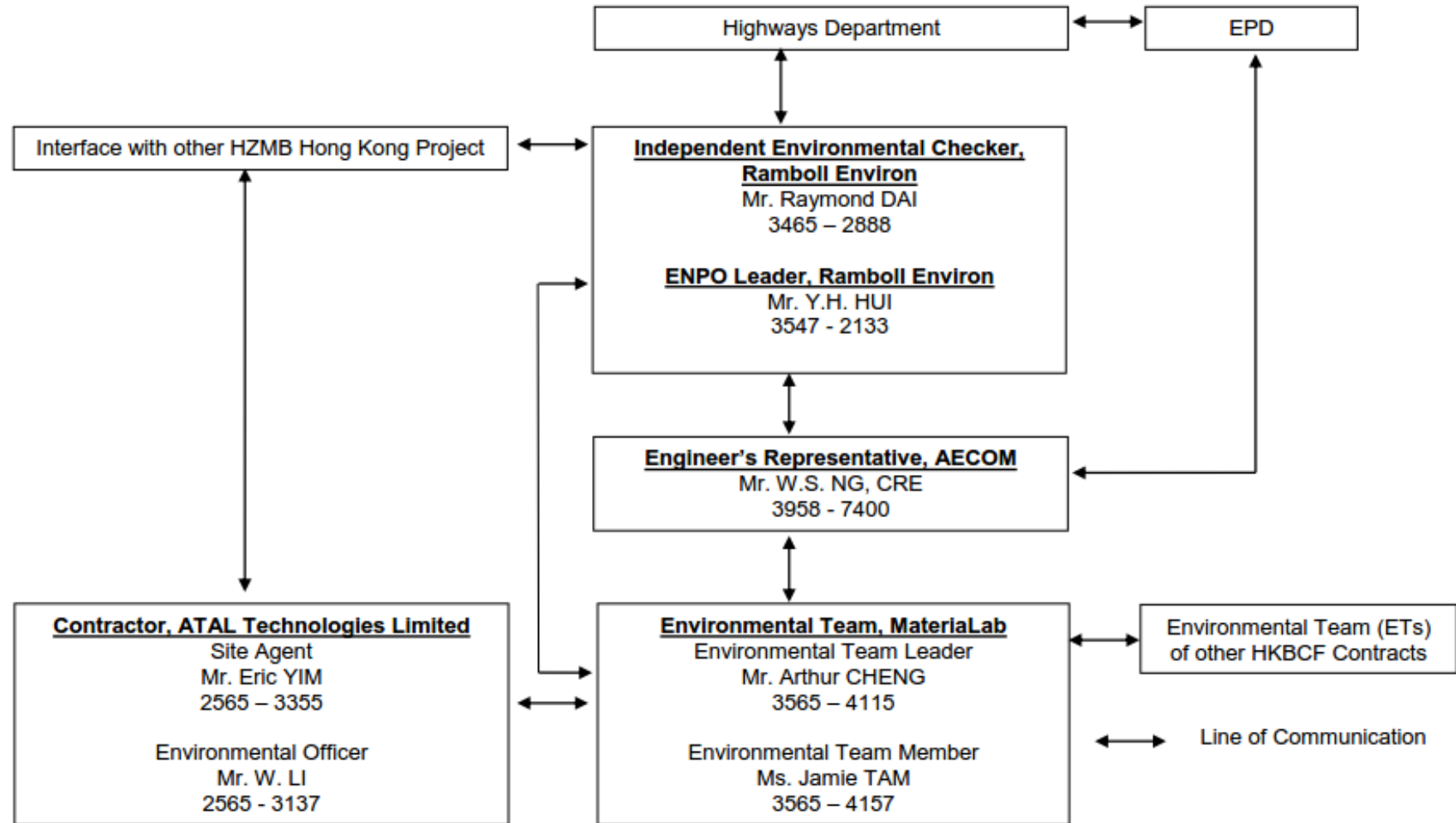
Projects Organization for Environmental Works (from Sep 2016 to Nov 2016)



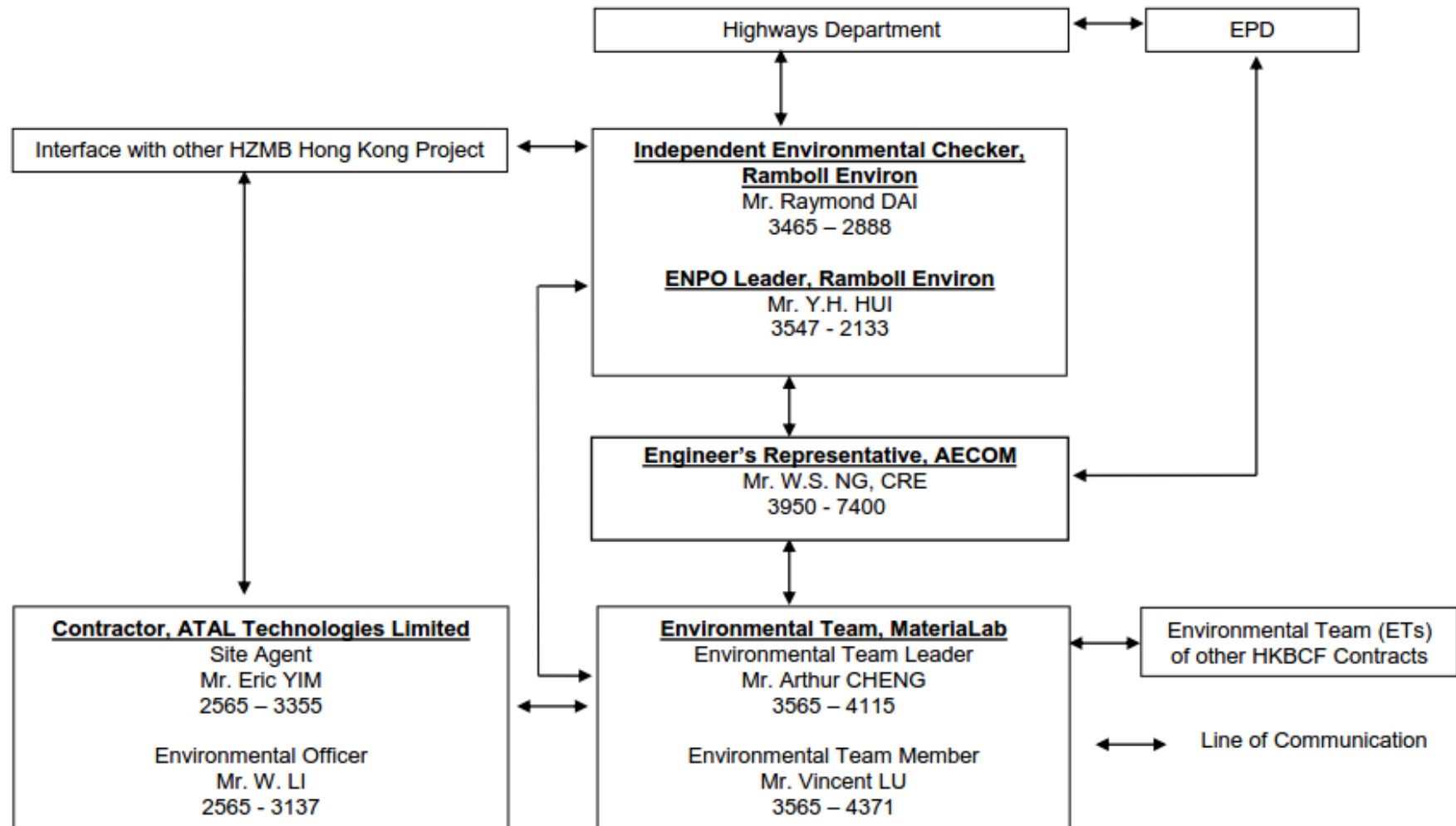
Projects Organization for Environmental Works (from Dec 2016 to Feb 2017)



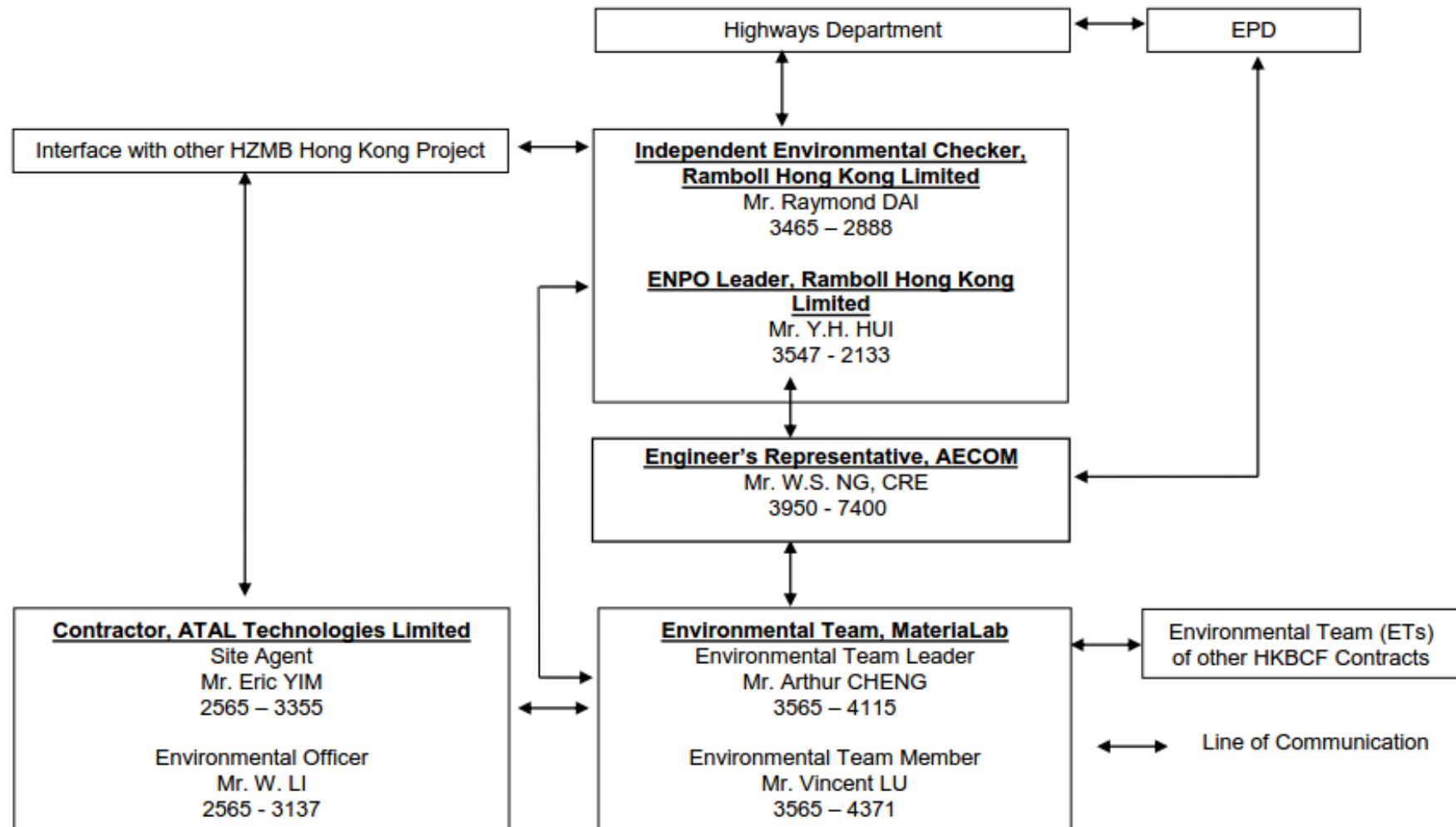
Projects Organization for Environmental Works (from Mar 2017 to Sep 2017)



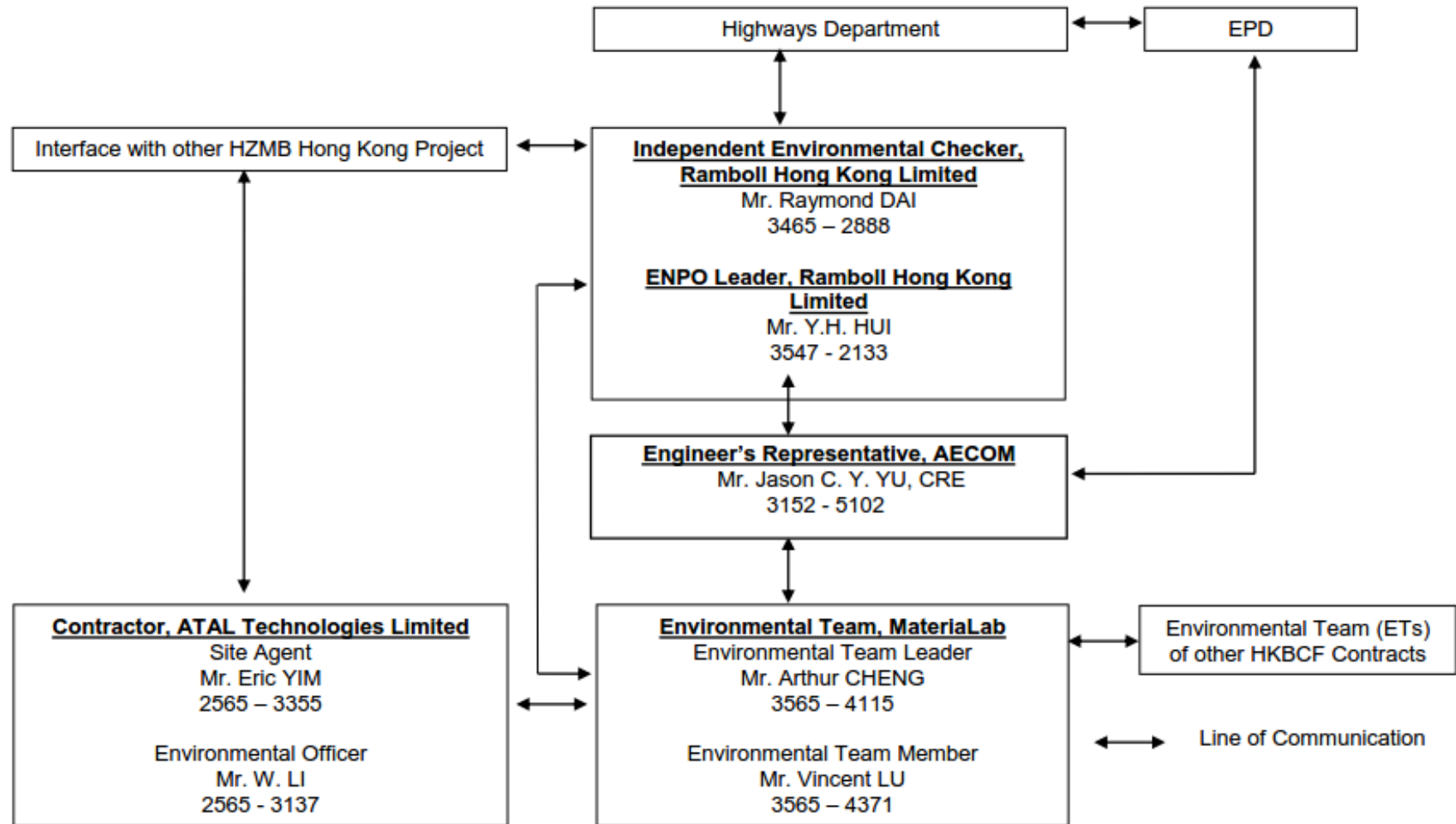
Projects Organization for Environmental Works (from Oct 2017 to Dec 2017)



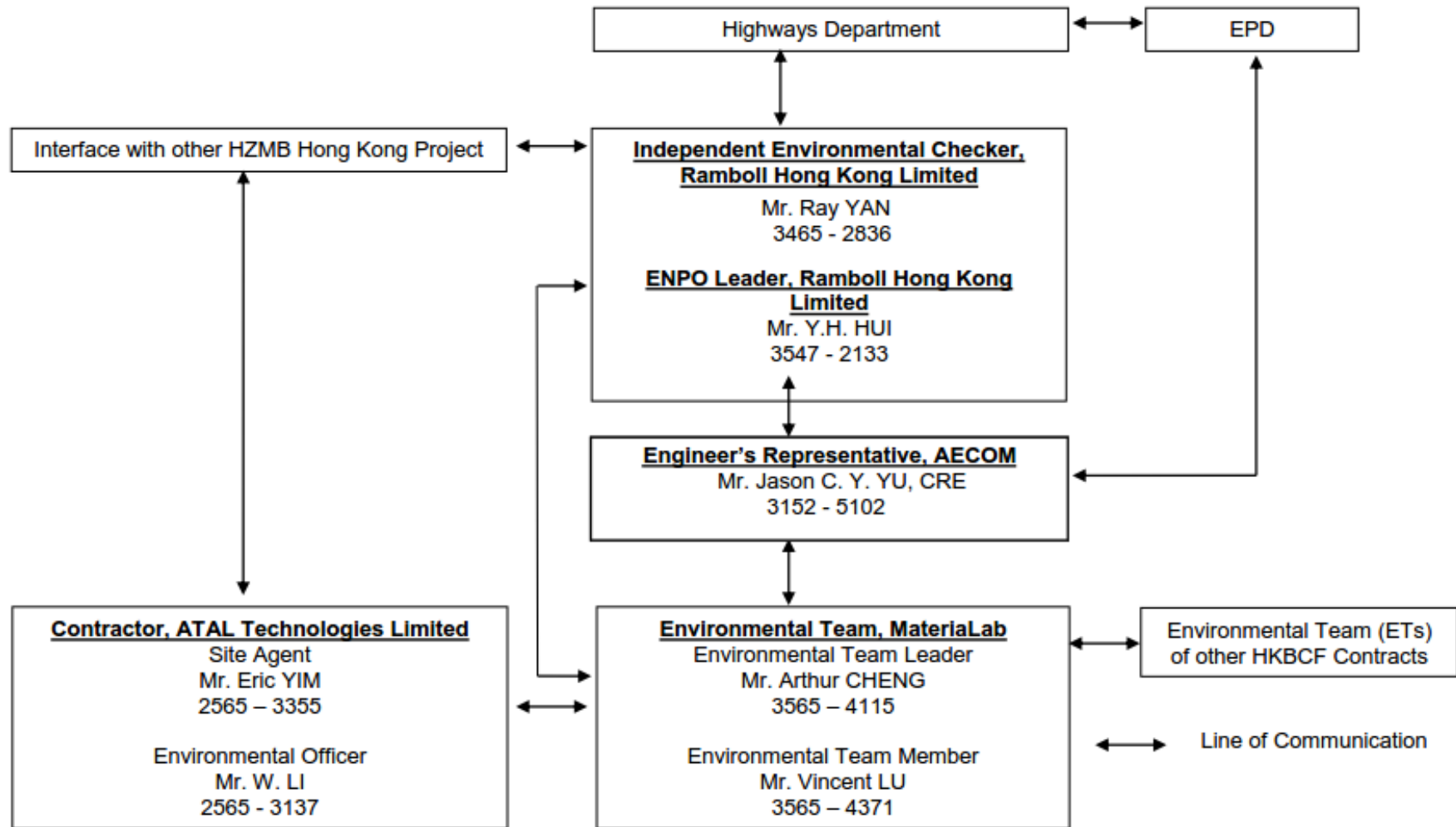
Projects Organization for Environmental Works (from Jan 2018 to Oct 2018)



Projects Organization for Environmental Works (from Nov 2018 to Dec 2018)



Projects Organization for Environmental Works (for Jan 2019)



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MaterialLab

Report No.: 0165/15/ED/1178

Appendix C

Construction Program

HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

13-Nov-18

Activity ID	Activity Name	At Completion Duration	Start	Finish	2016												2017												2018											
					Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
A0090	Possession of Portion H1 (<=273 days)	0		18-May-16 A	◆ Possession of Portion H1 (<=273 days)																																			
A0100	Possession of Portion H2 (<=273 days)	0		29-Sep-16 A	◆ Possession of Portion H2 (<=273 days)																																			
A0110	Possession of Portion J (<=320 days)	0		31-Mar-17 A	◆ Possession of Portion J (<=320 days)																																			
A0120	Possession of Portion K (<=478 days)	0		30-Jul-16 A	◆ Possession of Portion K (<=478 days)																																			
A0130	Possession of Portion L (<=478 days)	0		30-Jul-16 A	◆ Possession of Portion L (<=478 days)																																			
A0140	Possession of Portion M (<=478 days)	0		30-Jul-16 A	◆ Possession of Portion M (<=478 days)																																			
A0150	Possession of Portion N (<=345 days)	0		31-Mar-17 A	◆ Possession of Portion N (<=345 days)																																			
A0160	Possession of Portion P (<=502 days)	0		31-Mar-17 A	◆ Possession of Portion P (<=502 days)																																			
A0170	Possession of Portion Q (<=500 days)	0		24-Jul-17 A	◆ Possession of Portion Q (<=500 days)																																			
A0180	Possession of Portion R (<=610 days)	0		06-Jul-17 A	◆ Possession of Portion R (<=610 days)																																			
A0190	Possession of Portion S (<=478 days)	0		30-Jul-16 A	◆ Possession of Portion S (<=478 days)																																			
A0200	Possession of Portion T (<=478 days)	0		30-Jul-16 A	◆ Possession of Portion T (<=478 days)																																			
Access to Locations of the Site																																								
A0210	Contract Date for Access to Location 1.1 (490 days)	0		31-Mar-17 A	◆ Contract Date for Access to Location 1.1 (490 days)																																			
A0220	Contract Date for Access to Location 1.2 (405 days)	0		01-Feb-17 A	◆ Contract Date for Access to Location 1.2 (405 days)																																			
A0230	Contract Date for Access to Location 1.3 (488 days)	0		20-Apr-17 A	◆ Contract Date for Access to Location 1.3 (488 days)																																			
A0240	Contract Date for Access to Location 1.4 (488 days)	0		20-Apr-17 A	◆ Contract Date for Access to Location 1.4 (488 days)																																			
A0250	Contract Date for Access to Location 1.5 (580 days)	0		25-Nov-15 A	◆ Contract Date for Access to Location 1.5 (580 days)																																			
A0260	Contract Date for Access to Location 1.6A (700 days)	0		25-Nov-15 A	◆ Contract Date for Access to Location 1.6A (700 days)																																			
A0270	Contract Date for Access to Location 1.6B (865 days)	0		25-Nov-15 A	◆ Contract Date for Access to Location 1.6B (865 days)																																			
A0280	Contract Date for Access to Location 1.7A (610 days)	0		30-Jun-17 A	◆ Contract Date for Access to Location 1.7A (610 days)																																			
A0290	Contract Date for Access to Location 1.7B (610 days)	0		30-Jun-17 A	◆ Contract Date for Access to Location 1.7B (610 days)																																			
A0300	Contract Date for Access to Location 1.7C (610 days)	0		30-Jun-17 A	◆ Contract Date for Access to Location 1.7C (610 days)																																			
A0310	Contract Date for Access to Location 1.8 PCB (Basement level up to ground floor slab) (395 days)	0		15-Mar-17 A	◆ Contract Date for Access to Location 1.8 PCB (Basement level up to ground floor slab) (395 days)																																			
A0320	Contract Date for Access to Location 1.8 PCB (Ground Floor level or above) (515 days)	0		15-Mar-17 A	◆ Contract Date for Access to Location 1.8 PCB (Ground Floor level or above) (515 days)																																			
A0330	Contract Date for Access to External Area for Contract HY/2013/01 for ELV System Installation (570 days)	0		01-Mar-18 A	◆ Contract Date for Access to External Area for Contract HY/2013/01 for ELV System Installation (570 days)																																			
A0340	Contract Date for Access to External Area for Contract HY/2013/02 for ELV System Installation (560 days)	0		01-Mar-18 A	◆ Contract Date for Access to External Area for Contract HY/2013/02 for ELV System Installation (560 days)																																			
A0350	Contract Date for Access to External Area for Contract HY/2013/04 ELV System Installation (560 days)	0		01-Mar-18 A	◆ Contract Date for Access to External Area for Contract HY/2013/04 ELV System Installation (560 days)																																			
Possession of the Works Areas																																								
A0380	Possession of Works Area WA3	0		10-Apr-15 A	Works Area WA3																																			
A0390	Possession of Works Area WA4	0		10-Apr-15 A	Works Area WA4																																			
Section/Stage Subject to Excision																																								
A0710	Contract Date for Section IA (273 days, latest date when the Engineer may order)	0	04-Jan-16 A		◆ Contract Date for Section IA (273 days, latest date when the Engineer may order)																																			
A0720	Contract Date for Section IB (273 days, latest date when the Engineer may order)	0	04-Jan-16 A		◆ Contract Date for Section IB (273 days, latest date when the Engineer may order)																																			
A0730	Contract Date for Section IIA (345 days, latest date when the Engineer may order)	0	16-Mar-16 A		◆ Contract Date for Section IIA (345 days, latest date when the Engineer may order)																																			

- Actual Work
- Remaining Work
- Critical
- ◆ Milestone

AS BUILT PROGRAMME
VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES
 Page 2 of 60

Date	Revision	Checked	A...
08-Nov-18	As built programme	ZJ	

HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

13-Nov-18

Activity ID	Activity Name	At Completion Duration	Start	Finish	2016												2017												2018											
					Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
A0740	Contract Date for Section IIB (100 days, latest date when the Engineer may order)	0	30-Jan-16 A		◆ Contract Date for Section IIB (100 days, latest date when the Engineer may order)																																			
A0750	Contract Date for Section IIC (320 days, latest date when the Engineer may order)	0	23-Feb-16 A		◆ Contract Date for Section IIC (320 days, latest date when the Engineer may order)																																			
A0760	Contract Date for Section III (273 days, latest date when the Engineer may order)	0	30-Jan-16 A		◆ Contract Date for Section III (273 days, latest date when the Engineer may order)																																			
A0770	Contract Date for Section VI (650 days, latest date when the Engineer may order)	0	16-Jan-17 A		◆ Contract Date for Section VI (650 days, latest date when the Engineer may order)																																			
A0780	Contract Date for Section VII (650 days, latest date when the Engineer may order)	0	16-Jan-17 A		◆ Contract Date for Section VII (650 days, latest date when the Engineer may order)																																			
A0790	Contract Date for Section VIII (437 days, latest date when the Engineer may order)	0	18-Jun-16 A		◆ Contract Date for Section VIII (437 days, latest date when the Engineer may order)																																			
A0810	Contract Date for Section IX (270 days, latest date when the Engineer may order)	0	30-Jan-16 A		◆ Contract Date for Section IX (270 days, latest date when the Engineer may order)																																			
A0820	Contract Date for Section X (270 days, latest date when the Engineer may order)	0	04-Jan-16 A		◆ Contract Date for Section X (270 days, latest date when the Engineer may order)																																			
A0830	Contract Date for Stage 20 (270 days, latest date when the Engineer may order)	0	30-Jan-16 A		◆ Contract Date for Stage 20 (270 days, latest date when the Engineer may order)																																			
A0840	Contract Date for Stage 21 (270 days, latest date when the Engineer may order)	0	30-Jan-16 A		◆ Contract Date for Stage 21 (270 days, latest date when the Engineer may order)																																			
A0850	Contract Date for Stage 22 (270 days, latest date when the Engineer may order)	0	30-Jan-16 A		◆ Contract Date for Stage 22 (270 days, latest date when the Engineer may order)																																			
A0860	Contract Date for Stage 23 (270 days, latest date when the Engineer may order)	0	04-Jan-16 A		◆ Contract Date for Stage 23 (270 days, latest date when the Engineer may order)																																			
A0870	Contract Date for Stage 24 (270 days, latest date when the Engineer may order)	0	04-Jan-16 A		◆ Contract Date for Stage 24 (270 days, latest date when the Engineer may order)																																			
PRELIMINARY																																								
A0510	Site Establishment	112	10-Apr-15 A	31-Jul-15 A	[Actual Work Bar]																																			
A0610	Mobilization of Plant	325	10-Apr-15 A	29-Feb-16 A	[Actual Work Bar]																																			
Precast Yard for Bridge Segement																																								
A0620	Engineering Service and Factory Preparation	198	01-Dec-15 A	16-Jun-16 A	[Actual Work Bar]																																			
A0630	Segment Manufacture	186	17-Jun-16 A	01-Feb-17 A	[Actual Work Bar]																																			
PORTION A1																																								
Portion A1 Structures (Bridge A9, RW W8-1, 9-1 & Box Culvert D, Building 047 & 049)																																								
Bridge A9																																								
Bored Pile																																								
SA9110	Pre-drill SI, 10 nos.	21	10-Nov-15 A	04-Dec-15 A	[Actual Work Bar]																																			
SA9120	Bored pile for A9 Bridge, 10 no.	174	17-May-16 A	12-Dec-16 A	[Actual Work Bar]																																			
SA9140	Pile testing	5	07-Nov-16 A	12-Nov-16 A	[Actual Work Bar]																																			
Pile Cap																																								
SA9210	Cap - A905	31	14-Nov-16 A	20-Dec-16 A	[Actual Work Bar]																																			
SA9220	Cap - P904	20	26-Nov-16 A	20-Dec-16 A	[Actual Work Bar]																																			
SA9230	Cap - P903	16	28-Dec-16 A	17-Jan-17 A	[Actual Work Bar]																																			
SA9240	Cap - P902	13	19-Dec-16 A	06-Jan-17 A	[Actual Work Bar]																																			
SA9250	Cap - A901	12	21-Nov-16 A	05-Dec-16 A	[Actual Work Bar]																																			
Pier & Abutment																																								
SA9310	Abutment A905	51	21-Dec-16 A	25-Feb-17 A	[Actual Work Bar]																																			
SA9320	Pier P904	23	21-Dec-16 A	20-Jan-17 A	[Actual Work Bar]																																			
SA9330	Pier P903	28	23-Jan-17 A	28-Feb-17 A	[Actual Work Bar]																																			
SA9340	Pier P902	47	07-Jan-17 A	07-Mar-17 A	[Actual Work Bar]																																			
SA9350	Abutment A901	77	06-Dec-16 A	13-Mar-17 A	[Actual Work Bar]																																			
Structure Deck																																								

- Actual Work
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AS BUILT PROGRAMME
VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES
 Page 3 of 60

Date	Revision	Checked	A...
08-Nov-18	As built programme	ZJ	

HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

13-Nov-18

Activity ID	Activity Name	At Completion Duration	Start	Finish	2016												2017												2018																							
					Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug											
A05250	Ceiling/Wall Painting Finish & Floor Screed	248	31-May-16 A	29-Mar-17 A	[Actual Work Bar]																																															
A05260	External Wall Plaster & Wall (KD10)	70	03-Jan-17 A	29-Mar-17 A													[Actual Work Bar]																																			
A05270	Main Switch/L.V. Switch Board Installation	123	01-Nov-16 A	31-Mar-17 A													[Actual Work Bar]																																			
A05280	Genset Installation	47	01-Dec-16 A	01-Feb-17 A													[Actual Work Bar]																																			
Fuel Filling Station incl. BS & E/M																																																				
A05290	All Works for Fuel Filling Station	163	11-Feb-17 A	30-Aug-17 A													[Actual Work Bar]																																			
T&C and Statutory Inspection																																																				
B05210	T&C for BS & Pumps	338	02-Feb-17 A	23-Mar-18 A													[Actual Work Bar]																																			
B05220	DG application	99	27-Feb-17 A	30-Jun-17 A													[Actual Work Bar]																																			
B05230	DG Inspection	94	27-Nov-17 A	23-Mar-18 A																									[Actual Work Bar]																							
B05240	EPD Generator Set Emission Application	24	15-Jun-16 A	14-Jul-16 A	[Actual Work Bar]																																															
B05250	EPD Generator Set Emission Approval	0		15-Jul-16 A																									◆ EPD Generator Set Emission Approval																							
B05270	Non-Essential T&C (Non-FSI)	93	03-Jul-17 A	21-Oct-17 A													[Actual Work Bar]																																			
B05280	OP Application & TPIDC Inspection	129	26-Mar-18 A	31-Aug-18																									[Actual Work Bar]																							
B05290	Provision of TPIDC's Completion Certificate (OP Issue)	0		31-Aug-18																																																
Completion of Fire Services Installation and Equipment (FCD)																																																				
C05210	Approved Building Plans	0		31-Jul-17 A																									◆ Approved Building Plans																							
C05220	Application for FSI Inspection (FSI/501) c/w FSI Plan (FSI/314)	10	01-Aug-17 A	12-Aug-17 A													[Actual Work Bar]																																			
C05230	Provision of Direct Link for Fire Alarm System by Chubb	0		04-Sep-17 A																									◆ Provision of Direct Link for Fire Alarm System by Chubb																							
C05240	FSI Inspection	175	21-Aug-17 A	23-Mar-18 A													[Actual Work Bar]																																			
C05250	Acceptance by FSD	0		25-Apr-18 A																									◆ Acceptance by FSD																							
105 IMMID Guard Booth, Portion A1(Mock Up)																																																				
B10500	Shop Drawings & Material Submission	29	03-Jan-17 A	01-Feb-17 A													[Actual Work Bar]																																			
B10510	Excavation + Blinding	5	22-May-17 A	27-May-17 A													[Actual Work Bar]																																			
B10520	Substructure (Raft Foundation)	7	29-May-17 A	06-Jun-17 A													[Actual Work Bar]																																			
B10530	On Grade Ground Slab	9	12-May-17 A	23-May-17 A													[Actual Work Bar]																																			
B10540	Finishing	199	31-Jul-17 A	31-Mar-18 A													[Actual Work Bar]																																			
B10550	BS for Office Accommodations (KD9)	70	01-Sep-17 A	25-Nov-17 A													[Actual Work Bar]																																			
B10560	BS + E&M for Office Accommodation (KD10)	53	27-Nov-17 A	31-Jan-18 A																									[Actual Work Bar]																							
B10570	Other BS + E & M Installation	145	03-Oct-17 A	31-Mar-18 A													[Actual Work Bar]																																			
C10540	T&C for BS & Pumps	48	01-Feb-18 A	06-Apr-18 A																									[Actual Work Bar]																							
C10550	Form 314 & 501 Submission	0	28-Oct-17 A																										◆ Form 314 & 501 Submission																							
C10560	FS Inspection by FSD	48	01-Feb-18 A	06-Apr-18 A																									[Actual Work Bar]																							
C10570	OP Application & TPIDC Inspection	102	02-May-18 A	31-Aug-18																									[Actual Work Bar]																							
C10580	OP Issue	0		31-Aug-18																																																
Facade Envelop Structure Installation																																																				
B10580	Shop Drawing Submission and Approval	26	01-Mar-17 A	31-Mar-17 A													[Actual Work Bar]																																			

■ Actual Work
■ Remaining Work
■ Critical
◆ Milestone

AS BUILT PROGRAMME
VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES
 Page 12 of 60

Date	Revision	Checked	A...
08-Nov-18	As built programme	ZJ	

HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

13-Nov-18

Activity ID	Activity Name	At Completion Duration	Start	Finish	2016												2017												2018											
					Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
B05490	All Works for Fuel Filling Station	200	20-Dec-16 A	26-Aug-17 A	[Gantt bar: Dec 2016 - Aug 2017]																																			
T&C and Statutory Inspection for Zone 4a																																								
B05400	BEE0 Stage II & Assessor Certification Submission	125	02-Apr-18 A	31-Aug-18	[Gantt bar: Apr 2018 - Aug 2018]																																			
B05420	T&C for BS & Pumps	214	03-Jul-17 A	20-Mar-18 A	[Gantt bar: Jul 2017 - Mar 2018]																																			
B05430	Form LE Submission to EMSD	0	03-Oct-17 A	03-Oct-17 A	◆ Form LE Submission to EMSD																																			
B05440	Lift Inspection by EMSD	25	01-Aug-17 A	30-Aug-17 A	[Gantt bar: Aug 2017]																																			
B05450	DG Application	27	01-Feb-17 A	28-Feb-17 A	[Gantt bar: Feb 2017]																																			
B05460	DG Inspection	245	18-Jul-17 A	20-Mar-18 A	[Gantt bar: Jul 2017 - Mar 2018]																																			
B05470	EPD Generator Set Emission Application	24	15-Jun-16 A	14-Jul-16 A	[Gantt bar: Jun 2016]																																			
B05480	EPD Generator Set Emission Approval	0	15-Jul-16 A	15-Jul-16 A	◆ EPD Generator Set Emission Approval																																			
F05430	Provision of TPIDC's Completion Certificate (OP Issue)	0	31-Aug-18	31-Aug-18	◆																																			
Completion of Fire Services Installation and Equipment (FCD)																																								
F05440	Approved Building Plans	0	27-Jan-17 A	27-Jan-17 A	◆ Approved Building Plans																																			
F05450	Application for FSI Inspection (FSI/501) c/w FSI Plan (FSI/314)	10	01-Aug-17 A	12-Aug-17 A	[Gantt bar: Aug 2017]																																			
F05460	Provision of Direct Link for Fire Alarm System by Chubb	0	29-Sep-17 A	29-Sep-17 A	◆ Provision of Direct Link for Fire Alarm System by Chubb																																			
F05470	FSI Inspection (2 Trials)	137	30-Sep-17 A	20-Mar-18 A	[Gantt bar: Sep 2017 - Mar 2018]																																			
F05480	Acceptance by FSD	0	10-Apr-18 A	10-Apr-18 A	◆ Acceptance by FSD																																			
Waterworks Ordinance (WSD)																																								
G05410	Approval Letter and approved Drawings	0	31-Aug-17 A	31-Aug-17 A	◆ Approval Letter and approved Drawings																																			
G05420	Submission of WWO46 - Part I & II (Inside Services)	32	03-Oct-16 A	10-Nov-16 A	[Gantt bar: Oct 2016 - Nov 2016]																																			
G05430	Submission of WWO46 - Part IV (Inside Services)	9	01-Sep-17 A	12-Sep-17 A	[Gantt bar: Sep 2017]																																			
G05440	WSD Inspection & Issue of WWO46 - Part V (Inside Services)	116	01-Nov-17 A	23-Mar-18 A	[Gantt bar: Nov 2017 - Mar 2018]																																			
G05450	Water Connection & Water Supplies Certificate issued by WSD (Inside Services)	19	01-Mar-18 A	23-Mar-18 A	[Gantt bar: Mar 2018]																																			
038 AFCD Office																																								
A03810	Excavation + Blinding	40	18-Jul-16 A	02-Sep-16 A	[Gantt bar: Jul 2016 - Sep 2016]																																			
A03820	Substructure	32	22-Sep-16 A	01-Nov-16 A	[Gantt bar: Sep 2016 - Nov 2016]																																			
A03830	Superstructure; G/F to 1/F	71	02-Nov-16 A	27-Jan-17 A	[Gantt bar: Nov 2016 - Jan 2017]																																			
A03840	Superstructure; 1/F to 2/F (incl. parapet and planter wall)	18	01-Feb-17 A	22-Feb-17 A	[Gantt bar: Feb 2017]																																			
A03850	Finishing + Curtain Wall Installation	279	23-Feb-17 A	31-Jan-18 A	[Gantt bar: Feb 2017 - Jan 2018]																																			
A03870	BS for Office Accommodation (Stage 8)	149	28-Feb-17 A	30-Aug-17 A	[Gantt bar: Feb 2017 - Aug 2017]																																			
A03880	BS + E&M for Office Accommodation (Stage 9)	249	30-Mar-17 A	31-Jan-18 A	[Gantt bar: Mar 2017 - Jan 2018]																																			
A03890	Other BS + E&M Installation	179	24-Jul-17 A	28-Feb-18 A	[Gantt bar: Jul 2017 - Feb 2018]																																			
Test & Commission																																								
B03810	T&C for BS & Pumps	145	03-Oct-17 A	03-Apr-18 A	[Gantt bar: Oct 2017 - Apr 2018]																																			
B03830	Submission & Issue of WW046 I, II, III (Inside Services & FS)	11	03-Jul-17 A	15-Jul-17 A	[Gantt bar: Jul 2017]																																			
B03840	Submission & Issue of WW046 IV, V (Inside Services & FS)	9	03-Oct-17 A	14-Oct-17 A	[Gantt bar: Oct 2017]																																			

■ Actual Work
■ Remaining Work
■ Critical
◆ Milestone

AS BUILT PROGRAMME
VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES
 Page 19 of 60

Date	Revision	Checked	A...
08-Nov-18	As built programme	ZJ	

HZMB HK Boundary Crossing Facilities - Vehicle Clearance Plazas and Ancillary Buildings and Facilities

13-Nov-18

Activity ID	Activity Name	At Completion Duration	Start	Finish	2016												2017												2018										
					Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
PORTION G, H1 & H2																																							
Portion G Structures (Bridge A1, A2, A3, A4, A5, A6, A7, A8, Box Culvert C & RW W1-1, 3-1, 5-1, 7-1)																																							
Box Culvert C																																							
Steel H Pile																																							
SC0210	Predrill SI for Box Culvert C, 11 Nr.	48	01-Sep-15 A	31-Oct-15 A																																			
SC0220	Predrill SI for Box Culvert C, 12 Nr.	24	02-Oct-15 A	31-Oct-15 A																																			
SC0230	Predrill SI for Box Culvert C 19 Nr.	28	02-Nov-15 A	04-Dec-15 A																																			
SC0240	Removal of surcharge	26	01-Aug-16 A	31-Aug-16 A																																			
SC0250	Sheeting Piling for (approx 150m long), Stage 1	5	01-Sep-16 A	07-Sep-16 A																																			
SC0260	Box C - 67 nos. of driven H pile, Stage 1	18	08-Sep-16 A	30-Sep-16 A																																			
SC0270	Box C - 38 nos. of driven H pile, Stage 2	23	30-Sep-16 A	29-Oct-16 A																																			
SC0280	Box C - 54 nos. of driven H pile, Stage 3	26	31-Oct-16 A	30-Nov-16 A																																			
Box Culvert Structure																																							
SC0310	Box C - Branch Construction	136	01-Dec-16 A	23-May-17 A																																			
SC0320	Box C - Branch Backfilling	32	24-May-17 A	30-Jun-17 A																																			
SC0380	Box C - Construction of Main Body	136	01-Dec-16 A	23-May-17 A																																			
SC0390	Box C - Back filling	55	24-May-17 A	29-Jul-17 A																																			
Bridge A1																																							
Bored Pile																																							
SA1110	Predrill SI, 10 nos.	26	07-Dec-15 A	09-Jan-16 A																																			
SA1120	Bore pile, 8 nos.	56	29-Feb-16 A	10-May-16 A																																			
SA1130	Bore pile for other 2 nos. (A106)	33	29-Aug-16 A	08-Oct-16 A																																			
SA1140	Pile Testing	5	01-Nov-16 A	07-Nov-16 A																																			
Pile Cap																																							
SA1210	Cap - A106	12	01-Nov-16 A	15-Nov-16 A																																			
SA1220	Cap - P103	17	24-May-16 A	14-Jun-16 A																																			
SA1230	Cap - P104	17	24-May-16 A	14-Jun-16 A																																			
SA1240	Cap - P102	9	15-Jun-16 A	25-Jun-16 A																																			
SA1250	Cap - P105	31	13-Jun-16 A	20-Jul-16 A																																			
Pier & Abutment																																							
SA1310	Abutment A106	43	16-Nov-16 A	09-Jan-17 A																																			
SA1320	Pier P103	22	06-Jun-16 A	04-Jul-16 A																																			
SA1330	Pier P104	23	20-Jun-16 A	18-Jul-16 A																																			
SA1340	Pier P102	28	27-Jun-16 A	30-Jul-16 A																																			
SA1350	Pier P105	28	15-Aug-16 A	17-Sep-16 A																																			
Structure Deck																																							
SA1410	Falsework for Deck P103 - P104	17	08-Aug-16 A	27-Aug-16 A																																			
SA1420	Deck on P103 & P104 + Stressing	39	29-Aug-16 A	17-Oct-16 A																																			

- Actual Work
- Remaining Work
- Critical
- Milestone

AS BUILT PROGRAMME
VEHICLE CLEARANCE PLAZAS AND ANCILLARY BUILDINGS AND FACILITIES
 Page 32 of 60

Date	Revision	Checked	A...
08-Nov-18	As built programme	ZJ	

Activity ID	Activity Name
Hong Kong-Zhuhai_Macao Bridge Hong Kong Boundary Crossin	
Key Dates	
A1000	Acceptance of Contract
A1010	Commencement of Works
A1020	Excision of Phase 2 (Section II & III)
A1120	KD1 (Phase 1 / Section I) (28 Kiosks)
A1470	KD2 (Phase 2 / Section II) (2 Kiosks)
A1480	KD3 (Phase 2 / Section III) (42 Kiosks)
Interface Activities	
A6860	Interface Management Plan Submission between C6 and C1
A6865	Interface Management Plan between C6 and C1 reviewed by Engineer
A6870	Detailed Interface Document Submission between C6 and C1
A6875	Detailed Interface Document between C6 and C1 reviewed by Engineer
A6880	Interface Management Plan Submission between C6 and C3
A6885	Interface Management Plan between C6 and C3 reviewed by Engineer
A6890	Detailed Interface Document Submission between C6 and C3
A6895	Detailed Interface Document between C6 and C3 reviewed by Engineer
A6900	Interface Management Plan Submission between C6 and C8
A6905	Interface Management Plan between C6 and C8 reviewed by Engineer
A6910	Detailed Interface Document Submission between C6 and C8
A6915	Detailed Interface Document between C6 and C8 reviewed by Engineer
Site and Facility Inspection	
A4730	Pre Site and Facility Inspection by Contractor at Location 1 - Deg1
A4740	Joint Site and Facility Inspection with Interface Contractor at Location 1 - Deg1
A4760	Pre Site and Facility Inspection by Contractor at Location 2 - Deg1
A4770	Joint Site and Facility Inspection with Interface Contractor at Location 2 - Deg1
A4772	Pre Site and Facility Inspection by Contractor at Location 2 - Deg2
A4774	Joint Site and Facility Inspection with Interface Contractor at Location 2 - Deg2
A4775	Joint Site and Facility Inspection with Interface Contractor at Location 2 for Server Installation
A4780	Pre Site and Facility Inspection by Contractor at Location 3 - Deg1
A4790	Joint Site and Facility Inspection with Interface Contractor at Location 3 - Deg1
A4800	Pre Site and Facility Inspection by Contractor at Location 3 - Deg2
A4810	Joint Site and Facility Inspection with Interface Contractor at Location 3 - Deg2
A4820	Pre Site and Facility Inspection by Contractor at Location 3a - Deg1
A4830	Joint Site and Facility Inspection with Interface Contractor at Location 3a - Deg1
A4840	Pre Site and Facility Inspection by Contractor at Location 3a - Deg2
A4850	Joint Site and Facility Inspection with Interface Contractor at Location 3a - Deg2
A4851	Joint Site and Facility Inspection with Interface Contractor at Location 3a for Server Installation
A4860	Pre Site and Facility Inspection by Contractor at Location 4 - Deg1
A4870	Joint Site and Facility Inspection with Interface Contractor at Location 4 - Deg1
A4880	Pre Site and Facility Inspection by Contractor at Location 4 - Deg2
A4890	Joint Site and Facility Inspection with Interface Contractor at Location 4 - Deg2
A4891	Pre Site and Facility Inspection by Contractor at Location 4a - Deg1



Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- █ Actual Level of Effort
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▬ summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)



Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015				2016				2017				2018				2019	
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
A5360	Pre Site and Facility Inspection by Contractor at Location 16 - Deg2																		
A5370	Joint Site and Facility Inspection with Interface Contractor at Location 16 - Deg2																		
A5375	Pre Site and Facility Inspection by Contractor at Location 17 - Deg1																		
A5378	Joint Site and Facility Inspection with Interface Contractor at Location 17 - Deg1																		
A5380	Pre Site and Facility Inspection by Contractor at Location 17 - Deg2																		
A5390	Joint Site and Facility Inspection with Interface Contractor at Location 17 - Deg2																		
A5395	Pre Site and Facility Inspection by Contractor at Location 18 - Deg1																		
A5396	Joint Site and Facility Inspection with Interface Contractor at Location 18 - Deg1																		
A5400	Pre Site and Facility Inspection by Contractor at Location 18 - Deg2																		
A5410	Joint Site and Facility Inspection with Interface Contractor at Location 18 - Deg2																		
A5420	Pre Site and Facility Inspection by Contractor at Location 19 - Deg1																		
A5430	Joint Site and Facility Inspection with Interface Contractor at Location 19 - Deg1																		
A5440	Pre Site and Facility Inspection by Contractor at Location 19 - Deg2																		
A5450	Joint Site and Facility Inspection with Interface Contractor at Location 19 - Deg2																		
A5470	Pre Site and Facility Inspection by Contractor at Inbound Vehicle Clearance Plaza																		
A5480	Joint Site and Facility Inspection with Interface Contractor at Inbound Vehicle Clearance Plaza																		
A5490	Pre Site and Facility Inspection by Contractor at Outbound Vehicle Clearance Plaza																		
A5550	Joint Site and Facility Inspection with Interface Contractor at Outbound Vehicle Clearance Plaza																		
Access Dates		<p>24-Jun-17, Access Dates</p> <ul style="list-style-type: none"> ◆ Location 1(PCB (001) Basement)-Deg1 (270d), 10-May-16* ◆ Location 1(PCB (001) ELV Room (Grid Line E3))-Deg1 (270d), 10-May-16* ◆ Location 2(PCB (001) First Floor Main Server Room)-Deg1 (330d), 09-Jul-16* ◆ Location 2(PCB (001) First Floor Main Server Room)-Deg2 (380d), 28-Aug-16* ◆ Location 2(PCB (001) First Floor Main Server Room) - For Server Installation, 28-Aug-16* ◆ Location 2(PCB (001) Ground Floor ELV Room (Grid Line E3)) - Deg1 (330d), 09-Jul-16* ◆ Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5)) - Deg1 (330d), 09-Jul-16* ◆ Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5)) - Deg2 (380d), 09-Jul-16* ◆ Location 3(Inbd Cargo Exam Bldg (037) MDF Room)-Deg1 (400d), 17-Sep-16* ◆ Location 3(Inbd Cargo Exam Bldg (037) ELV Room)-Deg1 (400d), 17-Sep-16* ◆ Location 3(Inbd Cargo Exam Bldg (037) Platform Control Room)-Deg1 (400d), 17-Sep-16* ◆ Location 3(Inbd Cargo Exam Bldg (037) Platform Control Room)-Deg2 (500d), 17-Sep-16* ◆ Location 3(Inbd Cargo Exam Bldg (037) Inspector Offices 128,129,130,131,128,129,140,141)-Deg1 (400d), 17-Sep-16* ◆ Location 3(Inbd Cargo Exam Bldg (037) Inspector Offices 128,129,130,131,128,129,140,141)-Deg2 (500d), 17-Sep-16* ◆ Location 3a(Inbd Cargo Exam Bldg ROCARS Room)-Deg1 (-), 17-Sep-16* ◆ Location 3a(Inbd Cargo Exam Bldg ROCARS Room)-Deg2 (480d), 06-Dec-16* ◆ Location 3a(Inbd Cargo Exam Bldg Main Server Room)-Deg1 (-), 17-Sep-16* ◆ Location 3a(Inbd Cargo Exam Bldg Main Server Room)-Deg2 (480d), 06-Dec-16* ◆ Location 3a(Inbd Cargo Exam Bldg Main Server Room) - For Server installation, 06-Dec-16* ◆ Location 4(Outbd Cargo Exam Bldg (023))-Deg1 (530d), 25-Jan-17* ◆ Location 4(Outbd Cargo Exam Bldg (023))-Deg2 (680d), 24-Jun-17* ◆ Location 4a(Outbd Cargo Exam Bldg (023))-Deg1 (-), 25-Jan-17* 																	

Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- █ Actual Level of Effort
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▬ summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)



Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015		2016				2017				2018				2019		
		Q2	Q3	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
A1162	Location 4a(Outbd Cargo Exam Bldg (023))-Deg2 (630d)																	◆ Location 4a(Outbd Cargo Exam Bldg (023))-Deg2 (630d), 05-May-17*
A1170	Location 5(Common Utility Enclosure & Staff Subway)-Deg1 (320d)																	◆ Location 5(Common Utility Enclosure & Staff Subway)-Deg1 (320d), 29-Jun-16*
A1180	Location 5(Common Utility Enclosure & Staff Subway)-Deg2 (-)																	◆ Location 5(Common Utility Enclosure & Staff Subway)-Deg2 (-), 16-Nov-16*
A1190	Location 6(Common Utility Enclosure & Staff Subway)-Deg1 (400d)																	◆ Location 6(Common Utility Enclosure & Staff Subway)-Deg1 (400d), 17-Sep-16*
A1200	Location 6(Common Utility Enclosure & Staff Subway)-Deg2 (-)																	◆ Location 6(Common Utility Enclosure & Staff Subway)-Deg2 (-), 06-Nov-16*
A1210	Location 7(Common Utility Enclosure & Staff Subway)-Deg1 (270d)																	◆ Location 7(Common Utility Enclosure & Staff Subway)-Deg1 (270d), 10-May-16*
A1230	Location 8(Inbd Private Car Annex (025))-Deg1 (430d)																	◆ Location 8(Inbd Private Car Annex (025))-Deg1 (430d), 17-Oct-16*
A1240	Location 8(Inbd Private Car Annex (025))-Deg2 (580d)																	◆ Location 8(Inbd Private Car Annex (025))-Deg2 (580d), 16-May-17*
A1241	Location 8(Inbd Private Car Annex (025) Canopy)-Deg1 (430d)																	◆ Location 8(Inbd Private Car Annex (025) Canopy)-Deg1 (430d), 17-Oct-16*
A1242	Location 8(Inbd Private Car Annex (025) Canopy)-Deg2 (580d)																	◆ Location 8(Inbd Private Car Annex (025) Canopy)-Deg2 (580d), 16-May-17*
A1250	Location 9(Outbd Private Car Annex (032))-Deg1 (520d)																	◆ Location 9(Outbd Private Car Annex (032))-Deg1 (520d), 15-Jan-17*
A1260	Location 9(Outbd Private Car Annex (032))-Deg2 (660d)																	◆ Location 9(Outbd Private Car Annex (032))-Deg2 (660d), 04-Jun-17*
A1261	Location 9(Outbd Private Car Annex (032) Canopy)-Deg1 (520d)																	◆ Location 9(Outbd Private Car Annex (032) Canopy)-Deg1 (520d), 15-Jan-17*
A1262	Location 9(Outbd Private Car Annex (032) Canopy)-Deg2 (660d)																	◆ Location 9(Outbd Private Car Annex (032) Canopy)-Deg2 (660d), 04-Jun-17*
A1270	Location 10(Shuttle Bus Kiosks (006))-Deg1 (480d)																	◆ Location 10(Shuttle Bus Kiosks (006))-Deg1 (480d), 06-Dec-16*
A1280	Location 10(Shuttle Bus Kiosks (006))-Deg2 (550d)																	◆ Location 10(Shuttle Bus Kiosks (006))-Deg2 (550d), 14-Feb-17*
A1281	Location 10(Shuttle Bus Kiosks (006) Canopy)-Deg1 (480d)																	◆ Location 10(Shuttle Bus Kiosks (006) Canopy)-Deg1 (480d), 06-Dec-16*
A1282	Location 10(Shuttle Bus Kiosks (006) Canopy)-Deg2 (550d)																	◆ Location 10(Shuttle Bus Kiosks (006) Canopy)-Deg2 (550d), 14-Feb-17*
A1290	Location 11(Outbd Coach Kiosks (009))-Deg1 (400d)																	◆ Location 11(Outbd Coach Kiosks (009))-Deg1 (400d), 17-Sep-16*
A1300	Location 11(Outbd Coach Kiosks (009))-Deg2 (480d)																	◆ Location 11(Outbd Coach Kiosks (009))-Deg2 (480d), 06-Dec-16*
A1301	Location 11(Outbd Coach Kiosks (009) Canopy)-Deg1 (400d)																	◆ Location 11(Outbd Coach Kiosks (009) Canopy)-Deg1 (400d), 17-Sep-16*
A1302	Location 11(Outbd Coach Kiosks (009) Canopy)-Deg2 (480d)																	◆ Location 11(Outbd Coach Kiosks (009) Canopy)-Deg2 (480d), 06-Dec-16*
A1303	Location 11(Inbd Coach Kiosks (010))-Deg1 (400d)																	◆ Location 11(Inbd Coach Kiosks (010))-Deg1 (400d), 17-Sep-16*
A1304	Location 11(Inbd Coach Kiosks (010))-Deg2 (480d)																	◆ Location 11(Inbd Coach Kiosks (010))-Deg2 (480d), 06-Dec-16*
A1305	Location 11(Inbd Coach Kiosks (010) Canopy)-Deg1 (400d)																	◆ Location 11(Inbd Coach Kiosks (010) Canopy)-Deg1 (400d), 17-Sep-16*
A1306	Location 11(Inbd Coach Kiosks (010) Canopy)-Deg2 (480d)																	◆ Location 11(Inbd Coach Kiosks (010) Canopy)-Deg2 (480d), 06-Dec-16*
A1310	Location 12(Inbd Private Car Kiosks(027))-Deg1 (400d)																	◆ Location 12(Inbd Private Car Kiosks(027))-Deg1 (400d), 17-Sep-16*
A1311	Location 12(Inbd Private Car Kiosks(027))-Deg2 (480d)																	◆ Location 12(Inbd Private Car Kiosks(027))-Deg2 (480d), 06-Dec-16*
A1312	Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg1 (400d)																	◆ Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg1 (400d), 17-Sep-16*
A1313	Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg2 (480d)																	◆ Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg2 (480d), 06-Dec-16*
A1314	Location 12(Inbd GV Kiosks (028))-Deg1 (400d)																	◆ Location 12(Inbd GV Kiosks (028))-Deg1 (400d), 17-Sep-16*
A1315	Location 12(Inbd GV Kiosks (028))-Deg2 (480d)																	◆ Location 12(Inbd GV Kiosks (028))-Deg2 (480d), 06-Dec-16*
A1316	Location 12(Inbd GV Kiosks (028) Canopy)-Deg1 (400d)																	◆ Location 12(Inbd GV Kiosks (028) Canopy)-Deg1 (400d), 17-Sep-16*
A1317	Location 12(Inbd GV Kiosks (028) Canopy)-Deg2 (480d)																	◆ Location 12(Inbd GV Kiosks (028) Canopy)-Deg2 (480d), 06-Dec-16*
A1318	Location 12(Outbd GV Kiosks (029))-Deg1 (400d)																	◆ Location 12(Outbd GV Kiosks (029))-Deg1 (400d), 17-Sep-16*
A1319	Location 12(Outbd GV Kiosks (029))-Deg2 (480d)																	◆ Location 12(Outbd GV Kiosks (029))-Deg2 (480d), 06-Dec-16*
A1320	Location 12(Outbd GV Kiosks (029) Canopy)-Deg1 (400d)																	◆ Location 12(Outbd GV Kiosks (029) Canopy)-Deg1 (400d), 17-Sep-16*
A1321	Location 12(Outbd GV Kiosks (029) Canopy)-Deg2 (480d)																	◆ Location 12(Outbd GV Kiosks (029) Canopy)-Deg2 (480d), 06-Dec-16*
A1330	Location 13(Outbd Private Car Kiosks (030))-Deg1 (480d)																	◆ Location 13(Outbd Private Car Kiosks (030))-Deg1 (480d), 06-Dec-16*
A1340	Location 13(Outbd Private Car Kiosks (030))-Deg2 (550d)																	◆ Location 13(Outbd Private Car Kiosks (030))-Deg2 (550d), 14-Feb-17*
A1341	Location 13(Outbd Private Car Kiosks (030) Canopy)-Deg1 (480d)																	◆ Location 13(Outbd Private Car Kiosks (030) Canopy)-Deg1 (480d), 06-Dec-16*
A1342	Location 13(Outbd Private Car Kiosks (030) Canopy)-Deg2 (550d)																	◆ Location 13(Outbd Private Car Kiosks (030) Canopy)-Deg2 (550d), 14-Feb-17*
A1350	Location 14(Future-Outbd/Inbd Private Car Kiosks)-Deg1 (610d)																	◆ Location 14(Future-Outbd/Inbd Private Car Kiosks)-Deg1 (610d), 15-Apr-17*
A1370	Location 15(Inbd Traffic Control Kiosk (100))-Deg1 (400d)																	◆ Location 15(Inbd Traffic Control Kiosk (100))-Deg1 (400d), 17-Sep-16*
A1380	Location 15(Inbd Traffic Control Kiosk (100))-Deg2 (480d)																	◆ Location 15(Inbd Traffic Control Kiosk (100))-Deg2 (480d), 06-Dec-16*

Programme No.: HZMB-DWP Data Date: 14-Aug-15	<ul style="list-style-type: none"> Actual Level of Effort Actual Work Remaining Work Critical Remaining Work Milestone summary 	Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities - Automatic Vehicle Clearance Support System (AVCSS)		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> <tr> <td>14-Nov-16</td> <td>Rev.: 0</td> <td>WC</td> <td>LC</td> </tr> </table>	Date	Revision	Checked	Approved	14-Nov-16	Rev.: 0	WC	LC
Date	Revision	Checked	Approved									
14-Nov-16	Rev.: 0	WC	LC									

Activity ID	Activity Name	2015		2016				2017				2018				2019		
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A4590	Installation of fencing post along the site boundary																	
A4600	Excavation for underground drainage pipe																	
A4610	Evenly spread the asphalt scrap material by backhoe																	
A4620	Cast concrete for the u-channel and underground drainage pipe																	
A4630	Remove the u-channel framework																	
A4640	Installation of chain-link fencing along the site boundary																	
A4650	Installation of access doors																	
A4660	Excavation for drainage ditch																	
A4670	Cast concrete for the drainage ditch																	
A4680	Compact the asphalt scrap material																	
A4690	Land surveying																	
A4700	Inspection of chain-link fencing and access doors																	
A4710	Testing of drains																	
A4720	Completion of the works																	
Detailed Design Specification																		
A1808	Preliminary System Proposal Submission																	
A1809	Engineer's agreement with preliminary system proposal																	
A1810	Draft Detailed Design Specification (DDS) Submission																	
A1814	Draft Hardware Function Design Specification for Computer system and Network system (HFD)																	
A1815	Draft Software Function Design Specification for Computer system and Network system (SFD)																	
A1820	Engineer's Review and Approval for Draft Detailed Design Specification (DDS)																	
A1823	Engineer's Review and Approval for Draft Hardware FDS for Computer system and Network system (HFD)																	
A1824	Engineer's Review and Approval for Draft Software FDS for Computer system and Network system (SFD)																	
A1829	Interface Requirements for CED (LBS, CED IT Server, Metro-Ethernet) and IMMD (AVCS)																	
A1830	Final DDS Submission (AVCSS,VTS,VIDS)(Phase 1/Section I)																	
A1831	Development of System Security Plan																	
A1840	Engineer's Review and Approval for Final DDS Submission including System Security Plan (AVCSS)(Phase 1/Section I)																	
A1850	Final DDS Submission (AVCSS)(Phase 2/Section II&III)																	
A1860	Engineer's Review and Approval for DDS Submission (AVCSS)(Phase 2/Section II&III)																	
Construction Design and Management																		
A6920	Construction Health and Safety Plan Submission																	
A6930	Construction Health and Safety Plan reviewed by Engineer																	
Supply/Manufacture Mock-up items																		
A4749	Preparation of Kiosk equipment Mock-up																	
A4750	Installation of Kiosk equipment Mock-up																	
Supply/Manufacture prototypes																		
A2900	Manufacture LED Display Prototype (VID, ODB and XDB)																	
A2910	Manufacture All-In-One Panel Prototype (AIOP)																	
Software Design, Coding and Testing																		

Programme No.: HZMB-DWP Data Date: 14-Aug-15		Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities - Automatic Vehicle Clearance Support System (AVCSS)		Date	Revision	Checked	Approved
				14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015		2016				2017				2018				2019	
		Q2	Q3	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Coding		05-Jan-17, Coding CCS, SURCON, SYSCON, CDDBS Development Stage 1 VTS Development Stage 1 VIDS Development Stage 1 CCS, SURCON, SYSCON, CDDBS Development Stage 2 VTS Development Stage 2 VIDS Development Stage 2															
Software System Inetgration		22-May-17, Software System Inetgration Test Plan Documentation Submission Engineer's Review and Approval for Test Plan Documentation Submission Software System Integration Test CCS/SYSCON/SURCON/CDDBS/VTS/VIDS Software Enhancement Software User Acceptance Test (UAT)															
Prototype & Software Simulation Tests		09-Sep-16, Prototype & Software Simulation Tests Prototype Test Document Engineer's Approval for Testing Document CCWS with CDDBS, SURCON and SYSCON (Software Simulation/ Software Integration Test) Vehicle Tracking System (VTS) (Software Simulation/ Software Integration Test) LED Displays (VID, ODB and XDB) All-In-One Panel (AIOP) Prototype Testing Report Submission Engineer's Approval for Prototype Testing Report															
Procurement - Phase 1 / Section I		27-Dec-16, Procurement - Phase 1 / Section I Procurement of Equipment for Phase 1/Section I Procurement of Cable and Accessories for Phase 1 /Section I Procurement of All Servers and Workstations															
Supply/Manufacture products for FAT		10-Nov-16, Supply/Manufacture products for FAT Supply/Manufacture LED Display (ODB, VID and XDB) for FAT Supply/Manufacture All-In-One Panel (AIOP) for FAT Supply/Manufacture off-the-shelf equipment for FAT															
Factory Acceptance Test (FAT)		12-Dec-16, Factory Acceptance Test (FAT) FAT Procedure Document Engineer's Approval for FAT Procedure Document FAT for Licence Plate Recognition System (LPRS) FAT for PA/Intercom FAT for ODB FAT for XDB FAT for VID FAT for Video Management System (VMS) FAT for Vehicle Tracking System (VTS) FAT for Communication Network (CMN) FAT for All-In-One Panel (AIOP) FAT for AVCSS System Test FAT Report Submission															

Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- █ Actual Level of Effort
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▾ summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)



Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015				2016				2017				2018				2019	
		Q2	Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A4370	Engineer's Approval for FAT Report Submission																		
Supply/Manufacture Equipment																			
A6830	Supply/Manufacture LED (ODB, VID and XDB) Display for installation																		
A6840	Supply/Manufacture AIOF for installation																		
Delivery and Bench Acceptance Test for Phase 1/ Section I																			
A6740	Material On-Site for Phase 1/Section I																		
A6750	Material Bench Acceptance Test for Phase 1/Section I																		
A6850	Cable On-Site for Phase 1/Section I																		
A6960	AIOF On-Site for Phase 1/Section I																		
A6970	AIOF Bench Acceptance Test for Phase 1/Section I																		
A6980	LED (ODB, VID and XDB) On-Site for Phase 1/Section I																		
A6990	LED (ODB, VID and XDB) Bench Acceptance Test for Phase 1/Section I																		
Installation - Phase 1 / Section I																			
Location 1(PCB (001) Basement)																			
A3081	Cable Laying and termination at Location 1 and Location 2																		
Location 1(PCB (001) ELV Room (Grid Line E3))																			
A3101	Cable Laying and termination at Location 1 and Location 2																		
Location 2(PCB (001) Ground Floor ELV Room (Grid Line E3))																			
A3121	Cable Laying and termination at Location 1 and Location 2																		
Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD))																			
A2041	Cable Laying and termination at Location 1 and Location 2																		
A2042	Cable Testing																		
A2043	Intercom and PA system Installation																		
A2044	Intercom and PA system tuning																		
Location 2(PCB (001) First Floor Main Server Room)																			
A2001	Cable Laying and termination at Location 1 and Location 2																		
A2002	Cable Testing																		
A2003	AVCSS Network and Server Installation																		
A2004	AVCSS Network and Server Tuning																		
Location 3(Inbd Cargo Exam Bldg (037) Inspector Offices 128,129,130,131,128,12)																			
A3241	Cable Laying and termination in Location 3 and Location 3a																		
A3242	AVCSS SURCON WS and 55" LCD Installation																		
A3243	VTS WS Installation																		
A3245	SURCON, WS Tuning																		
Location 3(Inbd Cargo Exam Bldg (037) ELV Room)																			
A3210	Cable Laying and termination between Location 3 and CUE																		
Location 3(Inbd Cargo Exam Bldg (037) Platform Control Room)																			
A2071	Cable Laying and termination in Location 3 and Location 3a																		
A2072	AVCSS SYSCON WS and 55" TV Wall Installation																		
A2074	AVCSS SYSCON WS Tuning																		
Location 3(Inbd Cargo Exam Bldg (037) MDF Room)																			
A3190	Cable Laying and termination between Location 3 and CUE																		
Location 3a(Inbd Cargo Exam Bldg (037) ROCARS Room)																			
A2091	Cable Laying and termination in Location 3 and Location 3a																		
A2092	AVCSS SYSCON,SURCON and Intercom Installation																		

Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- █ Actual Level of Effort
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▾ summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)



Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015		2016				2017				2018				2019	
		Q2	Q3	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A2093	VTS WS Installation																
A2094	VID WS Installation																
A2096	SURCON, SYSCON, WS Tuning																
Location 3a(Inbd Cargo Exam Bldg Main Server Room)																	
A3330	Cable Laying and termination in Location 3 and Location 3a																
A3340	AVCSS Server Installation																
A3350	VTS Server Installation																
A3360	Servers Tuning																
Location 4(Outbd Cargo Exam Bldg (023) MDF Room)																	
A3410	Cable Laying and termination between CUE and Location 4																
Location 4 and 4a(Outbd Cargo Exam Bldg (023) ROCARS Room)																	
A3370	Cable Laying and termination in Location 4 and 4a																
A3380	AVCSS SYSCON, SURCON and Intercom Installation																
A3390	VTS WS Installation																
A3400	SYSCON, SURCON, WS Tuning																
Location 5(Common Utility Enclosure & Staff Subway)																	
A3430	Cable Laying between Location 5 and Location 7																
A3440	Cable Laying between Location 5 and Location 6																
A3480	ODB Switch Installation at EL Room 2-7																
Location 6(Common Utility Enclosure & Staff Subway)																	
A3450	Cable Laying between Location 5 and Location 6																
A3490	ODB Switch Installation at EL Room 8-9,11-12																
Location 7(Common Utility Enclosure & Staff Subway)																	
A3470	Cable Laying between Location 5 and Location 7																
Location 12(Inbd Private Car Kiosks,GV Kiosks (027,028,029))																	
Inbd Private Car Kiosks(027) - 9 nos (Phase 1)																	
A2452	Cable Containment in Kiosks																
A2453	Cable Laying and termination																
A2454	Cable Splicing, Testing and Labeling																
A2460	AVCSS/DOH/MOM Kiosk Equipment Installation (9 nos)																
A2470	ODB & XDB installation (9 nos)																
A4380	Inbd Private Car Kiosk Installation Complete																
Inbd Goods Vehicle Kiosks(028) - 5 nos (Phase 1)																	
A2532	Cable Containment in Kiosks																
A2533	Cable Laying and termination																
A2534	Cable Splicing, Testing and Labeling																
A2540	AVCSS/DOH/MOM Kiosk Equipment Installation (5 nos)																
A2550	AIOP Installation (5 nos)																
A2560	ODB & XDB installation (5 nos)																
A4390	Inbd Goods Vehicle Kiosks Installation Complete																
Outbd Goods Vehicle Kiosks(029) - 5 nos (Phase 1)																	
A2572	Cable Containment in Kiosks																
A2573	Cable Laying and termination																
A2574	Cable Splicing, Testing and Labeling																
A2580	AVCSS/DOH/MOM Kiosk Equipment Installation (5 nos)																

Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- Actual Level of Effort
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)



Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015		2016				2017				2018				2019	
		Q2	Q3	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A2590	AIOP Installation (5 nos)																
A2600	ODB & XDB installation (5 nos)																
A4400	Outbd Goods Vehicle Kiosks Installation Complete																
Location 13(Outbd Private Car Kiosks (030)) - 9 nos (Phase 1)																	
A3582	Cable Containment in Kiosks																
A3583	Cable Laying and termination																
A3584	Cable Splicing, Testing and Labeling																
A3590	AVCSS/DOH/MOM Kiosk Equipment Installation (9 nos)																
A3600	ODB & XDB installation (9 nos)																
A4410	Outbd Private Car Kiosks Installation Complete																
Location 14(Future-Outbd/Inbd Private Car Kiosks) - 6+6 nos																	
A2441	Cable Laying and termination at ELV Room in CUE																
Location 15(Inbd Traffic Control Kiosk (100))																	
A3651	Cable Laying and termination																
A3652	AVCSS SYSCON, SURCON Installation																
A3660	VTS WS and 55" LCD Installation																
A3670	SYSCON, SURCON, WS Tuning																
Location 16(Outbd Traffic Control Kiosk (101))																	
A3701	Cable Laying and termination																
A3702	AVCSS SYSCON, SURCON Installation																
A3710	VTS WS and 55" LCD Installation																
Location 17(Inbd Private Car Exam Bldg(033) Operational Office)																	
A3750	Cable Laying and termination																
A3760	AVCSS SURCON and 55" LCD Installation																
A3770	SURCON Tuning																
Location 18 (Outbd Private Car Exam Bldg(024) Operational Office)																	
A3780	Cable Laying and termination																
A3790	AVCSS SURCON and 55" LCD Installation																
Location 19 (DOH Cargo Clearance Bldg(043))																	
A2111	Cable Laying and termination between Location 19 and CUE																
A2112	Cable Laying in Location 19																
A2113	PA and Intercom Installation																
A2123	PA and Intercom Tuning																
Inbd Vehicle Clearance Plaza - 8 nos VID, 7 nos VTS, 4 nos TLS																	
A4050	Inbound VID cabling from pillar box to VID field equipment																
A4052	Inbound VTS cabling from pillar box to VTS field equipment																
A4054	Inbound TLS cabling from pillar box to TLS field equipment																
A4060	Inbound VID field equipment installation (8 VID)																
A4062	Inbound VTS field equipment installation (4 RFID + 3 Cameras)																
A4064	Inbound TLS field equipment installation (4 TLS)																
A4066	Inbound VID, VTS and TLS field equipment tuning																
Outbd Vehicle Clearance Plaza - 8 nos VID, 6 nos VTS, 4 nos TLS																	
A4110	Outbound VID cabling from pillar box to VID field equipment																
A4120	Outbound VTS cabling from pillar box to VTS field equipment																
A4130	Outbound TLS cabling from pillar box to TLS field equipment																

Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- █ Actual Level of Effort
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▾ summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)



Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015		2016				2017				2018				2019	
		Q2	Q3	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A4140	Outbound VID field equipment installation (8 VID)																
A4150	Outbound VTS field equipment installation (3 RFID + 3 Cameras)																
A4170	Outbound TLS field equipment installation (4 TLS)																
A4180	Outbound VID, VTS and TLS field equipment tuning																
Underground Ducting between Inbd Cargo Exam Bldg (037) and CUE																	
A3810	Cable Laying and termination (note: Access Date by C03)																
Underground Ducting between Inbd Cargo Exam Bldg (037) and Inbd Vehicle Clea																	
A3830	Cable Laying and termination (note: Access Date by C03)																
Underground Ducting between CUE and Outbd Car Exam Bldg (023)																	
A3850	Cable Laying and termination (note: Access Date by C03)																
Underground Ducting Between Outbd Cargo Exam Bldg (023) and Outbd Vehicle C																	
A3870	Cable Laying and termination (note: Access Date by C03)																
Underground Ducting between CUE and Outbd Vehicle Clearance Plaza																	
A3890	Cable Laying and termination (note: Access Date by C03)																
On-Site Test and Commissioning (Phase 1 / Section I)																	
A2150	Testing & Commissioning Documents Submission (8 weeks before Testings carried out)																
A2151	Engineer Approval for T&C Document																
A2152	Joint Site Inspection for Permanent Power/Tele-communication for Initial on-site testing																
A2153	Initial on-site Testing & Commissioning																
Site Acceptance Test (Phase 1 / Section I)																	
A6601	Interface Readiness CED(LBS, CED IT, Metro-Ethernet) and IMMD (AVS)																
A6602	SAT for AVCSS																
A6603	SAT for Location 18 (AVCSS SURCON and 55" LCD)																
A6630	SAT Test Document Submission																
A6640	Software Manual Documentations Submission																
Security Risk Assessment and Audit																	
A6800	SRAA (Assessment)																
A6810	Fix per SRAA Assessment																
A6820	SRAA Audit																
Operability Period Test (Phase 1 / Section I)																	
A5610	Joint Site Inspection for utilities, telecom connection and metro ethernet for OPT																
A5620	Operability Period Test (OPT) Phase 1																
A5650	Operability Period Test (OPT) Phase 2																
Completion (Phase 1 /Section I)																	
A2230	AVCSS - Certificate of Completion (Phase 1/Section I)																
A2231	Certificate of Completion Approval by Engineer																
Training and Document (Phase 1 /Section I)																	
A2180	Training Materials & Documentation Submission																
A2190	Operation and Maintenance Training																
Operation (Phase 1 /Section I)																	
A2240	Site Operation (Phase 1/Section I)																
Engineering Support for Phase 1 / Section I																	

Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- Actual Level of Effort
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)



Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015		2016				2017				2018				2019	
		Q2	Q3	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A4420	Engineering Support for Phase 1/Section I																
Procurement - Phase 2 / Section II																	
A3980	Procurement of Lane Field Equipment for Phase 2/Section II																
Delivery and Bench Acceptance Test for Phase 2/Section II																	
A6760	Material On-site for Phase 2/Section II																
A6770	Bench Acceptance Test for Phase 2/Section II																
Instatllation - Phase 2 / Section II																	
Location 8(Inbd Pricate Car Annex (025)) (Phase 2)																	
A4090	Site Preparation																
A4091	Cable Containment in Kiosks																
A4093	Cable Laying and termination																
A4094	Cable Splicing, Testing and Labeling																
A4096	Mobilization of kiosk equipment																
A4100	AVCSS/DOH/MOM Kiosk Equipment Installation (1 no)																
A4430	Inbd Private Car Annex Installation Complete																
Location 9(Outbd Private Car Annex (032)) (Phase 2)																	
A4151	Site Preparation																
A4152	Cable Containment in Kiosks																
A4153	Cable Laying and termination																
A4154	Cable Splicing, Testing and Labeling																
A4156	Mobilization of kiosk equipment																
A4160	AVCSS/DOH/MOM Kiosk Equipment Installation (1 no)																
A4440	Outbd Private Car Annex Installation Complete																
Test and Commissioning (Phase 2 / Section II)																	
A2290	Testing & Commissioning Documents Submission																
A2291	Engineer Approval for T&C Document																
A2292	Initial on-site Testing & Commissioning																
A2300	Site Acceptance Tests (SAT)																
A2310	Operability Period Test (OPT)																
Completion (Phase 2 / Section II)																	
A2320	AVCSS - Certificate of Completion (Phase 2/Section II)																
A4320	Certificate of Completion Approval by Engineer																
Engineering Support for Phase 2 / Section II																	
A4450	Engineering Support for Phase 2/Section II																
Procurement for Phase2 / Section III																	
A4000	Procurement of Lane Field Equipment for Phase 2/Section III																
Delivery and Bench Acceptance Test for Phase2 / Section III																	
A6780	Material On-site for Phase 2/Section III																
A6790	Bench Acceptance Test for Phase 2/Section III																
Installation - Phase 2 / Section III																	
Location 10,11,12,13 (Vehicle Clearance Kiosks)																	
Shuttle Bus Kiosks (006) - 4 nos (Phase 2)																	
A2622	Cable Containment																

Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- █ Actual Level of Effort
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▾ summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)



Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015		2016				2017				2018				2019	
		Q2	Q3	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A2623	Cable Laying and termination																
A2630	AVCSS/DOH/MOM Kiosk Equipment Installation (4 nos)																
A4460	Shuttle Bus Kiosks Installation Complete																
Outbd Coach Kiosks (009) - 4 nos (Phase 2)																	
A2662	Cable Containment																
A2663	Cable Laying and termination																
A2670	AVCSS/DOH/MOM Kiosk Equipment Installation (4 nos)																
A4470	Outbd Coach Kiosks Installation Complete																
Inbd Private Car Kiosks (027) - 12 nos (Phase 2)																	
A2742	Cable Containment																
A2743	Cable Laying and termination																
A2744	Cable Splicing, Testing and Labeling																
A2750	AVCSS/DOH/MOM Kiosk Equipment Installation (12 nos)																
A2760	Kiosk Equipment Configuration (12 nos)																
A4490	Inbd Private Car Kiosks Installation Complete																
Outbd Private Car Kiosks (030) - 12 nos (Phase 2)																	
A2782	Cable Containment																
A2783	Cable Laying and termination																
A2784	Cable Splicing, Testing and Labeling																
A2790	AVCSS/DOH/MOM Kiosk Equipment Installation (12 nos)																
A4500	Outbd Private Car Kiosks Installation Complete																
Inbd Goods Vehicle Kiosks (028) - 3 nos (Phase 2)																	
A2822	Cable Containment																
A2823	Cable Laying and termination																
A2825	Kiosk Equipment Configuration (3 nos)																
A2830	AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)																
A4510	Inbd Goods Vehicle Kiosks Installation Complete																
Outbd Goods Vehicle Kiosks (029) - 3 nos (Phase 2)																	
A2862	Cable Containment																
A2863	Cable Laying and termination																
A2865	Cable Splicing, Testing and Labeling																
A2870	AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)																
A4520	Outbd Goods Vehicle Kiosks Installation Complete																
Inbd Coach Kiosks (010) - 4 nos (Phase 2)																	
A2702	Cable Containment																
A2703	Cable Laying and termination																
A2705	Kiosk Equipment Configuration (4 nos)																
A2710	AVCSS/DOH/MOM Kiosk Equipment Installation (2 nos)																
A2720	AVCSS/DOH/MOM Kiosk Equipment Installation (2 nos)																
A4480	Inbd Coach Kiosks Installation Complete																
Underground Ducting between CUE and Shuttle Bus Kiosk (006)																	
A3970	Cable Laying and termination (note: Access Date by C03)																
Underground Ducting between PCB(001) and Inbd Coach Kiosks(010)																	
A3930	Cable Laying and termination (note: Access Date by C03)																
Test and Commissioning (Phase 2 / Section III)																	

Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- Actual Level of Effort
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- summary

Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
Clearance Support System (AVCSS)



Date	Revision	Checked	Approved
14-Nov-16	Rev.: 0	WC	LC

Activity ID	Activity Name	2015			2016				2017				2018				2019	
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
A2370	Testing & Commissioning Documents Submission (8 weeks before Testings carried out)																	
A2371	Engineer Approval for T&C Document																	
A2373	Initial on-site Testing & Commissioning																	
A2380	Site Acceptance Test (SAT)																	
A2390	Operation Acceptance Test (OPT)																	
Completion (Phase 2 / Section III)																		
A2400	AVCSS - Certificate of Completion (Phase 2/Section III)																	
A4330	Certificate of Completion Approval by Enginner																	
Operation (Phase 2 / Section III)																		
A2420	Site Operation (Phase 2/Section II & III)																	
Defect Liability Period (DLP)																		
A2430	DLP																	
Document Submission (Phase 2 / Section III)																		
A4340	As-built Drawings and O&M Manual																	

Programme No.: HZMB-DWP
Data Date: 14-Aug-15

- Actual Level of Effort
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Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing
Facilities - Automatic Vehicle
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Report No.: 0165/15/ED/1178

Appendix D

Event / Action Plan

Appendix D –

Event / Action Plan for Air Quality and Noise Monitoring and Water Quality Monitoring and Ecological 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 measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.

Event	Action			
	ET	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.

Event	Action			
	ET	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.

Event	Action			
	ET	IEC	ER	Contractor
Limit Level	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Water Quality

Event	ET Leader	IEC	ER	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in situ measurement on next day of exceedance to confirm findings 2. Identify source(s) of impact 3. Inform IEC, contractor and ER 4. Check monitoring data, all plant, equipment and Contractor's working methods 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of noncompliance in writing 2. Notify Contractor 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of noncompliance in writing 2. Notify Contractor 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the noncompliance in writing 2. Rectify unacceptable practice 3. Amend working methods if appropriate
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, Contractor and ER 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures with IEC, ER and Contractor 6. Ensure mitigation measures are implemented 7. Increase the monitoring frequency to daily until no exceedance of Action level 8. Repeat measurement on next day of exceedance to confirm findings 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method 2. Discuss with ET and Contractor on possible remedial actions 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly 4. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of noncompliance in writing 2. Discuss with IEC on the proposed mitigation measures 3. Make agreement on mitigation measures to be implemented 4. Ensure mitigation measures are properly implemented 5. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Inform the Engineer and confirm notification of the noncompliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment and consider changes of working methods 4. Discuss with ET and IEC on possible remedial actions and propose mitigation measures to IEC and ER within 3 working days of notification 5. Implement the agreed mitigation measures 6. Amend working methods if appropriate

Event	ET Leader	IEC	ER	Contractor
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, Contractor, ER and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures with IEC, ER and Contractor 6. Ensure mitigation measures are implemented 7. Increase the monitoring frequency to daily until no exceedance of Limit level 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method 2. Discuss with ET and Contractor on possible remedial actions 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly 4. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures 3. Request Contractor to critically review the working methods 4. Ensure mitigation measures are properly implemented 5. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the noncompliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment and consider changes of working methods 4. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER 5. Implement the agreed mitigation measures 6. Amend working methods if appropriate
Limit level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, contractor, ER and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures with IEC, ER and Contractor 6. Ensure mitigation measures are implemented 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method 2. Discuss with ET and Contractor on possible remedial actions 3. Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the ER accordingly 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures 3. Request Contractor to critically review the working methods 4. Make agreement on the mitigation measures to be implemented 5. Ensure mitigation measures are properly implemented 6. Assess the effectiveness of the implemented mitigation measures 7. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the noncompliance in writing 2. Take immediate action to avoid further exceedance 3. Rectify unacceptable practice 4. Check all plant and equipment and consider changes of working methods 5. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER 6. Implement the agreed mitigation measures 7. Resubmit proposals of mitigation measures if problem still not under control 8. As directed by the engineer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level

Event / Action Plan for Ecological Monitoring

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

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

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Appendix E

Implementation Schedule for Environmental Mitigation Measures (EMIS)

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
Air Quality				
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	All construction sites	V
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; 	All construction sites	V
S5.5.6.2	A2	<ul style="list-style-type: none"> • 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 top 	All construction sites	V
S5.5.6.2	A2	<ul style="list-style-type: none"> • Cement or dry PFA delivered in bulk should be 	All construction	N/A

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<p>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;</p> <ul style="list-style-type: none"> • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies 	sites	
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	All construction sites	V
S5.5.6.4	A4	4) 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 Representative dust monitoring station	V (Conducted by Contract No. HY/2010/02 from Sep 2015 to Aug 2017, HY/2013/01 from Sep 2017 to Sep 2018, HY/2013/04 from Oct 2018 to Jan 2019 & HY/2011/03 from Sep 2015 to Jan 2019) #
S5.5.7.1	A6	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant;</p> <ul style="list-style-type: none"> • 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; • 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 	Selected Representative dust monitoring station	N/A
S5.5.2.7	A7	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point:</p> <ul style="list-style-type: none"> • 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 	All construction sites	V

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		designated wheels wash facilities; and • Continuous water spray at the loading points		
Construction Noise (Air borne)				
S6.4.10	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; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	All construction sites	V
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	All construction sites	V
S6.4.12	N3	3) Install movable noise barriers (typically density@14kg/m acoustic mat or full enclosure close to noisy plants including compressor, generators, saw.	For plant items listed in Appendix 6D of the EIA report at all construction sites	N/A
S6.4.13	N4	4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.	For plant items listed in Appendix 6D of the EIA report at all construction site	V
S6.4.14	N5	5) Sequencing operation of construction plants where practicable	All construction sites where practicable	V
S5.1	N6	6) Implement a noise monitoring under EM&A programme.	Selected representative noise monitoring station	V (Conducted by Contract No. HY/2010/02 from Sep 2015 to Aug 2017, HY/2013/01 from Sep 2017 to Sep 2018 & HY/2013/04 from Oct 2018 to Jan 2019) #
Sediment				
S7.3	S1	1) The requirements as recommended in ETWB TC 34/2002 Management of Dredged/Excavated Sediment shall be included in the Particular Specification as appropriate.	All construction sites	V
Waste Management (Construction Waste)				
S8.3.8	WM1	<u>Construction and Demolition Material</u> The following mitigation measures should be implemented in handling the waste: • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to	All construction sites	V

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<p>allow and promote the use of recycled aggregates where appropriate;</p> <ul style="list-style-type: none"> 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 disposal sites to the Project Proponent and get its approval before implementation 		
S8.3.9- S8.3.11	WM2	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> 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 segregation and storage. 	All construction sites	V
S8.2.12- S8.3.15	WM3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> 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. 	All construction sites	V

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		<ul style="list-style-type: none"> 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. 		
S8.3.16	WM4	<p><u>Sewage</u></p> <ul style="list-style-type: none"> 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
S8.3.17	WM5	<p>General Refuse</p> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes. 	All construction sites	V
Water Quality (Construction Phase)				
S9.11.1.1- S9.11.1.2	W1	<ul style="list-style-type: none"> Mitigation during the marine works to reduce impacts to within acceptable levels have been recommended and will comprise a series of measures that restrict the method and sequencing of dredging/backfilling, as well as protection measures. Details of the measures are provided below and summarised in the Environmental Mitigation Implementation Schedule in EM&A Manual Construction of seawalls to be advanced by at least 100-200m before the main reclamation dredging and filling can commence. It should be noted that the protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 9.2 and detailed in Appendix 9D6 of the EIA Report. The part of the works where such measures can be undertaken for the majority of the time includes the following locations: <ul style="list-style-type: none"> TMCLKL northern reclamation; TMCLKL southern reclamation (after formation of the nips); Reclamation dredging and filling for Portion B of HKBCF; Reclamation filling for Portion C of HKBCF; Reclamation filling for Portion D of HKBCF; 	Marine-based works area	V

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		<p>Reclamation filling for FSD berth of HKBCF; and</p> <ul style="list-style-type: none"> - Reclamation dredging and filling for Portion 1 of HKLR; • Export for dredged spoils from NWWCZ avoiding exerting high demand on the disposal facilities in the NWWCZ and, hence, minimise potential cumulative impacts; • For the marine viaducts of HKLR, the bored piling will be undertaken within a metal casing; • A maximum of 30% public fill shall be used for all backfilling below -2.5mPD for the southern reclamation of TMCLKL, HKBCF and HKLR projects; • where public fill is proposed for filling below - 2.5mPD, the fine content in the public fill will be controlled to 25%; • silt curtains (cage type) will be applied round all grab dredgers during the HKBCF, HKLR and TMCLKL southern reclamation works; • single layer silt curtains will be applied around all works; • when constructing Portion D of the HKBCF, one side of the seawall crossing the channel should be constructed first and prior to the other works. This would reduce the maximum flow speed across the channel and enhance the effectiveness of other mitigation measures such as silt curtain system; • during the first two months of dredging work for HKBCF and HKLR, the silt-removal efficiency of the silt-curtains shall be verified by examining the results of water quality monitoring points. The water quality monitoring points to be selected for the above shall be those close to the locations of the initial period of dredging work. Details in this regard shall be determined by the ENPO to be established, taking account of the Contractor's proposed actual locations of his initial period of dredging work. • a sheet piled wall shall be constructed north of the HKBCF island ,in order to allow the use of silt curtains during Phase 2 works; and • silt curtain shall be fully maintained throughout the works. <p>In addition, dredging operations should be undertaken in such a manner as to minimise resuspension of sediments. Standard good dredging practice measures should, therefore, be implemented including the following requirements which should be written into the dredging contract.</p> <ul style="list-style-type: none"> • trailer suction hopper dredgers shall not allow mud to overflow; • use of Lean Material Overboard (LMOB) systems shall be prohibited; • mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted; • barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material; • any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; • loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation; 		

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<ul style="list-style-type: none"> excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved; adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; all vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and the works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site. 		
S9.11.1.3	W2	<p><u>Land Works</u> General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include:</p> <ul style="list-style-type: none"> wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided; storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks; silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm; temporary access roads should be surfaced with crushed stone or gravel; rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers; discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; 	Land-based works area	V
S9.11.1.7	W2	<ul style="list-style-type: none"> all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit; wheel wash overflow shall be directed to silt 	Land-based works area	V

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<p>removal facilities before being discharged to the storm drain;</p> <ul style="list-style-type: none"> the section of construction road between the wheel washing bay and the public road should be surfaced with 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 system. 		
S9.14	W3	Implement a water quality monitoring programme	Selected representative WQM stations	V (Conducted by Contract No. HY/2010/02 from Sep 2015 to Aug 2017, HY/2013/01 from Sep 2017 to Sep 2018 & HY/2013/04 from Oct 2018 to Jan 2019)
Ecology (Construction Phase)				
S10.7	E4	<ul style="list-style-type: none"> Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater 	Land-based works areas	V
S10.7	E5	<ul style="list-style-type: none"> Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time 	Land-based works areas	V
S10.7	E6	<ul style="list-style-type: none"> Dolphin Exclusion Zone Dolphin watching plan 	Marine works	V
S10.7	E7	<ul style="list-style-type: none"> Decouple compressors and other equipment on working vessels Proposal on design and implementation of acoustic decoupling measures applied during dredging and reclamation works Avoidance of percussive piling 	Marine works	V
S10.7	E8	<ul style="list-style-type: none"> Control vessel speed Skipper training Predefined and regular routes for working vessels; avoid Brother Islands. 	Marine Traffic	V
S10.10	E9	Vessel based dolphin monitoring	Northeast and Northwest Lantau	V (Conducted by Contract No. HY/2010/02 from Sep 2015 to Aug 2017, HY/2013/01 from Sep 2017 to Sep 2018 & HY/2013/04 from Oct 2018 to Jan 2019)

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Fisheries				
S11.7	F4	<ul style="list-style-type: none"> Maritime Oil Spill Response Plan (MOSRP); Contingency plan. 	HKBCF	V
Landscape & Visual (Detailed Design Phase)				
S14.3.3.1	LV1	<p>General design measures include:</p> <ul style="list-style-type: none"> 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 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 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. 	HKBCF	V
Landscape & Visual (Construction Phase)				
S14.3.3.3	LV2	<p>Mitigate both Landscape and Visual Impacts</p> <p>G1. Grass-hydroseed bare soil surface and stock pile areas.</p> <p>G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge footbridge to screen bridge and traffic.</p> <p>G3. Not applicable as this is for HKLR.</p> <p>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</p> <p>G5. Vegetation reinstatement and upgrading to disturbed areas</p> <p>G6. Maximizing new tree shrub and other vegetation planting to compensate tree felled and vegetation removed</p> <p>G7. Providing planting area around peripheral of HKBCF for tree planting screening effect;</p> <p>G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall.</p> <p>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</p>	Building 026, 031, 037, 039, 041, 043, 046 and all areas at ground level	V

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		"natural-look" of the new coastline.		
S14.3.3.3	LV3	<u>Mitigate Visual Impacts</u> V1. Minimize time for construction activities during construction period. V2. Not applicable for HKBCF.	Building 026, 031, 037, 039, 041, 043, 046 and all areas at ground level	V
EM&A				
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	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	All construction sites	V

Legend: V = implemented; x = not implemented; N/A = not applicable

= The monitoring data for AMS3C and NMS3C recorded between 20 Aug 2018 and 30 Sep 2018 were reported in the relevant EM&A reports prepared under Contract No. HY/2013/01 though the implementation of air quality and noise monitoring at such monitoring stations was undertaken by the ET for Contract No. HY/2013/04

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Report No.: 0165/15/ED/1178

Appendix F

Waste Flow Table



Monthly Summary of Waste Flow Table for 2015 (year)

Name of Person completing the Record: Marko Chan

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
		(see Note 1)						(see Note 2)		
	(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										
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.



Monthly Summary of Waste Flow Table for 2016 (year)

Name of Person completing the Record: Marko Chan

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
		(see Note 1)						(see Note 2)		
	(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	0.992	0	0	0.073
Feb	0.000	0	0	0	0.000	0	0	0	0	0.093
Mar	0.087	0	0	0	0.087	0	0.392	0	0	0.200
Apr	0.184	0	0	0	0.184	0	0.411	0	0	0.224
May	0.203	0	0	0	0.203	0	0	0	0	0.293
Jun	0.244	0	0	0	0.244	0	0.413	0	0	0.322
Jul	2.429	0	0	0	2.429	0	0.419	0	0	0.312
Aug	0.057	0	0	0	0.057	0	0.340	0	0	0.288
Sept	0.000	0	0	0	0.000	0	0	0	0	0.327
Oct	0.379	0	0	0	0.379	0	0.400	0	0	0.332
Nov	0.229	0	0	0	0.229	0	0.389 ⁽³⁾	0	0	0.644
Dec	0.161	0	0	0	0.161	0	0.406	0	0	0.663
Total	3.973	0.000	0.000	0.000	3.973	0.000	4.162	0.000	0.000	3.771

Notes:

(1) Broken concrete for recycling into aggregates.

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

(3) 0.389 (in '000 Kg) of paper/cardboard packaging was updated compared to previous monthly report.



Monthly Summary of Waste Flow Table for 2017 (year)

Name of Person completing the Record: Marko Chan

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
		(see Note 1)						(see Note 2)		
	(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	0	0.580
Feb	0.000	0	0	0	0.000	0	0	0	0	0.585
Mar	0.000	0	0	0	0.000	0	0	0	0	0.999
Apr	0.043	0	0	0	0.043	0	0	0	0	1.073
May	12.682	0	0	12.637	0.045	0	0	0	0	1.321
Jun	27.129	0	0	26.007	1.122	0	0	0	0	2.023
Jul	54.710	0	0	54.224	0.486	0	0	0	0	1.448
Aug	67.927	0	0	64.331	3.596	0	0	0	0	1.656
Sept	83.814	0	0	80.345	3.469	0	0	0	0	1.950
Oct	50.339	0	0	49.312	1.027	0	0	0	0	1.750
Nov	12.476	0	0	10.919	1.557	0	0	0	0	1.750
Dec	20.83973	0	0	12.57173	8.268	0	0	0	0	1.589
Total	320.760	0.000	0.000	301.147	19.613	0.000	0.000	0.000	0.000	16.724

Notes:

(1) Broken concrete for recycling into aggregates.

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



Monthly Summary of Waste Flow Table for 2018 (year)

Name of Person completing the Record: Marko Chan

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
		(see Note 1)						(see Note 2)		
	(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	9.366	0	0	0.684	8.682	0	0	0	0	1.584
Feb	2.092	0	0	0	2.092	0	0	0	0	2.062
Mar	2.471	0	0	0	2.471	0	0	0	0	3.125
Apr	49.459	0	0	42.544	6.915	0	0	0	0	3.086
May	15.066	0	0	13.123	1.943	0	0	0	0	2.165
Jun	0.026	0	0	0	0.026	0	0	0	0	1.346
Jul	0.094	0	0	0	0.094	0	0	0	0	0.590
Aug	0.064	0	0	0	0.064	0	0	0	0	0.302
Sept	0.213	0	0	0	0.213	0	0	0	0	0.444
Oct	0.168	0	0	0	0.168	0	0	0	0	0.390
Nov	0	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0	0
Total	79.019	0.000	0.000	56.351	22.668	0.000	0.000	0.000	0.000	15.094

Notes:

(1) Broken concrete for recycling into aggregates.

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



Monthly Summary of Waste Flow Table for 2019 (year)

Name of Person completing the Record: Marko Chan

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
		(see Note 1)						(see Note 2)		
	(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	0	0	0	0	0	0	0	0	0
Feb										
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	0.000	0.000	0.000

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 in '000m ³	Reused in this contract in '000m ³	Reused in other Projects in '000m ³	Disposed of at CMP in '000m ³
Jan	1.950	0	0	1.950
Feb	2.328	0	0	2.328
Mar	2.464	0	0	2.464
Apr	5.602	0	0	5.602
May	0	0	0	0
Jun	4.584	0	0	4.584
Jul	10.728	0	0	10.728
Aug	1.544	0	0	1.544
Sep	6.816	0	0	6.816
Oct	2.376	0	0	2.376
Nov	0	0	0	0
Dec	2.792 (Cat.L)	0	0	2,792 (Cat.L)
	4.960	0	0	4.960
Total	46.144	0.000	0.000	46.144

Note: All sediments are in Type II disposal method except Cat L (in Type I)

Monthly Summary of Excavated Marine Sediment for 2017 (year)

Month	Total Quantity of Excavated Marine Sediment Generated in '000m ³	Reused in this contract in '000m ³	Reused in other Projects in '000m ³	Disposed of at CMP in '000m ³
Jan	0.656	0.000	0.000	0.656
Feb	0.264	0.000	0.000	0.264
Mar	0.000	0.000	0.000	0.000
Apr	1.288	0.000	0.000	1.288
May	1.440	0.000	0.000	1.440
Jun	1.432	0.000	0.000	1.432
Jul	0.000	0.000	0.000	0.000
Aug	0.248	0.000	0.000	0.248
Sep				
Oct				
Nov				
Dec				
Total	3.896	0.000	0.000	3.896

Project name 工程項目名稱 :Contract No. HY/2013/06 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities-Automatic Vehicle Clearance Support System
 Location 工程地點:Artificial Island of HKIAP Year:2016

Month	Inert C&D Waste disposal 墮性廢物(in tonnes) (see Note 1)						Non-inert C&D Waste disposal / 非墮性廢物 (in tonnes)		Waste to be recycled and returned / 可再循環利用或回收的廢物								Total Quantity Generated / 總生產量		
	Reused in the Work Package (e.g. backfilling) / 再用於工程 (如回填)		Reused in other Projects / 再用於其他工程		Inert Waste (e.g. soil, broken concrete, rubble, fill material etc.) / 墮性廢物(如泥, 石, 填料等)		Others, (e.g. general refuse, broken formwork etc) / 其他 (如垃圾, 廢板枋等)		Metals / 金屬		Plastic / 塑膠		Paper/cardboard packaging / 廢紙/包裝紙類		Chemical Waste / 化學廢物				
	(b)		(c)		(d)		(e)		(in tonnes)		(in tonnes)		(in tonnes)		(in litre)		(a)=(b+c+d+e)		
	Est./ 估計數量)	Act./ (實際數量)	Est./ 估計數量)	Act./ (實際數量)	Est./ 估計數量)	Act./ (實際數量)	Est./ 估計數量)	Act./ (實際數量)	Est./ 估計數量)	Act./ (實際數量)	Est./ 估計數量)	Act./ (實際數量)	Est./ 估計數量)	Act./ (實際數量)	Est./ 估計數量)	Act./ (實際數量)	Est./ 估計數量)	Act./ (實際數量)	
January																			
February																			
March																			
April																			
May																			
June																			
July																			
August																			
September	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002	0.002	N/A	N/A	0.002	0.002
October	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002	0.002	N/A	N/A	0.002	0.002
November	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002(2)	0.002(2)	N/A	N/A	0.002	0.002
December	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.002	0.002	N/A	N/A	0.002	0.002
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.008	0.000	0.000	0.008	0.008

Notes: (1) The quantities of C&D Materials, in tonne, was calculated by multiply the estimated volume, in m3, with the density of the soil, which is 1.5 gcm⁻³.
 (2) 0.002 (in tonnes) of paper/cardboard packaging was updated compared to previous monthly report.



ATAL Technologies Ltd.

Contract: HY/2013/06 HKBCF- Automatic Vehicle Clearance Support System

Location: Artificial Island of HKBCF (C3 Area)

Ver: 1st
Date: Jan 2017

Monthly Summary Waste Flow Table for 2017

Month	Inert C&D Waste disposal / 墮性廢物 (in tonnes) (see Note 1)						Non-inert C&D Waste disposal 非墮性廢物 (in tonnes)		Waste to be recycled and returned / 可再循環利用或回收的廢物								Total Quantity Generated 總生產量		
	Reused in the Work Package (e.g. backfilling) 再用於工程 (如回填)		Reused in other Projects 再用於其他工程		Inert Waste (e.g. soil, broken concrete, rubble, fill material etc.) 墮性廢物 (如泥, 石矢頭, 石, 填料等)		Others (e.g. general refuse, broken formwork etc) 其他 (如垃圾, 廢板枋等)		Metals 金屬		Plastic 塑膠		Paper/cardboard packaging 廢紙/包裝紙類		Chemical Waste 化學廢物				
	(b)		(c)		(d)		(e)		(in tonnes)		(in tonnes)		(in tonnes)		(in litre)		(a)=(b+c+d+e)		
	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	
January	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000
February	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000
March	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
April	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005
May	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
June	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
July	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
August	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.030	0.030	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.030
September	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.030	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050
October	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.030	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050
November	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.030	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050
December	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.300	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.297	0.297	0.490	0.220	0.000	0.000	0.004	0.004	0.000	0.000	0.000	0.297	0.297

Notes: (1) The quantities of C&D Materials, in tonne, was calculated by multiply the estimated volume, in m3, with the density of the soil, which is 1.5 gcm⁻³.

ATAL Technologies Ltd.
 Contract: HY/2013/06 HKBCF- Automatic Vehicle Clearance Support System
 Location: Artificial Island of HKBCF (C3 Area)

Monthly Summary Waste Flow Table for 2018

Month	Inert C&D Waste disposal / 墮性廢物 (in tonnes) (see Note 1)						Non-inert C&D Waste disposal 非墮性廢物 (in tonnes)		Waste to be recycled and returned / 可再循環利用或回收的廢物								Total Quantity Generated 總生產量			
	Reused in the Work Package (e.g. backfilling) 再用於工程 (如回填)		Reused in other Projects 再用於其他工程		Inert Waste (e.g. soil, broken concrete, rubble, fill material etc.) 墮性廢物 (如泥, 石, 石頭, 石, 填料等)		Others (e.g. general refuse, broken formwork etc) 其他 (如垃圾, 廢板枋等)		Metals 金屬		Plastic 塑膠		Paper/cardboard packaging 廢紙/包裝紙類		Chemical Waste 化學廢物					
	(b)		(c)		(d)		(e)		(in tonnes)		(in tonnes)		(in tonnes)		(in litre)				(a)=(b+c+d+e)	
	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量			Est. Qty. 估計數量	Act. Qty. 實際數量
January	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.030	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100		
February	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050		
March	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050		
April	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050		
May	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.030		
June	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010		
July	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100		
August	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020		
September	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020		
October	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020		
November	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
December	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.450	0.450	0.060	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.450	0.450		

 Notes: (1) The quantities of C&D Materials, in tonne, was calculated by multiply the estimated volume, in m³, with the density of the soil, which is 1.5 gcm⁻³.

ATAL Technologies Ltd.
 Contract: HY/2013/06 HKBCF- Automatic Vehicle Clearance Support System
 Location: Artificial Island of HKBCF (C3 Area)

Monthly Summary Waste Flow Table for 2019

Month	Inert C&D Waste disposal / 墮性廢物 (in tonnes) (see Note 1)						Non-inert C&D Waste disposal 非墮性廢物 (in tonnes)		Waste to be recycled and returned / 可再循環利用或回收的廢物								Total Quantity Generated 總生產量			
	Reused in the Work Package (e.g. backfilling) 再用於工程 (如回填)		Reused in other Projects 再用於其他工程		Inert Waste (e.g. soil, broken concrete, rubble, fill material etc.) 墮性廢物 (如泥, 石矢頭, 石, 填料等)		Others (e.g. general refuse, broken formwork etc) 其他 (如垃圾, 廢板枋等)		Metals 金屬		Plastic 塑膠		Paper/cardboard packaging 廢紙/包裝紙類		Chemical Waste 化學廢物					
	(b)		(c)		(d)		(e)		(in tonnes)		(in tonnes)		(in tonnes)		(in litre)				(a)= (b+c+d+e)	
	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量			Est. Qty. 估計數量	Act. Qty. 實際數量
January	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
February																				
March																				
April																				
May																				
June																				
July																				
August																				
September																				
October																				
November																				
December																				
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		

 Notes: (1) The quantiles of C&D Materials, in tonne, was calculated by multiply the estimated volume, in m3, with the density of the soil, which is 1.5 gcm⁻³.

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Materialab

Report No.: 0165/15/ED/1178

Appendix G

Environmental Licenses and Permits

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

(update: 07/11/2018)

Item	Permit/Licence Registration	Permit No.	Work Area	Application Date	Issue Date	Valid Date		Status	Remark
						From	To		
1	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/H	HKBCF	16-Jan-15	19 Jan 15	19 Jan 15	Nil	Superseded	
2	Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	Ref No. 387703	Main Site Area	15-Apr-15	15-Apr-15	15-Apr-15	Nil	Valid	
3	Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	Ref No. 387735	Works Area WA3	15-Apr-15	15-Apr-15	15-Apr-15	Nil	Valid	
4	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	15-Apr-15	06-May-15	06-May-15	Nil	Valid	
5	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0477-15	Works Area WA3	20-Apr-15	04-May-15	18-May-15	17-Nov-15	Expired	
6	Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation	5213-951-C1186-28	Main Site Area	28-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	28-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	29-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	06-May-15	04-Sep-15	04-Sep-15	30-Sep-20	Superseded	
10	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0566-15	Box Culvert D	08-May-15	22-May-15	08-Jun-15	07-Nov-15	Expired	
11	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0674-15	CUE	05-Jun-15	19-Jun-15	19-Jun-15	18-Aug-15	Expired	
12	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/I	HKBCF	30-Jun-15	17-Jul-15	17-Jul-15	Nil	Superseded	
13	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0020-15	Drill Tower	06-Jul-15	20-Jul-15	01-Aug-15	30-Nov-15	Expired	
14	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0999-15	CUE	28-Aug-15	11-Sep-15	14-Sep-15	10-Dec-15	Superseded	
15	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1065-15	Portion A1	15-Sept-15	29-Sep-15	30-Sep-15	31-Dec-15	Superseded	

16	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	
17	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-121	South of Brothers (CMP2)	26-Oct-15	17-Dec-15	18-Dec-15	17-Jan-16	Expired	
18	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1315-15	Portion G	12-Nov-15	26-Nov-15	28-Nov-15	28-Feb-16	Expired	
19	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0029-15	Drill Tower	27-Nov-15	11-Dec-15	14-Dec-15	13-Apr-16	Expired	
20	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1388-15	Main Site Area	27-Nov-15	16-Dec-15	21-Dec-15	18-Mar-16	Superseded	
21	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0035-16	Main Site Area	31-Dec-15	14-Jan-16	18-Jan-16	17-Mar-16	Superseded	
22	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-161	South of Brothers (CMP2)	31-Dec-15	15-Jan-16	20-Jan-16	19-Feb-16	Expired	
23	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-177	South of Brothers (CMP2)	26-Jan-16	11-Feb-16	20-Feb-16	19-Mar-16	Expired	
24	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/J	HKBCF	18-Feb-16	25-Feb-16	25-Feb-16	Nil	Superseded	
25	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0009-16	Portion G	02-Mar-16	16-Mar-16	21-Mar-16	20-Jul-16	Expired	
26	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0244-16	Main Site Area	03-Mar-16	17-Mar-16	18-Mar-16	18-Jun-16	Expired	
27	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0249-16	Main Site Area	03-Mar-16	17-Mar-16	19-Mar-16	18-Jun-16	Superseded	
28	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0269-16	Floating Concrete Batching Plant	03-Mar-16	17-Mar-16	19-Mar-16	18-Jun-16	Superseded	
29	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-202	East of Sha Chau (CMP Vd)	09-Mar-16	18-Mar-16	24-Mar-16	23-Apr-16	Expired	
30	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/K	HKBCF	24-Mar-16	11-Apr-16	11-Apr-16	Nil	Valid	
31	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0348-16	Main Site Area	29-Mar-16	12-Apr-16	15-Apr-16	14-Jul-16	Superseded	
32	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-007	East of Sha Chau (CMP Vd)	08-Apr-16	19-Apr-16	24-Apr-16	23-May-16	Expired	
33	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-029	East of Sha Chau (CMP Vd)	09-May-16	19-May-16	24-May-16	23-Jun-16	Expired	

34	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-040	East of Sha Chau (CMP Vd)	31-May-16	13-Jun-16	14-Jun-16	13-Jul-16	Expired	
35	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0607-16	Main Site Area	02-Jun-16	16-Jun-16	19-Jun-16	18-Sep-16	Superseded	
36	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0629-16	Floating Concrete Batching Plant	02-Jun-16	16-Jun-16	19-Jun-16	18-Dec-16	Superseded	
37	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0639-16	Main Site Area	02-Jun-16	16-Jun-16	15-Jul-16	14-Oct-16	Superseded	
38	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-062	East of Sha Chau (CMP Vd)	30-Jun-16	12-Jul-16	14-Jul-16	13-Aug-16	Expired	
39	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0020-16	Portion A, G & H	13-Jul-16	27-Jul-16	28-Jul-16	24-Jan-17	Superseded	
40	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-075	East of Sha Chau (CMP Vd)	27-Jul-16	05-Aug-16	14-Aug-16	31-Aug-16	Expired	
41	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-088	East of Sha Chau (CMP Vd)	16-Aug-16	26-Aug-16	01-Sep-16	30-Sep-16	Expired	
42	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0933-16	Main Site Area	18-Aug-16	01-Sep-16	05-Sep-16	31-Dec-16	Expired	
43	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0960-16	Main Site Area	06-Sep-16	15-Sep-16	19-Sep-16	18-Dec-16	Expired	
44	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-105	East of Sha Chau (CMP Vd)	15-Sep-16	27-Sep-16	01-Oct-16	31-Oct-16	Expired	
45	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0028-16	Portion A, G, H & N	15-Sep-16	29-Sep-16	03-Oct-16	02-Apr-17	Expired	
46	Water Discharge License Pursuant to Water Pollution Control Ordinance (Cap 358)	WT00025384-2016	Main Site Area	09-Mar-16	10-Nov-16	10-Nov-16	30-Sep-20	Valid	
47	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-132	East of Sha Chau (CMP Vd)	03-Nov-16	30-Nov-16	05-Dec-16	04-Jan-17	Expired	
48	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-140	East of Sha Chau (CMP Va) or South of Brothers (CMP2)	14-Nov-16	30-Nov-16	30-Nov-16	29-Dec-16	Expired	
49	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-146	East of Sha Chau (CMP Va) or South of Brothers (CMP2)	28-Nov-16	16-Dec-16	16-Dec-16	29-Dec-16	Expired	
50	Construction Noise Permit	GW-RS1267-16	Main Site Area	02-Dec-16	16-Dec-16	19-Dec-16	18-Mar-17	Expired	

	Pursuant to Section 8(6) of the Noise Control Ordinance								
51	Specified Process Licence for Tar and Bitumen Works Pursuant to Section 14 of the Air Pollution Control Ordinance	L-15-039(1)	Temporary Asphalt Mixing Facility	05-Dec-16	16-Mar-17	16-Mar-17	15-Mar-19	Surrendered	
52	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1329-16	Main Site Area	09-Dec-16	23-Dec-16	01-Jan-17	30-Apr-17	Superseded	
53	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-161	East of Sha Chau (CMP Vd)	15-Dec-16	04-Jan-17	05-Jan-17	04-Feb-17	Expired	
54	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-170	East of Sha Chau (CMP Vd)	12-Jan-17	24-Jan-17	05-Feb-17	04-Mar-17	Expired	
55	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0205-17	Main Site Area	01-Mar-17	15-Mar-17	19-Mar-17	18-Jun-17	Expired	
56	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-190	East of Sha Chau (CMP Vd)	01-Mar-17	17-Mar-17	20-Mar-17	19-Apr-17	Expired	
57	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0008-17	Box Culvert B	06-Apr-17	20-Apr-17	21-Apr-17	19-Jul-17	Expired	
58	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-005	East of Sha Chau (CMP Vd)	10-Apr-17	24-Apr-17	25-Apr-17	24-May-17	Expired	
59	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0382-17	Main Site Area	10-Apr-17	25-Apr-17	27-Apr-17	24-Jul-17	Expired	
60	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-018	East of Sha Chau (CMP Vd)	19-May-17	01-Jun-17	02-Jun-17	01-Jul-17	Expired	
61	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0516-17	Main Site Area	31-May-17	14-Jun-17	19-Jun-17	18-Sep-17	Expired	
62	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-037	East of Sha Chau (CMP Vd)	19-Jun-17	06-Jul-17	07-Jul-17	06-Aug-17	Expired	
63	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0632-17	Main Site Area	07-Jul-17	21-Jul-17	25-Jul-17	24-Nov-17	Superseded	
64	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-052	East of Sha Chau (CMP Vd)	25-Jul-17	07-Aug-17	09-Aug-17	31-Aug-17	Expired	
65	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0771-17	Main Site Area	28-Aug-17	11-Sep-17	19-Sep-17	18-Jan-18	Expired	
66	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0778-17	Main Site Area	28-Aug-17	11-Sep-17	14-Sep-17	13-Mar-18	Superseded	
67	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0834-17	Main Site Area	12-Sep-17	26-Sep-17	28-Sep-17	27-Mar-18	Superseded	
68	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0901-17	Main Site Area	25-Sep-17	11-Oct-17	13-Oct-17	12-Apr-18	Expired	

69	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0271-18	Main Site Area	15-Mar-18	29-Mar-18	13-Apr-18	12-Oct-18	Expired	
70	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0888-18	Main Site Area	15-Sep-18	02-Oct-18	13-Oct-18	12-Apr-19	Valid	



Environmental License/ Permits /Notification Register

LCAL H2642

Contract: HY/2013/06 – Hong Kong Zhuhai and Macao Bridge - HKBCF – Automatic Vehicle Clearance Support System

Date: 31 October 2018									Remark
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	
	Work Area	Date	Reference						
1	HZMB-HK Boundary Crossing Facilities	31 July 2015	WFG14980	Disposal of Construction Waste Billing Account	7023015	20 August 2015	--	EPD	

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Materialab

Report No.: 0165/15/ED/1178

Appendix H

Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

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Report No.: 0165/15/ED/1178

Appendix H

Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

For Contract No. HY/2013/03

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
From commencement date of construction to end of reporting period	15	0	0

For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area

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