

Ref.: HYDHZMBEEM00_0_7604L.19

16 August 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. Joseph Yau

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/2014/05 – HZMB HKBCF – Remaining Ancillary Buildings
and Facilities
Monthly Environmental Monitoring & Audit Report for September 2018**

Reference is made to our previous verification letter (Our ref.: "HYDHZMBEEM00_0_6929L.18" dated 23 October 2018) reminding ET that unclear implementation of landscape and visual monitoring is noted in the previous version of the captioned submission, and to their re-submission of monthly EM&A report No. 31 for September 2018 (Revision 2) certified by the ET Leader (ET's ref.: "5140819/18.30/OC074/KC/RL" dated 14 August 2019) provided to us via e-mail on 14 August 2019.

We are pleased to inform you that we have no adverse comment on the captioned submission. We write to verify the captioned submission in accordance with Condition 5.4 of the Environmental Permit No. EP-353/2009/K.

The ET Leader is also reminded that it is the ET's responsibility to ensure the report be timely submitted to the Director of Environmental Protection, and the reported information be true, valid and correct as per Conditions 5.4 and 5.5 of EP-353/2009/K respectively.

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

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c.c.	HyD	Mr. Cheng Pan	(By Fax: 3188 6614)
	HyD	Mr. Ken Woo	(By Fax: 3188 6614)
	Atkins	Mr. Keith Chau	(By Fax: 2890 6343)
	LCWJV	Mr. Eric Wu	(By Fax: 3621 0180)

Internal: DY, YH, HW, ENPO Site

Your ref.
Our ref. 5140819/18.30/OC074/KC/RL
Date: 14 August 2019

By Post and e-mail (lan.kerswill@lcwjk.com)

Leighton – Chun Wo Joint Venture
39/F Sun Hung Kai Centre
30 Harbour Road
Hong Kong

Attn: Mr. Ian Kerswill

Dear Mr. Ian Kerswill,

**Contract No. HY/2014/05
Hong Kong – Zhuhai – Macao Bridge
Hong Kong Boundary Crossing Facilities –
Remaining Ancillary Buildings and Facilities
Certification of Monthly EM&A Report No. 31**

Atkins China Limited certifies, in the capacity of Environmental Team Leader, that the Monthly EM&A Report No. 31 for September 2018 (Revision 2) conforms the requirements provided in Condition 5.4 of the Environmental Permit No. EP-353/2009/K.

**Yours faithfully,
for and on behalf of
Atkins China Limited**



**Keith Chau
Environmental Team Leader**

cc.

1. AECOM – Mr. Joseph Yau (By Fax.: 3468 2076)
2. IEC/ENPO – Mr. Ray Yan & Mr. Y.H. Hui (By Fax.: 3465 2899)

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Contract No. HY/2014/05

**Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities – Remaining Ancillary
Buildings and Facilities**

**Monthly EM&A Report No. 31
(Covering the Period from 1 September 2018 to 30 September 2018)**

22 July 2019

Revision 2

Main Contractor



**Leighton - Chun Wo
Joint Venture**

Environmental Team



ATKINS

Member of the SNC-Lavalin Group

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Executive Summary

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2014/05 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HZMB HKBCF) – Remaining 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/2014/05 works area) (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR). Contract No. HY/2014/05 was awarded to Leighton – Chun Wo Joint Venture (construction works of Contract No. HY/2013/06 was awarded to ATAL Technologies Limited within Contract No. HY/2014/05 works area) (hereafter referred to as “the Contractor”) and Atkins China Limited was appointed as the Environmental Team (ET) by the Contractor.

Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2014/05 works area) is part of HZMB HKBCF Project which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap 499) and Environmental Impact Assessment (EIA) Report (Register No. AEIAR-145/2009) was prepared for the Project. The current Environmental Permit (EP) No. EP-353/2009/K for HKBCF was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. The construction works of the Contract No. HY/2014/05 commenced on 29 February 2016 while the construction works of the Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area commenced on 3 January 2017 and 13 February 2017 respectively. As confirmed by RE in July 2018, the construction works of Contract No. HY/2014/04 within Contract No. HY/2014/05 works area have been completed.

Atkins China Limited 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 to the Contract.

This is the thirty-first monthly EM&A Report for the Contract No. HY/2014/05 which summarizes findings of the EM&A works during the reporting period from 1 to 30 September 2018 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2014/05 works area).

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that air quality and noise monitoring works for the Contract are covered by Contract No. HY/2013/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HZMB HKBCF) – Passenger Clearance Building, Contract No. HY/2013/04 – Infrastructure Works Stage II (Southern Portion) and Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7B and noise monitoring at NMS2 and NMS3C as part of EM&A programme, if these monitoring stations are no longer covered under Contract Nos. HY/2013/01, 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 dates of site inspection for the Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2014/05 works area) during the reporting period are listed below:

Environmental Site Inspection: 3, 12, 17 and 24 September 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 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03. No Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

There was no Action and Limit Level exceedance for noise recorded at NMS2 and NMS3C by the ET of Contract No. HY/2013/01 and ET of Contract No. HY/2013/04 during the reporting period.

Complaint Log

There was no complaint received in relation to the environmental impact during the reporting period.

Notifications of Summons and Successful Prosecutions

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

Reporting Change

There was no reporting change during the reporting period.

Future Key Issues

The future key issues to be undertaken in the upcoming month include:

For Contract No. HY/2014/05

- According to information from the Contractor, the construction works of Contract No. HY/2014/05 have been completed. The related completion certificate (Ref.: BWLM: TTHK: mlmp:60313494/C8/M15/905-2018009636T) dated 9 August 2018 was issued by RE.
- According to information from RE, landscape works for Contract No. HY/2014/05 is considered substantially completed as of 23 April 2018. The related certificate (Ref.: BWLM: TTHK: wmy:60313494/C8/M15/905/M0531-2018010932T) dated 13 September 2018 was issued by RE.

For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area

- According to information from Contractor, no construction works will be conducted by Contract No. HY/2013/06 except System Testing and Commissioning at Buildings 023, 025 and 032

1 Introduction

1.1 Basic Project Information

- 1.1.1 This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2014/05 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HZMB HKBCF) – Remaining 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 and Contract No. HY/2014/04 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Gantry Type X-ray Vehicle Inspection System within Contract No. HY/2014/05 works area) (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR). Contract No. HY/2014/05 was awarded to Leighton – Chun Wo Joint Venture (construction works of Contract No. HY/2013/06 was awarded to ATAL Technologies Limited and Contract No. HY/2014/04 was awarded to Rapiscan Systems Pte Ltd within Contract No. HY/2014/05 works area) (hereafter referred to as “the Contractor”) and Atkins China Limited was appointed as the Environmental Team (ET) by the Contractor.
- 1.1.2 Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area) is part of HZMB HKBCF which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap 499). An Environmental Impact Assessment (EIA) Report (Register No. AEIAR-145/2009) was prepared for the Project. The current Environmental Permit (EP) No. EP-353/2009/K for HKBCF was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. The construction works of the Contract No. HY/2014/05 commenced on 29 February 2016 while the construction works of the Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area commenced on 3 January 2017 and 13 February 2017 respectively. As confirmed by RE in July 2018, the construction works of Contract No. HY/2014/04 within Contract No. HY/2014/05 works area have been completed. The works areas of the Contract are shown in **Appendix A**.
- 1.1.3 The proposed works under this Contract comprise the following:
For Contract No. HY/2014/05
- (i) Construction of the following ancillary buildings and facilities including architectural and builder works, structural steel canopy, reinforced concrete frames, foundations, curtain wall facade, building services and electrical and mechanical works:
 - Public Toilets at Vehicle Clearance Plaza (VCP);
 - Customs and Excise Department (C&ED) Dangerous Good Store (Building 021);
 - Customs Detective Dog Base Building (Building 022);
 - C&ED Outbound Cargo Examination Building and Examination Platform (Building 023);
 - Inbound Private Car Annexure (Building 025);
 - Outbound Private Car Annexure (Building 032);
 - E&M maintenance Building (Building 044);
 - Highways Depot & Administration Building (Building 045);
 - Outbound X-ray Building (Building 053);
 - Outbound X-ray Scan Tunnel (Building 058); and
 - Inbound X-ray Scan Tunnel (Building 059).
 - (ii) Construction of civil provisions, cable containment and power supply for the following systems:
 - Automatic Vehicle Clearance Support System (AVCSS) installed by Contract No.

HY/2013/06; and

- Gantry Type X-ray Vehicle Inspection System installed by Contract No. HY/2014/04.
- (iii) Supply and installation of Mobile X-ray Vehicle Inspection System and other standalone equipment;
- (iv) Construction of minor civil engineering works at the periphery of buildings;
- (v) Construction of minor Landscape hardworks and softworks; and
- (vi) Other works which are shown on Drawings or specified in the Specification or which may be ordered in accordance with the Contract.

For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area

- (i) The Automatic Vehicle Clearance Support System amid to increasing traffic flow for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities;
- (ii) Responsible for designs and develops a set of tailor-made computer monitoring and control systems to for daily security operation; and
- (iii) The Clearance Workstations at 72 vehicle clearance kiosks, Customs and Excise's inbound and outbound traffic control centers as well as a Vehicle Tracking System.

For Contract No. HY/2014/04 within Contract No. HY/2014/05 works area

- (i) The Gantry Type X-ray Vehicle Inspection System (GXRVIS) aims to provide an integrated, innovative, efficient and effective vehicle inspection system at the inbound and outbound boundary control points of Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) for supporting the operations of Customs & Excise Department (C&ED);
- (ii) Design, supply, deliver to HKBCF, installation, test and commissioning and maintenance of two sets of Gantry Type X-ray Vehicle Inspection System and all related components necessary for the complete operation of the system; and
- (iii) Design, supply, install, test, commission and maintain of the Radioactive Threat Detection Systems integrated into the Gantry Type X-ray Vehicle Inspection Systems.

1.1.4 This is the thirty-first Monthly EM&A Report for the Contract No. HY/2014/05 which summarizes the findings of the EM&A programme during the reporting period from 1 to 30 September 2018. (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2014/05 works area).

1.2 Project Organisation

1.2.1 The project organization structure and lines of communication with respect to the on-site environmental management structure is shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1-1**.

Table 1-1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
<u>For Contract No. HY/2014/05</u>				
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Registered Architect	Malcolm Sage	3958 7330	3468 2076

Party	Position	Name	Telephone	Fax
Environmental Project Office / Independent Environmental Checker (Ramboll Hong Kong Limited)	Environmental Project Office Leader	Y. H. Hui	3465 2888	3465 2899
	Independent Environmental Checker	Raymond Dai	3465 2888	3465 2899
Contractor (Leighton – Chun Wo Joint Venture)	Site Agent	Albert Chan	3973 0514	3621 0180
	Environmental Officer	Alfred She	39730484	3621 0180
Environmental Team (Atkins China Limited)	Environmental Team Leader	Keith Chau	2972 1721	2890 6343
24 hours complaint hotline	---	---	3958 7300	---
<u>For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area</u>				
Engineer or Engineer's Representative (RE) (AECOM Asia Co. Ltd.)	Chief Registered Architect	Malcolm Sage	3958 7330	3468 2076
Environmental Project Office / Independent Environmental Checker (Ramboll Hong Kong Limited)	Environmental Project Office Leader	Y. H. Hui	3465 2888	3465 2899
	Independent Environmental Checker	Raymond Dai	3465 2888	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 (Atkins China Limited)	Environmental Team Leader	Keith Chau	2972 1721	2890 6343
24 hours complaint hotline	---	---	6509 0375	---

1.3 Construction Programme

1.3.1 A copy of the Contractor's construction programme is provided in **Appendix C**.

1.4 Construction Works Undertaken During the Reporting Period

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

For Contract No. HY/2014/05

- According to information from the Contractor, the construction works of Contract No. HY/2014/05 have been completed. The related completion certificate (Ref.: BWLM: TTHK: mlmp:60313494/C8/M15/905-2018009636T) dated 9 August 2018 was issued by RE.
- According to information from RE, landscape works for Contract No. HY/2014/05 is considered substantially completed as of 23 April 2018. The related certificate (Ref.: BWLM:

TTHK: wmy:60313494/C8/M15/905/M0531-2018010932T) dated 13 September 2018 was issued by RE.

For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area

- According to information from Contractor, no construction works will be conducted by Contract No. HY/2013/06 except System Testing and Commissioning at Buildings 023, 025 and 032.

2 Air Quality Monitoring

2.1 Monitoring Locations

- 2.1.1 The air quality monitoring works for the Contract are covered by Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF and Contract No. HY/2013/01 HZMB HKBCF – Passenger Clearance Building.
- 2.1.2 The ET of the Contract or another ET of the HZMB project is required to conduct air quality monitoring at AMS6 and AMS7B as part of EM&A programme if these air quality monitoring stations are no longer covered under Contract Nos. HY/2011/03 and HY/2013/01. **Figure 2.1** shows the locations of the air monitoring stations.

Table 2-1 Construction Dust Monitoring Locations

ID	Location Description
AMS6 ⁽¹⁾	Dragonair/CNAC (Group) Building
AMS7B ⁽²⁾	3RS site office

Remark:

- (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 the latest notification from ENPO when the monitoring station(s) is/are no longer covered by another ET of the HZMB project.
- (2) A proposal for re-location of AQM station (AMS7) for HZMB HKBCF Project was justified by the ET Leader for Contract No. HY/2013/01 on 22 January 2018; verified by the IEC on 24 January 2018; and submitted to EPD on 30 January 2018, and the AQM has been carrying out at the alternative AQM station with EPD's consent since 6 February 2018.

2.2 Monitoring Requirements

- 2.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared for Contract Nos. HY/2011/03 and HY/2013/01.
- 2.2.2 The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2-2** and **Table 2-3**, respectively.

Table 2-2 Action and Limit Levels for 1-hr TSP

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS6 – Dragonair / CNAC (Group) Building (HKIA)	360	500
AMS7B – 3RS site office	370	

Table 2-3 Action and Limit Levels for 24-hr TSP

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS6 – Dragonair / CNAC (Group) Building (HKIA)	173	260
AMS7B – 3RS site office	183	

- 2.2.3 The event and action plan is provided in **Appendix D**.
- 2.2.4 If exceedance(s) at these station(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.

2.3 Monitoring Results

- 2.3.1 The monitoring results for AMS6 and AMS7B are reported in the monthly EM&A Reports prepared for Contract Nos. HY/2011/03 and HY/2013/01, respectively.
- 2.3.2 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 Report prepared by Contract No. HY/2011/03. No Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.

3 Noise Monitoring

3.1 Monitoring Locations

3.1.1 The noise monitoring works for the Contract are covered by Contract No. HY/2013/01 and Contract No. HY/2013/04. The ET of the Contract or another ET of the HZMB of the HZMB project is required to conduct impact noise monitoring at NMS2 and NMS3C as part of EM&A programme if these noise monitoring stations are no longer covered under Contract No. HY/2013/01 and Contract No. HY/2013/04. **Figure 2.1** shows the locations of noise monitoring stations.

Table 3-1 Construction Noise Monitoring Locations

ID	Location Description
NMS2 ⁽¹⁾	Seaview Crescent
NMS3C ⁽¹⁾⁽²⁾⁽³⁾	Ying Tung Estate Refuse Collection Point

Remarks:

- (1) 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.
- (2) The Action and Limit Levels for schools will be applied for this alternative monitoring location.
- (3) NMS3C has been undertaken by the ET for Contract No. HY/2013/04 since 20 August 2018.

3.2 Monitoring Requirements

3.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology and monitoring schedule are detailed in the monthly EM&A Reports prepared for Contract No. HY/2013/01.

3.2.2 The Action and Limit Levels for construction noise are defined in **Table 3-2**.

Table 3-2 Action and Limit Level for Construction Noise

Parameter	Action Level	Limit Level
07:00 – 19:00 hours on normal weekdays	When one documented complaint is received	75 dB(A)*

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.

* Limit level is 70 dB(A) for schools and 65 dB(A) during school examination period.

3.2.3 The event and action plan is provided in **Appendix D**.

3.2.4 If exceedance(s) at these station(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.

3.3 Monitoring Results

3.3.1 The monitoring results for NMS2 and NMS3C are reported in the monthly EM&A Reports prepared for Contract No. HY/2013/01. No noise exceedances were recorded at stations NMS2 and NMS3C by the ET of Contract No. HY/2013/01 and ET of Contract No. HY/2013/04 during the reporting period.

4 Environmental Site Inspection and Audit

4.1 Site Inspection

- 4.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2014/05 works area). During the reporting period, site inspections were carried out on 3, 12, 17 and 24 September 2018.
- 4.1.2 Particular observations for Contract No. HY/2014/05 and Contract No. HY/2013/06 within Contract No. HY/2014/05 works area during the site inspections and corrective actions undertaken by the Contractor are described in **Tables 4-1 and 4-2**.

Table 4-1 Summary of Environmental Site Inspections for Contract No. HY/2014/05

Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
3 September 2018	No particular environmental issue was recorded during the site inspection.	N/A	N/A
12 September 2018	No particular environmental issue was recorded during the site inspection.	N/A	N/A
17 September 2018	No particular environmental issue was recorded during the site inspection.	N/A	N/A
24 September 2018	No particular environmental issue was recorded during the site inspection.	N/A	N/A

Table 4-2 Summary of Environmental Site Inspections for Contract No. HY/2013/06 within Contract No. HY/2014/05 works area

Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
3 September 2018	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
12 September 2018	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
17 September 2018	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
24 September 2018	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.

- 4.1.3 Particular observations (Landscape works) for Contract No. HY/2014/05 during the site inspections and corrective actions undertaken by the Contractor are described in **Tables 4-3**. The landscape work of green roof for Contract No. HY/2014/05 was commenced on 11 December 2017. As confirmed by RE, landscape works for Contract No. HY/2014/05 is considered substantially completed as of 23 April 2018. The related certificate (Ref.: BWLM: TTHK: wmy:60313494/C8/M15/905/M0531-2018010932T) dated 13 September 2018 was issued by RE.

Table 4-3 Summary of Environmental Site Inspections (Landscape works) for Contract No. HY/2014/05 works area

Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
3 September 2018	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.
17 September 2018	No particular environmental issue was recorded during the site inspection.	Nil.	Nil.

4.2 Advice on the Solid and Liquid Waste Management Status

- 4.2.1 The Contractor of Contract No. HY/2014/05 registered as a chemical waste producer. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 4.2.2 The Contractor of Contract No. HY/2014/05 was reminded that chemical waste should be properly treated and stored temporarily in designated chemical waste storage areas on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.
- 4.2.3 The monthly summary of waste flow table for Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2014/05 works area) are detailed in **Appendix E**.

4.3 Environmental Licenses and Permits

- 4.3.1 The valid environmental licenses and permits for Contract No. HY/2014/05 during the reporting period (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2014/05 works area) are summarized in **Appendix F**.
- 4.3.2 The Contractor of Contract No. HY/2013/06 was advised to register as a chemical waste producer when chemical waste will be expected to generate for the foreseeable future from the operations (For Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation).

4.4 Implementation Status of Environmental Mitigation Measures

- 4.4.1 In response to the site audit findings, the Contractors carried out corrective actions.
- 4.4.2 All exposed site area has been paved expect planting area, thus, watering of exposed spoil was not required during reporting month.
- 4.4.3 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix G**. Most of the necessary mitigation measures were implemented properly.

4.5 Summary of Exceedance of the Environmental Quality Performance Limit

- 4.5.1 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 report prepared by Contract No. HY/2011/03. No Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.
- 4.5.2 There was no Action and Limit Level exceedance for noise recorded at NMS2 and NMS3C by the ET of Contract No. HY/2013/01 and the ET of Contract No. HY/2013/04 during the reporting period.

4.6 Summary of Complaints, Notification of Summons and Successful Prosecution

- 4.6.1 There was no complaint received in relation to the environmental impact during the reporting period.
- 4.6.2 Statistics on environmental complaints, notifications of summons and successful prosecutions are summarized in **Appendix H**.

5 Future Key Issues

5.1 Construction Programme for the Coming Months

- 5.1.1 As informed by the Contractor, the construction have been completed. The related information are summarized in **Table 5-1**.

Table 5-1 Construction Activities for October 2018

Site Area	Description of Activities
<u>For Contract No. HY/2014/05</u>	
Construction Site area	According to information from the Contractor, the construction works of Contract No. HY/2014/05 have been completed. The related completion certificate (Ref.: BWLM: TTHK: mImp:60313494/C8/M15/905-2018009636T) dated 9 August 2018 was issued by RE.
Construction Site area (Landscape)	According to information from RE, landscape works for Contract No. HY/2014/05 is considered substantially completed as of 23 April 2018. The related certificate (Ref.: BWLM: TTHK: wmy:60313494/C8/M15/905/M0531-2018010932T) dated 13 September 2018 was issued by RE.
<u>For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area</u>	
Buildings 023, 025 and 032	According to information from Contractor, no construction works will be conducted by Contract No. HY/2013/06 except System Testing and Commissioning at Buildings 023, 025 and 032

5.2 Environmental Site Inspection Schedule for the Coming Month

- 5.2.1 The tentative schedule for weekly site inspections for October 2018 is provided in **Appendix I**.

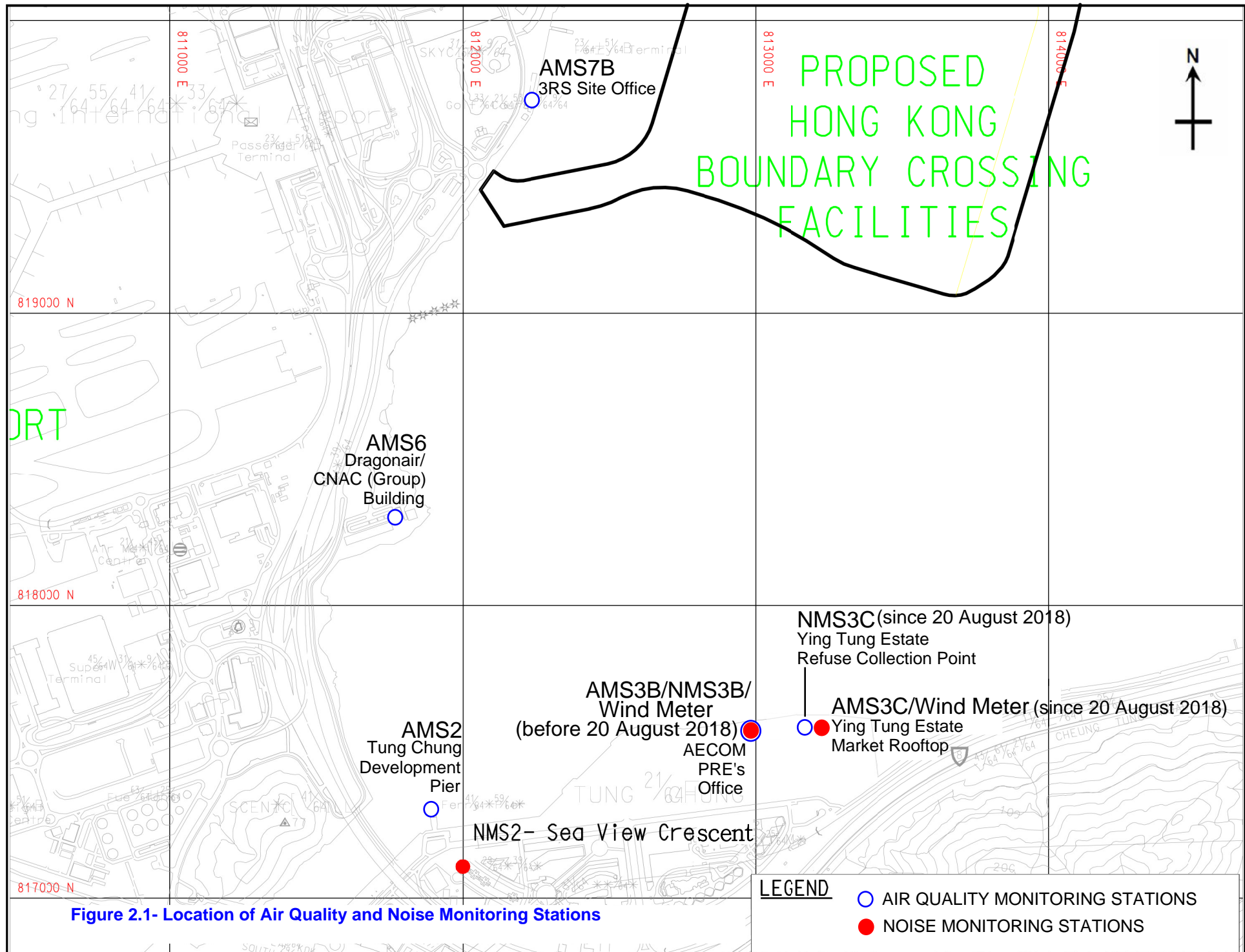
6 Conclusions

6.1 Conclusions

- 6.1.1 The construction works of the Contract No. HY/2014/05 commenced on 29 February 2016, while the construction works of the Contract No. HY/2013/06 and Contract No. HY/2014/04 within Contract No. HY/2014/05 works area commenced on 3 January 2017 and 13 February 2017 respectively. As confirmed by RE in July 2018, the construction works of Contract No. HY/2014/04 within Contract No. HY/2014/05 works area have been completed. The thirty-first Monthly EM&A Report for Contract No. HY/2014/05 summarizes findings of the EM&A works during the reporting period from 1 to 30 September 2018 (includes the construction works of Contract No. HY/2013/06).
- 6.1.2 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 Report prepared by Contract No. HY/2011/03. No Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7B by the Environmental Team of Contract No. HY/2013/01 during the reporting period.
- 6.1.3 There was no Action and Limit Level exceedance for noise recorded at NMS2 and NMS3C by the ET of Contract No. HY/2013/01 and the ET of Contract No. HY/2013/04 during the reporting period.
- 6.1.4 Environmental site inspections were carried out on 3, 12, 17 and 24 September 2018 for the Contract No. HY/2014/05 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2014/05 works area). Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspection.
- 6.1.5 There was no complaint received in relation to the environmental impact during the reporting period.
- 6.1.7 No notification of summons and successful prosecution was received during the reporting period.



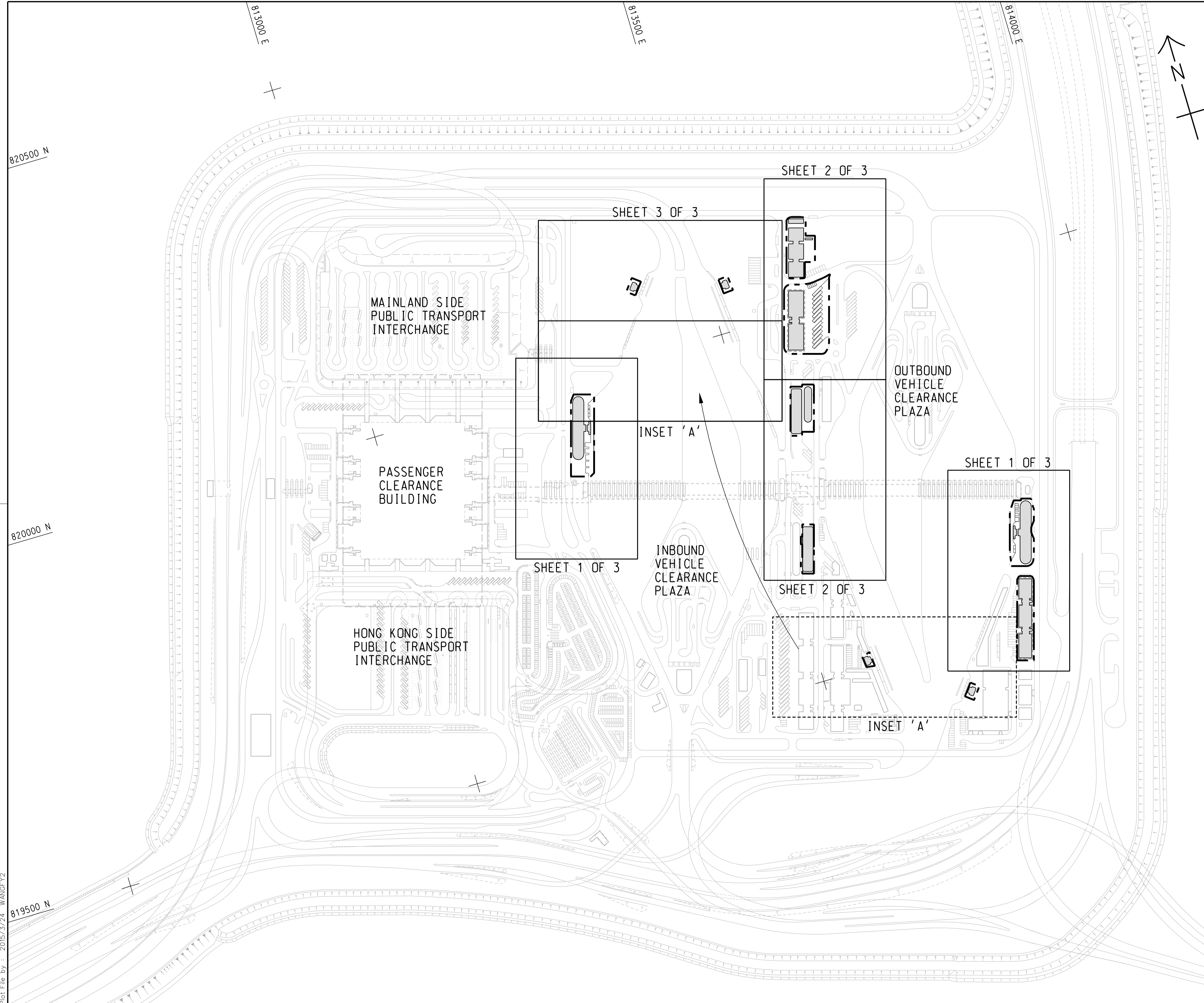
FIGURES





APPENDIX A

Location of Works Areas



Plot File by : 2015/3/24 WANGFY2

- TENDER DRAWING		BWCW SCI	MAR.15
REV. 修改	DESCRIPTION 內容摘要	D.C. 圖號	DATE 日期

HIGHWAYS DEPARTMENT
 路政署
 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
 - REMAINING ANCILLARY BUILDINGS AND FACILITIES

KEY PLAN

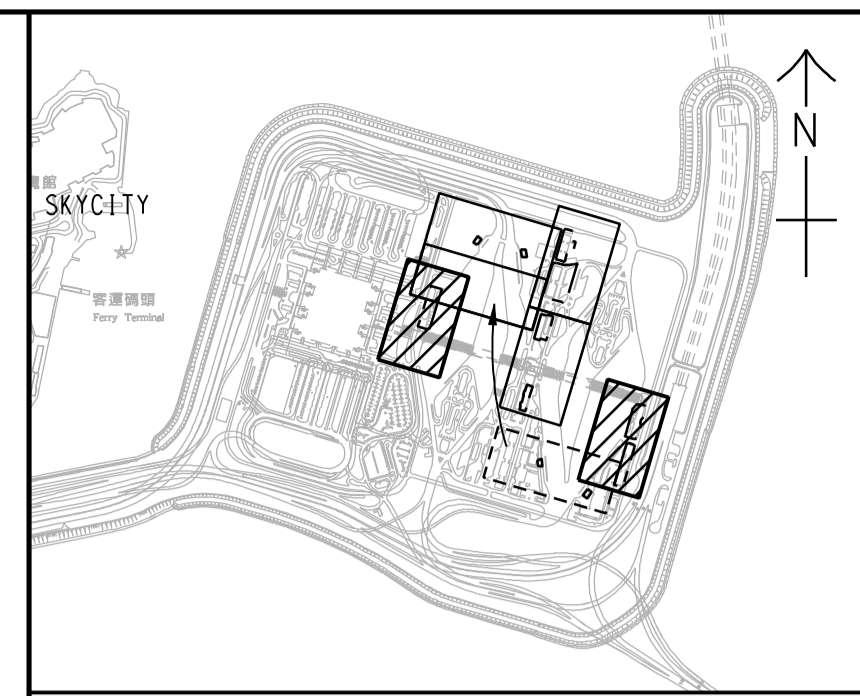
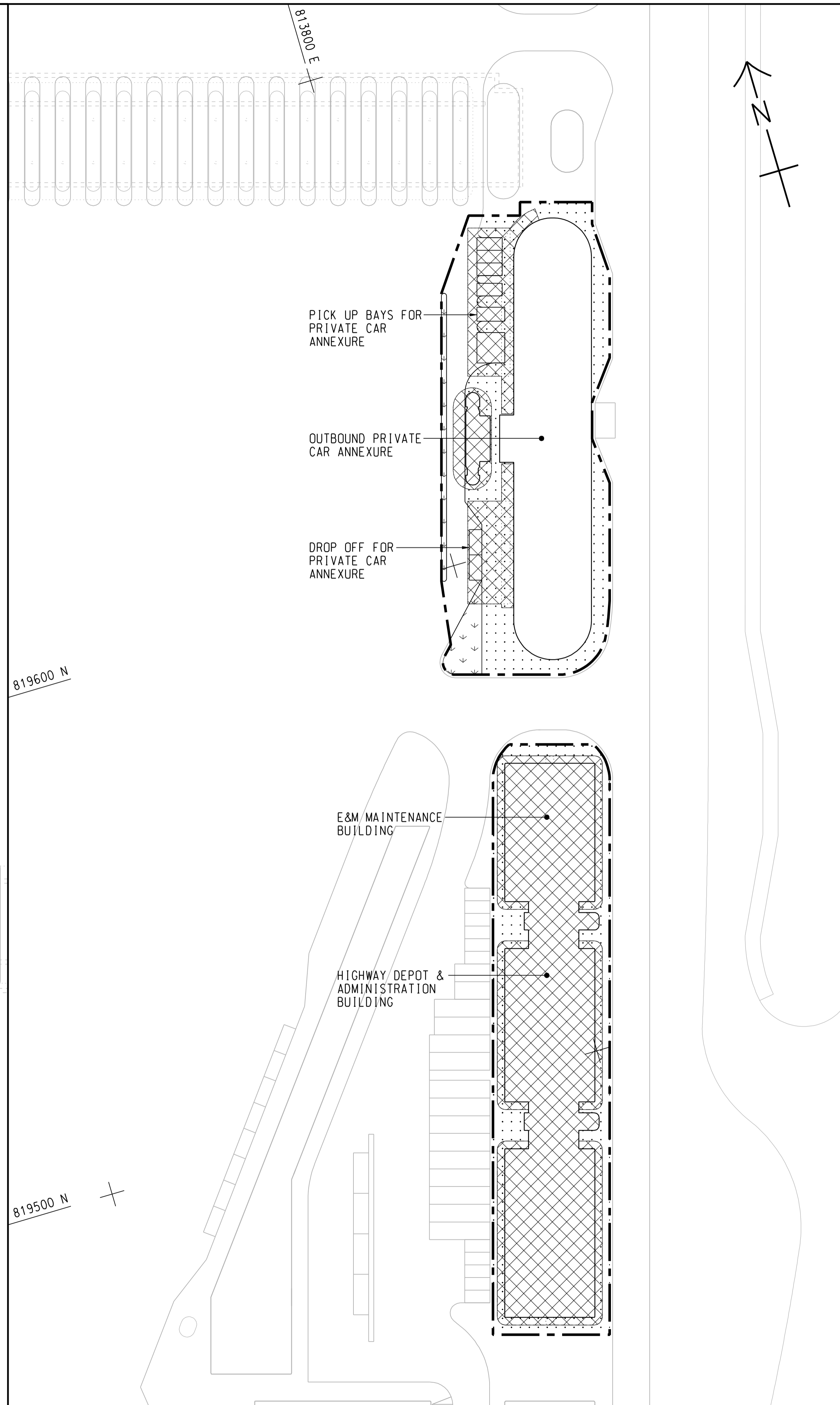
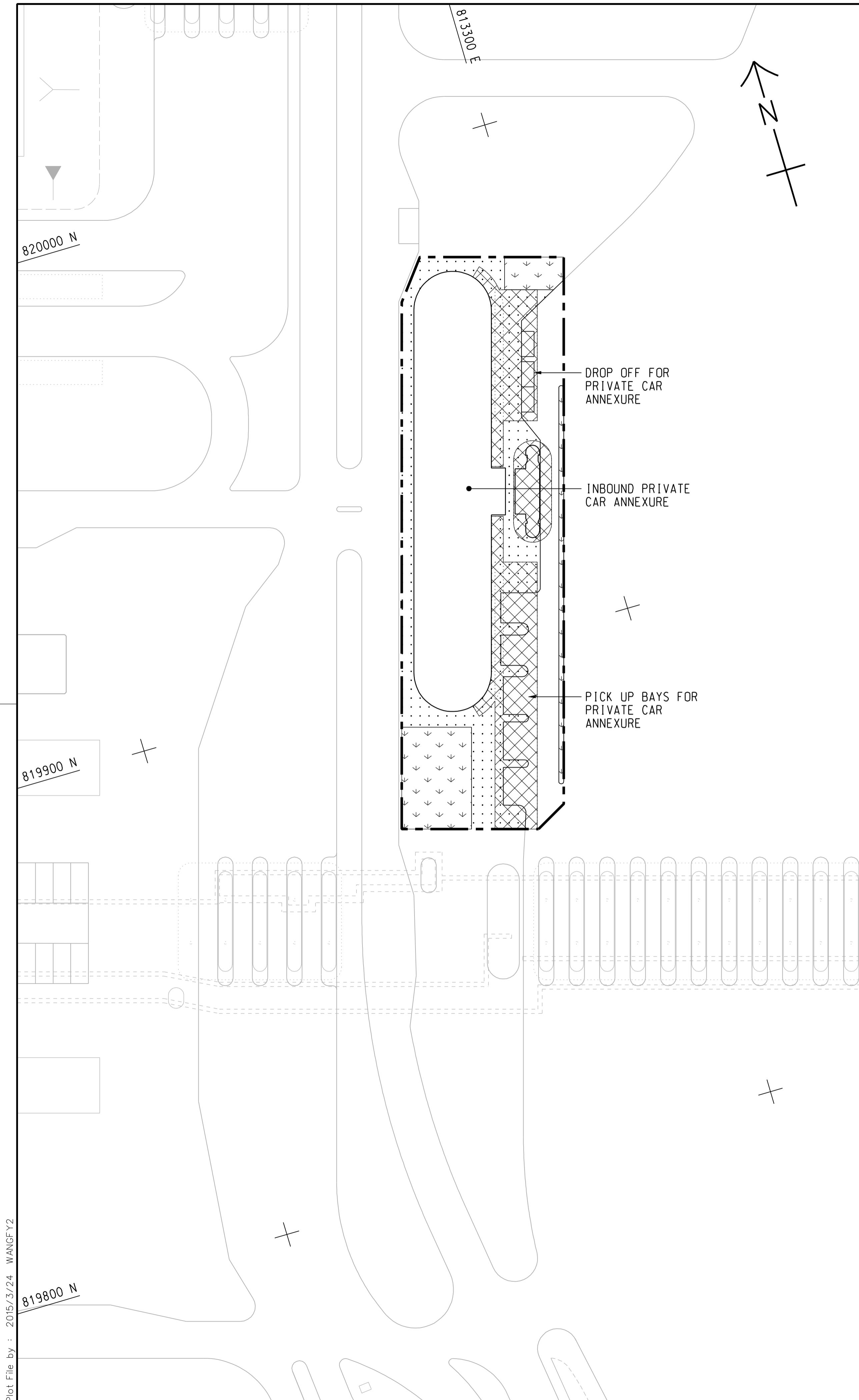
Rogers Stirk Harbour + Partners
 BURO HAPPOLD ATKINS ADI

DRG.NO. 60191048/C8/000/C00/1010
 圖紙編號

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2014/05	P. Dir. APPROVED 批准人	TKH
DRAWN BY 繪圖	WSY	STATUS 階段			

SCALE 比例 A1 1 : 2500

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KEY PLAN
SCALE 1 : 20000

NOTE :

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C8/000/C00/1012 AND 1013.

LEGEND :

- SITE BOUNDARY
- [Dotted pattern] FOOTPATH (DETAILS REFER TO LANDSCAPE DETAIL DRAWINGS)
- [Cross-hatch pattern] CANOPY
- [Arrow pattern] PLANTING AREA

REV. / 修改	DESCRIPTION / 內容摘要	DATE / 日期
-	TENDER DRAWING	MAR. 15



HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- REMAINING ANCILLARY BUILDINGS AND FACILITIES

GENERAL LAYOUT PLAN

SHEET 1 OF 3

AECOM +
Rogers Stirk Harbour + Partners

Aedas +
BURO HAPPOLD ATKINS ADI +

DRG.NO. / 圖紙編號 60191048/C8/000/C00/1011

DESIGNED BY / 設計	CONTRACT NO. / 合約編號	P. Dir. / 批准人
BWCW	HY/2014/05	TKH

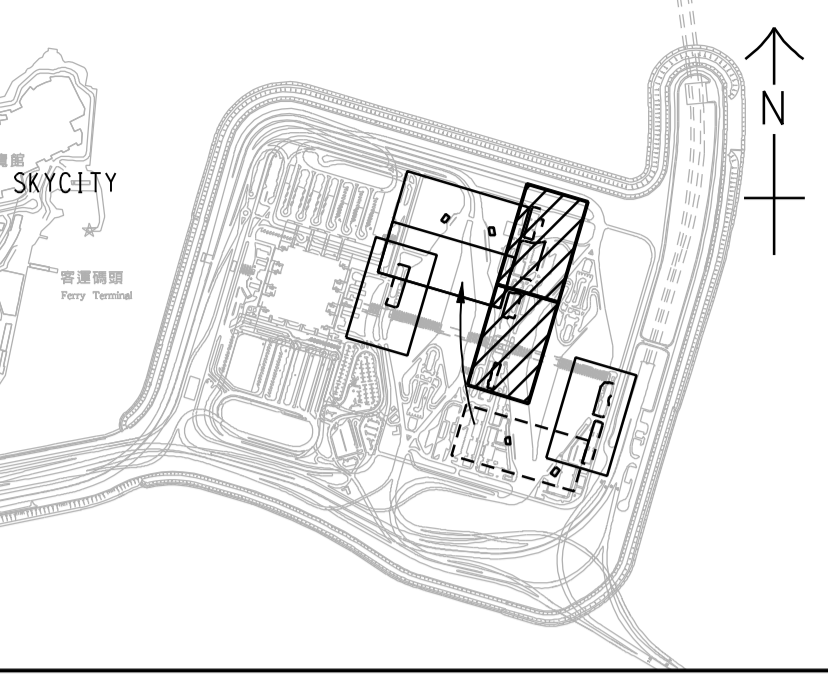
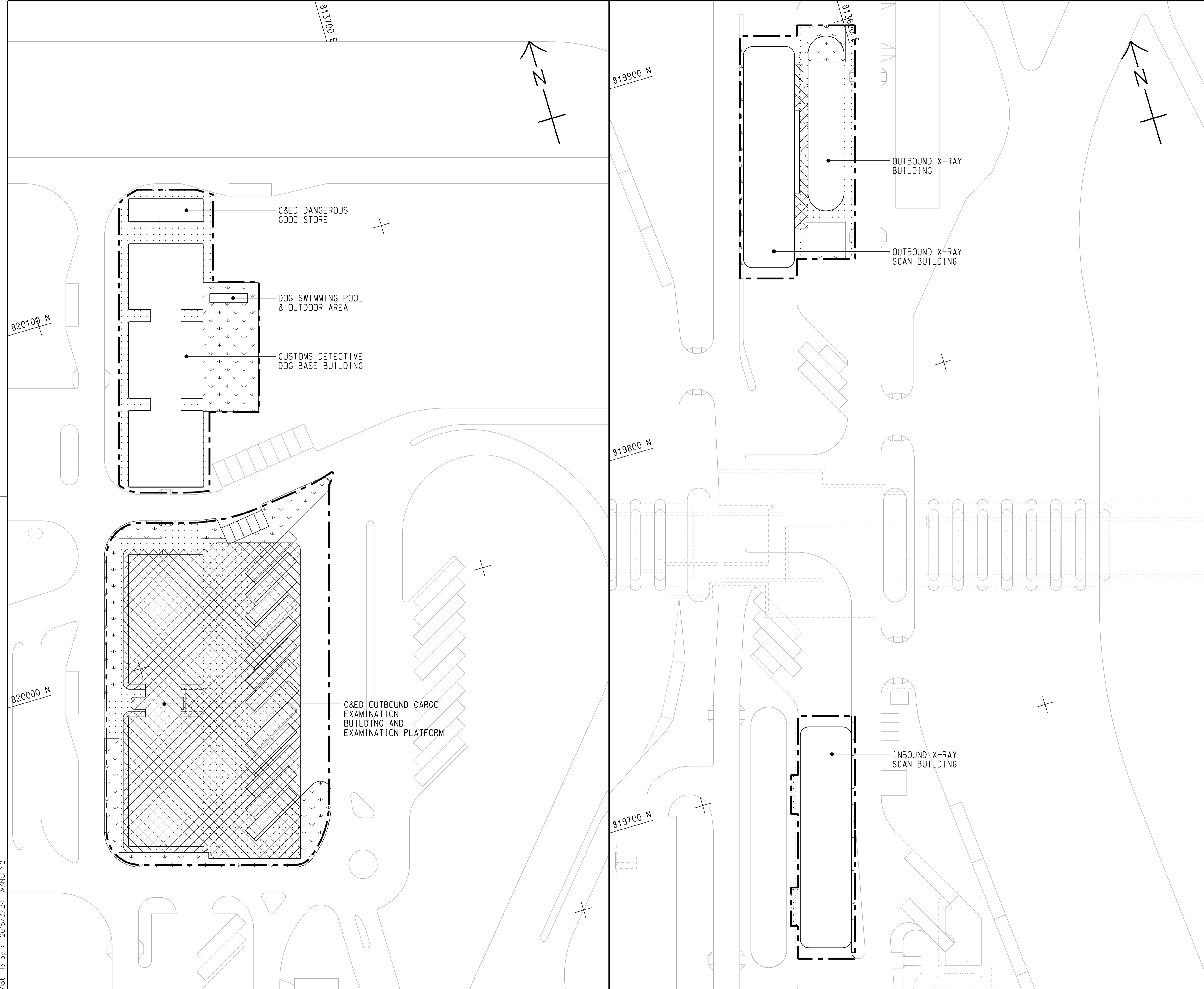
DRAWN BY / 繪圖	STATUS / 階段
WSY	初步

SCALE / 比例 A1 1 : 500

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KEY PLAN
SCALE 1 : 20000

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 - THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C8/000/C00/1011 AND 1013.

REV. 修改	DESCRIPTION 內容摘要	B.C. 校核	P.C. 繪圖	DATE 日期
-	TENDER DRAWING	BWCW	SCI	MAR. 15



HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- REMAINING ANCILLARY BUILDINGS AND FACILITIES

GENERAL LAYOUT PLAN

SHEET 2 OF 3

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DRG. NO. 60191048/C8/000/C00/1012
圖紙編號

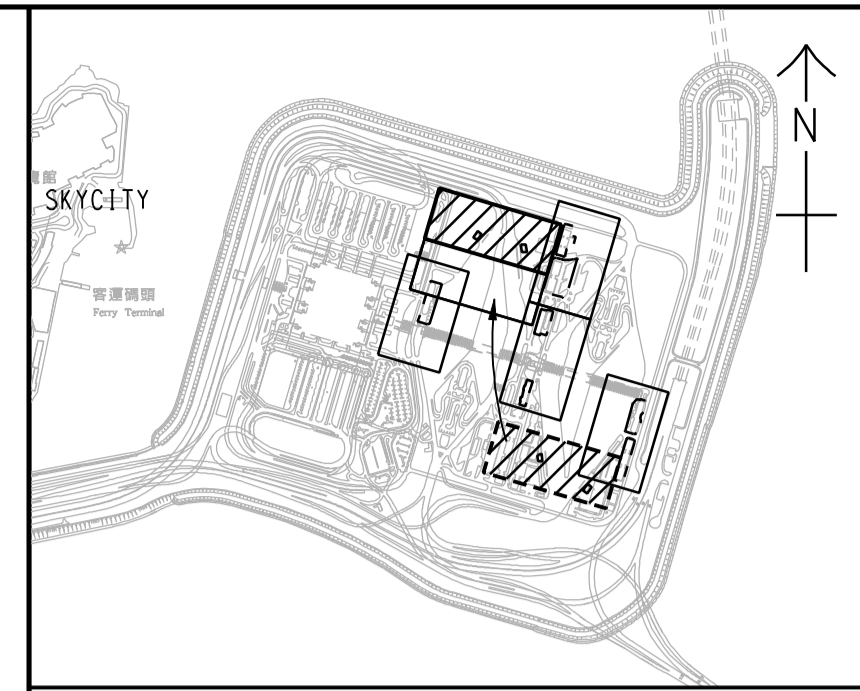
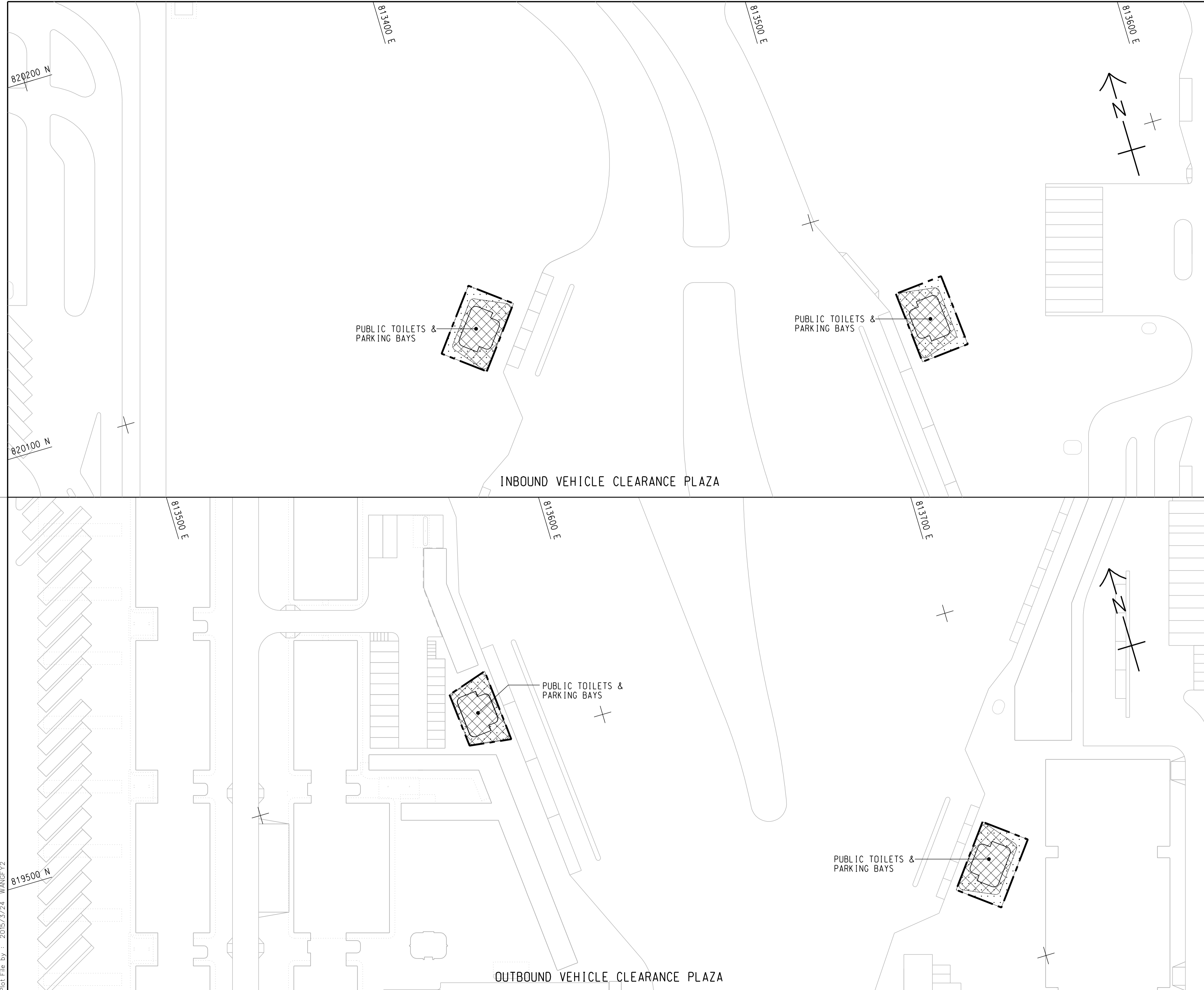
DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. APPROVED 批准人
BWCW	HY/2014/05	TKH

DRAWN BY 繪圖	STATUS 階段
WSY	初步

SCALE 比例 A1 1 : 500
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 2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C8/000/C00/1011 AND 1012.

REV.	DESCRIPTION	DATE
01	TENDER DRAWING	MAR. 15



HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- REMAINING ANCILLARY BUILDINGS AND FACILITIES

GENERAL LAYOUT PLAN
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圖紙編號

DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. 批准人
BWCW	HY/2014/05	TKH
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WSY		
SCALE 比例		
A1 1 : 500		

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Plot File by : 2015/3/24 WANGFY2

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

81200 E

81400 E

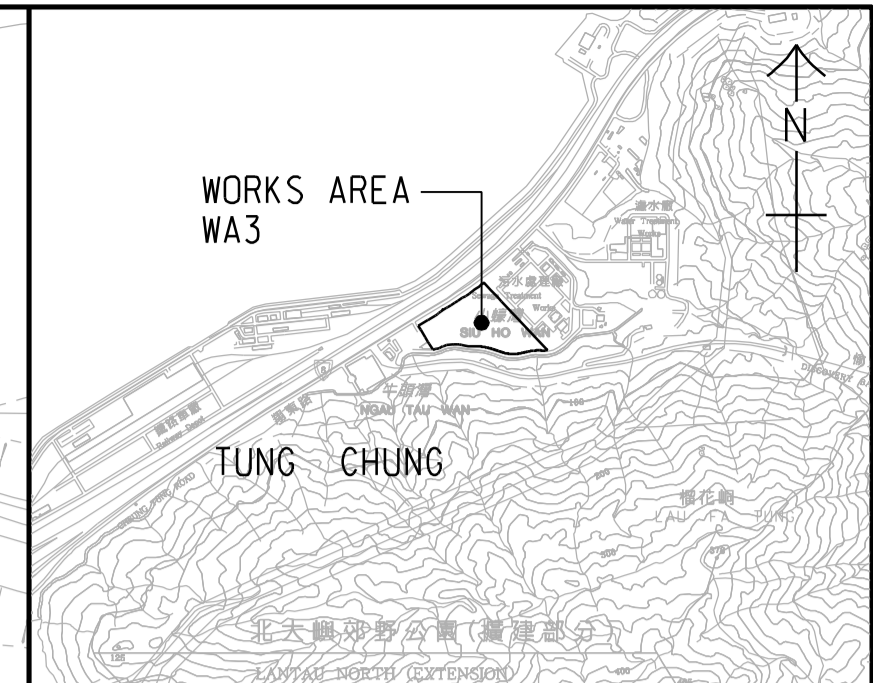
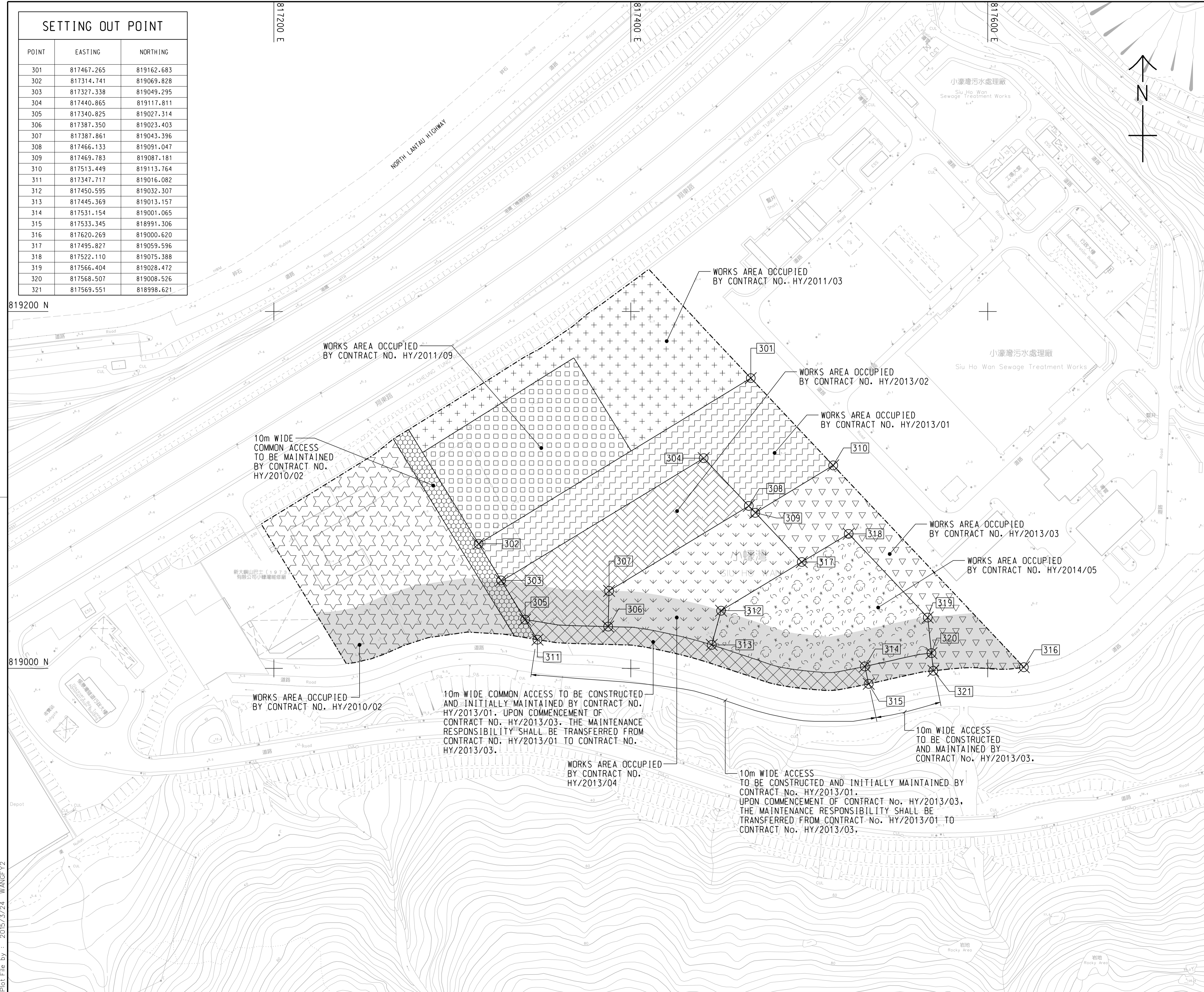
81600 E

819200 N

819000 N

Plot File by : 2015/3/24 WANGFY2

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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)

TENDER DRAWING		BWCW SCI	MAR. 15
REV.	DESCRIPTION	DATE	DATE

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

HONG KONG-ZHUHAI-MACAO BRIDGE
- REMAINING ANCILLARY BUILDINGS AND FACILITIES

WORKS AREA WA3

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

DRG.NO. 60191048/C8/000/C00/1051
圖紙編號

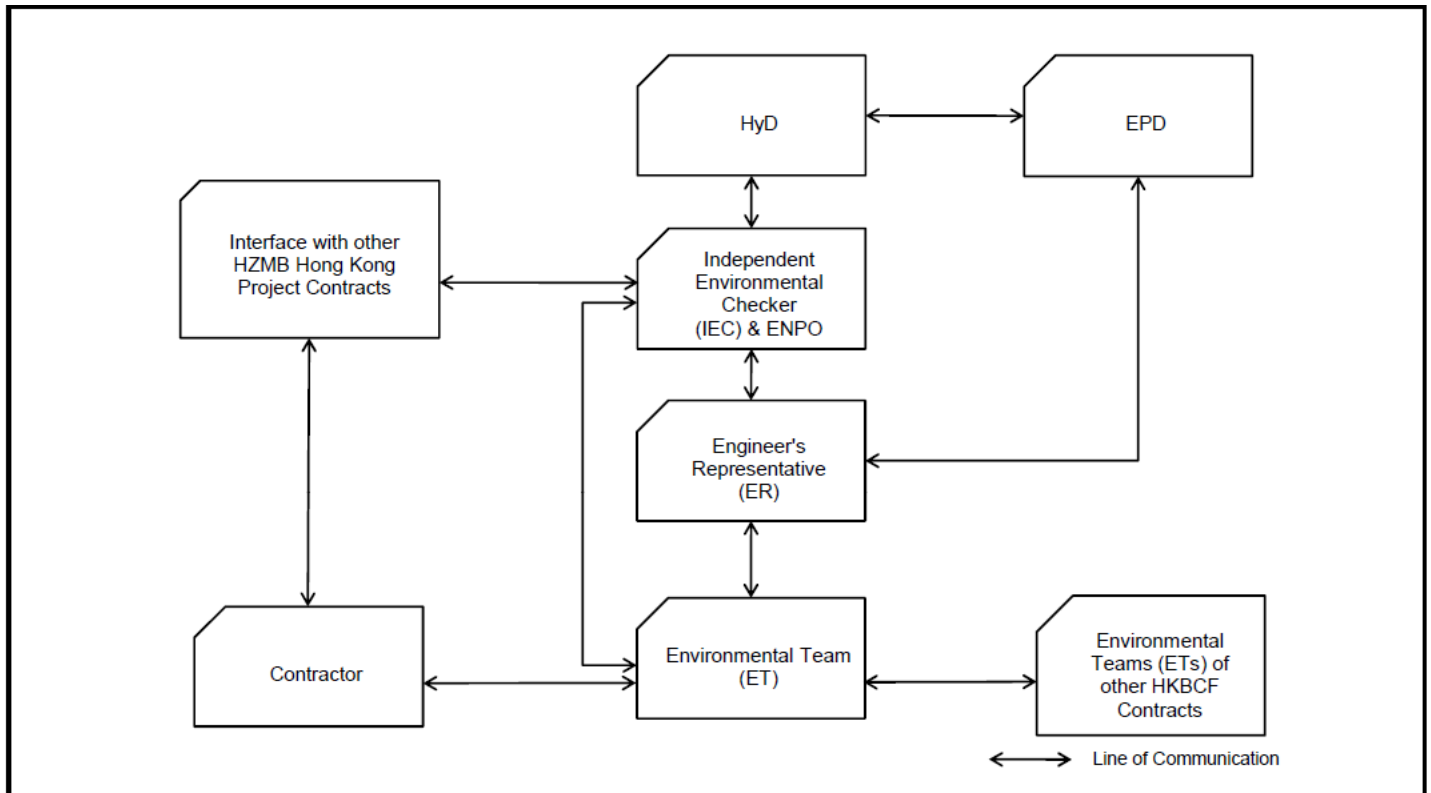
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DRAWN BY 繪圖	WSY	STATUS 階段			
SCALE 比例	A1 1 : 1000				
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APPENDIX B

Project Organization for Environmental Works

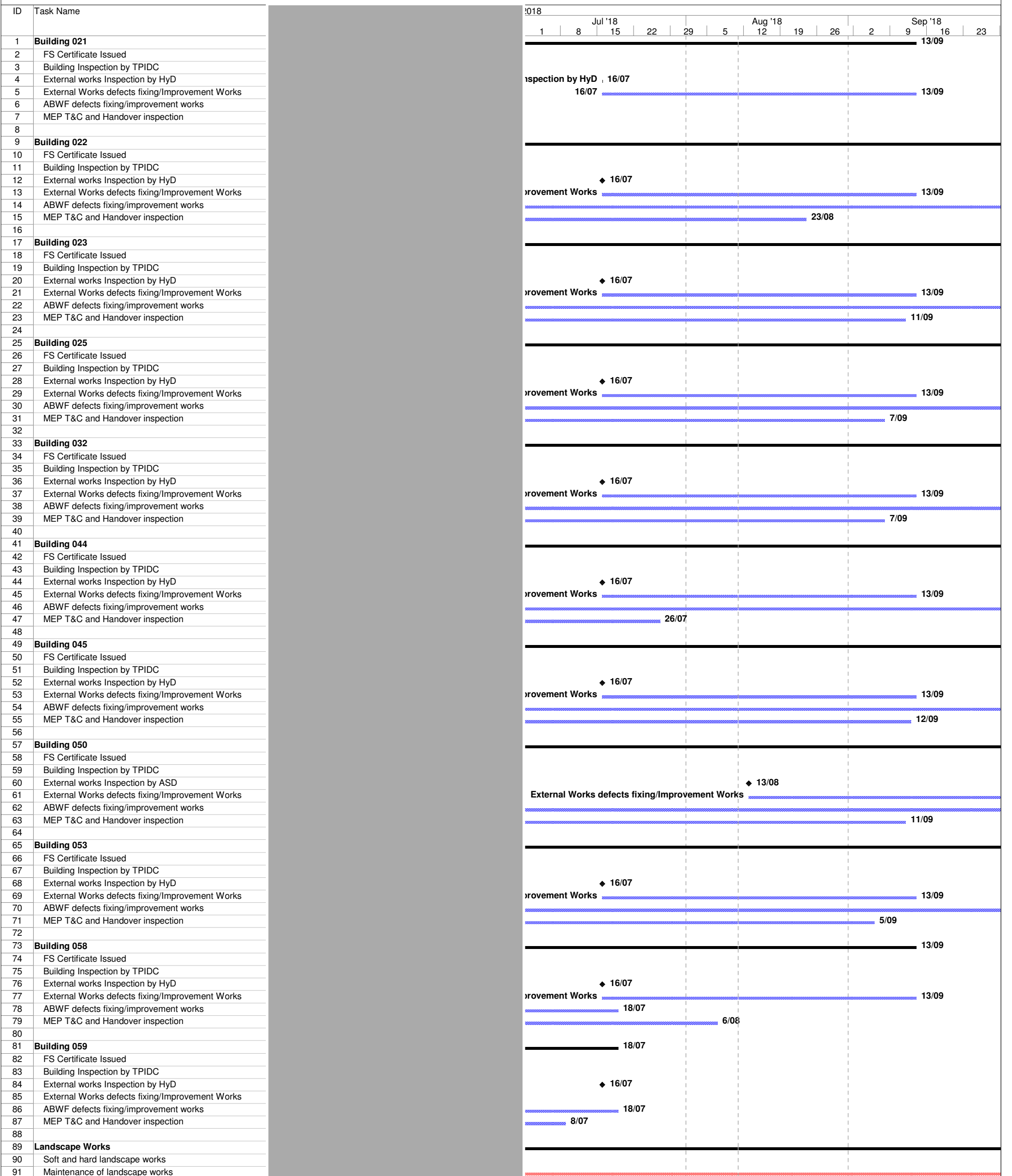
Project Organisation for Environmental Works





APPENDIX C

Construction Programme



Remark: According to information from RSS, landscape works for Contract No. HY/2014/05 is considered substantially completed as of 23 April 2018. The related certificate (Ref.: BWLM: TTHK: wmy:60313494/C8/M15/905/M0531-2018010932T) dated 13 September 2018 was issued by RSS.



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	Q3
Hong Kong-Zhuhai_Macao Bridge Hong Kong Boundary Crossing F		<p>22-Oct-17, Hong Kong-Zhuhai_Macao Bridge</p> <p>23-Jun-17, Site and Facility Inspection:</p> <p>24-Aug-17, Access Dates</p>																	
Key Dates																			
Interface Activities																			
Site and Facility Inspection																			
JS1200	Pre Site and Facility Inspection by Contractor at Location 4 - Deg2																		
JS1210	Joint Site and Facility Inspection with Interface Contractor at Location 4 - Deg2																		
JS1620	Pre Site and Facility Inspection by Contractor at Location 14 - Deg2																		
JS1630	Joint Site and Facility Inspection with Interface Contractor at Location 14 - Deg2																		
JS1760	Pre Site and Facility Inspection by Contractor at Location 18 - Deg1																		
JS1770	Joint Site and Facility Inspection with Interface Contractor at Location 18 - Deg1																		
JS1780	Pre Site and Facility Inspection by Contractor at Location 18 - Deg2																		
JS1790	Joint Site and Facility Inspection with Interface Contractor at Location 18 - Deg2																		
Access Dates																			
AD1000	Location 1(PCB (001) Basement)-Deg1 (270d)																		
AD1010	Location 1(PCB (001) Basement)-Deg2 (380d)																		
AD1020	Location 1(PCB (001) ELV Room (Grid Line E3))-Deg1 (270d)																		
AD1030	Location 1(PCB (001) ELV Room (Grid Line E3))-Deg2 (380d)																		
AD1040	Location 2(PCB (001) First Floor Main Server Room)-Deg1 (330d)																		
AD1050	Location 2(PCB (001) First Floor Main Server Room)-Deg2 (380d)																		
AD1060	Location 2(PCB (001) First Floor Main Server Room) - For Server Installation - Deg2 (380d)																		
AD1070	Location 2(PCB (001) Ground Floor ELV Room (Grid Line E3)) - Deg1 (330d)																		
AD1080	Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5)) - Deg1 (330d)																		
AD1090	Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5)) - Deg2 (380d)																		
AD1130	Location 3(Inbd Cargo Exam Bldg (037) Platform Control Room)-Deg2 (500d)																		
AD1150	Location 3(Inbd Cargo Exam Bldg (037) Inspector Offices 128,129,130,131,128,129,14)																		
AD1170	Location 3a(Inbd Cargo Exam Bldg (037) ROCARS Room)-Deg2 (480d)																		
AD1190	Location 3a(Inbd Cargo Exam Bldg (037) Main Server Room)-Deg2 (480d)																		
AD1200	Location 3a(Inbd Cargo Exam Bldg (037) Main Server Room) - For Server installation - Deg2 (480d)																		
AD1220	Location 4(Outbd Cargo Exam Bldg (023))-Deg2 (680d)																		
AD1240	Location 4a(Outbd Cargo Exam Bldg (023))-Deg2 (630d)																		
AD1270	Location 6(Common Utility Enclosure & Staff Subway)-Deg1 (400d)																		
AD1290	Location 7(Common Utility Enclosure & Staff Subway)-Deg1 (270d)																		
AD1300	Location 8(Inbd Private Car Annex (025))-Deg1 (430d)																		
AD1310	Location 8(Inbd Private Car Annex (025))-Deg2 (580d)																		
AD1320	Location 8(Inbd Private Car Annex (025) Canopy)-Deg1 (430d)																		
AD1330	Location 8(Inbd Private Car Annex (025) Canopy)-Deg2 (580d)																		
AD1340	Location 9(Outbd Private Car Annex (032))-Deg1 (520d)																		
AD1350	Location 9(Outbd Private Car Annex (032))-Deg2 (660d)																		
AD1360	Location 9(Outbd Private Car Annex (032) Canopy)-Deg1 (520d)																		
AD1370	Location 9(Outbd Private Car Annex (032) Canopy)-Deg2 (660d)																		
AD1501	Location 12(Inbd Private Car Kiosks(027))-Deg1 (400d) Phase 2																		
AD1510	Location 12(Inbd Private Car Kiosks(027))-Deg2 (480d) Phase 1																		
AD1511	Location 12(Inbd Private Car Kiosks(027))-Deg2 (480d) Phase 2																		
AD1521	Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg1 (400d) Phase 2																		

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
			10-Mar-17	Rev.: 1.0a	WC	LC
			5-May-17	Rev.: 1.0b	WC	LC

Activity ID	Activity Name	2015			2016				2017				2018				2019			
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AD1530	Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg2 (480d) Phase 1																			
AD1531	Location 12(Inbd Private Car Kiosks(027) Canopy)-Deg2 (480d) Phase 2																			
AD1540	Location 12(Inbd GV Kiosks (028))-Deg1 (400d) Phase 1																			
AD1541	Location 12(Inbd GV Kiosks (028))-Deg1 (400d) Phase 2																			
AD1550	Location 12(Inbd GV Kiosks (028))-Deg2 (480d) Phase 1																			
AD1551	Location 12(Inbd GV Kiosks (028))-Deg2 (480d) Phase 2																			
AD1560	Location 12(Inbd GV Kiosks (028) Canopy)-Deg1 (400d) Phase 1																			
AD1561	Location 12(Inbd GV Kiosks (028) Canopy)-Deg1 (400d) Phase 2																			
AD1570	Location 12(Inbd GV Kiosks (028) Canopy)-Deg2 (480d) Phase 1																			
AD1571	Location 12(Inbd GV Kiosks (028) Canopy)-Deg2 (480d) Phase 2																			
AD1580	Location 12(Outbd GV Kiosks (029))-Deg1 (400d) Phase 1																			
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AD1590	Location 12(Outbd GV Kiosks (029))-Deg2 (480d) Phase 1																			
AD1591	Location 12(Outbd GV Kiosks (029))-Deg2 (480d) Phase 2																			
AD1600	Location 12(Outbd GV Kiosks (029) Canopy)-Deg1 (400d) Phase 1																			
AD1601	Location 12(Outbd GV Kiosks (029) Canopy)-Deg1 (400d) Phase 2																			
AD1610	Location 12(Outbd GV Kiosks (029) Canopy)-Deg2 (480d) Phase 1																			
AD1611	Location 12(Outbd GV Kiosks (029) Canopy)-Deg2 (480d) Phase 2																			
AD1620	Location 13(Outbd Private Car Kiosks (030))-Deg1 (480d) Phase 1																			
AD1630	Location 13(Outbd Private Car Kiosks (030))-Deg2 (550d) Phase 1																			
AD1640	Location 13(Outbd Private Car Kiosks (030) Canopy)-Deg1 (480d) Phase 1																			
AD1650	Location 13(Outbd Private Car Kiosks (030) Canopy)-Deg2 (550d) Phase 1																			
AD1660	Location 14(Future-Outbd/Inbd Private Car Kiosks)-Deg1 (610d)																			
AD1670	Location 14(Future-Outbd/Inbd Private Car Kiosks)-Deg2 (680d)																			
AD1700	Location 16(Outbd Traffic Control Kiosk (101))-Deg1 (400d)																			
AD1710	Location 16(Outbd Traffic Control Kiosk (101))-Deg2 (480d)																			
AD1740	Location 18(Outbd Private Car Exam Bldg(024))-Deg1 (-)																			
AD1750	Location 18(Outbd Private Car Exam Bldg(024))-Deg2 (670d)																			
AD1780	(by C03) Underground Ducting (UUD1.1) between CUE and Inbd Cargo Exam Bldg (0																			
AD1790	(by C03) (UUD1.2) between Inbd Cargo Exam Bldg South (037[S]) and DOH Cargo C																			
AD1800	(by C03) (UUD2) between Inbd Cargo Exam Bldg North (037[N]) and Inbd Vehicle Cle																			
AD1810	(by C03) (UUD9.1) btw Inbd Cargo Exam Bldg S.(037[S]) & Inbd PC Exam Bldg(033) &																			
AD1820	(by C03) (UUD9.3) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clear																			
AD1830	(by C03) (UUD9.2) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clear																			
AD1840	(by C03) Underground Ducting (UUD3.1) between CUE to Outbd Cargo Exam Bldg (0																			
AD1850	(by C03) (UUD3.2) btw Outbd Car Exam Bldg (023) and Outbd PC Exam Bldg (024) ai																			
AD1860	(byC03) (UUD4.1) between Outbd Private Car Exam Bldg (024) and Outbd Vehicle Cle																			
AD1870	(byC03) (UUD5) between Outbd Car Exam Bldg South (023[S]) and Outbd Vehicle Cle																			
AD1880	(by C03) Underground Ducting (UUD8) between CUE and Outbd PCA (032)																			
AD1910	(by C03) Inbound Vehicle Clearance Plaza																			
AD1920	(by C03) Outbound Vehicle Clearance Plaza																			

- Interfaces Provisions
- Mobilization Provisions
- WA4 Site Erection & Servicing

12-Aug-17, Interfaces Provisions
 22-Oct-17, Mobilization Provisions

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)	<table border="1"> <thead> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> </thead> <tbody> <tr> <td>14-Nov-16</td> <td>Rev.: 0</td> <td>WC</td> <td>LC</td> </tr> <tr> <td>10-Mar-17</td> <td>Rev.: 1.0a</td> <td>WC</td> <td>LC</td> </tr> <tr> <td>5-May-17</td> <td>Rev.: 1.0b</td> <td>WC</td> <td>LC</td> </tr> </tbody> </table>	Date	Revision	Checked	Approved	14-Nov-16	Rev.: 0	WC	LC	10-Mar-17	Rev.: 1.0a	WC	LC	5-May-17	Rev.: 1.0b	WC	LC
Date	Revision	Checked	Approved																
14-Nov-16	Rev.: 0	WC	LC																
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5-May-17	Rev.: 1.0b	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	Q3
<ul style="list-style-type: none"> ■ Detailed Design Specification ■ Contruction Design and Management ■ Supply/Manufacture Mock-up items ■ Supply/Manufacture prototypes ■ Software Design, Coding and Testing ■ Coding ■ Software System Inetgration ■ Prototype & Software Simulation Tests ■ Procurement - Phase 1 / Section I ■ Supply/Manufacture products for FAT ■ Factory Acceptance Test (FAT) ■ Supply/Manufacture Equipment ■ Delivery and Bench Acceptance Test for Phase 1/ Section I ■ Installation - Phase 1 / Section I ■ Location 1(PCB (001) Basement) ■ EM1920 L1(001)B/F - Cable Laying and termination at Location 1 and Location 2 ■ Location 1(PCB (001) ELV Room (Grid Line E3)) ■ EM1940 L1(001)ELV Rm - Cable Laying and termination at Location 1 and Location 2 ■ Location 2(PCB (001) Ground Floor ELV Room (Grid Line E3)) ■ EM1960 L2(001)ELV Rm - Cable Laying and termination at Location 1 and Location 2 ■ Location 2(PCB (001) Ground Floor DOH Port Health Control Room (Grid Line BD5)) ■ EM1080 L2(001)Heath Ctrl Rm - Cable Laying and termination at Location 1 and Location 2 ■ EM1100 L2(001)Heath Ctrl Rm - Cable Splicing and Testing and Labeling ■ EM1120 L2(001)Health Ctrl Rm - Intercom and PA system Installation ■ EM1140 L2(001)Heath Ctrl Rm - Intercom and PA system tuning ■ Location 2(PCB (001) First Floor Main Server Room) ■ EM1000 L2(001)Main Server Rm - Cable Laying and termination at Location 1 and Location 2 ■ EM1020 L2(001)Main Server Rm - Cable Splicing and Testing and Labeling ■ EM1040 L2(001)Main Server Rm - AVCSS Network and Server Installation ■ EM1060 L2(001)Main Server Rm - AVCSS Network and Server Tuning ■ Location 3(Inbd Cargo Exam Bldg (037) MDF Room) ■ Location 3(Inbd Cargo Exam Bldg (037) ELV Room) ■ Location 3(Inbd Cargo Exam Bldg (037) Inspector Offices 128,129,130,131,128,129,141) ■ EM2020 L3(037)Inspec Offices - Cable Laying and termination in Location 3 and Location 3a ■ EM2040 L3(037)Inspec Offices - Cable Splicing and Testing and Labeling ■ EM2060 L3(037)Inspec Offices - AVCSS SURCON WS and 55" LCD Installation ■ EM2080 L3(037)Inspec Offices - VTS WS Installation ■ EM2100 L3(037)Inspec Offices - SURCON and WS Tuning ■ Location 3(Inbd Cargo Exam Bldg (037) Platform Control Room) ■ EM1160 L3(037)PLF Ctrl Rm - Cable Laying and termination in Location 3 and Location 3a ■ EM1180 L3(037)PLF Ctrl Rm - Cable Splicing and Testing and Labeling ■ EM1200 L3(037)PLF Ctrl Rm - AVCSS SYSCON WS and 55" TV Wall Installation ■ EM1220 L3(037)PLF Ctrl Rm - AVCSS SYSCON WS Tuning 		<ul style="list-style-type: none"> ■ 01-Sep-17, Installation - Phase 1 / Section I ■ 22-Jun-17, Location:1(PCB (001),Basement) ■ L1(001)B/F - Cable Laying and termination at Location ■ 22-Jun-17, Location:1(PCB (001),ELV Room (Grid Line ■ L1(001)ELV Rm - Cable Laying and termination at Loca ■ 22-Jun-17, Location:2(PCB (001),Ground Floor ELV R ■ L2(001)ELV Rm - Cable Laying and termination at Loca ■ 18-Aug-17, Location:2(PCB (001),Ground Floor DO ■ L2(001)Heath Ctrl Rm - Cable Laying and termination ■ L2(001)Heath Ctrl Rm - Cable Splicing and Testing and ■ L2(001)Health Ctrl Rm - Intercom and PA system In ■ L2(001)Health Ctrl Rm - Intercom and PA system tu ■ 21-Aug-17, Location:2(PCB (001) First Floor Main ■ L2(001)Main Server Rm - Cable Laying and terminatio ■ L2(001)Main Server Rm - Cable Splicing and Testing ■ L2(001)Main Server Rm - AVCSS Network and Ser ■ L2(001)Main Server Rm - AVCSS Network and Se ■ 07-Aug-17, Location 3(Inbd Cargo Exam Bldg (037 ■ L3(037)Inspec Offices - Cable Laying and termination i ■ L3(037)Inspec Offices - Cable Splicing and Testing and ■ L3(037)Inspec Offices - AVCSS SURCON WS and 5 ■ L3(037)Inspec Offices - VTS WS Installation ■ L3(037)Inspec Offices - SURCON and WS Tuning ■ 07-Aug-17, Location 3(Inbd Cargo Exam Bldg (037 ■ L3(037)PLF Ctrl Rm - Cable Laying and termination in ■ L3(037)PLF Ctrl Rm - Cable Splicing and Testing and ■ L3(037)PLF Ctrl Rm - AVCSS SYSCON WS and 55 ■ L3(037)PLF Ctrl Rm - AVCSS SYSCON WS Tuning 																

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- Actual Level of Effort
- Primary Baseline
- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Baseline Milestone
- ◆ Milestone

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
10-Mar-17	Rev.: 1.0a	WC	LC
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Activity ID	Activity Name	2015																		2016																		2017																		2018																		2019																	
		Q2						Q3						Q4						Q1						Q2						Q3						Q4						Q1						Q2						Q3						Q4						Q1						Q2						Q3						Q4					
Location 3a(Inbd Cargo Exam Bldg (037) ROCARS Room)																																						07-Aug-17, Location 3a(Inbd Cargo Exam Bldg (037) ROCARS Rm - Cable Laying and termination in Location 3 and Location 3a																																																					
EM1240	L3a(037) ROCARS Rm - Cable Laying and termination in Location 3 and Location 3a																																					L3a(037) ROCARS Rm - Cable Laying and termination																																																					
EM1260	L3a(037) ROCARS Rm - Cable Splicing and Testing and Labeling																																					L3a(037) ROCARS Rm - Cable Splicing and Testing and Labeling																																																					
EM1280	L3a(037) ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation																																					L3a(037) ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation																																																					
EM1300	L3a(037) ROCARS Rm - VTS WS Installation																																					L3a(037) ROCARS Rm - VTS WS Installation																																																					
EM1320	L3a(037) ROCARS Rm - VID WS Installation																																					L3a(037) ROCARS Rm - VID WS Installation																																																					
EM1340	L3a(037) ROCARS Rm - SURCON and SYSCON and WS Tuning																																					L3a(037) ROCARS Rm - SURCON and SYSCON and WS Tuning																																																					
Location 3a(Inbd Cargo Exam Bldg (037) Main Server Room)																																						07-Aug-17, Location 3a(Inbd Cargo Exam Bldg (037) Main Server Rm - Cable Laying and termination in Location 3 and Location 3a																																																					
EM2120	L3a(037) Main Server Rm - Cable Laying and termination in Location 3 and Location 3a																																					L3a(037) Main Server Rm - Cable Laying and termination																																																					
EM2140	L3a(037) Main Server Rm - Cable Splicing and Testing and Labeling																																					L3a(037) Main Server Rm - Cable Splicing and Testing and Labeling																																																					
EM2160	L3a(037) Main Server Rm - AVCSS Server Installation																																					L3a(037) Main Server Rm - AVCSS Server Installation																																																					
EM2180	L3a(037) Main Server Rm - VTS Server Installation																																					L3a(037) Main Server Rm - VTS Server Installation																																																					
EM2200	L3a(037) Main Server Rm - Servers Tuning																																					L3a(037) Main Server Rm - Servers Tuning																																																					
Location 4(Outbd Cargo Exam Bldg (023) MDF Room)																																																																																											
Location 4a(Outbd Cargo Exam Bldg (023) ROCARS Room)																																						04-Aug-17, Location 4a(Outbd Cargo Exam Bldg (023) ROCARS Rm - Cable Splicing and Testing and Labeling																																																					
EM2240	L4a(023) ROCARS Rm - Cable Splicing and Testing and Labeling																																					L4a(023) ROCARS Rm - Cable Splicing and Testing and Labeling																																																					
EM2260	L4a(023) ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation																																					L4a(023) ROCARS Rm - AVCSS SYSCON and SURCON and Intercom Installation																																																					
EM2280	L4a(023) ROCARS Rm - VTS WS Installation																																					L4a(023) ROCARS Rm - VTS WS Installation																																																					
EM2300	L4a(023) ROCARS Rm - SYSCON and SURCON and WS Tuning																																					L4a(023) ROCARS Rm - SYSCON and SURCON and WS Tuning																																																					
Location 5(Common Utility Enclosure & Staff Subway)																																						01-Sep-17, Location 5(Common Utility Enclosure & Staff Subway) - Cable Laying between Location 5 and Location 6																																																					
EM2341	L5(CUE) - Cable Laying between Location 5 and Location 6																																					L5(CUE) - Cable Laying between Location 5 and Location 6																																																					
EM2361	L5(CUE) - Cable Laying between Location 5 and Location 7																																					L5(CUE) - Cable Laying between Location 5 and Location 7																																																					
EM2380	L5(CUE) - Cable Splicing and Testing and Labeling																																					L5(CUE) - Cable Splicing and Testing and Labeling																																																					
Location 6(Common Utility Enclosure & Staff Subway)																																						26-Aug-17, Location 6(Common Utility Enclosure & Staff Subway) - Cable Laying between Location 5 and Location 6																																																					
EM2400	L6(CUE) - Cable Laying between Location 5 and Location 6																																					L6(CUE) - Cable Laying between Location 5 and Location 6																																																					
EM2420	L6(CUE) - Cable Splicing and Testing and Labeling																																					L6(CUE) - Cable Splicing and Testing and Labeling																																																					
Location 7(Common Utility Enclosure & Staff Subway)																																						01-Sep-17, Location 7(Common Utility Enclosure & Staff Subway) - Cable Laying between Location 5 and Location 7																																																					
EM2440	L7(CUE) - Cable Laying between Location 5 and Location 7																																					L7(CUE) - Cable Laying between Location 5 and Location 7																																																					
EM2460	L7(CUE) - Cable Splicing and Testing and Labeling																																					L7(CUE) - Cable Splicing and Testing and Labeling																																																					
Location 12(Inbd Private Car Kiosks,GV Kiosks (027,028,029))																																						30-Aug-17, Location 12(Inbd Private Car Kiosks,GV Kiosks (027) - 9 nos (Phase 1) - Cable Splicing and Testing and Labeling																																																					
Inbd Private Car Kiosks(027) - 9 nos (Phase 1)																																						24-Aug-17, Inbd Private Car Kiosks(027) - 9 nos (Phase 1) - Cable Splicing and Testing and Labeling																																																					
EM1500	L12(027)(9nos P1) - Cable Splicing and Testing and Labeling																																					L12(027)(9nos P1) - Cable Splicing and Testing and Labeling																																																					
EM1520	L12(027)(9nos P1) - AVCSS/MOM Kiosk Equipment Installation (9 nos)																																					L12(027)(9nos P1) - AVCSS/MOM Kiosk Equipment Installation (9 nos)																																																					
EM1541	L12(027)(9nos P1) - XDB installation (18 nos)																																					L12(027)(9nos P1) - XDB installation (18 nos)																																																					
EM1542	L12(027)(9nos P1) - ODB installation (5 nos)																																					L12(027)(9nos P1) - ODB installation (5 nos)																																																					
EM1543	L12(027)(9nos P1) - ODB installation (2 nos)																																					L12(027)(9nos P1) - ODB installation (2 nos)																																																					
EM1544	L12(027)(9nos P1) - ODB installation (2 nos)																																					L12(027)(9nos P1) - ODB installation (2 nos)																																																					
EM1560	L12(027)(9nos P1) - Loop installation (45 nos)																																					L12(027)(9nos P1) - Loop installation (45 nos)																																																					
Inbd Goods Vehicle Kiosks(028) - 5 nos (Phase 1)																																						30-Aug-17, Inbd Goods Vehicle Kiosks(028) - 5 nos (Phase 1) - Cable Laying and termination																																																					
EM1620	L12(028)(5nos P1) - Cable Laying and termination																																					L12(028)(5nos P1) - Cable Laying and termination																																																					
EM1640	L12(028)(5nos P1) - Cable Splicing and Testing and Labeling																																					L12(028)(5nos P1) - Cable Splicing and Testing and Labeling																																																					
EM1660	L12(028)(5nos P1) - AVCSS/MOM Kiosk Equipment Installation (5 nos)																																					L12(028)(5nos P1) - AVCSS/MOM Kiosk Equipment Installation (5 nos)																																																					
EM1681	L12(028)(5nos P1) - XDB installation (10 nos)																																					L12(028)(5nos P1) - XDB installation (10 nos)																																																					
EM1682	L12(028)(5nos P1) - ODB installation (3 nos)																																					L12(028)(5nos P1) - ODB installation (3 nos)																																																					
EM1683	L12(028)(5nos P1) - ODB installation (2 nos)																																					L12(028)(5nos P1) - ODB installation (2 nos)																																																					

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 - Baseline Milestone
 - 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
10-Mar-17	Rev.: 1.0a	WC	LC
5-May-17	Rev.: 1.0b	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	Q3
EM1700	L12(028)(5nos P1) - AIOP Installation (5 nos)																		
EM1720	L12(028)(5nos P1) - Loop installation (25 nos)																		
Outbd Goods Vehicle Kiosks(029) - 5 nos (Phase 1)																			
EM1740	L12(029)(5nos P1) - Cable Containment in Kiosks																		
EM1760	L12(029)(5nos P1) - Cable Laying and termination																		
EM1780	L12(029)(5nos P1) - Cable Splicing and Testing and Labeling																		
EM1800	L12(029)(5nos P1) - AVCSS/MOM Kiosk Equipment Installation (5 nos)																		
EM1821	L12(029)(5nos P1) - XDB installation (5 nos)																		
EM1822	L12(029)(5nos P1) - ODB installation (4 nos)																		
EM1823	L12(029)(5nos P1) - ODB installation (1 nos)																		
EM1840	L12(029)(5nos P1) - AIOP Installation (5 nos)																		
Location 13(Outbd Private Car Kiosks (030)) - 9 nos (Phase 1)																			
EM2520	L13(030)(9nos P1) - Cable Containment in Kiosks																		
EM2540	L13(030)(9nos P1) - Cable Laying and termination																		
EM2560	L13(030)(9nos P1) - Cable Splicing and Testing and Labeling																		
EM2580	L13(030)(9nos P1) - AVCSS/MOM Kiosk Equipment Installation (9 nos)																		
EM2601	L13(030)(9nos P1) - XDB installation (9 nos)																		
EM2602	L13(030)(9nos P1) - ODB installation (7 nos)																		
Location 14(Future-Outbd/Inbd Private Car Kiosks) - 6+6 nos																			
EM1440	L14 - Cable Laying and termination at ELV Room in CUE																		
Location 15(Inbd Traffic Control Kiosk (100))																			
Location 16(Outbd Traffic Control Kiosk (101))																			
EM2760	L16(101) - Cable Laying and termination																		
EM2780	L16(101) - Cable Splicing and Testing and Labeling																		
EM2800	L16(101) - AVCSS SYSCON and SURCON Installation																		
EM2820	L16(101) - VTS WS and 55" LCD Installation																		
Location 17(Inbd Private Car Exam Bldg(033) Operational Office)																			
Location 18 (Outbd Private Car Exam Bldg(024) Operational Office)																			
EM2940	L18(024) - Cable Laying and termination																		
EM2960	L18(024) - Cable Splicing and Testing and Labeling																		
EM2980	L18(024) - AVCSS SURCON and 55" LCD Installation																		
EM3000	L18(024) - SURCON Tuning																		
Location 19 (DOH Cargo Clearance Bldg(043))																			
EM1360	L19(043) - Cable Laying and termination																		
EM1380	L19(043) - Cable Splicing and Testing and Labeling																		
EM1400	L19(043) - PA and Intercom Installation																		
EM1420	L19(043) - PA and Intercom Tuning																		
Inbd Vehicle Clearance Plaza - 8 nos VID, 7 nos VTS, 4 nos TLS																			
EM3020	Inbound VID cabling from pillar box to VID field equipment																		
EM3040	Inbound VTS cabling from pillar box to VTS field equipment																		
EM3060	Inbound TLS cabling from pillar box to TLS field equipment																		
EM3080	Inbound VID field equipment installation (8 VID)																		
EM3100	Inbound VTS field equipment installation (4 RFID + 3 Cameras)																		
EM3120	Inbound TLS field equipment installation (4 TLS)																		
EM3140	Inbound VID and VTS and TLS field equipment tuning																		

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		Q2			Q3			Q4			Q1			Q2			Q3			Q4			Q1			Q2			Q3																										
Outbd Vehicle Clearance Plaza - 8 nos VID, 6 nos VTS, 4 nos TLS																													02-Aug-17, Outbd Vehicle Clearance Plaza - 8 nos V																										
EM3160	Outbound VID cabling from pillar box to VID field equipment																												Outbound VID cabling from pillar box to VID field equipr																										
EM3180	Outbound VTS cabling from pillar box to VTS field equipment																												Outbound VTS cabling from pillar box to VTS field equi																										
EM3200	Outbound TLS cabling from pillar box to TLS field equipment																												Outbound TLS cabling from pillar box to TLS field equ																										
EM3220	Outbound VID field equipment installation (8 VID)																												Outbound VID field equipment installation (8 VID)																										
EM3240	Outbound VTS field equipment installation (3 RFID + 3 Cameras)																												Outbound VTS field equipment installation (3 RFID +																										
EM3260	Outbound TLS field equipment installation (4 TLS)																												Outbound TLS field equipment installation (4 TLS)																										
EM3280	Outbound VID and VTS and TLS field equipment tuning																												Outbound VID and VTS and TLS field equipment tun																										
Underground Ducting (UUD1.1) between CUE and Inbd Cargo Exam Bldg (037)																													13-Jun-17, Underground Ducting (UUD1.1) between C																										
UD1000	(UUD1.1 [CUE-037]) - Cable laying and termination																												(UUD1.1 [CUE-037]) - Cable laying and termination;																										
(UUD1.2) between Inbd Cargo Exam Bldg South (037[S]) and DOH Cargo Clearance Bldg (023)																													27-Jun-17, (UUD1.2) between Inbd Cargo Exam Bldg																										
UD1060	(UUD1.2 [037[S]-043]) - Cable laying and termination																												(UUD1.2 [037[S]-043]) - Cable laying and termination																										
Underground Ducting (UUD6) between CUE and Shuttle Bus Kiosk (006) and Inbd Private Car Exam Bldg (033)																																																							
(UUD9.1) btw IB Cargo Exam Bldg South(037[S]) & IB PC Exam Bldg(033) & IB Traffic Control Bldg (023)																													12-Jul-17, (UUD9.1) btw IB Cargo Exam Bldg South(
UD1040	(UUD9.1 [037[S]-033-100]) - Cable laying and termination																												(UUD9.1 [037[S]-033-100]) - Cable laying and termina																										
(UUD2) between Inbd Cargo Exam Bldg North (037[N]) to Inbd VCP																													26-Jul-17, (UUD2) between Inbd Cargo Exam Bldg I																										
UD1010	(UUD2 [037[N]-IB VCP]) - Cable laying and termination																												(UUD2 [037[N]-IB VCP]) - Cable laying and terminat																										
(UUD9.3) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clearance Plaza																													09-Aug-17, (UUD9.3) between Inbd Private Car Ex																										
UD1070	(UUD9.3 [033-IB VCP[W]]) - Cable laying and termination																												(UUD9.3 [033-IB VCP[W]]) - Cable laying and termi																										
(UUD9.2) between Inbd Private Car Exam Bldg (033) and Inbd Vehicle Clearance Plaza																													23-Aug-17, (UUD9.2) between Inbd Private Car E																										
UD1020	(UUD9.2 [033-IB VCP[E]]) - Cable laying and termination																												(UUD9.2 [033-IB VCP[E]]) - Cable laying and termi																										
Underground Ducting (UUD7) between PCB(001) and Inbd Coach Kiosks(010)																																																							
Underground Ducting (UUD3.1) between CUE and Outbd Cargo Exam Bldg (023)																													14-Jun-17, Underground Ducting (UUD3.1) between C																										
UD1030	(UUD3.1 [CUE-023]) - Cable laying and termination																												(UUD3.1 [CUE-023]) - Cable laying and termination;																										
(UUD3.2) btw OB Car Exam Bldg(023) & OB PC Exam Bldg(024) & OB Traffic Control Bldg (023)																													28-Jun-17, (UUD3.2) btw OB Car Exam Bldg(023) & C																										
UD1050	(UUD3.2 [023-024-101]) - Cable laying and termination																												(UUD3.2 [023-024-101]) - Cable laying and termination																										
Underground Ducting (UUD8) between CUE and Outbd PCA (032)																													13-Jun-17, Underground Ducting (UUD8) between CUE																										
UD1100	(UUD8 [CUE-032]) - Cable laying and termination																												(UUD8 [CUE-032]) - Cable laying and termination																										
(UUD4.1) between Outbd PC Exam Bldg (024) and Outbd Vehicle Clearance Plaza																													13-Jul-17, (UUD4.1) between Outbd PC Exam Bldg(
UD1080	(UUD4.1 [024-OB VCP]) - Cable laying and termination																												(UUD4.1 [024-OB VCP]) - Cable laying and terminat																										
(UUD5) between Outbd Car Exam Bldg (023[S]) and Outbd Vehicle Clearance Plaza																													27-Jun-17, (UUD5) between Outbd Car Exam Bldg (02																										
UD1090	(UUD5 [023[S]-OB VCP]) - Cable laying and termination																												(UUD5 [023[S]-OB VCP]) - Cable laying and terminat																										
Initial On-Site Test and Commissioning / Pre-SAT (Phase 1 / Section I)																																																							
Site Acceptance Test (Phase 1 / Section I)																																																							
Security Risk Assessment and Audit																																																							
Operability Period Test (Phase 1 / Section I)																																																							
Completion (Phase 1 /Section I)																																																							
Training and Document (Phase 1 /Section I)																																																							
Operation (Phase 1 /Section I)																																																							
Engineering Support for Phase 1 / Section I																																																							
Procurement - Phase 2 / Section II																																																							
Delivery and Bench Acceptance Test for Phase 2/Section II																																																							
Installation - Phase 2 / Section II																													30-Aug-17, Installation -Phase 2/ Section II																										

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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	Q3	Q1	Q2	Q3						
Location 8(Inbd Private Car Annex (025)) (Phase 2)		30-Aug-17; Location 8(Inbd Private Car Annex (025))																										
EM3370	L8(025) - Cable Containment in Kiosks	L8(025) - Cable Containment in Kiosks																										
EM3380	L8(025) - Cable Laying and termination	L8(025) - Cable Laying and termination																										
EM3400	L8(025) - Cable Splicing and Testing and Labeling	L8(025) - Cable Splicing and Testing and Labeling																										
Location 9(Outbd Private Car Annex (032)) (Phase 2)		30-Aug-17; Location 9(Outbd Private Car Annex (032))																										
EM3500	L9(032) - Cable Containment in Kiosks	L9(032) - Cable Containment in Kiosks																										
EM3520	L9(032) - Cable Laying and termination	L9(032) - Cable Laying and termination																										
Initial On-Site Test and Commissioning / Pre-SAT (Phase 2 / Section II)																												
Site Acceptance Test (Phase 2 / Section II)																												
Operability Period Test (Phase 2 / Section II)																												
Completion (Phase 2 / Section II)																												
Engineering Support for Phase 2 / Section II																												
Procurement for Phase2 / Section III																												
Delivery and Bench Acceptance Test for Phase2 / Section III																												
Installation - Phase 2 / Section III		09-Oct-17; Installation - Phase 2/ Section III																										
Location 10,11,12,13 (Vehicle Clearance Kiosks)		09-Oct-17; Location 10,11,12,13 (Vehicle Clearance Kiosks)																										
Location 12 Inbd Private Car Kiosks (027) - 12 nos (Phase 2)		09-Oct-17; Location 12 Inbd Private Car Kiosks																										
EM4440	L12(027)(12nos P2) - Cable Laying and termination	L12(027)(12nos P2) - Cable Laying and termination																										
EM4460	L12(027)(12nos P2) - Cable Splicing and Testing and Labeling	L12(027)(12nos P2) - Cable Splicing and Testing and Labeling																										
EM4480	L12(027)(12nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (12 nos)	L12(027)(12nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (12 nos)																										
Location 13 Outbd Private Car Kiosks (030) - 12 nos (Phase 2)		01-Sep-17; Location 13 Outbd Private Car Kiosks																										
EM4560	L13(030)(12nos P2) - Cable Containment in Kiosks	L13(030)(12nos P2) - Cable Containment in Kiosks																										
Location 12 Outbd Goods Vehicle Kiosks (029) - 3 nos (Phase 2)		31-Aug-17; Location 12 Outbd Goods Vehicle Kiosks																										
EM4880	L12(029)(3nos P2) - Cable Laying and termination	L12(029)(3nos P2) - Cable Laying and termination																										
EM4900	L12(029)(3nos P2) - Cable Splicing and Testing and Labeling	L12(029)(3nos P2) - Cable Splicing and Testing and Labeling																										
EM4920	L12(029)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)	L12(029)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)																										
EM4940	L12(029)(3nos P2) - ODB & XDB Installation (3 nos)	L12(029)(3nos P2) - ODB & XDB Installation (3 nos)																										
EM4960	L12(029)(3nos P2) - AIOP Installation (3 nos)	L12(029)(3nos P2) - AIOP Installation (3 nos)																										
EM4980	L12(029)(3nos P2) - Loop Installation (15 nos)	L12(029)(3nos P2) - Loop Installation (15 nos)																										
Location 11 Outbd Coach Kiosks (009) - 4 nos (Phase 2)																												
Location 12 Inbd Goods Vehicle Kiosks (028) - 3 nos (Phase 2)		24-Aug-17; Location 12 Inbd Goods Vehicle Kiosks																										
EM4720	L12(028)(3nos P2) - Cable Laying and termination	L12(028)(3nos P2) - Cable Laying and termination																										
EM4740	L12(028)(3nos P2) - Cable Splicing and Testing and Labeling	L12(028)(3nos P2) - Cable Splicing and Testing and Labeling																										
EM4760	L12(028)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)	L12(028)(3nos P2) - AVCSS/DOH/MOM Kiosk Equipment Installation (3 nos)																										
EM4780	L12(028)(3nos P2) - ODB & XDB Installation (3 nos)	L12(028)(3nos P2) - ODB & XDB Installation (3 nos)																										
EM4800	L12(028)(3nos P2) - AIOP Installation (3 nos)	L12(028)(3nos P2) - AIOP Installation (3 nos)																										
EM4820	L12(028)(3nos P2) - Loop Installation (15 nos)	L12(028)(3nos P2) - Loop Installation (15 nos)																										
EM4840	L12(028)(3nos P2) - Kiosk Equipment Configuration (3 nos)	L12(028)(3nos P2) - Kiosk Equipment Configuration (3 nos)																										
EM5120	L12(028)(3nos P2) - Inbd Goods Vehicle Kiosks Installation Complete	L12(028)(3nos P2) - Inbd Goods Vehicle Kiosks Installation Complete																										
Location 10 Shuttle Bus Kiosks (006) - 4 nos (Phase 2)		30-Aug-17; Location 10 Shuttle Bus Kiosks (006)																										
EM4000	L10(006)(4nos P2) - Cable Containment in Kiosks	L10(006)(4nos P2) - Cable Containment in Kiosks																										
Location 11 Inbd Coach Kiosks (010) - 2 nos (Phase 2)-1																												
Location 11 Inbd Coach Kiosks (010) - 2 nos (Phase 2)-2																												
Initial On-Site Test and Commissioning / Pre-SAT (Phase 2 / Section III)																												

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
			10-Mar-17	Rev.: 1.0a	WC	LC
			5-May-17	Rev.: 1.0b	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	Q3
	<ul style="list-style-type: none"> Site Acceptance Test (Phase 2 / Section III) Operability Period Test (Phase 2 / Section III) Completion (Phase 2 / Section III) Operation (Phase 2 / Section III) Defect Liability Period (DLP) Document Submission (Phase 2 / Section III) 																		

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

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

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
10-Mar-17	Rev.: 1.0a	WC	LC
5-May-17	Rev.: 1.0b	WC	LC



APPENDIX D

Event and Action Plan

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION 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 IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify 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.
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 exceedance is 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.
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 Contractors 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.



APPENDIX E

Waste Flow Table

Monthly Summary Waste Flow Table for 2018



Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	a.Total Quantity Generated (see Note 8)	b. Hard Rock and Large Broken Concrete (see Note 9)	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill (see Note 10)	f. Imported Fill	g. Metals (see Note 5)	h. Paper / Cardboard Packaging (see Note 5)	i. Plastics (see Note 3) (see Note 5)	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
January	0.053	0.053	0.000	0.000	0.053	0.000	0.000	0.000	0.000	0.000	0.515
February	0.010	0.010	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.232
March	0.017	0.017	0.000	0.000	0.017	0.000	0.000	0.000	0.000	0.000	0.358
April	0.187	0.187	0.000	0.000	0.187	0.000	0.000	0.000	0.000	0.000	0.319
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.165
June	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.108
Sub-total	0.267	0.267	0.000	0.000	0.267	0.000	0.000	0.000	0.000	0.000	1.697
July	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.128
August	0.011	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.159
September	0.006	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.093
October											
November											
December											
Total	0.284	0.267	0.000	0.000	0.284	0.000	0.000	0.000	0.000	0.000	2.077

Total C&D waste generated = a+b+f+g+h+i+j+k

Total C&D waste generated (excluded excavated material) = g+h+i+j+k

Total C&D waste recycled = c+d+g+h+i

% of recycled C&D waste = (Total C&D waste generated - Total C&D waste recycled) / Total C&D waste generated



Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
a.Total Quantity Generated (see Note 8)	b. Hard Rock and Large Broken Concrete (see Note 9)	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill (see Note 10)	f. Imported Fill	g. Metals (see Note 5)	h. Paper / Cardboard Packaging (see Note 5)	i. Plastics (see Note 3) (see Note 5)	j. Chemical Waste	k. Others, e.g. general refuse
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)

- Notes:
- (1) The performance target are given in PS Clause 6(14)
 - (2) The waste flow table shall also include C&D materials that are not specified in the Contract to be imported for use at the Site
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
 - (4) The Contractor shall also submit the latest forecast of the amount of C&D materials expected to be generated from the Works, together with a break down of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m³.
 - (5) All recyclable materials, including metals, paper / cardboard packaging, plastics, etc. will be collected by registered collector for recycling.
 - (6) Conversion factors for reporting purpose:
 in-situ: rock = 2.5 tonnes/m³; soil = 2.0 tonnes/m³
 excavated: rock = 2.0 tonnes/m³; soil = 1.8 tonnes/m³; broken concrete and bitumen = 2.4 tonnes/m³
 C&D Waste = 0.9 tonnes/m³; bentonite slurry = 2.8 tonnes/m³
 - (7) Numbers are rounded off to the nearest three decimal places
 - (8) The "Total Quantity Generated" equals to the sum of "Reuse in the Contract", "Reuse in Other Projects" and "Disposed as Public Fill"
 - (9) The "Hard Rock and Large Broken Concrete" were disposed as public fill
 - (10) The amount in "Disposed as Public Fill" included the "Hard Rock and Large Broken Concrete" disposed as public fill

ATAL Technologies Ltd.

 Contract No. **HY/2013/06** HKBCF Automatic Vehicle Clearance Support System

 Location: Artificial Island of HKBCF (**C8 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, 磚, 瓦, 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	0.020	0.020	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020
February	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.015	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.015
March	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.015	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.015
April	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.015	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.015
May	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
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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
August	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
September	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
October																		
November																		
December																		
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.085	0.085	0.020	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.085	0.085

 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.



APPENDIX F

Environmental Licenses and Permits

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

Date: September 2018									
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	Remark
	Work Area	Date	Reference						
1	All Areas	30 Jun 15	N/A	Environmental Permit to construct the Remaining Ancillary Buildings and Facilities and associated works of the Hong Kong Zhuhai and Macao Bridge Boundary Crossing Facilities	EP-353/2009/I	17 Jul 15	N/A	EPD	Superseded by EP-353/2009/J
2	All Areas	18 Feb 16	N/A	Environmental Permit to construct the Remaining Ancillary Buildings and Facilities and associated works of the Hong Kong Zhuhai and Macao Bridge Boundary Crossing Facilities	EP-353/2009/J	25 Feb 16	N/A	EPD	Superseded by EP-353/2009/K
3	All Areas	24 Mar 16	N/A	Environmental Permit to construct the Remaining Ancillary Buildings and Facilities and associated works of the Hong Kong Zhuhai and Macao Bridge Boundary Crossing Facilities	EP-353/2009/K	11 Apr 16	N/A	EPD	-
4	All Areas	30 Dec 15	N/A	Billing Account for disposal of construction waste	7024342	16 Feb 16	N/A	EPD	-

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

								Date: September 2018		
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	Remark	
	Work Area	Date	Reference							
5	All Areas	30 Dec 15	RABF-LTR- EPD-000001	Notification that notifiable works are anticipated to commence (Form NA).	Acknowledge Receipt Ref. No. 397571	06 Jan 16	N/A	EPD	-	
6	All Areas	04 Jan 16	RABF-LTR- EPD-000002	Registration as Chemical Waste Producer for disposal of spent batteries, used lubrication oil and surplus paint at RABF area	WPN 5213-951-L2846-02	19 Feb 16	N/A	EPD	-	
7	All Areas	25 Jan 16	RABF-LTR- EPD-000003	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0106-16	11 Feb 16	10 Aug 16	EPD	Superseded by GW-RS0476-16	
8	All Areas	08 May 16	RABF-LTR- EPD-000012	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0476-16	19 May 16	18 Nov 16	EPD	Superseded by GW-RS0666-16	

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

								Date: September 2018		
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	Remark	
	Work Area	Date	Reference							
9	All Areas	16 Jun 16	RABF-LTR- EPD-000015	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0666-16	04 Jul 16	03 Jan 17	EPD	Superseded by GW-RS0907-16	
10	All Areas	18 Aug 16	RABF-LTR- EPD-000018	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0907-16	01 Sep 16	28 Feb 17	EPD	Superseded by GW-RS1195-16	
11	All Areas	16 Nov 16	RABF-LTR-EPD-000020	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1195-16	30 Nov 16	29 May 17	EPD	Superseded by GW-RS1315-16	
12	All Areas	08 Dec 16	RABF-LTR-EPD-000023	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1315-16	22 Dec 16	21 Jun 17	EPD	Superseded by GW-RS0131-17	

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

								Date: September 2018		
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	Remark	
	Work Area	Date	Reference							
13	WA3	13 Jan 17	RABF-LTR-EPD-000026	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00. (Non-designated area)	GW-RS0070-17	27 Jan 17	26 Jul 17	EPD	Superseded by GW-RS0626-17	
14	All areas	03 Feb 17	RABF-LTR-EPD-000028	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0131-17	17 Feb 17	16 Aug 17	EPD	Superseded by GW-RS0306-17	
15	All areas	20 Mar 17	RABF-LTR-EPD-000035	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0306-17	05 Apr 17	02 Oct 17	EPD	Superseded by GW-RS0435-17	
16	All areas	05 May 17	RABF-LTR-EPD-000036	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0435-17	20 May 17	16 Nov 17	EPD	Superseded by GW-RS0710-17	

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

								Date: September 2018		
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	Remark	
	Work Area	Date	Reference							
17	WA3	28 Jun 17	RABF-LTR-EPD-000041	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00. (Non-designated area)	GW-RS0626-17	27 Jul 17	26 Jan 18	EPD	Expired	
18	All areas	03 Aug 17	RABF-LTR-EPD-000042	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0710-17	21 Aug 17	16 Feb 18	EPD	Expired	
19	WA3	11 Jan 18	RABF-LTR-EPD-000046	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00. (Non-designated area)	GW-RS0050-18	27 Jan 18	26 Jul 18	EPD	Expired	
20	All areas	31 Jan 18	RABF-LTR-EPD-000048	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0112-18	17 Feb 18	16 Aug 18	EPD	Expired	

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2014/05 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

								Date: September 2018		
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	Remark	
	Work Area	Date	Reference							
21	WA3	12 Jul 18	RABF-LTR-EPD-000053	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00. (Non-designated area)	GW-RS0640-18	27 Jul 18	26 Jan 19	EPD	-	
22	All areas	02 Aug 18	RABF-LTR-EPD-000055	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0727-18	17 Aug 18	16 Feb 19	EPD	-	

Environmental License/ Permits /Notification Register

LCAL H2642

Contract No. HY/2013/06 – Hong Kong Zhuhai and Macao Bridge - HKBCF – Automatic Vehicle Clearance Support System

Date: 30 September 2018									
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	Remark
	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	
2									

APPENDIX G

Implementation Schedule for Environmental Mitigation Measures (EMIS)

**Contract No. HY/2014/05 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities
Implementation Schedule for Environmental Mitigation Measures**

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Air Quality								
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively)	√
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 trafficcones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; 	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively)	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
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 and the 3 sides; 	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively)	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S5.5.6.2	A2	<ul style="list-style-type: none"> Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively)	√
S5.5.6.4	A3	The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	Control construction dust	Contractor	All construction sites	Construction stage	To control the dust impact	N/A All site area of C8 have been paved, the watering was not required in reporting month.
S5.5.6.5	A4	Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the contractor's attention to the relevant latest Practice Notes issued by EPD.	Control construction dust	Engineer	All construction sites	Design Stage	Air Pollution Control (Construction Dust) Regulation	√

S5.5.6.5	A5	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitor the 24 hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period.	Contractor	Selected representative dust monitoring station	Construction stage	<ul style="list-style-type: none"> Air Pollution Control (Construction Dust) Regulation To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively) 	<p style="text-align: center;">√</p> (The dust monitoring at AMS6 under EM&A Programme for the Contract is covered by Contract No. HY/2011/03 while the dust monitoring at AMS7 under EM&A Programme for the Contract is covered by Contract No. HY/2013/01.)
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EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
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. 	Monitor the 24 hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period.	Contractor	Selected representative dust monitoring station	Construction stage	<ul style="list-style-type: none"> • Air Pollution Control (Construction Dust) Regulation • To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are $500 \mu\text{g}\text{m}^{-3}$ and $260 \mu\text{g}\text{m}^{-3}$, respectively) 	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 designated wheels wash facilities; and • Continuous water spray at the loading points. 	Control construction dust	Contractor	All construction sites	Construction stage	Air Pollution Control (Construction Dust) Regulation	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Construction Noise (Air borne)								
S6.4.10	N1	<p>1) Use of good site practices to limit noise emissions by considering the following:</p> <ul style="list-style-type: none"> 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. 	Control construction airborne noise by means of good site practices	Contractor	All construction sites	Construction stage	Noise Control Ordinance	√
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance Annex 5, TM-EIA 	N/A
S6.4.12	N3	3) Install movable noise barriers (typically density @14kg/m ²), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw.	Screen the noisy plant items to be used at all construction sites	Contractor	For plant items listed in Appendix 6D of the EIA report at all construction sites	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance Annex 5, TM-EIA 75dB(A) for residential premises The movable barrier should achieve at least 5dB(A) and the full enclosure should be 	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S6.4.13	N4	4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.	Reduce the noise levels of plant items	Contractor	For plant items listed in Appendix 6D of the EIA report at all construction sites	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance & its TM Annex 5, TM-EIA 	√
S6.4.14	N5	5) Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance Annex 5, TM-EIA 	√
/	N6	6) Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance Annex 5, TM-EIA 75dB(A) for residential premises 	√ (The noise monitoring at NMS2 and NMS3B/NMS3C under EM&A programme for the Contract are covered by Contract No. HY/2013/01 and Contract No. HY/2013/04.)
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.	Develop sediment disposal arrangement	Engineer	All construction sites	Design stage	<ul style="list-style-type: none"> Waste Disposal Ordinance ETW B TC 34/2002 	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Waste Management (Construction Waste)								
S8.3.8	WM1	<p><u>Construction and Demolition Material</u></p> <p>The following mitigation measures should be implemented in handling the waste:</p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETW BTC (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. 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETW BTC 19/2005 	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
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. 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TC 19/2005 	√
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 labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<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 a 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	<u>Sewage</u> <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. 	Proper handling of sewage from worker to avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance 	√
S8.3.17	WM5	<u>General Refuse</u> <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 bylaw. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans, plastic bottles etc., should be provided. Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance 	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Water Quality (Construction Phase)								
S.9.11.1.7	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 W PCO 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; 	To control construction water quality	Contractor	Land-based works areas	Construction stage	TM-EIAO	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
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 removal facilities before being discharged to the storm drain; • the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel; • 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. 	To control construction water quality	Contractor	Land-based works areas	Construction stage	TM-EIAO	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
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 	Prevent Sedimentation from Land-based works areas	Contractor	Land-based works areas	During construction	TM-Water	√
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 	Prevent disturbance to terrestrial fauna and habitats	Contractor	Land-based works areas	During construction		√
S10.7	E8	<ul style="list-style-type: none"> Control vessel speed Skipper training Predefined and regular routes for working vessels; avoid Brother Islands. 	Minimise marine traffic disturbance on dolphins	Contractor	Marine Traffic	During construction		N/A
Fisheries								
S11.7	F4	<ul style="list-style-type: none"> Maritime Oil Spill Response Plan (MOSRP); Contingency plan. 	Minimise impacts on marine water quality impacts	Marine Department	HKBCF	During operation		N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
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; • Maximizing new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed; • 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. 	Minimise visual & landscape impact	Detailed designer	HKBCF	Design Stage		N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<i>Landscape & Visual (Construction Phase)</i>								
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. (This mitigation measure is not applicable to the Contract.)</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. (This mitigation measure is not applicable to the Contract.)</p> <p>G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall. (This mitigation measure is not applicable to the Contract.)</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 "natural-look" of the new coastline. (This mitigation measure is not applicable to the Contract.)</p>	Minimise visual & landscape impact	Contractor		According to information from RE, landscape works for Contract No. HY/2014/05 is considered substantially completed as of 23 April 2018. The related certificate (Ref.: BWLM: TTHK: wmy: 60313494/C8/M 15/905/M0531-2 018010932T) dated 13 September 2018.		N/A
S14.3.3.3	LV3	<p>Mitigate Visual Impacts</p> <p>V1. Minimize time for construction activities during construction period.</p> <p>V2. Provide screen hoarding at the portion of the project site / works areas / storage areas near VSRs who have close low-level views to the Project during HKBCF construction.</p>						N/A for V1 and V2.

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
EM&A								
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	Project Proponent	All construction sites		<ul style="list-style-type: none"> EIAO Guidance Note No.4/2002 TM-EIAO 	√
S15.5 - S15.6	EM2	<ol style="list-style-type: none"> 1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with. 	Perform environmental monitoring & auditing	Contractor	All construction sites		<ul style="list-style-type: none"> EIAO Guidance Note No.4/2002 TM-EIAO 	√

Legends: √ = Implemented; X = Not implemented; N/A = Not applicable

APPENDIX H

Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

For Contract No. HY/2014/05

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period	0	0	0
From commencement date of contract to end of reporting month	6	0	0

For Contract No. HY/2013/06 within Contract No. HY/2014/05 works area

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



APPENDIX I

Environmental Site Inspection Schedule

Contract No. HY/2014/05 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities

Environmental Site Inspection Tentative Schedule for October 2018

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time	1-Oct	2-Oct	3-Oct	4-Oct	5-Oct	6-Oct	7-Oct
					Site Inspection		
Time	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct	14-Oct
			Site Inspection				
Time	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	20-Oct	21-Oct
				Site Inspection			
Time	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct	28-Oct
			Site Inspection				
Time	29-Oct	30-Oct	31-Oct				
			Site Inspection				

Contract No. HY/2013/06 (within Contract No. HY/2014/05 works area) Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System

Environmental Site Inspection Tentative Schedule for October 2018

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Time	1-Oct	2-Oct	3-Oct	4-Oct	5-Oct	6-Oct	7-Oct
					Site Inspection		
Time	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct	14-Oct
			Site Inspection				
Time	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	20-Oct	21-Oct
				Site Inspection			
Time	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct	28-Oct
			Site Inspection				
Time	29-Oct	30-Oct	31-Oct				
			Site Inspection				