

Your ref.

Our ref. 5140819/18.30/OC022/SO/EK

Date: 14 October 2016

By Post and e-mail (Donald.Ip@lcwjv.com)

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

Attn: Mr. Donald Ip

Dear Mr. Ip,

**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. 7**

Atkins China Limited certifies, in the capacity of Environmental Team Leader, that the Monthly EM&A Report No. 7 for September 2016 (Revision 1) 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**



**Sharifah OR
Environmental Team Leader**

cc.

1. AECOM – Mr. Darrel Kingan (By Fax.: 3468 2076)
2. ENPO/IEC – Mr. Raymond Dai & Mr. Y.H. Hui (By Fax.: 3465 2899)

14 October 2016

By Fax (3468 2076) and By Post

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

Attention: Mr. Darrel Kingan

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 2016**

Reference is made to the Environmental Team's submission of Monthly Environmental Monitoring & Audit Report for September 2016 (Rev. 1) certified by the ET Leader (ET's ref.: "5140819/18.30/OC022/SO/EK" dated 14 October 2016) and provided to us via e-mail on 14 October 2016.

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.

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

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



Raymond Dai
Independent Environmental Checker

c.c.	HyD	Mr. Vico Cheung	(By Fax: 3188 6614)
	HyD	Mr. Ken Woo	(By Fax: 3188 6614)
	Atkins	Ms. Sharifah Or	(By Fax: 2890 6343)
	LCWJV	Mr. Iain Hubert	(By Fax: 3621 0180)

Internal: DY, YH, ENPO Site

Q:\Projects\HYDHZMBEEM00\02_Proj_Mgt\02_Corr\HYDHZMBEEM00_0_4661L.16.doc

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. 7
(Covering the Period from 1 September 2016 to 30 September 2016)**

14 October 2016

Revision 1

Main Contractor



Leighton - Chun Wo
Joint Venture

Environmental Team

ATKINS

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Executive Summary

This monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract HY/2014/05 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) – Remaining Ancillary Buildings and Facilities (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR). The Contract was awarded to Leighton – Chun Wo Joint Venture (hereafter referred to as “the Contractor”) and Atkins China Limited was appointed as the Environmental Team (ET) by the Contractor.

The Contract is part of Hong Kong – Zhuhai – Macao Bridge HKBCF 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 commenced on 29 February 2016.

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 seventh monthly EM&A Report for the Contract which summarizes findings of the EM&A works during the reporting period from 1 to 30 September 2016.

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

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

Environmental Site Inspection: 7, 14, 21 and 28 September 2016

Breaches of Action and Limit Levels

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

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

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

Complaint Log

There was one complaint received in relation to the environmental impact during the reporting period. An investigation was carried out. It was found that the complaint was not related to Contract No. HY/2014/05.

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:

- Earth Works for Buildings 044 and 045.
- Binding for Building 044 and 032.
- Construction of RC Structure of Building 023, 025, 032, 044, 045, 053, 058 & 059.

1 Introduction

1.1 Basic Project Information

- 1.1.1 This monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract HY/2014/05 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Remaining Ancillary Buildings and Facilities (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region. The Contract was awarded to Leighton – Chun Wo Joint Venture (hereafter referred to as “the Contractor”) and Atkins China Limited was appointed as the Environmental Team (ET) by the Contractor.
- 1.1.2 The Contract is part of Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities (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 commenced on 29 February 2016. The works areas of the Contract are shown in **Appendix A**.
- 1.1.3 The proposed works under this Contract comprise the following:
- (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:
 - Extra Low Voltage (ELV) installed by Contract No. HY/2013/03;
 - 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.

1.1.4 This is the seventh Monthly EM&A Report for the Contract which summarizes the audit findings of the EM&A programme during the reporting period from 1 to 30 September 2016.

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
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Darrel Kingan	3958 7339	3468 2076
Environmental Project Office / Independent Environmental Checker (Ramboll Environ 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	Donald Ip	6461 8635	3621 0180
Environmental Team (Atkins China Limited)	Environmental Team Leader	Sharifah Or	2972 1802	2890 6343
24 hours complaint hotline	---	---	3958 7300	---

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:

- Plate Load Test and Cone Penetration Test of Buildings 032, 044 and 045;
- Earth Works for Buildings 032, 044 and 045;
- Binding for Building 023 and 045; and
- Construction of Reinforced Concrete Structure of Buildings 023, 025, 053, 058 & 059.

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/2010/02 Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works and Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF.
- 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 AMS7 as part of EM&A programme if these air quality monitoring stations are no longer covered under Contract Nos. HY/2010/02 and HY/2011/03. **Figure 2.1** shows the locations of the air monitoring stations.

Table 2-1 Construction Dust Monitoring Locations

ID	Location Description
AMS 6 ⁽¹⁾	Dragonair/CNAC (Group) Building
AMS 7 ⁽¹⁾	Hong Kong SkyCity Marriott Hotel

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.

2.2 Monitoring Requirements

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

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS 6 – Dragonair / CNAC (Group) Building (HKIA)	360	500
AMS 7 - Hong Kong SkyCity Marriott Hotel	370	

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

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS 6 – Dragonair / CNAC (Group) Building (HKIA)	173	260
AMS 7 - Hong Kong SkyCity Marriott Hotel	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 AMS7 are reported in the monthly EM&A Reports prepared for Contract Nos. HY/2011/03 and HY/2010/02, 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.
- 2.3.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 recorded by the ET of Contract No. HY/2010/02 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/2010/02 Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works. The ET of the Contract or another ET of the HZMB project is required to conduct impact noise monitoring at NMS2 and NMS3B as part of EM&A programme if these noise monitoring stations are no longer covered under Contract No. HY/2010/02. **Figure 3.1** shows the locations of noise monitoring stations.

Table 3-1 Construction Noise Monitoring Locations

ID	Location Description
NMS2 ⁽¹⁾	Seaview Crescent
NMS3B ⁽¹⁾⁽²⁾	Site Boundary of Site Office Area at Works Area WA2

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.

3.2 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 Nos. HY/2010/02.
- 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 NMS3B are reported in the monthly EM&A Reports prepared for Contract No. HY/2010/02. No noise exceedances were recorded at stations NMS2 and NMS3B by the ET of Contract No. HY/2010/02 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. During the reporting period, site inspections were carried out on 7, 14, 21 and 28 September 2016.
- 4.1.2 Particular observations during the site inspections and corrective actions undertaken by the Contractor are described in **Table 4.1**.

Table 4-1 Summary of Environmental Site Inspections

Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
31 August 2016	1. A plug was not provided for a drip tray at Building 053 and some chemicals/stagnant water leaked on the ground.	1. A plug was provided for the drip tray and contaminated soil on the ground was cleared properly at Building 053.	07 September 2016
	2. Stagnant water/chemicals was found inside a drip tray at Building 053.	2. The stagnant water/chemicals inside the drip tray was cleared at Building 53.	07 September 2016
	3. Some chemical containers were not placed inside drip trays. No proper labels were provided for these chemical containers at Building 053.	3. Some chemical containers were removed and the remaining chemical container was placed inside a drip tray. A proper chemical label was provided for the chemical container at Building 053	07 September 2016
07 September 2016	No particular environmental issue was recorded during the site inspection.	Nil	Nil
14 September 2016	No particular environmental issue was recorded during the site inspection.	Nil	Nil
21 September 2016	1. A chemical drum was found without drip tray.	1. The chemical drum was removed.	28 September 2016
28 September 2016	No particular environmental issue was recorded during the site inspection.	Nil	Nil

- 4.1.1 The Contractor has rectified most of observations as identified during environmental site inspections within this reporting month. The follow-up actions for observation issued for the last site inspection will be checked in the upcoming site inspection and reported in the next reporting period.

4.2 Advice on the Solid and Liquid Waste Management Status

- 4.2.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 4.2.2 The monthly summary of waste flow table is detailed in **Appendix E**.
- 4.2.3 The Contractor 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.

4.3 Environmental Licenses and Permits

- 4.3.1 The valid environmental licenses and permits during the reporting period are summarized in **Appendix F**.

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 The Contractor conducts watering on all exposed soil within the Contract site and associated works areas 8 times per day when construction activities are being undertaken.
- 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.
- 4.5.2 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.
- 4.5.3 There was no Action and Limit Level exceedance for noise recorded at NMS2 and NMS3B by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

4.6 Summary of Complaints, Notification of Summons and Successful Prosecution

- 4.6.1 There was one complaint received in relation to the environmental impact during the reporting period. According to Independent Environmental Checker's email to the Environmental Team, Engineer's Representative and Contractor on 22 September 2016, it was noted that Environmental Protection Department received a complaint lodged by a member of the public regarding whitish effluent discharge from two flat top barges into the sea every day from 18:00 to 04:00 hours next to Cell No.54 and 55 of Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities construction site. According to the Contractor, they do not have any marine works. In addition, the Contractor do not have any flap top barge working for Contract No. HY/2014/05. No mitigation measures are required as the complaint was not related to Contract No. HY/2014/05.
- 4.6.2 No notification of summons and prosecution was received during the reporting period.
- 4.6.3 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 major construction activities for October 2016 are summarized in **Table 5.1**.

Table 5.1 Construction Activities for October 2016

Site Area	Description of Activities
Buildings 044 and 045	Earth Works
Buildings 044 and 032	Binding
Buildings 023, 025, 032, 044, 045, 053, 058 and 059	Construction of Reinforced Concrete Structure

5.2 Environmental Site Inspection Schedule for the Coming Month

- 5.2.1 The tentative schedule for weekly site inspections for October 2016 is provided in **Appendix I**.

6 Conclusions

6.1 Conclusions

- 6.1.1 The construction works of the Contract commenced on 29 February 2016. The seventh Monthly EM&A Report summarizes findings of the EM&A works during the reporting period from 1 to 30 September 2016.
- 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.
- 6.1.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.
- 6.1.4 There was no Action and Limit Level exceedance for noise recorded at NMS2 and NMS3B by the Environmental Team of Contract No. HY/2010/02 during the reporting period.
- 6.1.5 Environmental site inspections were carried out on 7, 14, 21 and 28 September 2016. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspections.
- 6.1.6 There was one complaint received in relation to the environmental impact during the reporting period. An investigation was undertaken. It was found that the complaint was not related to Contract No. HY/2014/05.
- 6.1.7 No notification of summons and successful prosecution was received during the reporting period.

FIGURES

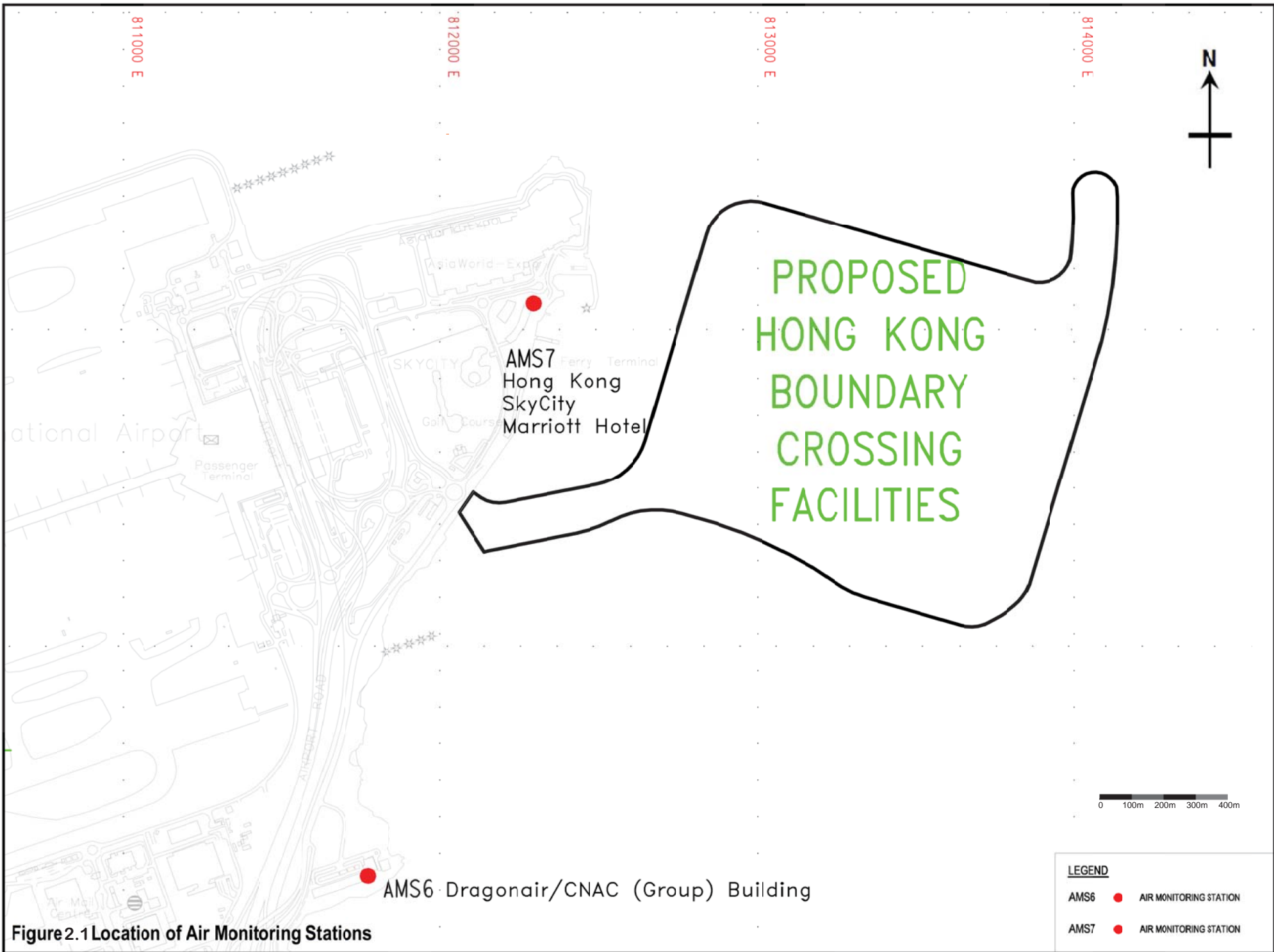


Figure 2.1 Location of Air Monitoring Stations

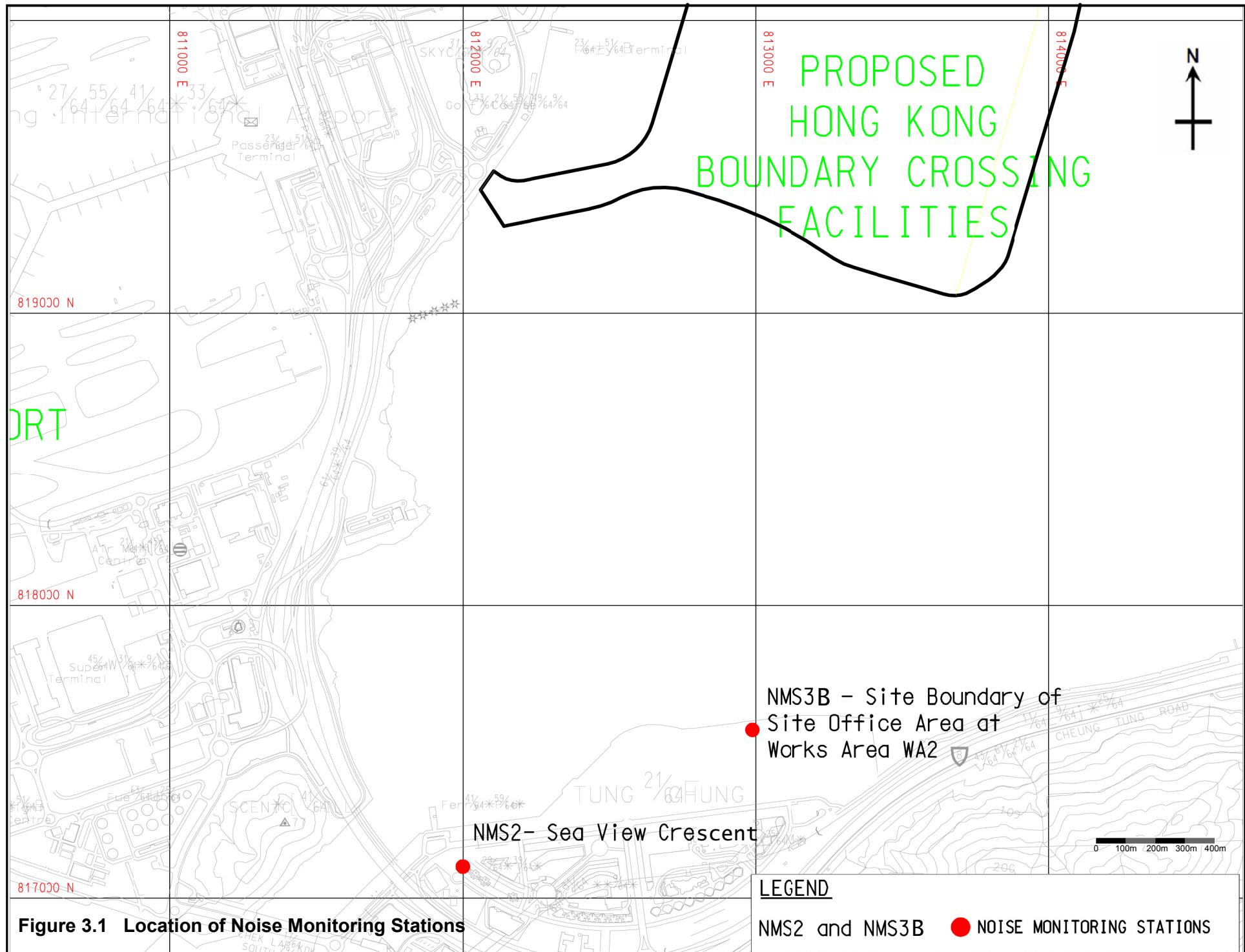


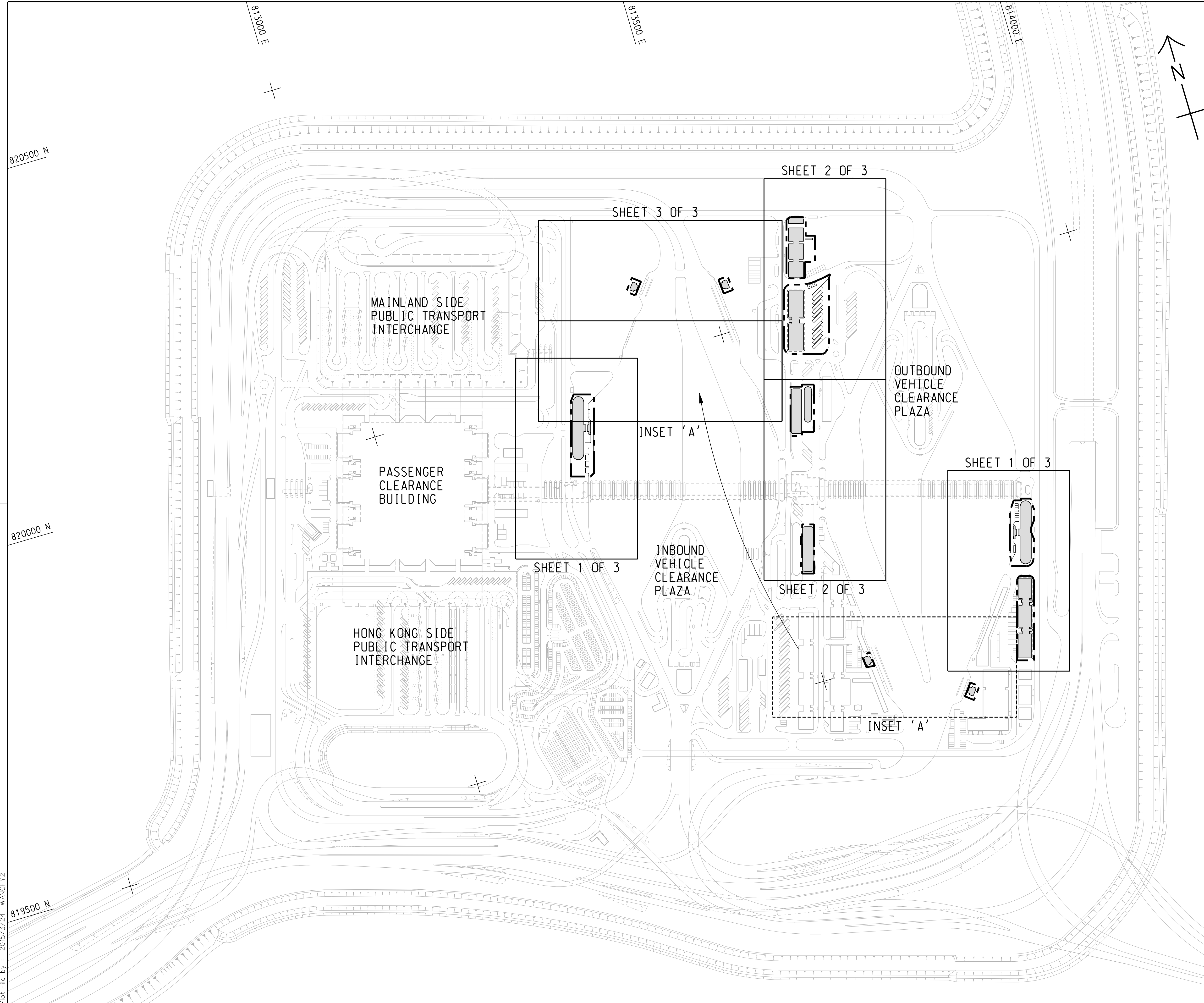
Figure 3.1 Location of Noise Monitoring Stations

LEGEND

NMS2 and NMS3B ● NOISE MONITORING STATIONS

APPENDIX A

Location of Works Areas



Plot File by : 2015/3/24 WANGFY2

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

路政署
HIGHWAYS DEPARTMENT
 港珠澳大桥香港工程管理处
 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

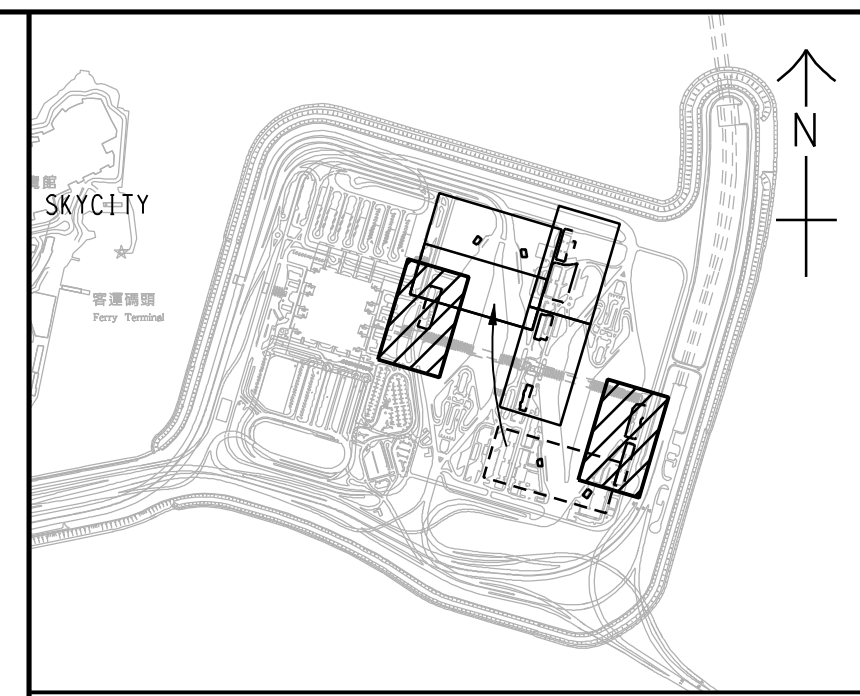
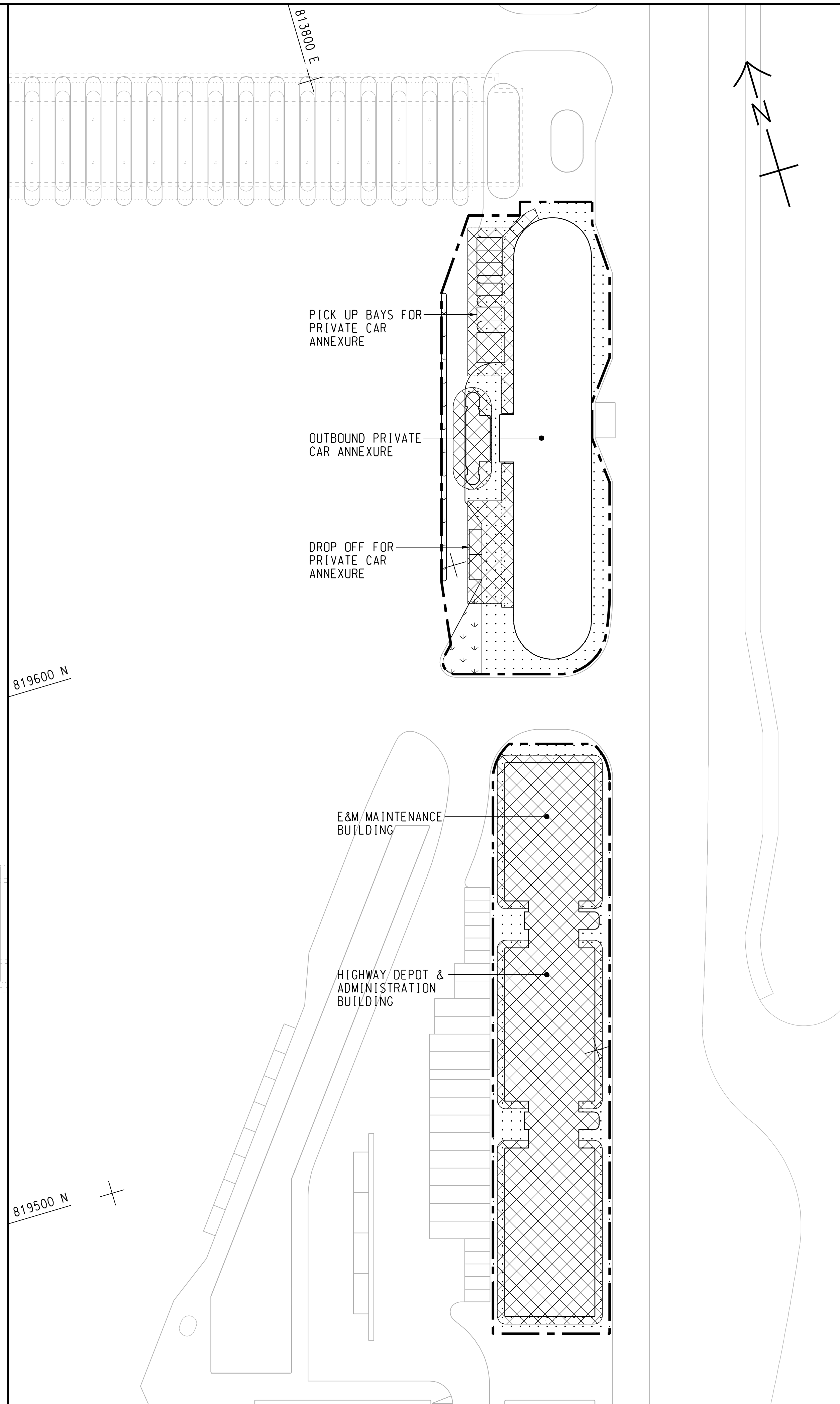
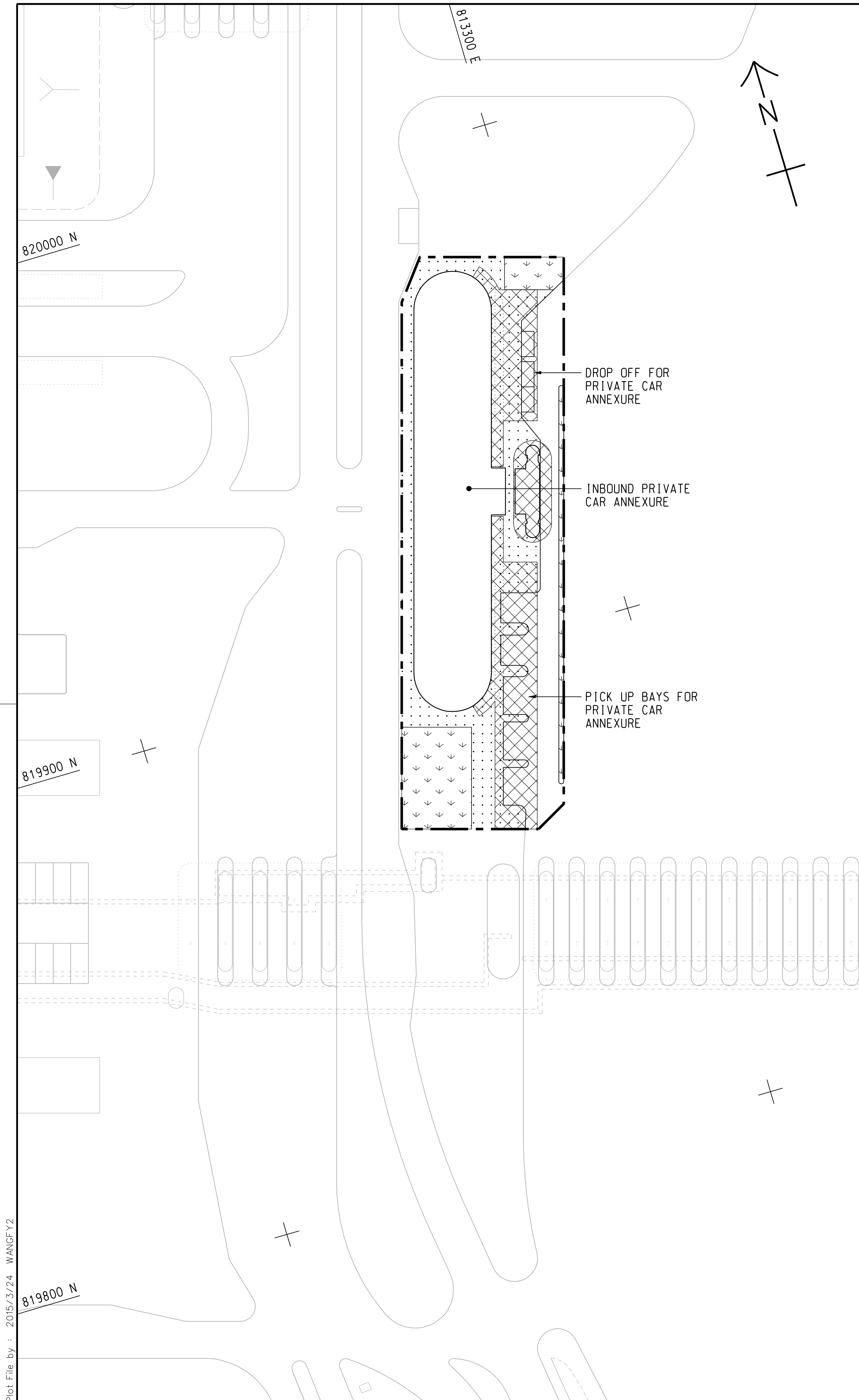
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

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

DESIGNED BY 设计	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

DIMENSIONS ARE IN 尺寸單位 METRES
 © COPYRIGHT RESERVED 版權所 有



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
	FOOTPATH (DETAILS REFER TO LANDSCAPE DETAIL DRAWINGS)
	CANOPY
	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
BURO HAPPOLD ATKINS ADI +

Aedas

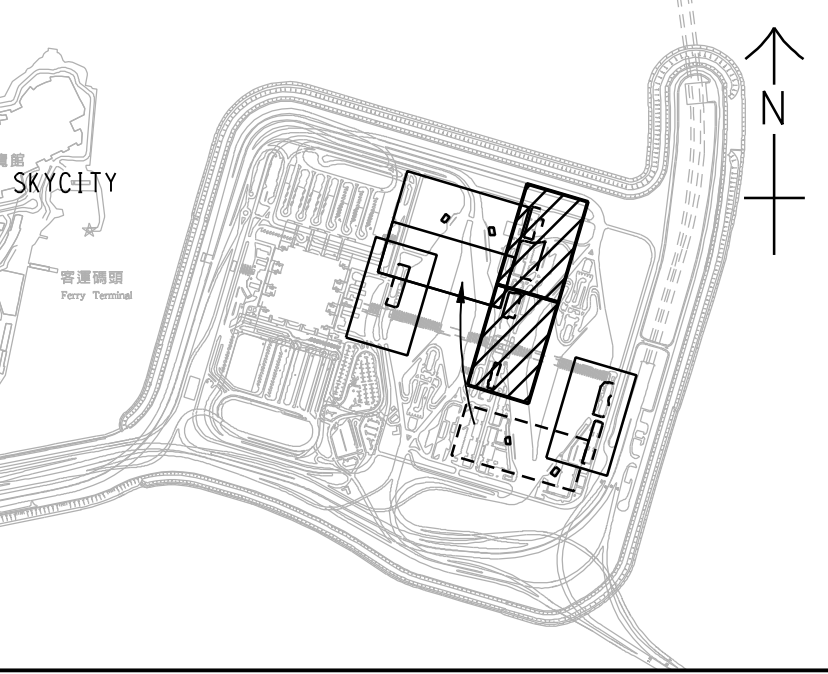
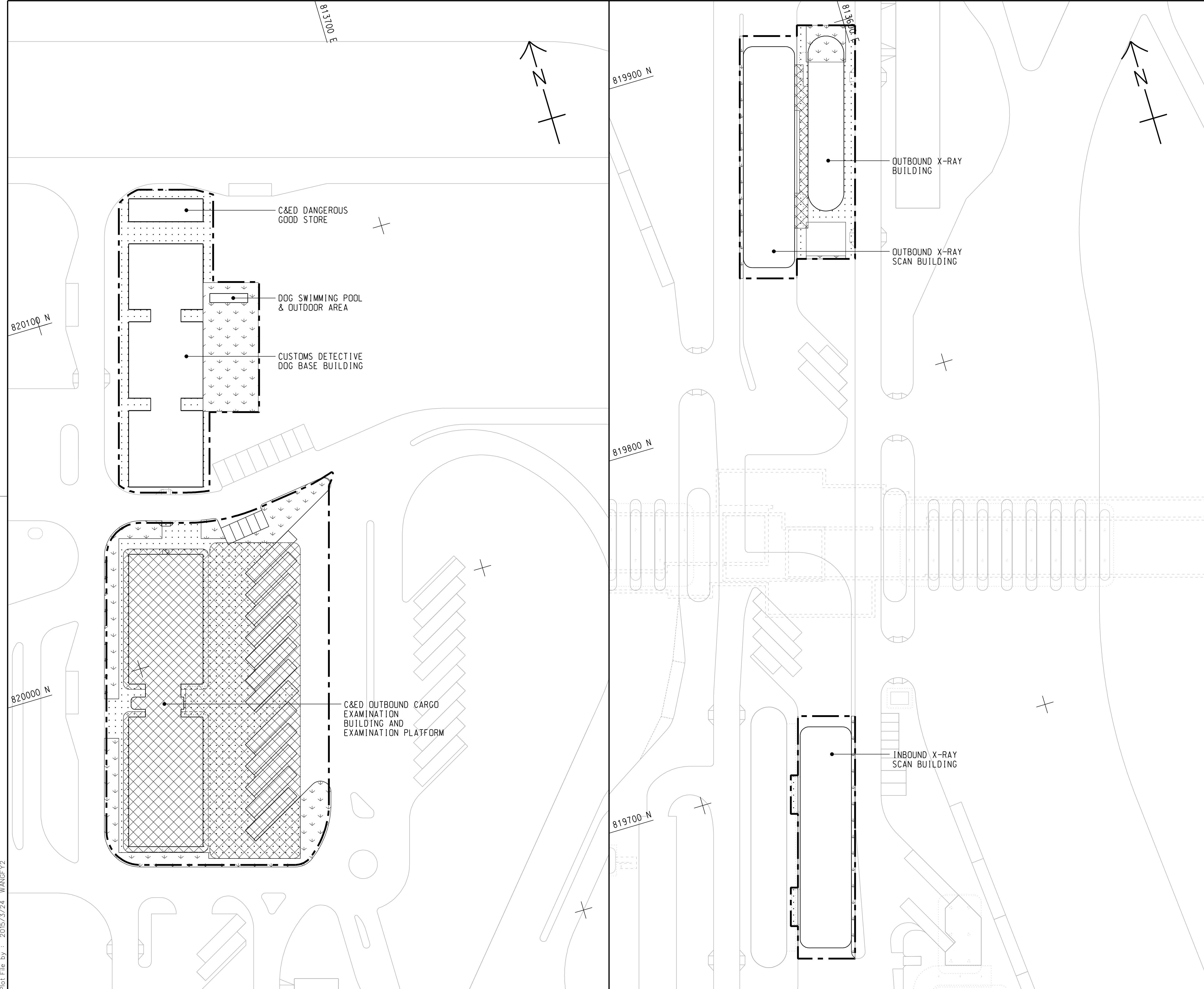
DRG.NO. / 圖紙編號 60191048/C8/000/C00/1011

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
DIMENSIONS ARE IN / 尺寸單位 METRES
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Plot File by : 2015/3/24 WANGFY2



KEY PLAN
SCALE 1 : 20000

- NOTES:**
- FOR NOTES AND LEGEND REFER TO DRAWING NO. 60191048/C8/000/C00/1011.
 - 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	C.C. 審核	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

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

Aedas +

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

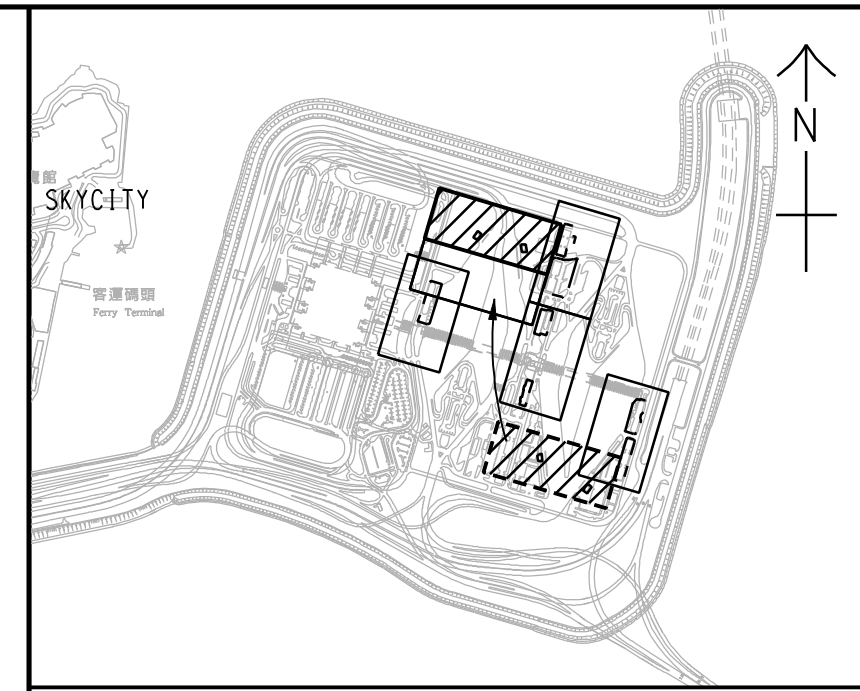
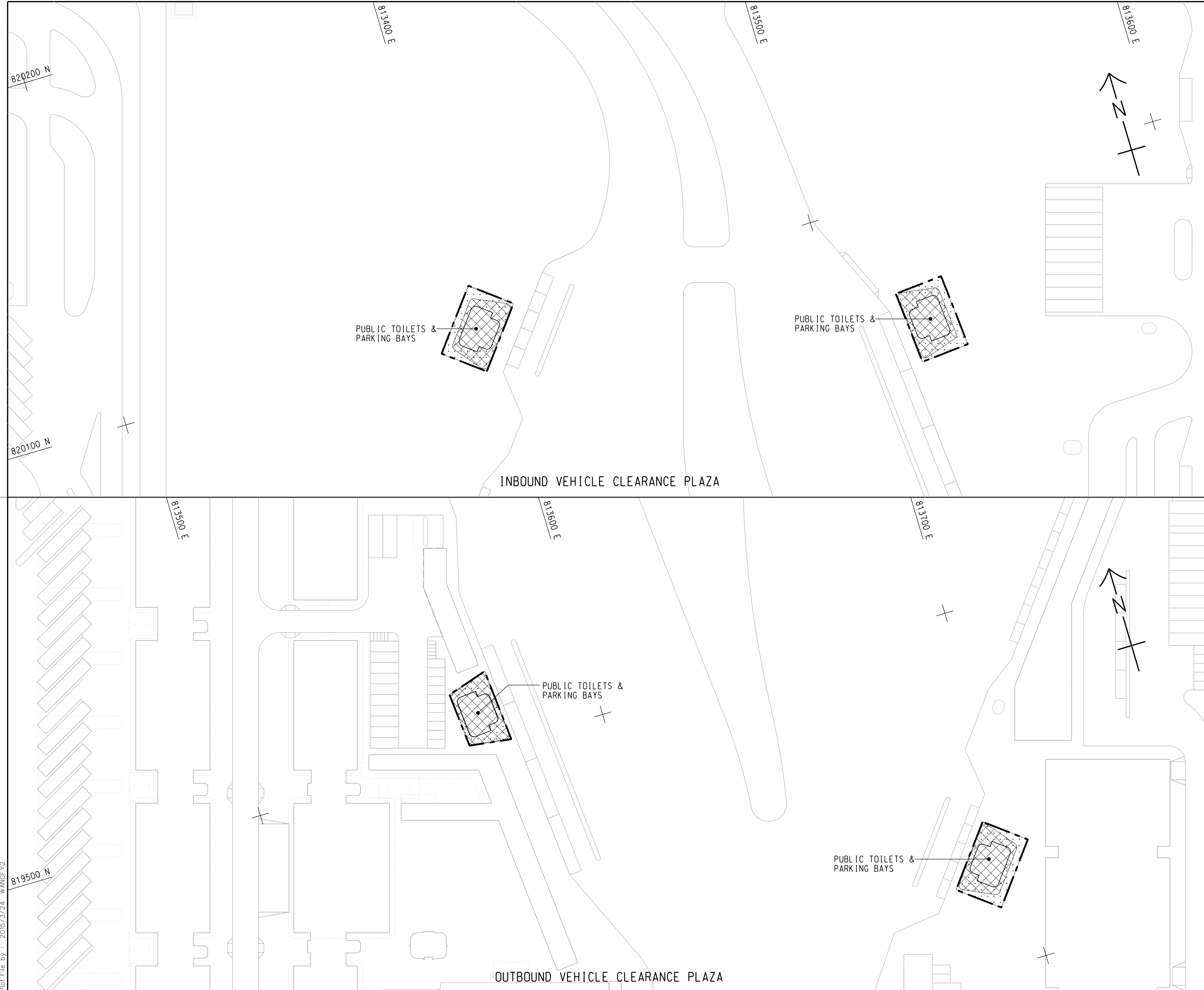
DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. APPROVED 批准人
BWCW	HY/2014/05	TKH

DRAWN BY 繪圖	STATUS 階段
WSY	

SCALE 比例 A1 1 : 500
DIMENSIONS ARE IN 尺寸單位 METRES

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Plot File by : 2015/3/24 WANGFY2



KEY PLAN
SCALE 1 : 20000

- NOTES:
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60191048/C8/000/C00/1011.
 2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C8/000/C00/1011 AND 1012.

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 3 OF 3

AECOM +
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Aedas +

DRG.NO. 60191048/C8/000/C00/1013
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	

SCALE 比例 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

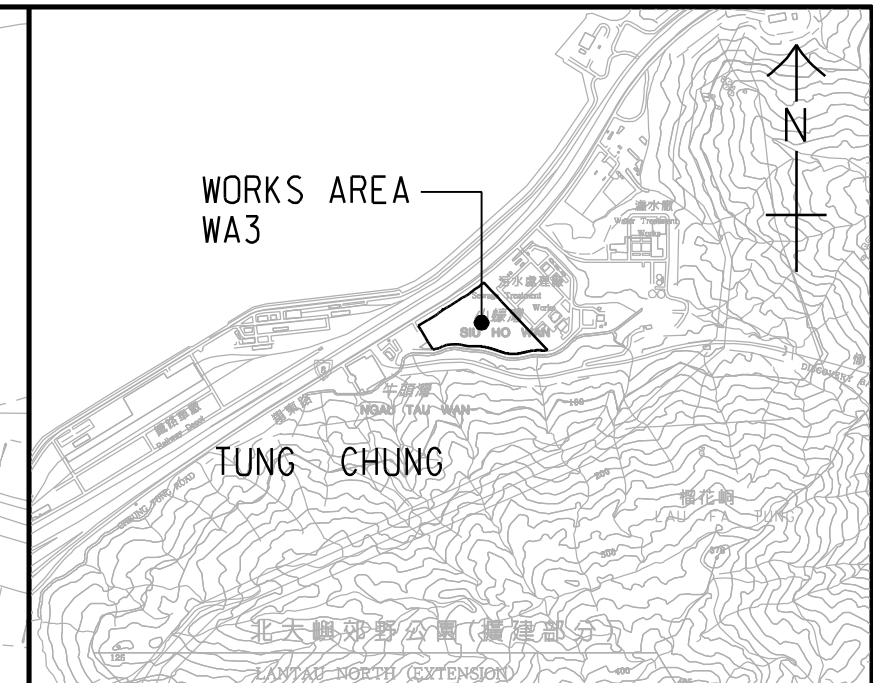
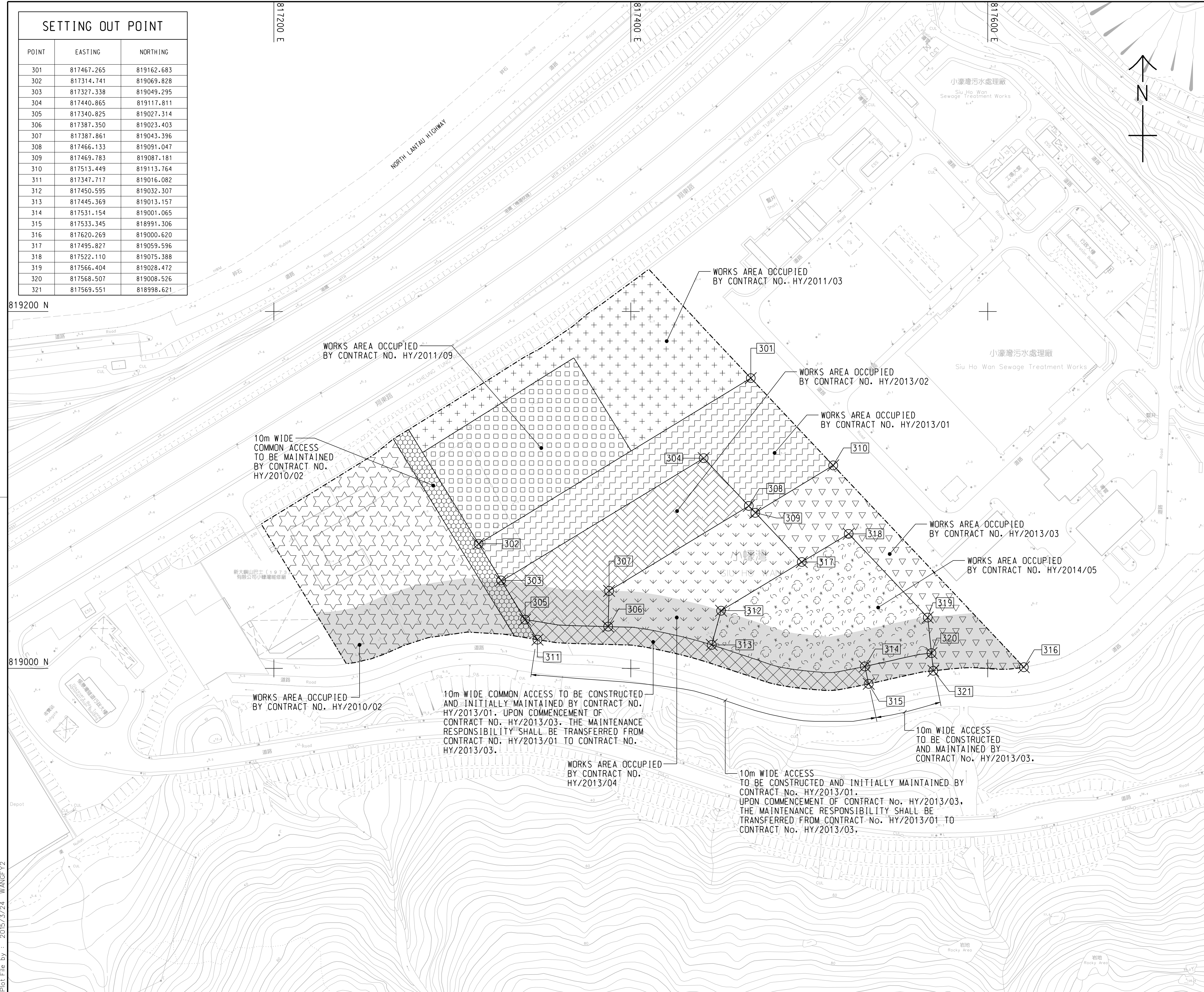
81600 E

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)

REV.	DESCRIPTION	DATE
-	TENDER DRAWING	MAR. 15

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

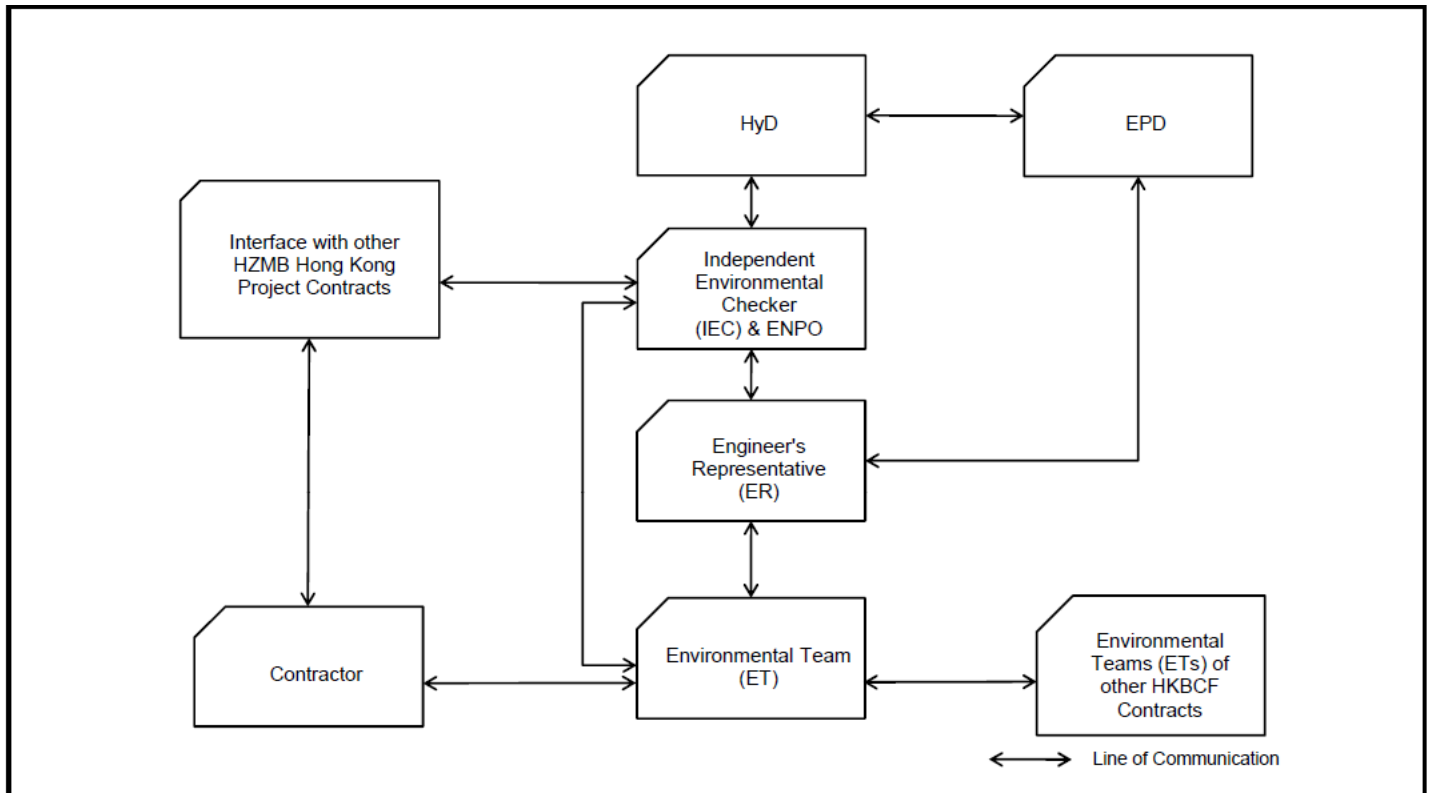
DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. APPROVED 批准人
BWCW	HY/2014/05	TKH
DRAWN BY 繪圖	STATUS 階段	
WSY		
SCALE 比例	A1 1 : 1000	
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APPENDIX B

Project Organization for Environmental Works

Project Organisation for Environmental Works



APPENDIX C

Construction Programme

Activity ID	Activity Name	Original Duration	Start	Finish	2016												2017															
					September				October				November				December			January												
					05	12	19	26	03	10	17	24	01	07	14	21	28	05	12	19	26	02	09	16	23	30						
HY/2014/05 HKZMB HKBCF - September 2016 Monthly I					52d	31-Dec-15 A	19-Jun-16																									
RAB2 SUMMARY PROGRAMME					504d	09-Jan-16 A	07-Jun-16																									
GENERAL/PRELIMINARIES					834d	31-Dec-15 A	19-Jun-16																									
DESIGN AND ENGINEERING					142d	13-Jul-16 A	28-Jun-17																									
Permanent Works Design Packages					98d	03-Oct-16	26-Jun-17																									
AP01- Item 1 - Curtain Wall System - Building 044, 045, 022 & 023					70d	25-Oct-16	19-Jun-17																									
Approval in Principle (AIP)					80d	25-Oct-16	06-Jun-17																									
RAB-PWD-3030 IT1 - Prepare Draft AIP Documents					12d	25-Oct-16*	08-Nov-16																									
RAB-PWD-3040 IT1 - Review of AIP by Interested Parties					24d	07-Dec-16	06-Jan-17																									
RAB-PWD-3070 IT1 - First AIP External Submission					0d		06-Dec-16																									
RAB-PWD-3080 IT1 - Review of AIP by ICE					24d	07-Dec-16	06-Jan-17																									
RAB-PWD-3090 IT1 - LCWJV Review AIP					24d	09-Nov-16	06-Dec-16																									
Detailed Design Approval (DDA)					38d	21-Nov-16	06-Jun-17																									
RAB-PWD-3120 IT1 - Prepare Draft Detailed Design					24d	21-Nov-16	17-Dec-16																									
RAB-PWD-3130 IT1 - LCWJV Review					14d	19-Dec-16	06-Jan-17																									
Production of Shop Drawings					24d	19-Dec-16	18-Jan-17																									
RAB-PWD-3210 IT1 - Prepare Shop Drawings					24d	19-Dec-16	18-Jan-17																									
AP02- Item 2 - Window Wall System - Building 044, 045, 022 & 023					80d	25-Oct-16	06-Jun-17																									
Approval in Principle (AIP)					80d	25-Oct-16	06-Jun-17																									
RAB-PWD-2820 IT2 - Prepare Draft AIP Documents					12d	25-Oct-16*	08-Nov-16																									
RAB-PWD-2830 IT2 - Review of AIP by Interested Parties					24d	07-Dec-16	06-Jan-17																									
RAB-PWD-2860 IT2 - First AIP External Submission					0d		06-Dec-16																									
RAB-PWD-2870 IT2 - Review of AIP by ICE					24d	07-Dec-16	06-Jan-17																									
RAB-PWD-2880 IT2 - LCWJV Review AIP					24d	09-Nov-16	06-Dec-16																									
Detailed Design Approval (DDA)					38d	21-Nov-16	06-Jun-17																									
RAB-PWD-2910 IT2 - Prepare Draft Detailed Design					24d	21-Nov-16	17-Dec-16																									
RAB-PWD-2920 IT2 - LCWJV Review					14d	19-Dec-16	06-Jan-17																									
AP03- Item 3 - Metal Roofing System at Canopy - Building 023, 022, (80d	25-Oct-16	06-Jun-17																									
Approval in Principle (AIP)					80d	25-Oct-16	06-Jun-17																									
RAB-PWD-2610 IT3 - Prepare Draft AIP Documents					12d	25-Oct-16*	08-Nov-16																									
RAB-PWD-2620 IT3 - Review of AIP by Interested Parties					24d	07-Dec-16	06-Jan-17																									
RAB-PWD-2650 IT3 - First AIP External Submission					0d		06-Dec-16																									
RAB-PWD-2680 IT3 - Review of AIP by ICE					24d	07-Dec-16	06-Jan-17																									
RAB-PWD-2670 IT3 - LCWJV Review AIP					24d	09-Nov-16	06-Dec-16																									
Detailed Design Approval (DDA)					38d	21-Nov-16	06-Jun-17																									
RAB-PWD-2700 IT3 - Prepare Draft Detailed Design					24d	21-Nov-16	17-Dec-16																									
RAB-PWD-2710 IT3 - LCWJV Review					14d	19-Dec-16	06-Jan-17																									
AP03a- Item 3a - Covered Walkway - Building 032 & 025					48d	23-Nov-16	18-Jan-17																									
Approval in Principle (AIP)					38d	23-Nov-16	06-Jun-17																									
RAB-PWD-3420 IT3 - Prepare Draft AIP Documents					12d	23-Nov-16*	06-Dec-16																									
RAB-PWD-3480 IT3 - LCWJV Review AIP					24d	07-Dec-16	06-Jan-17																									
Detailed Design Approval (DDA)					24d	19-Dec-16	18-Jan-17																									
RAB-PWD-3510 IT3 - Prepare Draft Detailed Design					24d	19-Dec-16	18-Jan-17																									
AP04- Item 4 - Maintenance Access Equipment and Fittings and Wall					81d	25-Oct-16	07-Jun-17																									
Approval in Principle (AIP)					81d	25-Oct-16	07-Jun-17																									
RAB-PWD-2400 IT4 - Prepare Draft AIP Documents					13d	25-Oct-16*	09-Nov-16																									
RAB-PWD-2410 IT4 - Review of AIP by Interested Parties					24d	06-Dec-16	07-Jan-17																									
RAB-PWD-2440 IT4 - First AIP External Submission					0d		07-Dec-16																									
RAB-PWD-2450 IT4 - Review of AIP by ICE					24d	06-Dec-16	07-Jan-17																									
RAB-PWD-2480 IT4 - LCWJV Review AIP					24d	10-Nov-16	07-Dec-16																									
Detailed Design Approval (DDA)					38d	22-Nov-16	07-Jan-17																									
RAB-PWD-2490 IT4 - Prepare Draft Detailed Design					24d	22-Nov-16	19-Dec-16																									
RAB-PWD-2500 IT4 - LCWJV Review					14d	20-Dec-16	07-Jan-17																									
AP05- Item 5 - Signage - Building 023, 022					80d	15-Nov-16	28-Jun-17																									
Approval in Principle (AIP)					80d	15-Nov-16	28-Jun-17																									
RAB-PWD-2190 IT5 - Prepare Draft AIP Documents					12d	15-Nov-16*	28-Nov-16																									
RAB-PWD-2200 IT5 - Review of AIP by Interested Parties					24d	29-Dec-16	28-Jan-17																									
RAB-PWD-2230 IT5 - First AIP External Submission					0d		28-Dec-16																									
RAB-PWD-2240 IT5 - Review of AIP by ICE					24d	29-Dec-16	28-Jan-17																									
RAB-PWD-2250 IT5 - LCWJV Review AIP					24d	29-Nov-16	28-Dec-16																									
Detailed Design Approval (DDA)					24d	10-Dec-16	10-Jan-17																									
RAB-PWD-2280 IT5 - Prepare Draft Detailed Design					24d	10-Dec-16	10-Jan-17																									
AP06- Item 6 - Stone Cladding - Building 022,023,025,032,044,045,050					80d	25-Oct-16	06-Jun-17																									
Approval in Principle (AIP)					80d	25-Oct-16	06-Jun-17																									

■ Remaining Level of Effort
 ■ Actual Work
 ■ Critical Remaining Work
 ■ Actual Work
 ■ Remaining Work
 ◆ Milestone
 ◆ Milestone

3 - MONTH ROLLING PROGRAMME , OCT. to NOV 2016

Date	Revision	Checked	Approved
01-Oct-16	3 - Month Rolling Programme	SGJ	

Activity ID	Activity Name	Original Duration	Start	Finish	2016												2017									
					September				October				November				December				January					
					05	12	19	26	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30
RAB-PWD-1990	IT6 - Prepare Draft AIP Documents	12d	26-Oct-16*	08-Nov-16																						
RAB-PWD-1990	IT6 - Review of AIP by Interested Parties	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-2020	IT6 - First AIP External Submission	0d		06-Dec-16																						
RAB-PWD-2030	IT6 - Review of AIP by ICE	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-2040	IT6 - LCW/JV Review AIP	24d	09-Nov-16	06-Dec-16																						
Detailed Design Approval (DDA)																										
RAB-PWD-2070	IT6 - Prepare Draft Detailed Design	24d	21-Nov-16	17-Dec-16																						
RAB-PWD-2090	IT6 - LCW/JV Review	14d	19-Dec-16	06-Jan-17																						
AP07- Item 7 - Aluminum Cladding Building 050																										
Approval in Principle (AIP)																										
RAB-PWD-1770	IT7 - Prepare Draft AIP Documents	12d	23-Nov-16*	06-Jan-17																						
RAB-PWD-1830	IT7 - LCW/JV Review AIP	24d	07-Dec-16	06-Jan-17																						
Detailed Design Approval (DDA)																										
RAB-PWD-1860	IT7 - Prepare Draft Detailed Design	24d	19-Dec-16	18-Jan-17																						
RAB-PWD-1860	IT7 - Prepare Draft Detailed Design	24d	19-Dec-16	18-Jan-17																						
AP08- Item 8 - Mechanical Handling and Lifting Installation																										
Approval in Principle (AIP)																										
RAB-PWD-1560	IT8 - Prepare Draft AIP Documents	12d	26-Oct-16*	08-Nov-16																						
RAB-PWD-1570	IT8 - Review of AIP by Interested Parties	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-1600	IT8 - First AIP External Submission	0d		06-Dec-16																						
RAB-PWD-1610	IT8 - Review of AIP by ICE	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-1620	IT8 - LCW/JV Review AIP	24d	09-Nov-16	06-Dec-16																						
Detailed Design Approval (DDA)																										
RAB-PWD-1650	IT8 - Prepare Draft Detailed Design	24d	21-Nov-16	17-Dec-16																						
RAB-PWD-1660	IT8 - LCW/JV Review	14d	19-Dec-16	06-Jan-17																						
AP09- Item 9 - Roller Shutters - Building 023 & 044																										
Approval in Principle (AIP)																										
RAB-PWD-1350	IT9 - Prepare Draft AIP Documents	12d	26-Oct-16*	08-Nov-16																						
RAB-PWD-1360	IT9 - Review of AIP by Interested Parties	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-1390	IT9 - First AIP External Submission	0d		06-Dec-16																						
RAB-PWD-1400	IT9 - Review of AIP by ICE	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-1410	IT9 - LCW/JV Review AIP	24d	09-Nov-16	06-Dec-16																						
Detailed Design Approval (DDA)																										
RAB-PWD-1440	IT9 - Prepare Draft Detailed Design	24d	21-Nov-16	17-Dec-16																						
RAB-PWD-1450	IT9 - LCW/JV Review	14d	19-Dec-16	06-Jan-17																						
AP10- Item 11 - Glass Reinforced Polyester (GRP) Water Tanks - Buil																										
Approval in Principle (AIP)																										
RAB-PWD-930	IT11 - Prepare Draft AIP Documents	12d	26-Oct-16*	08-Nov-16																						
RAB-PWD-940	IT11 - Review of AIP by Interested Parties	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-970	IT11 - First AIP External Submission	0d		06-Dec-16																						
RAB-PWD-980	IT11 - Review of AIP by ICE	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-990	IT11 - LCW/JV Review AIP	24d	09-Nov-16	06-Dec-16																						
Detailed Design Approval (DDA)																										
RAB-PWD-1020	IT11 - Prepare Draft Detailed Design	24d	21-Nov-16	17-Dec-16																						
RAB-PWD-1030	IT11 - LCW/JV Review	14d	19-Dec-16	06-Jan-17																						
AP11- Item 12 - Metal Gates																										
Approval in Principle (AIP)																										
RAB-PWD-720	IT12 - Prepare Draft AIP Documents	12d	26-Oct-16*	08-Nov-16																						
RAB-PWD-730	IT12 - Review of AIP by Interested Parties	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-760	IT12 - First AIP External Submission	0d		06-Dec-16																						
RAB-PWD-770	IT12 - Review of AIP by ICE	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-780	IT12 - LCW/JV Review AIP	24d	09-Nov-16	06-Dec-16																						
Detailed Design Approval (DDA)																										
RAB-PWD-810	IT12 - Prepare Draft Detailed Design	24d	21-Nov-16	17-Dec-16																						
RAB-PWD-820	IT12 - LCW/JV Review	14d	19-Dec-16	06-Jan-17																						
AP12- Item 13 - Glass Balustrades/Protective Barriers - Building 21,																										
Approval in Principle (AIP)																										
RAB-PWD-510	IT13 - Prepare Draft AIP Documents	12d	26-Oct-16*	08-Nov-16																						
RAB-PWD-520	IT13 - Review of AIP by Interested Parties	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-550	IT13 - First AIP External Submission	0d		06-Dec-16																						
RAB-PWD-560	IT13 - Review of AIP by ICE	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-570	IT13 - LCW/JV Review AIP	24d	09-Nov-16	06-Dec-16																						
Detailed Design Approval (DDA)																										
RAB-PWD-600	IT13 - Prepare Draft Detailed Design	24d	21-Nov-16	17-Dec-16																						
RAB-PWD-610	IT13 - LCW/JV Review	14d	19-Dec-16	06-Jan-17																						
AP13- Item 14 - External False Ceiling System at Kiosks - Building 0,																										
Approval in Principle (AIP)																										
RAB-PWD-300	IT14 - Prepare Draft AIP Documents	12d	26-Oct-16*	08-Nov-16																						

3 - MONTH ROLLING PROGRAMME , OCT. to NOV 2016

<p>Remaining Level of Effort</p> <p>Actual Work</p> <p>Actual Work</p>	<p>Critical Remaining Work</p> <p>Remaining Work</p> <p>Milestone</p>	<p>Date</p> <p>01-Oct-16</p>	<p>Revision</p> <p>3 - Month Rolling Programme</p>	<p>Checked</p> <p>SGJ</p>	<p>Approved</p>
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Activity ID	Activity Name	Original Duration	Start	Finish	2016												2017									
					September				October				November				December				January					
					05	12	19	26	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30
RAB-PWD-310	IT14 - Review of AIP by Interested Parties	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-340	IT14 - First AIP External Submission	0d		06-Dec-16																						
RAB-PWD-350	IT14 - Review of AIP by ICE	24d	07-Dec-16	06-Jan-17																						
RAB-PWD-380	IT14 - LCWJV Review AIP	24d	09-Nov-16	06-Dec-16																						
Detailed Design Approval (DDA)																										
RAB-PWD-390	IT14 - Prepare Draft Detailed Design	24d	21-Nov-16	17-Dec-16																						
RAB-PWD-400	IT14 - LCWJV Review	14d	19-Dec-16	06-Jan-17																						
AP14 - Item 15 - Photovoltaic (PV) System - Bldg. 023																										
Approval in Principle (AIP)																										
RAB-PWD-3710	023 - Prepare & submit AIP documents to LCWJV, PV	6d	03-Oct-16	08-Oct-16																						
RAB-PWD-3720	023 - LCWJV review AIP documents, PV	3d	11-Oct-16	13-Oct-16																						
RAB-PWD-3730	023 - AIP documents submit to Engineer, PV	1d	14-Oct-16	14-Oct-16																						
RAB-PWD-3740	023 - AIP documents review by Engineer's, PV	14d	15-Oct-16	31-Oct-16																						
RAB-PWD-3750	023 - Engineer's consent on AIP submissions, PV	1d	01-Nov-16	01-Nov-16																						
Detailed Design Approval (DDA)																										
RAB-PWD-3780	023 - Prepare & submit DDA documents to LCWJV, PV	3d	15-Oct-16	18-Oct-16																						
RAB-PWD-3770	023 - LCWJV review DDA submissions, PV	3d	19-Oct-16	21-Oct-16																						
RAB-PWD-3780	023 - DDA documents submit to Engineer, PV	1d	01-Nov-16	01-Nov-16																						
RAB-PWD-3790	023 - DDA documents review by Engineer's, PV	14d	02-Nov-16	17-Nov-16																						
RAB-PWD-3800	023 - Engineer's consent on DDA documents, PV	1d	18-Nov-16	18-Nov-16																						
Combined Services Drawings																										
Building 021 - Dangerous Goods Store																										
RAB-CSD-0100	CSD Bid 21 - Prepare draft submission	18d	14-Jul-16 A	08-Oct-16																						
RAB-CSD-0110	CSD Bid 21 - Contractor's Review	6d	11-Oct-16	17-Oct-16																						
RAB-CSD-0130	CSD Bid 21 - Final Submission to Engineer	0d		17-Oct-16																						
RAB-CSD-0140	CSD Bid 21 - Engineer Approval, Consent to Proceed	24d	19-Oct-16	14-Nov-16																						
Building 022 - Customs Detective Dog Base Building																										
RAB-CSD-0150	CSD Bid 22 - Prepare draft submission	24d	03-Oct-16	31-Oct-16																						
RAB-CSD-0180	CSD Bid 22 - Contractor's Review	6d	01-Nov-16	07-Nov-16																						
RAB-CSD-0180	CSD Bid 22 - Final Submission to Engineer	0d		07-Nov-16																						
RAB-CSD-0190	CSD Bid 22 - Engineer Approval, Consent to Proceed	24d	08-Nov-16	05-Dec-16																						
Building 023 - C&ED Outbound Cargo Examination Building																										
RAB-CSD-0240	CSD Bid 23 - Engineer Approval, Consent to Proceed	24d	16-Jul-16 A	15-Oct-16																						
Building 025 - Inbound Private Car Annexure																										
RAB-CSD-0290	CSD Bid 25 - Engineer Approval, Consent to Proceed	24d	15-Jul-16 A	15-Oct-16																						
Building 032 - Outbound Private Car Annexure																										
RAB-CSD-0300	CSD Bid 32 - Prepare draft submission	18d	15-Jul-16 A	18-Oct-16																						
RAB-CSD-0310	CSD Bid 32 - Contractor's Review	6d	19-Oct-16	25-Oct-16																						
RAB-CSD-0330	CSD Bid 32 - Final Submission to Engineer	0d		25-Oct-16																						
RAB-CSD-0340	CSD Bid 32 - Engineer Approval, Consent to Proceed	24d	26-Oct-16	22-Nov-16																						
Building 044 - E&M Maintenance Building																										
RAB-CSD-0540	CSD Bid 44 - Prepare draft submission	18d	13-Jul-16 A	19-Oct-16																						
RAB-CSD-0550	CSD Bid 44 - Contractor's Review	6d	20-Oct-16	26-Oct-16																						
RAB-CSD-0560	CSD Bid 44 - Final Submission to Engineer	0d		26-Oct-16																						
RAB-CSD-0570	CSD Bid 44 - Engineer Approval, Consent to Proceed	24d	27-Oct-16	23-Nov-16																						
Building 045 - Highways Depot and Administration Building																										
RAB-CSD-0580	CSD Bid 45 - Prepare draft submission	18d	26-Jul-16 A	19-Oct-16																						
RAB-CSD-0590	CSD Bid 45 - Contractor's Review	6d	20-Oct-16	26-Oct-16																						
RAB-CSD-0600	CSD Bid 45 - Final Submission to Engineer	0d		26-Oct-16																						
RAB-CSD-0610	CSD Bid 45 - Engineer Approval, Consent to Proceed	24d	27-Oct-16	23-Nov-16																						
Building 050 - Public Toilets Type 2																										
RAB-CSD-0640	CSD Bid 50 - Final Submission to Engineer	0d		03-Oct-16																						
RAB-CSD-0650	CSD Bid 50 - Engineer Approval, Consent to Proceed	24d	03-Oct-16	31-Oct-16																						
Building 058 - Outbound X-Ray Scan Tunnel																										
RAB-CSD-0730	CSD Bid 58 - Engineer Approval, Consent to Proceed	24d	12-Aug-16 A	07-Sep-16 A																						
PROCUREMENT, MANUFACTURING & DELIVERIES																										
Procurement, Manufacturing, Deliveries																										
Standalone Equipment																										
Medium Baggage X-Ray Checker (Type 1) (total 4 nos)																										
Subject to Excision																										

█ Remaining Level of Effort
 █ Actual Work
 █ Critical Remaining Work
█ Actual Work
 █ Remaining Work
 ◆ Milestone

3 - MONTH ROLLING PROGRAMME , OCT. to NOV 2016

Date	Revision	Checked	Approved
01-Oct-16	3 - Month Rolling Programme	SGI	

Activity ID	Activity Name	Original Duration	Start	Finish	2018												2017												
					September				October				November				December				January								
					05	12	19	26	03	10	17	24	01	07	14	21	28	05	12	19	26	02	09	16	23	30			
RAB-PME-9055	Place order for Medium Baggage X-Ray Checker (Type 1) (total 2 nos) 025 & 032	24d	02-Jul-16 A	13-Oct-16	[Gantt bar: 02-Jul-16 to 13-Oct-16]																								
RAB-PME-9105	Manufacture & Delivery of Medium Baggage X-Ray Checker (Type 1) (total 2 nos) 025 & 032	180d	14-Oct-16	11-Apr-17	[Gantt bar: 14-Oct-16 to 11-Apr-17]																								
Not Subject to Excision																													
RAB-PME-2005	Place order for Medium Baggage X-Ray Checker (Type 1) (total 2 nos) 024 & 033	24d	02-Jul-16 A	13-Oct-16	[Gantt bar: 02-Jul-16 to 13-Oct-16]																								
RAB-PME-2006	Manufacture & Delivery of Medium Baggage X-Ray Checker (Type 1) (total 2 nos) 024 & 033	180d	14-Oct-16	11-Apr-17	[Gantt bar: 14-Oct-16 to 11-Apr-17]																								
Medium Baggage X-Ray Checker (Type 2) (total 6 nos)																													
RAB-PME-9035	Place order for Medium Baggage X-Ray Checker (Type 2) (total 6 nos)	24d	01-Jul-16 A	13-Oct-16	[Gantt bar: 01-Jul-16 to 13-Oct-16]																								
RAB-PME-9155	Manufacture & Delivery of Medium Baggage X-Ray Checker (Type 2) (total 6 nos)	180d	14-Oct-16	11-Apr-17	[Gantt bar: 14-Oct-16 to 11-Apr-17]																								
Small Baggage X-Ray Checker (total 9 nos)																													
RAB-PME-9065	Place order for Small Baggage X-Ray Checker (total 9 nos)	24d	02-Nov-16*	25-Nov-16	[Gantt bar: 02-Nov-16 to 25-Nov-16]																								
RAB-PME-9125	Manufacture & Delivery of Small Baggage X-Ray Checker (total 9 nos)	190d	26-Nov-16	24-May-17	[Gantt bar: 26-Nov-16 to 24-May-17]																								
Under Vehicle Surveillance System (total 4 nos)																													
RAB-PME-9075	Place order for Under Vehicle Surveillance System (total 4 nos)	24d	01-Oct-16	24-Oct-16	[Gantt bar: 01-Oct-16 to 24-Oct-16]																								
RAB-PME-9165	Manufacture & Delivery of Under Vehicle Surveillance System (total 4 nos)	190d	25-Oct-16	22-Apr-17	[Gantt bar: 25-Oct-16 to 22-Apr-17]																								
Wheel Lock (total 2 nos)																													
RAB-PME-9015	Place order for Wheel lock (total 2 nos)	24d	06-Jun-16 A	16-Oct-16	[Gantt bar: 06-Jun-16 to 16-Oct-16]																								
RAB-PME-9185	Manufacture & Delivery of Wheel lock (total 2 nos)	190d	17-Oct-16	14-Apr-17	[Gantt bar: 17-Oct-16 to 14-Apr-17]																								
Hydraulic Platform for Lifting up Cars (total 2 nos)																													
RAB-PME-9045	Place order for Hydraulic Platform for Lifting up Cars (total 2 nos)	24d	04-Jul-16 A	19-Oct-16	[Gantt bar: 04-Jul-16 to 19-Oct-16]																								
RAB-PME-9135	Manufacture & Delivery of for Hydraulic Platform for Lifting up Cars (total 2 nos)	190d	20-Oct-16	17-Apr-17	[Gantt bar: 20-Oct-16 to 17-Apr-17]																								
Dock Leveler (total 4 nos)																													
RAB-PME-9085	Place order for Dock Leveler (total 4 nos)	24d	06-Jul-16 A	19-Oct-16	[Gantt bar: 06-Jul-16 to 19-Oct-16]																								
RAB-PME-9145	Manufacture & Delivery of Dock Leveler (total 4 nos)	190d	20-Oct-16	17-Apr-17	[Gantt bar: 20-Oct-16 to 17-Apr-17]																								
Mobile X-ray Vehicle Inspection System																													
RAB-PME-2011	X-Ray - Place order for Mobile X-Ray Vehicle Inspection System	24d	22-Oct-16*	14-Nov-16	[Gantt bar: 22-Oct-16 to 14-Nov-16]																								
RAB-PME-2014	X-Ray - Manufacture & Delivery of Mobile X-Ray Vehicle Inspection System	365d	15-Nov-16	14-Nov-17	[Gantt bar: 15-Nov-16 to 14-Nov-17]																								
RAB-PME-20170	X-Ray - JV Issue Award Recommendation/Process Engineer to ENG	6d	07-May-16 A	11-Oct-16	[Gantt bar: 07-May-16 to 11-Oct-16]																								
RAB-PME-20180	X-Ray - ENG Subcontractor Approval	24d	08-Jun-16 A	21-Oct-16	[Gantt bar: 08-Jun-16 to 21-Oct-16]																								
RAB-PME-2016	X-Ray - Subcontractor Award	6d		21-Oct-16	[Gantt bar: 21-Oct-16]																								
Major E&M Equipment																													
Local Motor Control Panel																													
RAB-PME-9005	Place order for Local Motor Control Panel	24d	28-Sep-16 A	24-Oct-16	[Gantt bar: 28-Sep-16 to 24-Oct-16]																								
RAB-PME-9175	Manufacture & Delivery of Local Motor Control Panel	180d	25-Oct-16	22-Apr-17	[Gantt bar: 25-Oct-16 to 22-Apr-17]																								
Precise Air Flow Monitoring Supply Air Valve for Medical Areas																													
RAB-PME-1986	Place order for Precise Air Flow Monitoring Supply Air Valve for Medical Areas	24d	01-Oct-16	24-Oct-16	[Gantt bar: 01-Oct-16 to 24-Oct-16]																								
RAB-PME-19870	Manufacture & Delivery of Precise Air Flow Monitoring Supply Air Valve for Medical Areas	180d	25-Oct-16	22-Apr-17	[Gantt bar: 25-Oct-16 to 22-Apr-17]																								
Precise Air Flow Monitoring Exhaust Air Valve for Medical Areas																													
RAB-PME-1986	Place order for Precise Air Flow Monitoring Exhaust Air Valve for Medical Areas	24d	01-Oct-16	24-Oct-16	[Gantt bar: 01-Oct-16 to 24-Oct-16]																								
RAB-PME-19810	Manufacture & Delivery of Precise Air Flow Monitoring Exhaust Air Valve for Medical Areas	180d	25-Oct-16	22-Apr-17	[Gantt bar: 25-Oct-16 to 22-Apr-17]																								
Primary Air Handling Unit																													
RAB-PME-19820	Place order for Switch Pumps for Primary Air Handling Unit for Building 053, 045, 044, 032, 025, 023 & 022	24d	01-Oct-16	24-Oct-16	[Gantt bar: 01-Oct-16 to 24-Oct-16]																								
RAB-PME-1983	Manufacture & Delivery of Primary Air Handling Unit	180d	25-Oct-16	22-Apr-17	[Gantt bar: 25-Oct-16 to 22-Apr-17]																								
Air Handling Unit																													
RAB-PME-1984	Place order for Air Handling Unit for Building 045, 032 & 025	24d	24-Nov-16	17-Dec-16	[Gantt bar: 24-Nov-16 to 17-Dec-16]																								
RAB-PME-1986	Manufacture & Delivery of Air Handling Unit Building 045 (2/F Canteen)	180d	18-Dec-16	15-Jun-17	[Gantt bar: 18-Dec-16 to 15-Jun-17]																								
RAB-PME-2008	Manufacture & Delivery of Air Handling Unit Building 032 (Medical Areas)	180d	26-Dec-16	23-Jun-17	[Gantt bar: 26-Dec-16 to 23-Jun-17]																								
RAB-PME-2011	Place order for Air Handling Unit for Building 032 & 025	24d	02-Dec-16	25-Dec-16	[Gantt bar: 02-Dec-16 to 25-Dec-16]																								
Air-to-air Heat Recovery Device																													
RAB-PME-1990	Place order for Air-to-air Heat Recovery Device for Building 022	24d	01-Oct-16	24-Oct-16	[Gantt bar: 01-Oct-16 to 24-Oct-16]																								
RAB-PME-1991	Manufacture & Delivery of Air-to-air Heat Recovery Device	190d	25-Oct-16	22-Apr-17	[Gantt bar: 25-Oct-16 to 22-Apr-17]																								
Electrostatic Precipitator																													
RAB-PME-1996	Place order for Electrostatic Precipitator for Building 045	24d	25-Oct-16	17-Nov-16	[Gantt bar: 25-Oct-16 to 17-Nov-16]																								
RAB-PME-1996	Manufacture & Delivery of Electrostatic Precipitator Building 045 (2/F Canteen)	180d	18-Nov-16	16-May-17	[Gantt bar: 18-Nov-16 to 16-May-17]																								
Essential Generator																													
RAB-PME-2030	Place order for Genest for Building 045	24d	01-Oct-16	24-Oct-16	[Gantt bar: 01-Oct-16 to 24-Oct-16]																								
RAB-PME-2031	Manufacture & Delivery of Genest Building 045 (G/F Essential Generator Room)	190d	25-Oct-16	22-Apr-17	[Gantt bar: 25-Oct-16 to 22-Apr-17]																								
Standalone Bio-oxygen/ Activated Oxygen Generator																													
RAB-PME-2032	Place order for Standalone Bio-oxygen/ Activated Oxygen Generator	236d	31-Oct-16	23-Jun-17	[Gantt bar: 31-Oct-16 to 23-Jun-17]																								

█ Remaining Level of Effort
 █ Actual Work
 █ Critical Remaining Work
█ Actual Work
 █ Remaining Work
 ◆ Milestone

3 - MONTH ROLLING PROGRAMME , OCT. to NOV 2016

Date	Revision	Checked	Approved
01-Oct-16	3 - Month Rolling Programme	SCJ	

Activity ID	Activity Name	Original Duration	Start	Finish	2016												2017										
					September				October				November				December				January						
					06	12	19	26	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	
RAB-21-8135	021 - Open cut excavation down to formation level (1047m³)	5d	03-Oct-16	07-Oct-16																							
RAB-21-8145	021 - Underground Utilities/Temp Drainage	12d	08-Oct-16	22-Oct-16																							
RAB-21-0120	021 - Construct Raft Foundations and Base Slab	19d	24-Oct-16	12-Nov-16																							
Structure																											
RAB-21-0140	021 - Construct Supporting Columns to +11mPD GL3-4	8d	15-Nov-16	23-Nov-16																							
RAB-21-2230	021 - Construct External Wall to +11mPD GL3-4	8d	24-Nov-16	02-Dec-16																							
RAB-21-2280	021 - Construct Supporting Columns to +11mPD GL1-2	8d	24-Nov-16	02-Dec-16																							
RAB-21-2240	021 - Construct External Wall to +11mPD GL1-2	8d	03-Dec-16	12-Dec-16																							
RAB-21-2250	021 - Construct External Wall to +11mPD GL2-3	8d	13-Dec-16	21-Dec-16																							
RAB-21-0150	021 - Construct Roof Suspended Slab up to +11.00mPD	15d	22-Dec-16	11-Jan-17																							
Statutory Submissions & Approvals (Day 670 Completion)																											
Fire Services Department (FS)																											
RAB-FSD-730	021 - Submit Form 314 to FSD, Building 021	0d	20-Oct-16	20-Oct-16																							
Fire Services Department (VAC)																											
RAB-FSD-800	021 - Submit Form 314 to FSD, Building 021	0d	03-Oct-16	03-Oct-16																							
Building 022 - Customs Detective Dog Base Building																											
RAB-22-0100	022 - Forecast Possession of Portion G3 - II Exercised	0d	03-Oct-16	03-Oct-16																							
Excavation																											
RAB-22-0120	022 - Open cut excavation down to formation level (1047m³)	5d	03-Oct-16	07-Oct-16																							
RAB-22-0130	022 - Underground Utilities/Temp Drainage (Ind 021)	12d	08-Nov-16	21-Nov-16																							
Raft Foundations																											
RAB-22-0140	022 - Construct Raft Foundation and Baseslab North	19d	22-Nov-16	12-Dec-16																							
RAB-22-0280	022 - Construct Raft Foundations and Baseslab South	19d	06-Dec-16	28-Dec-16																							
Structure																											
External Walls																											
RAB-22-0230	022 - Construct External Walls and Support Columns to +11.00mPD (N)	19d	13-Dec-16	03-Jan-17																							
RAB-22-0390	022 - Construct External Walls and Support Columns to +11.00mPD (S)	19d	29-Dec-16	17-Jan-17																							
ABWF/E&M																											
Specialist Installations																											
Window Wall																											
RAB-22-7050	022 - Install Window Wall Cast in Items (North)	8d	13-Dec-16	21-Dec-16																							
Dog Swimming Pool																											
RAB-22-0160	022 - Setting out of Dog Swimming Pool	2d	29-Dec-16	30-Dec-16																							
RAB-22-0170	022 - Excavate for Dog Swimming Pool	2d	31-Dec-16	03-Jan-17																							
Statutory Submissions & Approvals (Day 670 Completion)																											
Water Supplies Department (WSD)																											
Commencement																											
RAB-WSD-794	022 - Submit WWO 48 Pt. I & II for Building 022	0d	03-Oct-16	03-Oct-16																							
RAB-WSD-784	022 - Engineer Submit Form WWO 542 for Building 022	0d	03-Oct-16	03-Oct-16																							
Fire Services Department (FSD)																											
RAB-FSD-590	022 - Submit Form 314 to FSD for FSD info, Building 022	0d	11-Oct-16	11-Oct-16																							
Fire Services Department (VAC)																											
RAB-FSD-840	022 - Submit Form 314 to FSD, Building 022	0d	11-Oct-16	11-Oct-16																							
Building 023 - C&ED Outbound Cargo Examination Building																											
Excavation																											
RAB-23-5030	023 - Underground Utilities/Temp Drainage	12d	08-Oct-16	22-Oct-16																							
RAB-23-5018	023 - Blinding	5d	15-Sep-16A	07-Oct-16																							
Raft Foundations - Inspection Platform																											
RAB-23-5050	023 - Construct Raft Foundations for Platform Bay 1	19d	24-Oct-16	12-Nov-16																							
RAB-23-5090	023 - Construct Raft Foundations for Platform Bay 2	19d	07-Nov-16	28-Nov-16																							
RAB-23-5150	023 - Construct Raft Foundations for Platform Bay 3	19d	21-Nov-16	10-Dec-16																							
RAB-23-5190	023 - Construct Raft Foundations for Platform Bay 4	19d	05-Dec-16	24-Dec-16																							
Raft Foundations - Main Building																											
RAB-23-5040	023 - Construct Raft Foundations for Main Building Bay 1 (GL8-10) (376.6m²)	19d	24-Oct-16	12-Nov-16																							
RAB-23-5080	023 - Construct Raft Foundations for Main Building Bay 2 (GL6-8) (376.6m²)	19d	07-Nov-16	28-Nov-16																							
RAB-23-5190	023 - Construct Raft Foundations for Main Building Bay 4 (GL3-5) (376.6m²)	19d	21-Nov-16	10-Dec-16																							
RAB-23-5240	023 - Construct Raft Foundations for Main Building Bay 5 (GL1-3) (376.6m²)	19d	05-Dec-16	24-Dec-16																							
RAB-23-5100	023 - Construct Lift Pit for L-01 (GL5-6)	12d	24-Oct-16	05-Nov-16																							
Structure																											
Supporting Walls and Columns to +12.85mPD																											
RAB-23-5110	023 - Construct External Walls to +12.85mPD Bay 1 (GL8-10)	12d	21-Nov-16	03-Dec-16																							
RAB-23-5160	023 - Construct External Walls to +12.85mPD Bay 2 (GL6-8)	12d	28-Nov-16	10-Dec-16																							
RAB-23-5270	023 - Construct External Walls to +12.85mPD Bay 4 (GL3-5)	12d	12-Dec-16	24-Dec-16																							
RAB-23-5300	023 - Construct External Walls to +12.85mPD Bay 5 (GL1-3)	12d	28-Dec-16	11-Jan-17																							
RAB-23-2180	023 - Install FS and SPR RC Water Tanks (GF North)	12d	28-Nov-16	10-Dec-16																							

Activity ID	Activity Name	Original Duration	Start	Finish	2018																														
					September					October					November					December					2017 January										
					05	12	19	26	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30									
First Floor																																			
RAB-23-5200	023 - Construct 1/F Suspended Slab +12.85mPD Bay 1 (376.6m²) (56.5m²)	12d	05-Dec-16	17-Dec-16																															
RAB-23-5250	023 - Construct 1/F Suspended Slab +12.85mPD Bay 2 (376.6m²) (56.5m²)	12d	12-Dec-16	24-Dec-16																															
RAB-23-5470	023 - Construct 1/F Suspended Slab +12.85mPD Bay 4 (376.6m²) (56.5m²)	12d	28-Dec-16	11-Jan-17																															
Cure and Strip																																			
RAB-23-5230	023 - Cure and Strip False/Formwork +12.85mPD Bay 1	8d	19-Dec-16	29-Dec-16																															
RAB-23-5290	023 - Cure and Strip False/Formwork +12.85mPD Bay 2	8d	28-Dec-16	06-Jan-17																															
Supporting Walls and Columns to +17.1mPD																																			
RAB-23-5280	023 - Construct External Walls to +17.1mPD Bay 1	12d	30-Dec-16	13-Jan-17																															
Statutory Submissions & Approvals (Day 610 Completion)																																			
Water Supplies Department (WSD)																																			
Commencement																																			
RAB-WSD-754	023 - Engineer Submit Form WWO 542 for Building 023	0d	01-Sep-16A	01-Sep-16A																															
RAB-WSD-764	023 - Submit WWO 46 Pt. I & II for Building 023	0d		01-Sep-16A																															
Fire Services Department (FSD)																																			
RAB-FSD-128	023 - Submit Form 314 to FSD for FSD info, Building 023	0d	03-Oct-16	03-Oct-16																															
Fire Services Department (VAC)																																			
RAB-FSD-880	023 - Submit Form 314 to FSD, Building 023	0d	03-Oct-16																																
RAB-FSD-890	023 - Submit Form 501 to FSD for FS Inspection, Building 023	0d	03-Oct-16																																
RAB-FSD-900	023 - FSD Inspection Period, Building 023	24d	20-Oct-16	16-Nov-16																															
RAB-FSD-910	023 - Fire Certificate Obtained (Form 172) Handover, Building 023	0d		03-Oct-16																															
Building 025 - Inbound Private Car Annexure																																			
Raft Foundations																																			
RAB-25-0240	025 - Construct Raft Foundations for Main Building South Bay 4 (321m²)	12d	25-Aug-16A	28-Sep-16A																															
RAB-25-0190	025 - Construct Raft Foundations for Main Building Middle Bay 3 (321m²) - Shrinkage Strip	12d	25-Aug-16A	22-Sep-16A																															
Structure																																			
External Walls																																			
RAB-25-0180	025 - Construct Walls and Columns to +12.85mPD North Bay 1	12d	02-Sep-16A	05-Oct-16																															
RAB-25-0220	025 - Construct Walls and Columns to +12.85mPD Middle Bay 2	12d	09-Sep-16A	07-Oct-16																															
RAB-25-600	025 - Construct SPR & FS RC Water/Janets (GF North)	12d	03-Oct-16	17-Oct-16																															
RAB-25-0270	025 - Construct Walls and Columns to +12.85mPD South Bay 4	12d	23-Sep-16A	14-Oct-16																															
RAB-25-0300	025 - Construct Walls and Columns to +12.85mPD Middle Bay 3	12d	16-Sep-16A	11-Oct-16																															
Roof Slab																																			
RAB-25-0200	025 - Construct Roof floor up to +12.85mPD North Bay 1 (321m²) (Approx 48m²)	12d	06-Oct-16	20-Oct-16																															
RAB-25-0280	025 - Construct Roof floor up to +12.85mPD Middle Bay 2 (321m²) (Approx 48m²)	12d	06-Oct-16	22-Oct-16																															
RAB-25-0310	025 - Construct Roof floor up to +12.85mPD South Bay 4 (321m²) (Approx 48m²)	12d	15-Oct-16	28-Oct-16																															
RAB-25-0370	025 - Construct Roof floor up to +12.85mPD Middle Bay 3 (321m²) (Approx 48m²)	12d	17-Oct-16	29-Oct-16																															
Cure and Strip																																			
RAB-25-0230	025 - Cure and Strip False/Formwork Bay 1	19d	21-Oct-16	10-Nov-16																															
RAB-25-0290	025 - Cure and Strip False/Formwork Bay 2	19d	24-Oct-16	12-Nov-16																															
RAB-25-0340	025 - Cure and Strip False/Formwork Bay 4	19d	29-Oct-16	18-Nov-16																															
RAB-25-0410	025 - Cure and Strip False/Formwork Bay 3	19d	31-Oct-16	19-Nov-16																															
ABWF/E&M																																			
Internal Finishes																																			
Degree 1																																			
RAB-25-0490	025 - Construct Blockwork Walls (2148m²)	30d	11-Nov-16	22-Dec-16																															
RAB-25-0510	025 - ABWF and MEP works to Degree 1 (KD6A)	32d	30-Nov-16	09-Jan-17																															
External Finishes																																			
Facade																																			
RAB-25-0330	025 - Erect Scaffolding around Building 025	8d	21-Nov-16	29-Nov-16																															
RAB-25-0380	025 - Install External Louvers/Windows/Doors	18d	30-Nov-16	20-Dec-16																															
Roof Finishes																																			
RAB-25-0390	025 - Leveling screed - (1285m²)	21d	30-Nov-16	23-Dec-16																															
RAB-25-0440	025 - Waterproof membrane - (1295m²)	21d	24-Dec-16	20-Jan-17																															
Building 032 - Outbound Private Car Annexure																																			
Excavation																																			
RAB-32-0120	032 - Open cut excavation down to formation level (2831m²)	10d	15-Sep-16A	14-Oct-16																															
RAB-32-0130	032 - Underground Utilities and Temp Drainage Works	10d	04-Oct-16	18-Oct-16																															
Raft Foundations																																			
RAB-32-0140	032 - Construct Raft Foundations for Main Building North Bay 1 (321m²)	12d	12-Oct-16	25-Oct-16																															

█ Remaining Level of Effort
 █ Actual Work
 █ Critical Remaining Work
█ Actual Work
 █ Remaining Work
 ◆ Milestone

3 - MONTH ROLLING PROGRAMME , OCT. to NOV 2016

Date	Revision	Checked	Approved
01-Oct-16	3 - Month Rolling Programme	SGJ	

Activity ID	Activity Name	Original Duration	Start	Finish	2016												2017															
					September				October				November				December				January											
					05	12	19	26	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30						
RAB-32-0180	032 - Construct Raft Foundations for Main Building Middle Bay 2 (321m²)	12d	19-Oct-16	01-Nov-16																												
RAB-32-0240	032 - Construct Raft Foundations for Main Building South Bay 4 (321m²)	12d	20-Oct-16	08-Nov-16																												
RAB-32-0190	032 - Construct Raft Foundations for Main Building Middle Bay 3 (321m²) Shrinkage Strip	12d	02-Nov-16	15-Nov-16																												
Structure					70d	23-Oct-16	25-Jan-17																									
External Walls					30d	29-Oct-16	29-Nov-16																									
RAB-32-0180	032 - Construct Walls and Columns to +12.85mPD North Bay 1	12d	20-Oct-16	08-Nov-16																												
RAB-32-0220	032 - Construct Walls and Columns to +12.85mPD Middle Bay 2	12d	02-Nov-16	15-Nov-16																												
RAB-32-0270	032 - Construct Walls and Columns to +12.85mPD South Bay 4	12d	09-Nov-16	22-Nov-16																												
RAB-32-0300	032 - Construct Walls and Columns to +12.85mPD Middle Bay 3	12d	16-Nov-16	29-Nov-16																												
RAB-32-610	032 - Install SPR and FS RC Water Tanks (GF South)	12d	18-Nov-16	29-Nov-16																												
Roof Slab					64d	09-Nov-16	25-Jan-17																									
RAB-32-0280	032 - Construct Roof floor upto +12.85mPD Middle Bay 2 (321m²) (Approx 49m²)	18d	09-Nov-16	29-Nov-16																												
RAB-32-0370	032 - Construct Roof floor upto +12.85mPD South Bay 4 (321m²) (Approx 49m²)	18d	16-Nov-16	06-Dec-16																												
RAB-32-0310	032 - Construct Roof floor upto +12.85mPD Middle Bay 3 (321m²) (Approx 49m²)	18d	30-Nov-16	20-Dec-16																												
RAB-32-0200	032 - Construct Roof floor upto +12.85mPD North Bay 1 (321m²) (Approx 49m²)	18d	30-Dec-16	20-Jan-17																												
Cure and Strip					40d	07-Dec-16	25-Jan-17																									
RAB-32-0410	032 - Cure and Strip False/Formwork Bay 4	28d	07-Dec-16	11-Jan-17																												
RAB-32-0340	032 - Cure and Strip False/Formwork Bay 3	28d	21-Dec-16	25-Jan-17																												
ABWF/E&M					8d	24-Dec-16	31-Dec-16																									
External Finishes					8d	21-Dec-16	31-Dec-16																									
Facade					8d	21-Dec-16	31-Dec-16																									
RAB-32-0330	032 - Erect Scaffolding around Building 032	8d	21-Dec-16	31-Dec-16																												
Building 044 - E&M Maintenance Building					80d	03-Oct-16	14-Jan-17																									
Excavation					30d	03-Oct-16	13-Nov-16																									
RAB-44-0120	044 - Open cut excavation down to formation level (incl D45) (2600m²)	8d	03-Oct-16	12-Oct-16																												
RAB-44-0130	044 - Underground Utilities/Temp Drainage (incl D45)	8d	08-Nov-16	16-Nov-16																												
Raft					43d	13-Oct-16	07-Dec-16																									
RAB-44-0140	044 - Construct Raft Foundations for Main Building Bay 1 (North)(242m²)	12d	17-Nov-16	30-Nov-16																												
RAB-44-0160	044 - Construct Raft Foundations for Main Building Bay 2 (South)(242m²)	12d	24-Nov-16	07-Dec-16																												
RAB-45-1140	044 - Construct lift pit for L-01	8d	13-Oct-16	21-Oct-16																												
Structure					30d	01-Dec-16	14-Jan-17																									
External Walls					18d	01-Dec-16	21-Dec-16																									
Ground to First Floor					18d	01-Dec-16	21-Dec-16																									
RAB-44-0170	044 - Construct External Walls to +12.15mPD Bay 1 (North)	12d	01-Dec-16	14-Dec-16																												
RAB-44-0200	044 - Construct External Walls to +12.15mPD Bay 2 (South)	12d	08-Dec-16	21-Dec-16																												
First Floor					20d	15-Dec-16	10-Jan-17																									
RAB-44-0190	044 - Construct I/F Suspended Slab +12.15mPD Bay 1 (242m²) (72m²)	12d	15-Dec-16	30-Dec-16																												
RAB-44-0230	044 - Construct I/F Suspended Slab +12.15mPD Bay 2 (242m²) (72m²)	12d	22-Dec-16	07-Jan-17																												
Cure and Strip					8d	31-Dec-16	10-Jan-17																									
RAB-44-0220	044 - Cure and Strip False/Formwork for +12.15mPD Slab Bay 1 (North)	8d	31-Dec-16	10-Jan-17																												
First Floor to Second Floor					12d	31-Dec-16	14-Jan-17																									
RAB-44-0210	044 - Construct External Walls to +18.85mPD Bay 1 (North)	12d	31-Dec-16	14-Jan-17																												
ABWF/E&M					30d	01-Dec-16	07-Jan-17																									
Specialist Installations					30d	01-Dec-16	07-Jan-17																									
Window Wall					30d	01-Dec-16	07-Jan-17																									
RAB-44-7110	044 - Install Window Wall Cast in Items Base slab	6d	01-Dec-16	07-Dec-16																												
RAB-44-7100	044 - Install Window Wall Cast in Items I/F Slab	6d	31-Dec-16	07-Jan-17																												
Statutory Submissions & Approvals					9d	03-Oct-16	03-Oct-16																									
Water Supplies Department (WSD)					0d	03-Oct-16	03-Oct-16																									
Commencement					0d	03-Oct-16	03-Oct-16																									
RAB-WSD-094	044 - Engineer Submil Form WWO 542 for Building 044	0d	03-Oct-16	03-Oct-16																												
RAB-WSD-074	044 - Submil WWO 48 Pt. I & II for Building 044	0d	03-Oct-16	03-Oct-16																												
Fire Services Department (FSD)					0d	03-Oct-16	03-Oct-16																									
RAB-FSD-128	044 - Submil Form 314 to FSD for FSD, Building 044	0d	03-Oct-16	03-Oct-16																												
Building 045 - Highways Depot & Administration Building					80d	03-Oct-16	14-Jan-17																									
Raft					30d	24-Nov-16	30-Dec-16																									
RAB-45-1130	045 - Construct lift pit for L-01	8d	24-Nov-16	02-Dec-16																												
RAB-45-1150	045 - Construct Raft Foundations for Main Building Bay 5 (429m²)	12d	24-Nov-16	07-Dec-16																												
RAB-45-0200	045 - Construct Raft Foundations for Main Building Bay 5 (429m²)	12d	01-Dec-16	14-Dec-16																												
RAB-45-0150	045 - Construct Raft Foundations for Main Building Bay 3 (429m²)	12d	08-Dec-16	21-Dec-16																												
RAB-45-0170	045 - Construct Raft Foundations for Main Building Bay 4 (419m²)	12d	15-Dec-16	30-Dec-16																												
Structure					30d	08-Dec-16	14-Jan-17																									
Ground to First Floor					30d	08-Dec-16	14-Jan-17																									
RAB-45-0280	045 - Construct External Walls and Support Columns to +12.15mPD Bay 6	12d	08-Dec-16	21-Dec-16																												

Activity ID	Activity Name	Original Duration	Start	Finish	2016												2017								
					September				October				November				December			January					
					05	12	19	26	03	10	17	24	01	08	15	22	05	12	19	26	02	09	16	23	30
RAB-50-434D	050A1 - Construct RC Support Columns for Aluminium Solar Shade	6d	15-Nov-16	21-Nov-16																					
Statutory Submissions & Approvals (Day 670 Completion)																									
Water Supplies Department (WSD)																									
Commencement																									
RAB-WSD-51	050A1 - Engineer Submit Form WWO 542 for Building 050	0d	03-Oct-16	03-Oct-16																					
RAB-WSD-52	050A1 - Submit WWO 48 Pt. I & II for Building 050	0d	03-Oct-16	03-Oct-16																					
Fire Services Department (FSD)																									
RAB-FSD-750	050A1 - Submit Form 314 to FSD for FSD info, Building 050	0d	03-Oct-16	03-Oct-16																					
Public Toilet (Portion A2)																									
Excavation																									
RAB-50-452D	050A2 - Open cut excavation down to formation level (370m²)	4d	07-Oct-16	12-Oct-16																					
RAB-50-453D	050A2 - Underground Utilities and Drainage	12d	21-Oct-16	03-Nov-16																					
Raft																									
RAB-50-404D	050A2 - Construct Raft Foundation (140m²) (91m³)	18d	04-Nov-16	24-Nov-16																					
Structure																									
RAB-50-467D	050A2 - Construct Roof Floor at +11.525mPD (140m²) (21m³)	12d	19-Dec-16	04-Jan-17																					
RAB-50-408D	050A2 - Construct RC Walls (External and Internal)	20d	25-Nov-16	17-Dec-16																					
RAB-50-435D	050A2 - Construct RC Support Columns for Aluminium Solar Shade	6d	25-Nov-16	01-Dec-16																					
Statutory Submissions & Approvals (Day 670 Completion)																									
Water Supplies Department (WSD)																									
Commencement																									
RAB-WSD-51	050A2 - Engineer Submit Form WWO 542 for Building 050	0d	03-Oct-16	03-Oct-16																					
RAB-WSD-52	050A2 - Submit WWO 48 Pt. I & II for Building 050	0d	03-Oct-16	03-Oct-16																					
Fire Services Department (FSD)																									
RAB-FSD-760	050A2 - Submit Form 314 to FSD for FSD info, Building 050	0d	03-Oct-16	03-Oct-16																					
Building 053 - Outbound X-Ray Building																									
Structure																									
External Walls																									
To First Floor Level																									
RAB-53-019D	053 - Construct External Walls and Columns to +13.0mPD North	8d	22-Aug-16A	12-Oct-16																					
RAB-53-025D	053 - Construct External Walls and Columns to +13.0mPD South	8d	29-Aug-16A	15-Oct-16																					
Internal Structures																									
RAB-53-749D	053 - Construct Internal Staircase S-01 +13.0mPD South	8d	29-Oct-16	03-Nov-16																					
RAB-53-750D	053 - Construct Internal Staircase S-02 +13.0mPD North	8d	22-Oct-16	31-Oct-16																					
RAB-53-755D	053 - Construct Internal Liffthall L-01 +13.0mPD North	8d	29-Oct-16	07-Nov-16																					
First Floor																									
Slabs																									
RAB-53-024D	053 - Construct 1/F Suspended Slab +13.0mPD North	8d	13-Oct-16	21-Oct-16																					
RAB-53-031D	053 - Construct 1/F Suspended Slab +13.0mPD South	8d	17-Oct-16	25-Oct-16																					
RAB-53-113D	053 - Install SPR and FS Class Reinforced Polyester Water Tanks (F/F South)	8d	26-Oct-16	03-Nov-16																					
Cure and Strip																									
RAB-53-028D	053 - Cure and Strip Falseworkwork at +13.0mPD North	8d	01-Nov-16	09-Nov-16																					
RAB-53-034D	053 - Cure and Strip Falseworkwork at +13.0mPD South	8d	04-Nov-16	12-Nov-16																					
To Roof Level																									
RAB-53-028D	053 - Construct External Walls and Columns to +17.4mPD North	8d	10-Nov-16	18-Nov-16																					
RAB-53-038D	053 - Construct External Walls and Columns to +17.4mPD South	8d	14-Nov-16	22-Nov-16																					
Staircases																									
RAB-53-751D	053 - Construct Internal Staircase S-01 +17.4mPD South	8d	14-Nov-16	22-Nov-16																					
RAB-53-752D	053 - Construct Internal Staircase S-02 +17.4mPD North	8d	10-Nov-16	18-Nov-16																					
RAB-53-756D	053 - Construct Internal Liffthall L-01 +17.4mPD North	8d	29-Nov-16	07-Dec-16																					
Roof Floor																									
Slabs																									
RAB-53-032D	053 - Construct R/F Suspended Slab at +17.4mPD North	8d	19-Nov-16	28-Nov-16																					
RAB-53-043D	053 - Construct R/F Suspended Slab at +17.4mPD South	8d	23-Nov-16	01-Dec-16																					
Cure and Strip																									
RAB-53-035D	053 - Cure and Strip Falseworkwork at +17.4mPD North	8d	29-Nov-16	08-Dec-16																					
RAB-53-048D	053 - Cure and Strip Falseworkwork at +17.1mPD South	8d	02-Dec-16	09-Dec-16																					
ABWF/E&M																									
Ground Floor																									
Degree 1																									
RAB-53-051D	053 - ABWF and MEP works to Degree 1 (KD1A) G/F North	18d	09-Dec-16	31-Dec-16																					
RAB-53-039D	053 - Construct Blockwork Walls to G/F Rooms (353m²) North	8d	06-Dec-16	12-Dec-16																					
RAB-53-757D	053 - Construct Blockwork Walls to G/F Rooms (353m²) South	8d	09-Dec-16	15-Dec-16																					
RAB-53-758D	053 - ABWF and MEP works to Degree 1 (KD1A) G/F South	12d	16-Dec-16	31-Dec-16																					
First Floor																									
RAB-53-759D	053 - ABWF and MEP works to Degree 1 (KD1A) G/F South	18d	16-Dec-16	09-Jan-17																					

Remaining Level of Effort Actual Work Critical Remaining Work Remaining Work Milestone	3 - MONTH ROLLING PROGRAMME , OCT. to NOV 2016	Date 01-Oct-16	Revision 3 - Month Rolling Programme	Checked SGJ	Approved
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Activity ID	Activity Name	Original Duration	Start	Finish	2016																														
					September					October					November					December					January										
					05	12	18	25	02	09	16	23	30	07	14	21	28	05	12	19	26	02	09	16	23	30	06	13	20	27	04	11	18	25	01
Degree 1																																			
RAB-53-7590	053 - Construct Blockwork Walls to F/F Rooms (353m²) South	8d	16-Dec-16	09-Jan-17																															
RAB-53-7600	053 - ABWF and MEP works to Degree 1 (KD1A) F/F South	12d	23-Dec-16	09-Jan-17																															
Utilities and Drainage																																			
RAB-53-7595	053 - Construct Permanent Drainage and Manholes (Approx 135m)	42d	09-Dec-16	08-Feb-17																															
RAB-53-7820	053 - Install Fresh Water Mains	12d	21-Dec-16	08-Jan-17																															
Building 058 - Outbound X-Ray Scan Tunnel																																			
Raft																																			
RAB-58-0160	058 - Construct Raft Foundation - West	6d	15-Aug-16A	05-Sep-16A																															
RAB-58-0170	058 - Construct Raft Foundation - East	6d	22-Aug-16A	05-Sep-16A																															
Structure																																			
Walls																																			
West																																			
RAB-58-0210	058 - Construct West Walls to +9.5mPD	5d	06-Sep-16A	04-Oct-16																															
RAB-58-0230	058 - Construct West Walls to +12.8mPD	5d	20-Sep-16A	08-Oct-16																															
RAB-58-0240	058 - Construct West Walls to +17.375mPD	6d	06-Oct-16	15-Oct-16																															
East																																			
RAB-58-0300	058 - Construct East Walls to +9.5mPD	5d	06-Sep-16A	08-Oct-16																															
RAB-58-0310	058 - Construct East Walls to +12.8mPD	5d	20-Sep-16A	14-Oct-16																															
RAB-58-0330	058 - Construct East Walls to +17.375mPD	6d	13-Oct-16	20-Oct-16																															
Roof Slabs																																			
RAB-58-0270	058 - Construct Roof floor to +17.375mPD Pour 1 (227m²) (34m³)	12d	20-Oct-16	03-Nov-16																															
RAB-58-0320	058 - Construct Roof floor to +17.375mPD Pour 2 (214m²) (32m³)	12d	03-Nov-16	17-Nov-16																															
RAB-58-0300	058 - Construct Roof floor to +17.375mPD Pour 3 (214m²) (32m³)	12d	12-Nov-16	26-Nov-16																															
RAB-58-0430	058 - Construct Roof floor to +17.375mPD Pour 4 (227m²) (34m³)	12d	26-Nov-16	10-Dec-16																															
Cure and Strip																																			
RAB-58-0290	058 - Cure and Strip Roof floor to +17.375mPD Pour 1	8d	03-Nov-16	12-Nov-16																															
RAB-58-0340	058 - Cure and Strip Roof floor to +17.375mPD Pour 2	8d	17-Nov-16	26-Nov-16																															
RAB-58-0380	058 - Cure and Strip Roof floor to +17.375mPD Pour 3	8d	26-Nov-16	06-Dec-16																															
RAB-58-0480	058 - Cure and Strip Roof floor to +17.375mPD Pour 4	8d	10-Dec-16	20-Dec-16																															
ABWF/E&M																																			
Internal Finishes																																			
Degree 1																																			
RAB-58-0570	058 - MEP works to Degree 1 (KD1A)	18d	03-Dec-16	24-Dec-16																															
RAB-58-0520	058 - Complete S/C Screed 150mm (SC4)	10d	10-Dec-16	22-Dec-16																															
RAB-58-0500	058 - Complete Anti Fungal Painting (P3) - Walls	8d	03-Dec-16	10-Dec-16																															
RAB-58-0550	058 - Complete Epoxy Floor Coating (FL9)	10d	22-Dec-16	06-Jan-17																															
RAB-58-0490	058 - Complete Anti Fungal Painting (P3) - Ceiling	8d	26-Nov-16	03-Dec-16																															
Degree 2																																			
RAB-58-0630	058 - MEP works to Degree 2 (KD1B)	60d	24-Dec-16	15-Mar-17																															
Roof Finishes																																			
RAB-58-0410	058 - Leveling screed - 885m²	9d	08-Dec-16	19-Dec-16																															
RAB-58-0450	058 - Waterproof membrane - 885m²	9d	19-Dec-16	31-Dec-16																															
RAB-58-0600	058 - insulation Board - 885m²	9d	31-Dec-16	12-Jan-17																															
External Finishes																																			
Facade																																			
RAB-58-0400	058 - Install External Louvers /Windows/Doors	12d	08-Dec-16	22-Dec-16																															
RAB-58-0390	058 - Erect External Scaffolding	10d	26-Nov-16	08-Dec-16																															
Building 059 - Inbound X-Ray Scan Tunnel																																			
Structure																																			
Walls																																			
West																																			
RAB-59-0240	059 - Construct West Walls to +17.375mPD	9d	17-Aug-16A	13-Oct-16																															
East																																			
RAB-59-0330	059 - Construct East Walls to +17.375mPD	9d	17-Aug-16A	20-Oct-16																															
Roof Slabs																																			
RAB-59-0270	059 - Construct Roof floor up to +17.375mPD Pour 1 (227m²) (34m³)	12d	21-Oct-16	03-Nov-16																															
RAB-59-0320	059 - Construct Roof floor up to +17.375mPD Pour 2 (214m²) (32m³)	12d	04-Nov-16	17-Nov-16																															
RAB-59-0300	059 - Construct Roof floor up to +17.375mPD Pour 3 (214m²) (32m³)	12d	18-Nov-16	01-Dec-16																															
RAB-59-0410	059 - Construct Roof floor up to +17.375mPD Pour 4 (227m²) (34m³)	12d	02-Dec-16	15-Dec-16																															
Cure and Strip																																			
RAB-59-0290	059 - Cure and Strip Roof floor up to +17.375mPD Pour 1	32d	04-Nov-16	10-Dec-16																															



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

Name of Department: Highways Department

Contract No.: HY/2014/05

Monthly Summary Waste Flow Table for 2016



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	c. Reused in the Contract	d. Reused in Other Projects (see Note 9)	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											
February	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
March	0.036	0.000	0.000	0.036	0.000	0.270	0.000	0.000	0.000	0.000	0.000
April	0.000	0.000	0.000	0.000	0.000	0.027	0.000	0.000	0.000	0.000	0.000
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
June	0.049	0.049	0.049	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
Sub-total	0.085	0.049	0.049	0.036	0.000	0.297	0.000	0.000	0.000	0.000	0.006
July	0.355	0.000	0.355	0.000	0.000	1.238	0.000	0.000	0.000	0.000	0.007
August	0.070	0.000	0.070	0.000	0.000	0.000	9.980	0.000	0.000	0.000	0.016
September	0.551	0.000	0.551	0.000	0.000	0.000	9.960	0.000	0.000	0.000	0.034
October											
November											
December											
Total	1.061	0.049	1.025	0.036	0.000	1.535	19.940	0.000	0.000	0.000	0.063

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

Name of Department: Highways Department

Contract No.: HY/2014/05



- 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) Inert C&D Materials (as sand only) were transferred to Contract No. HY/2013/01 in March 2016.
 - (10) The amount in "Disposed as Public Fill" included the "Hard Rock and Large Broken Concrete" disposed as public fill

APPENDIX F

Environmental Licenses and Permits

Environmental License/ Permits /Notification Register

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

Date: September 2016									
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 2015	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/I	17 Jul 2015	N/A	EPD	Superseded by EP-353/2009/J
2	All Areas	18 Feb 2016	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/J	25 Feb 2016	N/A	EPD	Superseded by EP-353/2009/K
3	All Areas	24 Mar 2016	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/K	11 Apr 2016	N/A	EPD	-
4	All Areas	30 Dec 2015	N/A	Billing Account for disposal of construction waste	7024342	16 Feb 2016	N/A	EPD	-
5	All Areas	30 Dec 2015	RABF-LTR- EPD-000001	Notification that notifiable works are anticipated to commence (Form NA).	Acknowledge Receipt Ref. No. 397571	6 Jan 2016	N/A	EPD	-
6	All Areas	04 Jan 2016	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 2016	N/A	EPD	-

Environmental License/ Permits /Notification Register

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

								Date: September 2016		
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							
7	All Areas	25 Jan 2016	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 2016	10 Aug 2016	EPD	Superseded by GW-RS0476-16	
8	All Areas	08 May 2016	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 2016	18 Nov 2016	EPD	Superseded by GW-RS0666-16	
9	All Areas	16 Jun 2016	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 2016	03 Jan 2017	EPD	Superseded by GW-RS0907-16	
10	All Areas	18 Aug 2016	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 2016	28 Feb 2017	EPD	-	

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 traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; 	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	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	√
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) 	√ (The dust monitoring works under EM&A programme for the Contract are covered by Contract No. HY/2010/02 and Contract No. HY/2011/03.)

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 works under EM&A programme for the Contract are covered by Contract No. HY/2010/02.)
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 by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans, 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 WPCO or collected for disposal offsite. The use of soakaways shall be avoided; • storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks; • silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm; • temporary access roads should be surfaced with crushed stone or gravel; • rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; • measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; • open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; • manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers; • discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; 	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.</p> <p>G3. Not applicable as this is for HKLR.</p> <p>G4. For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF</p> <p>G5. Vegetation reinstatement and upgrading to disturbed areas</p> <p>G6. Maximizing new tree shrub and other vegetation planting to compensate tree felled and vegetation removed</p> <p>G7. Providing planting area around peripheral of HKBCF for tree planting screening effect;</p> <p>G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall.</p> <p>G9. Reserve of loose natural granite rocks for re-use. Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of the new coastline.</p>	Minimise visual & landscape impact	Contractor	HKBCF	Construction stage		N/A
S14.3.3.3	LV3	<p><u>Mitigate Visual Impacts</u></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>						√ for V1. N/A for V2.

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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

Complaint Register

Complaint No.	Complaint Received Date	Category	Complaint Details	Follow up Action /Recommendation	Status
001	22 September 2016	Water Quality	According to ENPO's email to the Environmental Team, Engineer's Representative and Contractor on 22 September 2016, it is noted that EPD received a complaint lodged by a member of the public regarding whitish effluent discharge from two flat top barges into the sea every day from 18:00 to 04:00 hours next to Cell No.54 and 55 of Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities Construction Site.	After investigation, contractor confirmed that they do not have any marine works. In addition, they do not have any flat top barge working for Contract No. HY/2014/05. No mitigation measures are required as the complaint is not related to Contract No. HY/2014/05.	Closed.

Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

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

APPENDIX I

Environmental Site Inspection Schedule

Oct 2016

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