

28 July 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/2013/01 – HZMB HKBCF – Passenger Clearance
Building
Quarterly EM&A Report No. 7 for April 2016 to June 2016**

Reference is made to the Environmental Team's submission of Quarterly Environmental Monitoring & Audit Report No. 7 for April 2016 to June 2016 (Revision 1) certified by the ET Leader (ET's ref.: "5126871/19.10/OC069/SO/RC" dated 25 July 2016) and provided to us via e-mail on 25 July 2016.

We are pleased to inform you that we have no adverse comment on the captioned Quarterly Environmental Monitoring & Audit Report for April 2016 to June 2016.

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
Hong Kong Link Road

c.c.	HyD	Mr. Vico Cheung	(By Fax: 3188 6614)
	HyD	Ms. Lowell Chiu	(By Fax: 3188 6614)
	Atkins	Ms. Sharifah Or	(By Fax: 2890 6343)
	LCWJV	Mr. Gary Wong	(By Fax: 3621 0180)

Internal: DY, YH, ENPO Site

Q:\Projects\HYDZHMBEEM00\02_Proj_Mgt\02_Corr\HYDZHMBEEM00_0_4419L.16.doc

Your ref.
Our ref. 5126871/19.10/OC069/SO/RC

Date: 25 July 2016

Telephone (852) 2972 1000
Facsimile (852) 2890 6343

www.atkinsglobal.com

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/2013/01
Hong Kong – Zhuhai – Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Certification of Quarterly EM&A Report No. 7 (Revision 1)**

Atkins China Limited certifies, in the capacity of Environmental Team Leader, that the Quarterly EM&A Report No. 7 (Revision 1) conforms the requirements provided in Section 16.4 of the Updated Environmental Monitoring and Audit Manual for HKBCF (Version 1.0).

**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)

Contract No. HY/2013/01

**Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance
Building**

**Quarterly EM&A Report No. 7
(Covering the Period from 1 April 2016 to 30 June 2016)**

21 July 2016

Revision 1

Main Contractor



Leighton - Chun Wo
Joint Venture

Environmental Team

ATKINS

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Executive Summary

This Quarterly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract HY/2013/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) – Passenger Clearance Building (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. Site preparation works of the Contract started on 26 September 2014 and the construction works of the Contract commenced on 6 October 2014.

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 Quarterly EM&A Report for the Contract which summaries findings of the EM&A works during the reporting period from 1 April to 30 June 2016.

Environmental Monitoring and Audit Progress

The EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works and Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6, 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 environmental site inspection during the reporting period are listed below:

Environmental Site Inspection Date		
April 2016	May 2016	June 2016
6, 13, 20 and 27	4, 11, 18 and 25	1, 8, 15, 22 and 29

Breaches of Action and Limit Levels

Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at station AMS6 shall be referred to the monthly EM&A Reports (for April, May and June 2016) prepared by Contract No. HY/2011/03.

There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at 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.

Implementation of Environmental Measures

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. Potential environmental impacts due to the construction activities were monitored and reviewed.

Complaint Log

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

Notifications of Summons and Successful Prosecutions

There was no notification of summon or prosecution received during this reporting period.

Reporting Change

An application for variation of an environmental permit of the Project was made on 24 March 2016 and the current EP No. EP-353/2009/K was issued by the Director of Environmental Protection on 11 April 2016. Therefore, the environmental permit number for the Project has been updated.

1 Introduction

1.1 Basic Project Information

- 1.1.1 This Quarterly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract HY/2013/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Passenger Clearance Building (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. Site preparation work of the Contract started on 26 September 2014 and the construction works of the Contract commenced on 6 October 2014. The works areas of the Contract are shown in **Appendix A**.
- 1.1.3 This is the seventh Quarterly EM&A Report for the Contract which summarizes the audit findings of the EM&A programme during the reporting period from 1 April to 30 June 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)	Project Manager	Gary Wong	3973 0488	3621 0180
	Environmental Officer	Michael Lee	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:

- Piling Test (WA1);
- Bulk Excavation at Common Utilities Enclosure (WA1);
- Pile Cropping (WA1);
- Tie Beams (WA1);
- Pile Capping (WA1);
- Base Slab Construction and Service Troughs (WA1)
- Waterproofing (WA1);
- Tower Crane Erection (WA1);
- Southern Drop off Area Pile Capping and Column (WA1);
- Column and Wall Construction (WA1);
- Suspended Slab Construction (WA1);
- Marine Mud Treatment (WA1);
- Backfilling (WA1);
- Mega Column Construction (WA1);
- Rebar Fixing and Concreting Works at Box Culvert and Common Utilities Enclosure (WA1);
- Bored Piling Works at Box Culvert and Northern Footbridge (WA1);
- Formwork and Falsework Stripping (WA1);
- Blockwork Walls (WA1);
- Pipework and Ductwork (WA1);
- Seawater Pump House Jet Grouting (WA1);
- Footings for Roof Erection (WA1);
- Wet Trade Works (WA1);
- Self-Propelled Modular Transporter Path (WA1);
- Sheet Piling at Sea Water Pump House and Box Culvert (WA1).
- Hanger Rods for Cable Container (WA1);
- Temporary Launch Tower (WA1); and
- Launch Rail Installation (WA1);

1.4.2 No marine works were undertaken under the Contract during this reporting period.

2 EM&A Requirement

2.1 Summary of EM&A Requirements

- 2.1.1 The EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1). It should be noted that the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works and Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7 and noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract Nos. HY/2010/02 and HY/2011/03. However, this is subject to ENPO's final decision on which ET should carry out the monitoring work at these stations.
- 2.1.2 The permission to carry out impact air quality monitoring work at AMS7 (Hong Kong SkyCity Marriott Hotel) was not granted after 31 January 2015. The impact air quality monitoring location (AMS7) was relocated to a nearby air sensitive receiver, Chu Kong Air-Sea Union Transportation Co. Ltd. (AMS7A), from 5 February 2015 to 30 December 2015. The alternative location at Chu Kong Air-Sea Union Transportation Co. Ltd. was approved by EPD on 5 February 2015. However, AMS7A was relocated back to its original location (AMS7-Hong Kong SkyCity Marriott Hotel) on 30 December 2015. The relocation of air quality monitoring location, AMS7A, back to AMS7 was approved by EPD on 21 December 2015. The baseline and action/limit level for air quality as derived from the baseline monitoring data recorded at Hong Kong SkyCity Marriott Hotel (AMS7) was adopted for the air quality monitoring location.
- 2.1.3 A summary of air and noise monitoring locations are presented in **Table 2.1**. The location of air quality and noise monitoring stations are shown as in **Figure 2.1** and **Figure 2.2**, respectively.

Table 2.1 Summary of Impact EM&A Requirements

Environmental Monitoring	ID	Location Description
Air Quality	AMS6 ⁽¹⁾	Dragonair/CNAC (Group) Building
	AMS7 ^{(1),(2)}	Hong Kong SkyCity Marriott Hotel
Noise	NMS2 ⁽³⁾	Seaview Crescent
	NMS3B ^{(3),(4)}	Site Boundary of Site Office Area at Works Area WA2

Remarks:

- (1) The ET of this Contract should conduct impact air quality monitoring at the Air Monitoring Station 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 original monitoring location was at Hong Kong SkyCity Marriott Hotel (AMS7). As the permission to carry out air quality monitoring at Hong Kong SkyCity Marriott Hotel was not granted after 31 January 2015, the monitoring location was relocated to Chu Kong Air-Sea Union Transportation Co. Ltd. (AMS7A) from 5 February 2015 to 30 December 2015. The alternative monitoring location at Chu Kong Air-Sea Union Transportation Co. Ltd. was approved by EPD on 5 February 2015. However, AMS7A was relocated back to its original location (AMS7-Hong Kong SkyCity Marriott Hotel) on 30 December 2015. The relocation of air quality monitoring location, AMS7A, back to AMS7 was approved by EPD on 21 December 2015.
- (3) 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.
- (4) The Action and Limit Levels for schools will be applied for this alternative monitoring location.

2.2 Monitoring Requirements

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

2.3 Action and Limit Levels

- 2.3.1 The Action and Limit Level 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, $\mu\text{g}/\text{m}^3$
AMS6 – Dragonair/CNAC (Group) Building (HKIA)	360	500
AMS7 – 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, $\mu\text{g}/\text{m}^3$
AMS6 – Dragonair/CNAC (Group) Building (HKIA)	173	260
AMS7 – Hong Kong SkyCity Marriott Hotel	183	

- 2.3.2 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 quarterly EM&A Report.
- 2.3.3 The Action and Limit Levels for construction noise are defined in **Table 2.4**.

Table 2.4 Action and Limit Level for Construction Noise

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.

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

- 2.3.4 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 quarterly EM&A Report.

2.4 Event Action Plans

- 2.4.1 The Event Actions Plans for air quality and noise are provided in **Appendix D**.

2.5 Mitigation Measures

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

3 Environmental Monitoring and Audit

3.1 Air Quality Monitoring Results

- 3.1.1 The monitoring results for AMS6 and AMS7 are reported in the monthly EM&A Reports (for April, May and June 2016) prepared for Contract Nos. HY/2011/03 and HY/2010/02, respectively.
- 3.1.2 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A Reports (for April, May and June 2016) prepared by Contract No. HY/2011/03.
- 3.1.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 recorded by the ET of Contract No. HY/2010/02 during the reporting period.

3.2 Noise Monitoring Results

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

3.3 Implementation of Environmental Measures

- 3.3.1 In response to the site audit findings, the Contractor carried out corrective actions. Details of site audit findings and the corrective actions during the reporting period are presented in **Appendix F**.
- 3.3.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix E**. Most of the necessary mitigation measures were implemented properly.
- 3.3.3 The Contractor waters 8 times per day on all exposed soil within the Contract site and associated works areas when construction activities are being undertaken.

3.4 Advice on the Solid and Liquid Waste Management Status

- 3.4.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 3.4.2 Excavated marine sediment was generated and treated using cement solidification/stabilization (Cement S/S) techniques during the reporting period. The treated marine sediment was reused within the Contract site during reporting period. Remaining treated marine sediment was stored on site to be reused later. As informed by the Contractor in March 2016, the transfer of treated marine sediment to Contract no. HY/2010/02 has been discontinued since July 2015.
- 3.4.3 The summary of waste flow table is detailed in **Appendix G**.
- 3.4.4 The Contractor was reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*.

3.5 Environmental Licenses and Permits

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

4 Summary of Exceedance, Complaint, Notification of Summons and Successful Prosecution

4.1 Summary of Exceedance of the Environmental Quality Performance Limit

- 4.1.1 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A Reports (for April, May and June 2016) prepared by Contract No. HY/2011/03.
- 4.1.2 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.
- 4.1.3 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.

4.2 Summary of Complaints, Notification of Summons and Successful Prosecution

- 4.2.1 There was no complaint received in relation to the environmental impact during the reporting period. No notification of summons and prosecution was received during the reporting period.
- 4.2.2 Statistics on notifications of summons and successful prosecutions are summarized in **Appendix I**.

5 Comments, Recommendations and Conclusion

5.1 Comments

- 5.1.1 According to the environmental site inspections undertaken during the reporting period, the following recommendations were provided:
- The Contractor was reminded to provide drip trays for the chemical containers.
 - The Contractor was reminded to remove rubbish near waste skip.
 - The Contractor was reminded to provide maintenance for the excavator.
 - The Contractor is reminded to provide proper labels for the chemical drums. The Contractor was reminded to clear the rubbish on the ground.
 - The Contractor was reminded to provide water spraying on the haul road.
 - The Contractor was reminded to clear the stagnant water / chemicals inside the drip tray.
 - The Contractor was reminded to clear the rubbish on the basement floor at Common Utilities Enclosure.
- 5.1.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix E**. Most of the necessary mitigation measures were implemented properly.

5.2 Recommendations

- 5.2.1 With implementation of the recommended environmental mitigation measures, the contract's environmental impacts were considered environmentally acceptable. The weekly environmental site inspections ensured that all the environmental mitigation measures recommended were effectively implemented.
- 5.2.2 The recommended environmental mitigation measures, as included in the EM&A programme, effectively minimize the potential environmental impacts from the contract. Also, the EM&A programme effectively monitored the environmental impacts from the construction activities and ensure the proper implementation of mitigation measures. No particular recommendation was advised for the improvement of the programme.

5.3 Conclusions

- 5.3.1 The site preparation work of the Contract started on 26 September 2014 and the construction works of the Contract commenced on 6 October 2014. This is the seventh Quarterly EM&A Report summaries findings of the EM&A works during the reporting period from 1 April to 30 June 2016.
- 5.3.2 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A Reports (for April, May and June 2016) prepared by Contract No. HY/2011/03.
- 5.3.3 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.
- 5.3.4 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.
- 5.3.5 Environmental site inspections were carried out on 6, 13, 20 and 27 April, 4, 11, 18 and 25 May and 1, 8, 15, 22 and 29 June 2016. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspections.
- 5.3.6 There was no complaint received in relation to the environmental impact during the reporting period.
- 5.3.7 No notification of summons and successful prosecution was received during the reporting period.



FIGURES

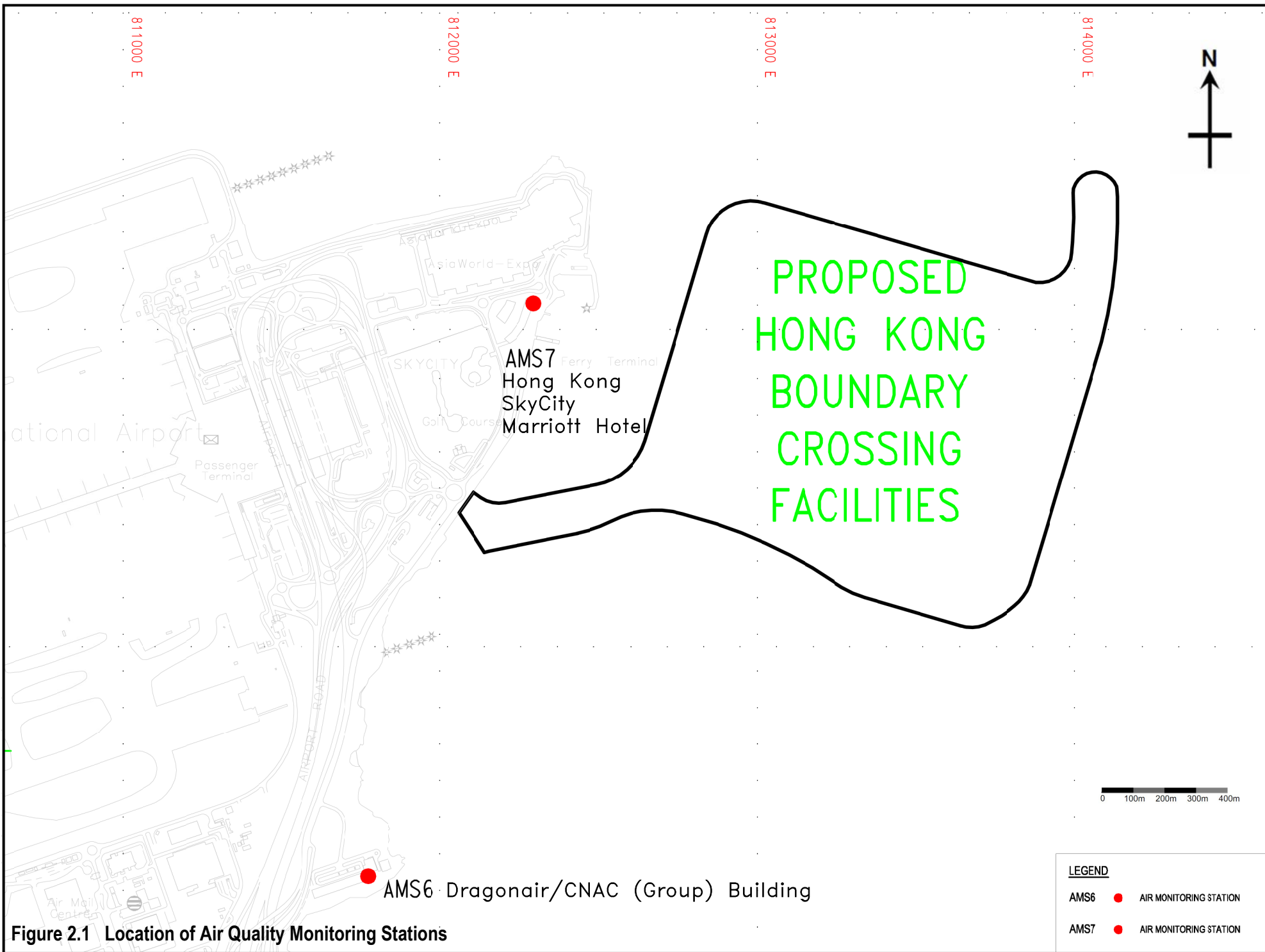


Figure 2.1 Location of Air Quality Monitoring Stations

LEGEND		
AMS6	●	AIR MONITORING STATION
AMS7	●	AIR MONITORING STATION

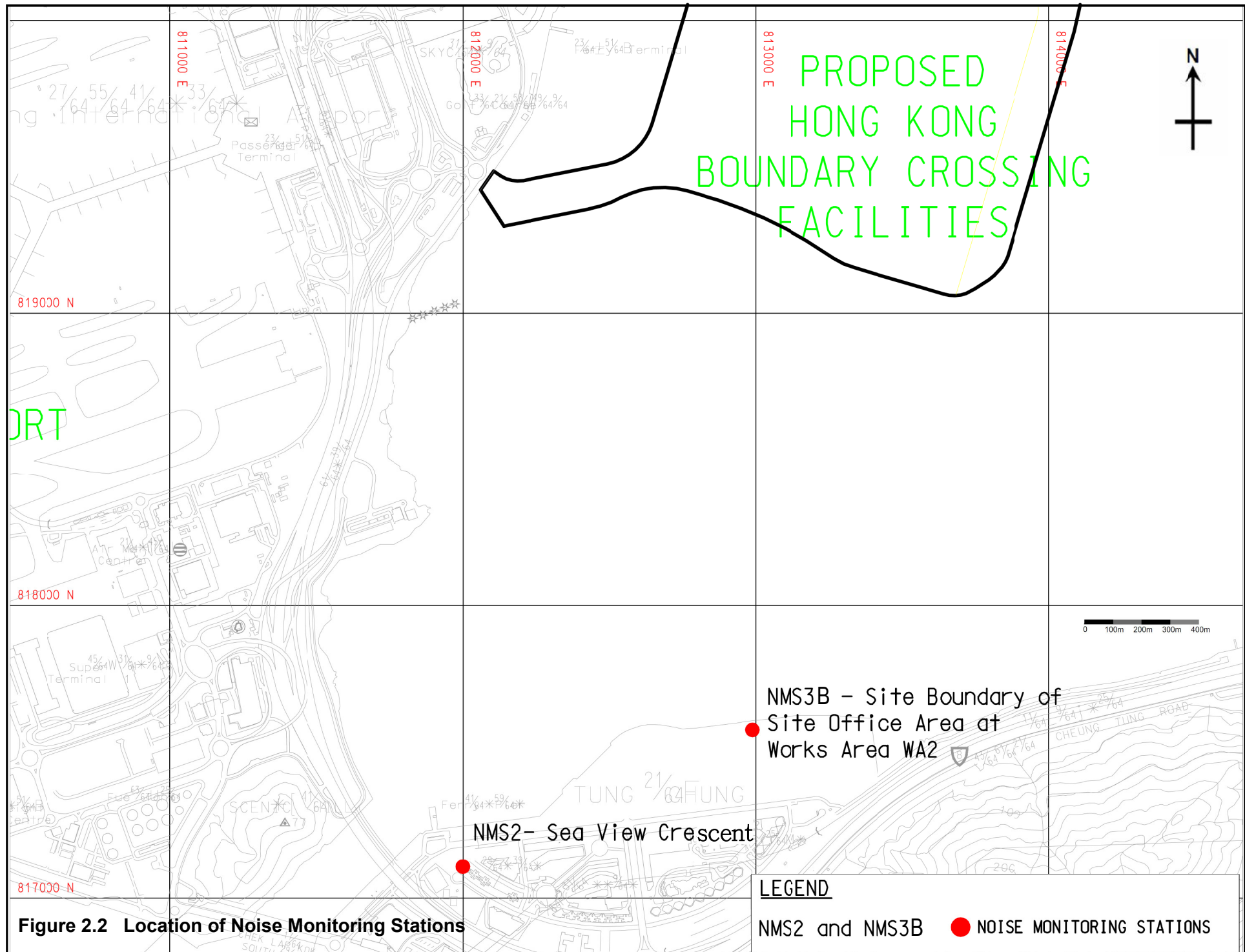


Figure 2.2 Location of Noise Monitoring Stations

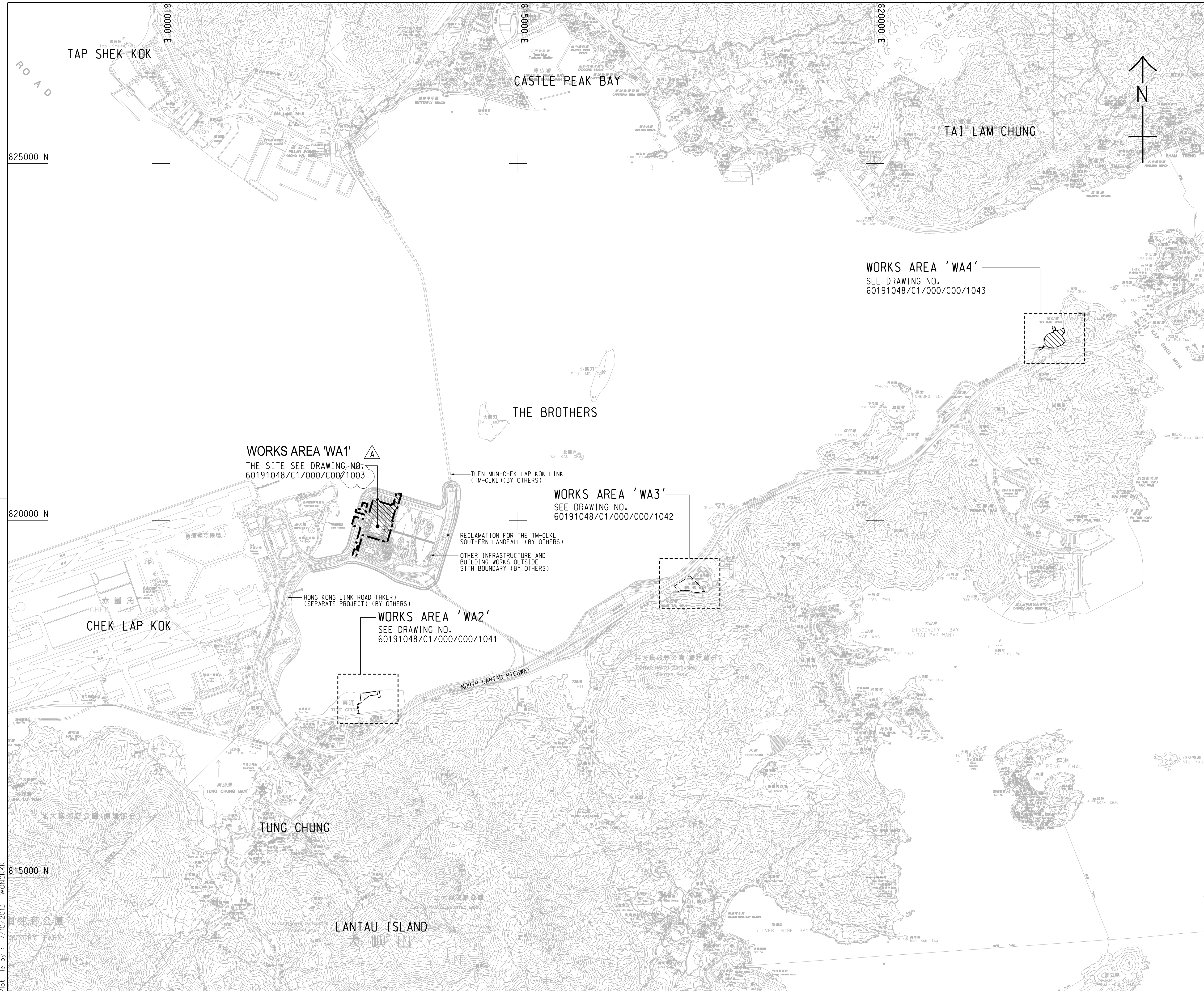
LEGEND

NMS2 and NMS3B ● NOISE MONITORING STATIONS

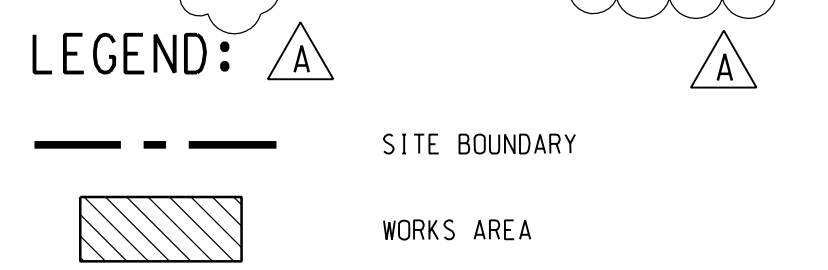


APPENDIX A

Location of Works Areas



- NOTES:**
- COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
 - DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
 - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C1/000/C00/1041 TO 1043.



WORKS AREA 'WA1'
THE SITE SEE DRAWING NO. 60191048/C1/000/C00/1003

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

WORKS AREA 'WA3'
SEE DRAWING NO. 60191048/C1/000/C00/1042

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

WORKS AREA 'WA2'
SEE DRAWING NO. 60191048/C1/000/C00/1041

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

WORKS AREA 'WA4'
SEE DRAWING NO. 60191048/C1/000/C00/1043

B	WORKING DRAWING	BWCW SCI JUN.14
A	TENDER ADDENDUM NO. 1	BWCW SCI OCT.13
-	TENDER DRAWING	BWCW SCI SEP.13
REV. 修改	DESCRIPTION 內容摘要	DATE 日期

路政署 HIGHWAYS DEPARTMENT
香港機場管理局
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- PASSENGER CLEARANCE BUILDING

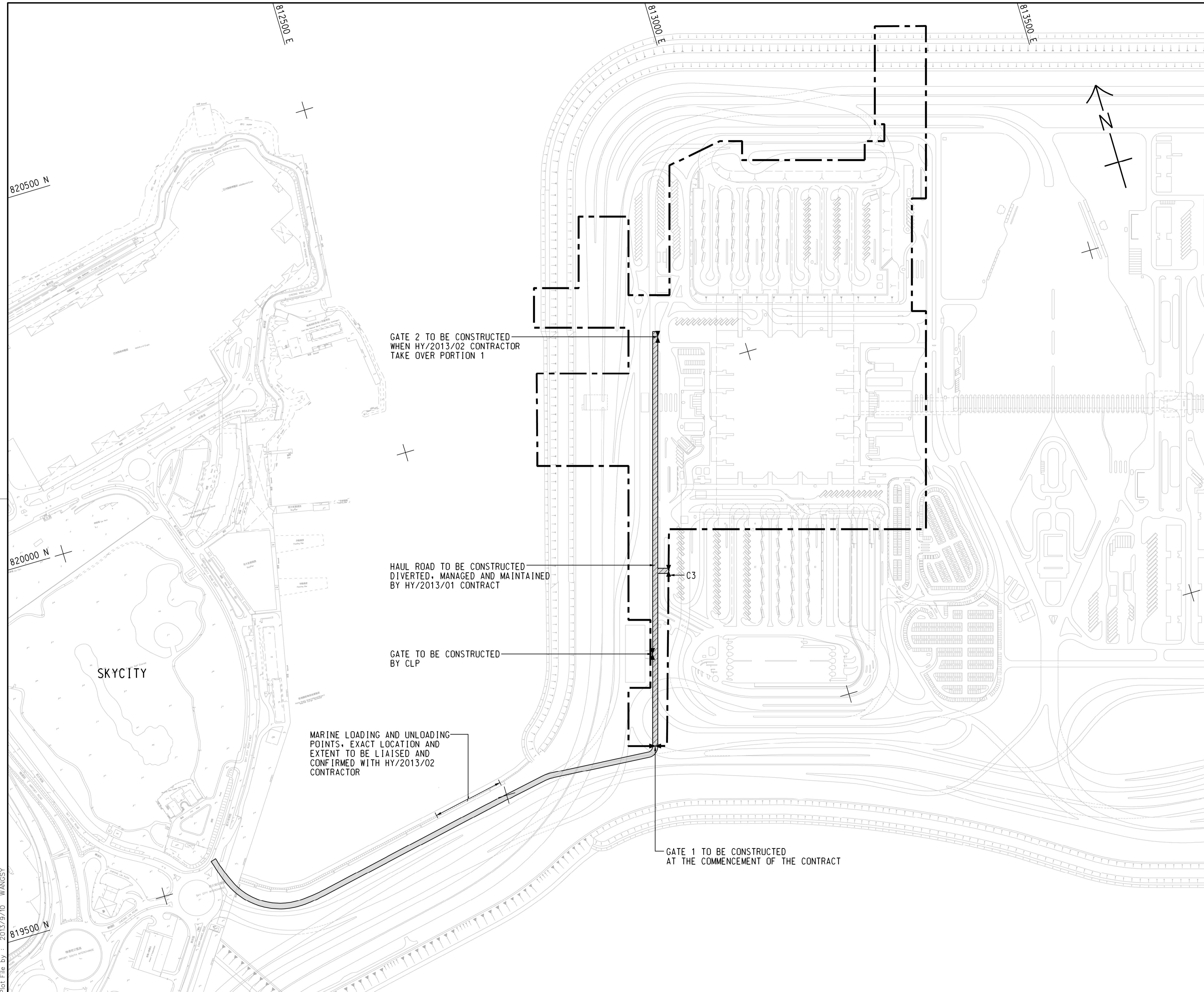
SITE LOCATION PLAN

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

DRG.NO. 60191048/C1/000/C00/1000B
圖紙編號

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/01	P. DIR. APPROVED 批准人	TKH
DRAWN BY 繪圖	WSY	STATUS 階段	WORKING DRAWING		
SCALE 比例	A1 1 : 25000	DIMENSIONS ARE IN 尺寸單位 METRES			
				COPYRIGHT RESERVED 版權所 有	

Plot File by : 7/10/2013 WONGKKK



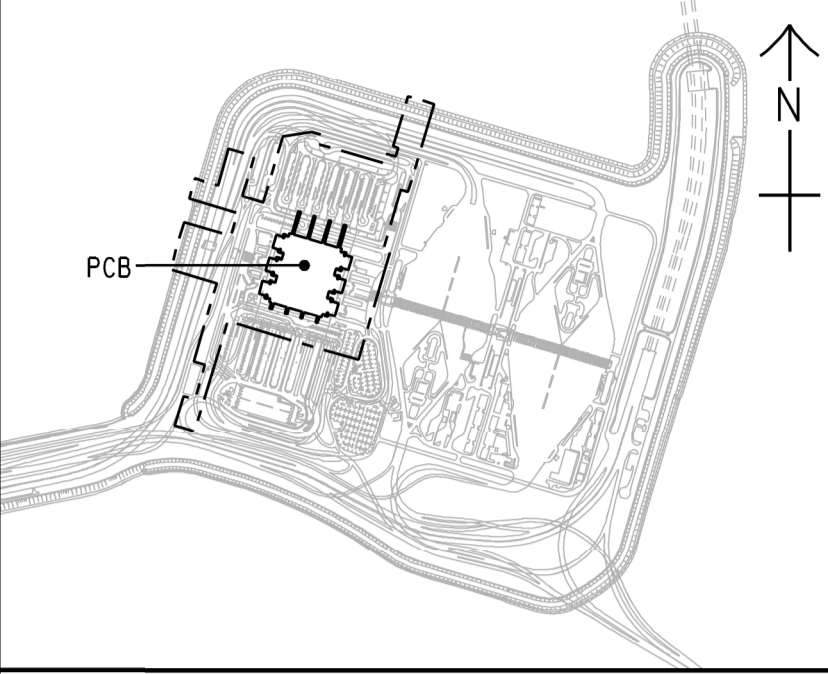
GATE 2 TO BE CONSTRUCTED WHEN HY/2013/02 CONTRACTOR TAKE OVER PORTION 1

HAUL ROAD TO BE CONSTRUCTED DIVERTED, MANAGED AND MAINTAINED BY HY/2013/01 CONTRACT

GATE TO BE CONSTRUCTED BY CLP

MARINE LOADING AND UNLOADING POINTS, EXACT LOCATION AND EXTENT TO BE LIAISED AND CONFIRMED WITH HY/2013/02 CONTRACTOR

GATE 1 TO BE CONSTRUCTED AT THE COMMENCEMENT OF THE CONTRACT



LOCATION PLAN
SCALE 1 : 20000

NOTES:

- COORDINATES ARE BASED ON HONG KONG METRIC GRID (1980) UNLESS OTHERWISE NOTED.
- LEVELS ARE IN METRES RELATIVE TO HONG KONG PRINCIPAL DATUM (mPD) UNLESS OTHERWISE NOTED.
- DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
- SETTING OUT, DIMENSIONS, LEVELS, COORDINATES ARE TO BE CALCULATED BY THE CONTRACTOR. NO INFORMATION SHOULD BE SCALED PHYSICALLY OR ELECTRONICALLY FROM THE DRAWINGS OR FILES.
- SITE ACCESS SHALL BE HARD PAVED WITH PROPER DRAINAGE PROVIDED. IT SHALL BE KEPT UNOBSTRUCTED AND UNDISRUPTED AT ALL TIMES.

LEGEND:

- SITE BOUNDARY
- 7.3m CLEAR WIDTH CONSTRUCTION HAUL ROAD
- INDICATIVE 20m WIDE VEHICULAR ACCESS BY RECLAMATION CONTRACT HY/2010/02

- TENDER DRAWING		BWCW SCI	SEP.13
REV. 修改	DESCRIPTION 工程描述	CHECKED 審核	DATE 日期

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
HONG KONG BOUNDARY CROSSING FACILITIES
- PASSENGER CLEARANCE BUILDING

WORKS AREA WA1

AECOM Aedas
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

DRG.NO. 60191048/C1/000/C00/1044
圖紙編號

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/01	P. Dir. APPROVED 批准人	EMSC
DRAWN BY 繪圖	WSY	STATUS 階段			

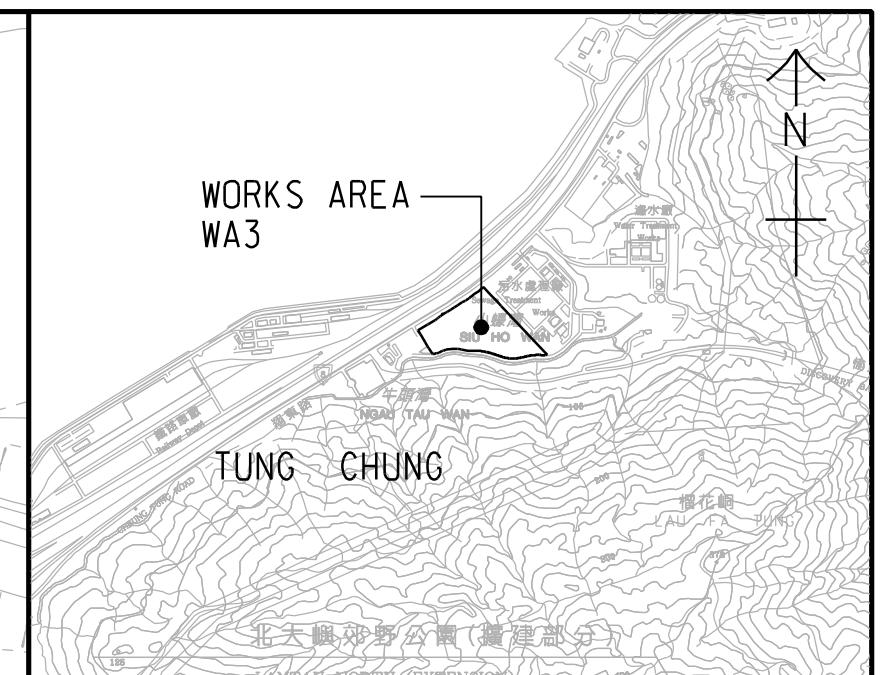
SCALE 比例
A1 1 : 2500

DIMENSIONS ARE IN 尺寸單位
METRES 米

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SETTING OUT POINT

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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	817526.774	819020.578
313	817531.659	819021.641
314	817531.154	819001.065
315	817533.345	818991.306
316	817620.269	819000.620



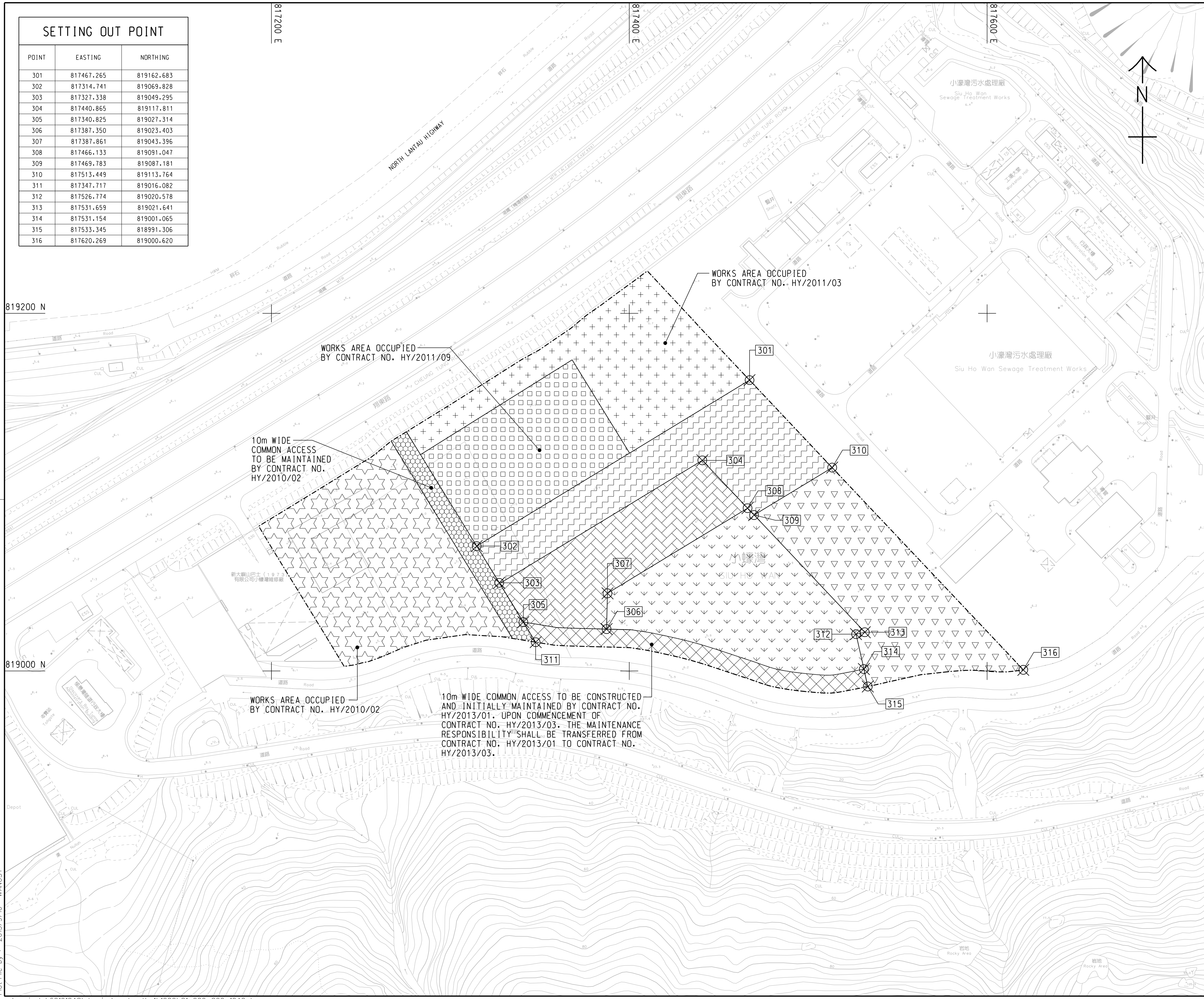
LOCATION PLAN
SCALE 1 : 25000

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



WORKS AREA OCCUPIED BY CONTRACT NO. HY/2011/09

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2011/03

10m WIDE COMMON ACCESS TO BE MAINTAINED BY CONTRACT NO. HY/2010/02

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2010/02

10m WIDE COMMON ACCESS TO BE CONSTRUCTED AND INITIALLY MAINTAINED BY CONTRACT NO. HY/2013/01. UPON COMMENCEMENT OF CONTRACT NO. HY/2013/03, THE MAINTENANCE RESPONSIBILITY SHALL BE TRANSFERRED FROM CONTRACT NO. HY/2013/01 TO CONTRACT NO. HY/2013/03.

A	WORKING DRAWING	BWCW SCI JUN. 14
-	TENDER DRAWING	BWCW SCI SEP. 13
REV.	DESCRIPTION	DATE
01	ISSUED FOR TENDER	SEP. 13

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
HONG KONG BOUNDARY CROSSING FACILITIES
- PASSENGER CLEARANCE BUILDING

WORKS AREA WA3

AECOM Aedas
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

DRG.NO. 60191048/C1/000/C00/1042A
圖紙編號

DESIGNED BY BWCW CONTRACT NO. HY/2013/01 P. DIR. APPROVED TKH

SCALE A1 1 : 1000 WORKING DRAWING

DIMENSIONS ARE IN METRES © COPYRIGHT RESERVED

SETTING OUT POINT

POINT	EASTING	NORTHING
401	822488.151	822632.315
402	822640.593	822689.415
403	822515.608	822559.848
404	822610.940	822599.642
405	822629.428	822607.359
406	822526.988	822529.813
407	822618.348	822567.950
408	822542.232	822489.581
409	822584.983	822507.426
410	822606.866	822516.561
411	822560.278	822441.956
412	822602.949	822460.010
413	822621.914	822467.959
414	822624.130	822470.998
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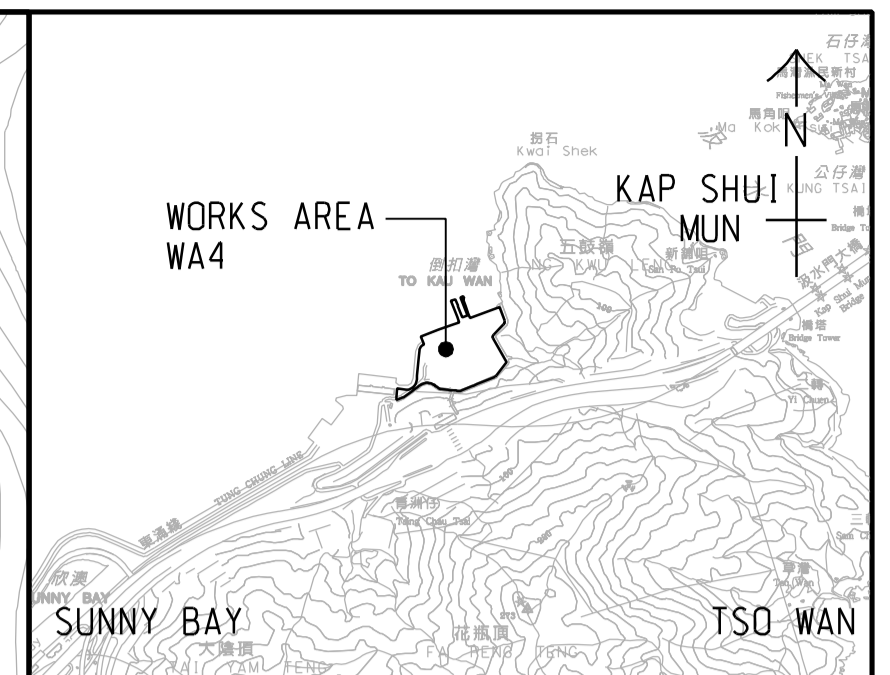
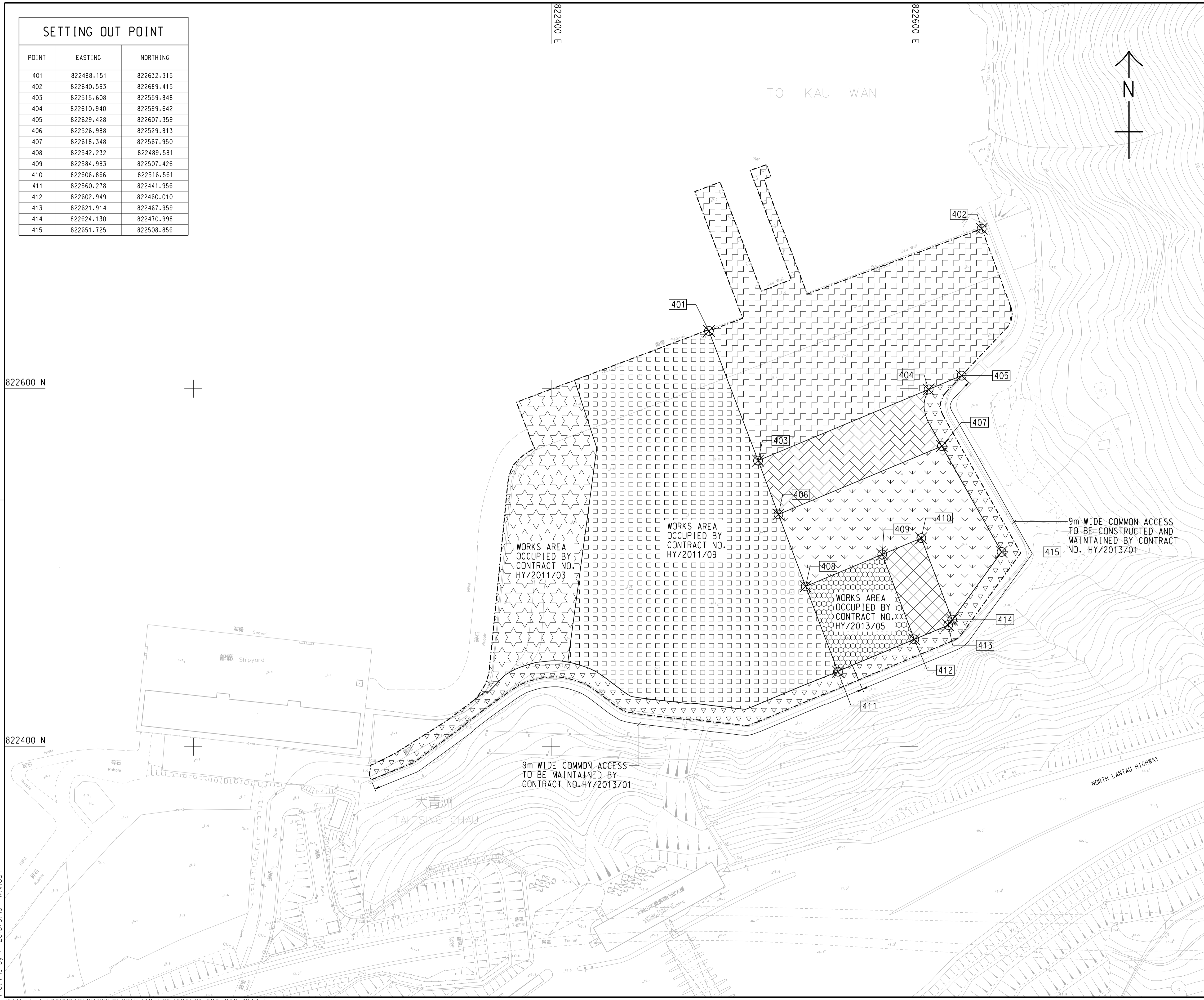
822400 E

822600 E

822600 N

822400 N

Plot File by : 2013/9/10 WANGSY



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
- [Hatched Pattern 1] PORTION 4.1
- [Hatched Pattern 2] PORTION 4.2
- [Hatched Pattern 3] PORTION 4.3
- [Hatched Pattern 4] PORTION 4.4
- [Hatched Pattern 5] PORTION 4.5
- [Hatched Pattern 6] PORTION 4.6
- [Hatched Pattern 7] PORTION 4.7
- [Hatched Pattern 8] PORTION 4.8

REV.	DESCRIPTION	DATE
1	TENDER DRAWING	SEP.13

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
HONG KONG BOUNDARY CROSSING FACILITIES
- PASSENGER CLEARANCE BUILDING

WORKS AREA WA4

AECOM Aedas
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

DRG.NO. 60191048/C1/000/C00/1043
圖紙編號

DESIGNED BY W.S.Y.	CONTRACT NO. HY/2013/01	P. Dir. APPROVED EMSC
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SCALE 1 : 1000	STATUS Final
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路政署
HIGHWAYS DEPARTMENT

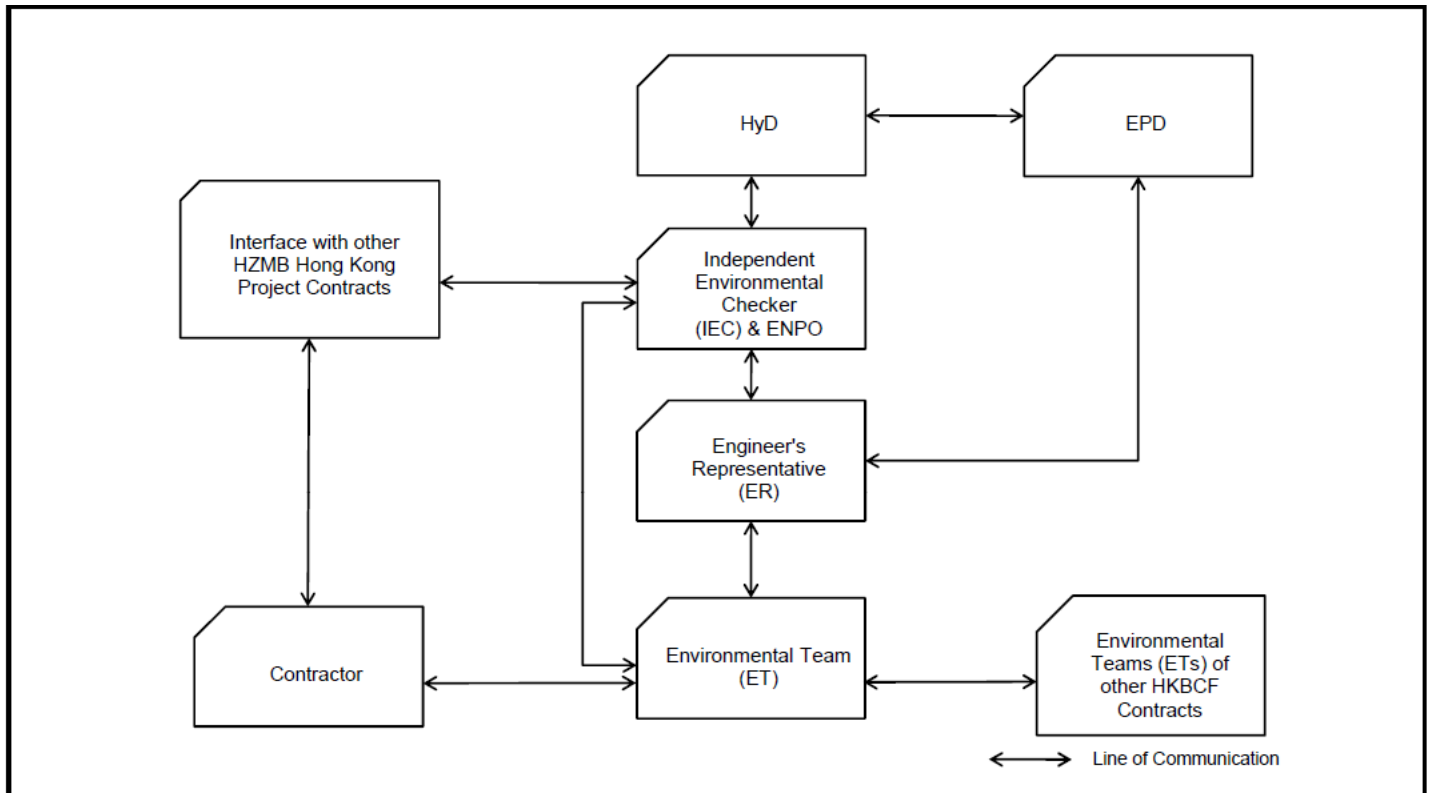
港珠澳大橋香港工程管理處
Hong Kong - Zhuhai - Macao Bridge
Hong Kong Project Management Office

Contract No. HY/2013/01
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
7th Quarterly EM&A Report

APPENDIX B

Project Organization for Environmental Works

Project Organisation for Environmental Works





路政署
HIGHWAYS DEPARTMENT

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

Contract No. HY/2013/01

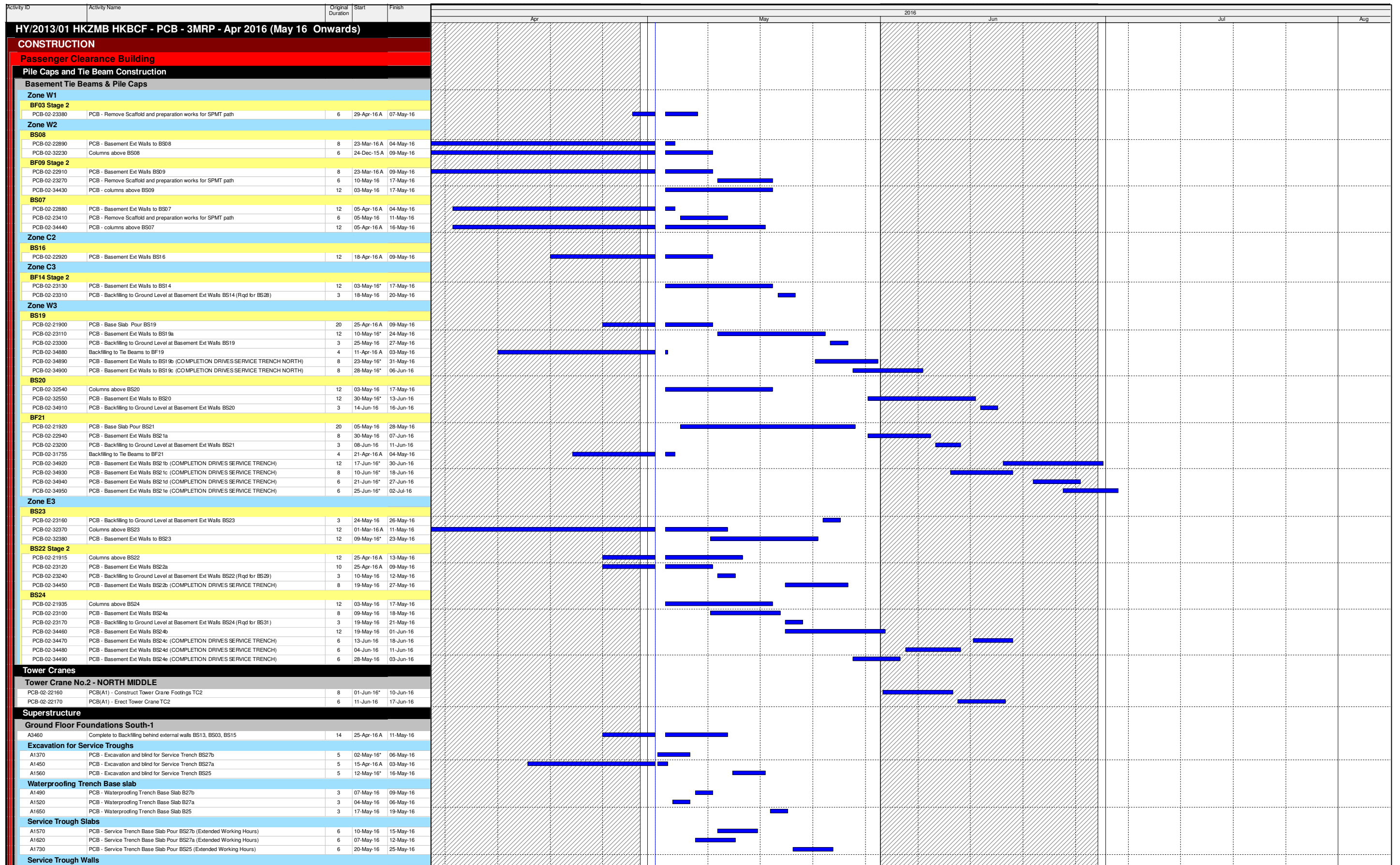
Hong Kong-Zhuhai-Macao Bridge

Hong Kong Boundary Crossing Facilities – Passenger Clearance Building

7th Quarterly EM&A Report

APPENDIX C

Construction Programme



- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone

Three Month Rolling Programme

HKMZB HKBCF - Passenger Clearance Building

Date	Revision	Checked	Approved
01-May-16	Three Month Rolling Programme	JW/SGJ	

Activity ID	Activity Name	Original Duration	Start	Finish	Apr	May	2016	Jun	Jul	Aug
A1790	PCB - Basement Ext Walls to BS27b - 2 pairs (Extended Working Hours)	10	16-May-16	25-May-16						
A1840	PCB - Basement Ext Walls to BS27a - 2 pairs (Extended Working Hours)	10	13-May-16	22-May-16						
A2110	PCB - Basement Ext Walls to BS25 - 2 pairs (Extended Working Hours)	10	26-May-16	04-Jun-16						
Waterproofing Trench Walls										
A1720	PCB - Waterproofing to BS26 Walls	3	02-May-16	04-May-16						
A1910	PCB - Waterproofing to BS27b Walls	3	26-May-16	28-May-16						
A2000	PCB - Waterproofing to BS27a Walls	3	23-May-16	25-May-16						
A2220	PCB - Waterproofing to BS25 Walls	3	05-Jun-16	07-Jun-16						
Backfilling behind Service Trough Walls										
A1850	PCB - Backfilling to Ground Level at Basement Ext Walls BS26	4	05-May-16	08-May-16						
A2060	PCB - Backfilling to Ground Level at Basement Ext Walls BS27b	4	29-May-16	01-Jun-16						
A2100	PCB - Backfilling to Ground Level at Basement Ext Walls BS27a	4	26-May-16	29-May-16						
A2360	PCB - Backfilling to Ground Level at Basement Ext Walls BS25	4	08-Jun-16	11-Jun-16						
Excavate for Pile Caps and Beams										
A2070	PCB - Excavate Pile caps and Beams GF21 - South East Corner	5	09-May-16	13-May-16						
A2230	PCB - Excavate Pile caps and Beams GF20a Middle South	5	02-Jun-16	06-Jun-16						
A2290	PCB - Excavate Pile caps and Beams GF20b - South West Corner	5	17-Jun-16	21-Jun-16						
A2300	PCB - Excavate Pile caps and Beams GF18 - North West Corner	5	12-Jun-16	16-Jun-16						
A2430	PCB - Excavate Pile caps and Beams GF19b Middle North	5	27-Apr-16 A	03-May-16						
Pile Cropping										
A2150	Pile Cropping to GF21 - South East Corner	6	11-May-16	16-May-16						
A2340	Pile Cropping to GF20a Middle South	6	07-Jun-16	12-Jun-16						
A2380	Pile Cropping to GF18 - North West Corner	6	17-Jun-16	22-Jun-16						
A2390	Pile Cropping to GF20b - South West Corner	6	22-Jun-16	27-Jun-16						
A2530	Pile Cropping to GF19b Middle North	6	04-May-16	09-May-16						
Pile Capping										
A2400	Pile Caps and Tie Beams to GF21 - South East Corner (Extended Working Hours)	10	12-May-16	21-May-16						
A2410	Pile Caps and Tie Beams to GF19a - North East Corner (Extended Working Hours)	10	27-Apr-16 A	09-May-16						
A2480	Pile Caps and Tie Beams to GF20a (Extended Working Hours) Middle South	10	13-Jun-16	22-Jun-16						
A2510	Pile Caps and Tie Beams to GF18 - North West Corner (Extended Working Hours)	10	23-Jun-16	02-Jul-16						
A2520	Pile Caps and Tie Beams to GF20b - South West Corner (Extended Working Hours)	10	28-Jun-16	07-Jul-16						
A2690	Pile Caps and Tie Beams to GF19b (Extended Working Hours) Middle North	10	10-May-16	19-May-16						
Water Proofing										
A2440	Waterproofing Pile Caps and Tie Beams to GF21 - South East Corner	4	22-May-16	25-May-16						
A2450	Waterproofing Pile Caps and Tie Beams to GF19a - North East Corner	4	10-May-16	13-May-16						
A2610	Waterproofing Pile Caps and Tie Beams to GF20a Middle South	4	23-Jun-16	26-Jun-16						
A2640	Waterproofing Pile Caps and Tie Beams to GF18 - North West Corner	4	03-Jul-16	06-Jul-16						
A2650	Waterproofing Pile Caps and Tie Beams to GF20b - South West Corner	4	08-Jul-16	11-Jul-16						
A2740	Waterproofing Pile Caps and Tie Beams to GF19b Middle North	4	20-May-16	23-May-16						
Backfilling to Top Level of Ground Beams (+5.0mPD Generally)										
A2580	Backfilling to Tie Beams to GF21 - South East Corner	4	26-May-16	29-May-16						
A2590	Backfilling to Tie Beams to GF19a - North East Corner	4	14-May-16	17-May-16						
A2670	Backfilling to Tie Beams to GF20a Middle South	4	27-Jun-16	30-Jun-16						
A2700	Backfilling to Tie Beams to GF18 - North West Corner	4	07-Jul-16	10-Jul-16						
A2710	Backfilling to Tie Beams to GF20b - South West Corner	4	12-Jul-16	15-Jul-16						
A2760	Backfilling to Tie Beams to GF19b Middle North	4	24-May-16	27-May-16						
Ground Slabs (+5.450mPD)										
A2720	Construct Ground Floor Base Slab GS21 - South East Corner	14	30-May-16	12-Jun-16						
A2730	Construct Ground Floor Base Slab GS19a - North East Corner	12	18-May-16	29-May-16*						
A2750	Construct Ground Floor Base Slab GS20a Middle South	15	01-Jul-16	15-Jul-16						
A2770	Construct Ground Floor Base Slab GS18 - North West Corner	12	11-Jul-16	22-Jul-16*						
A2780	Construct Ground Floor Base Slab GS20b - South West Corner	14	16-Jul-16	29-Jul-16*						
A2820	Construct Ground Floor Base Slab GS19b Middle North	15	28-May-16	11-Jun-16						
Ground Floor Slabs (+5.450mPD)										
SOUTH - Gridline J-G										
PCB-AB-A0020	Earliest Commencement of ABWF/MEP in Basement SOUTH WEST	0	17-Jun-16							
Suspended Slabs (+5.450mPD)										
PCB-02-21540	Construct Ground Floor Suspended Slab Pour GS02a	22	03-May-16	28-May-16						
PCB-02-21550	Construct Ground Floor Suspended Slab Pour GS02b	22	03-May-16	28-May-16						
Cure and Strip Suspended Slabs										
PCB-02-21590	Cure & Strip Ground Floor Suspended Slab Pour GS01	15	30-May-16	16-Jun-16						
PCB-02-21600	Cure & Strip Ground Floor Suspended Slab Pour GS02	15	30-May-16	16-Jun-16						
MIDDLE - Gridline G-E										
PCB-AB-A0030	Earliest Commencement of ABWF/MEP in Basement MIDDLE EAST	0	18-Jun-16							
PCB-AB-A0040	Earliest Commencement of ABWF/MEP in Basement MIDDLE WEST	0	05-Jul-16							
Suspended Slabs (+5.450mPD)										
PCB-02-21350	Construct Ground Floor Suspended Slab Pour GS04a	23	05-May-16*	01-Jun-16						
PCB-02-21360	Construct Ground Floor Suspended Slab Pour GS06	23	10-May-16*	06-Jun-16						
PCB-02-21370	Construct Ground Floor Suspended Slab Pour GS09	23	03-May-16*	30-May-16						
PCB-02-21380	Construct Ground Floor Suspended Slab Pour GS08a	18	18-May-16*	07-Jun-16						
PCB-02-21400	Construct Ground Floor Suspended Slab Pour GS10	23	03-May-16*	30-May-16						
PCB-02-21410	Construct Ground Floor Suspended Slab Pour GS12a	18	15-Mar-16 A	10-May-16						
PCB-02-21420	Construct Ground Floor Suspended Slab Pour GS11	23	15-Feb-16 A	06-May-16						
PCB-02-34770	Construct Ground Floor Suspended Slab Pour GS12b	18	28-Mar-16 A	13-May-16						
PCB-02-34780	Construct Ground Floor Suspended Slab Pour GS08b	23	19-May-16*	15-Jun-16						
PCB-02-34790	Construct Ground Floor Suspended Slab Pour GS04b	18	03-May-16*	24-May-16						
Cure and Strip Suspended Slabs										
PCB-02-32640	Cure & Strip Ground Floor Suspended Slab Pour GS07	15	03-May-16	20-May-16						
PCB-02-32650	Cure & Strip Ground Floor Suspended Slab Pour GS13	15	03-May-16	20-May-16						
PCB-02-32660	Cure & Strip Ground Floor Suspended Slab Pour GS12	15	16-May-16	01-Jun-16						
PCB-02-32670	Cure & Strip Ground Floor Suspended Slab Pour GS11	15	07-May-16	25-May-16						
PCB-02-32680	Cure & Strip Ground Floor Suspended Slab Pour GS10	15	31-May-16	17-Jun-16						
PCB-02-34720	Cure & Strip Ground Floor Suspended Slab Pour GS04	15	02-Jun-16	20-Jun-16						
PCB-02-34730	Cure & Strip Ground Floor Suspended Slab Pour GS06	15	07-Jun-16	24-Jun-16						
PCB-02-34740	Cure & Strip Ground Floor Suspended Slab Pour GS09	15	31-May-16	17-Jun-16						
PCB-02-34750	Cure & Strip Ground Floor Suspended Slab Pour GS08	15	16-Jun-16	04-Jul-16						
Columns to Mezzanine Slab (+10.250mPD)										
SOUTH - Gridline J-G										
PCB-02-20720	Construct Columns to Mezz Floor MS01	19	30-May-16	21-Jun-16						

- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

Three Month Rolling Programme

HKMZB HKBCF - Passenger Clearance Building

Date	Revision	Checked	Approved
01-May-16	Three Month Rolling Programme	JW/SGJ	

Activity ID	Activity Name	Original Duration	Start	Finish	Apr	May	2016	Jun	Jul	Aug
MIDDLE - Gridline G-E										
PCB-02-20760	Construct Columns to Mezz Floor MS08	19	31-May-16	22-Jun-16						
PCB-02-20770	Construct Columns to Mezz Floor MS02	19	07-Jun-16	29-Jun-16						
PCB-02-20780	Construct Columns to Mezz Floor MS05	19	15-Apr-16 A	04-May-16						
PCB-02-20790	Construct Columns to Mezz Floor MS07	19	16-Jun-16	08-Jul-16						
Mezzanine Floor Slabs (+10.250mPD)										
SOUTH - Gridline J-G										
Suspended Slabs										
PCB-02-34800	Construct Mezzanine Floor Slab Cabin Pour MS01 - 325m³	27	22-Jun-16	23-Jul-16						
Cure and Strip										
PCB-02-21130	Cure & Strip Mezzanine Floor Slab Cabin Pour MS04	7	03-May-16	10-May-16						
PCB-02-34810	Cure & Strip Mezzanine Floor Slab Cabin Pour MS01	7	25-Jul-16	01-Aug-16						
MIDDLE - Gridline G-E										
Suspended Slabs										
PCB-02-20990	Construct Mezzanine Floor Slab Pour MS05 - 327m³	27	05-May-16	06-Jun-16						
PCB-02-34820	Construct Mezzanine Floor Slab Pour MS08 - 327m³	27	23-Jun-16	25-Jul-16						
PCB-02-34830	Construct Mezzanine Floor Slab Pour MS02 - 327m³	27	30-Jun-16	01-Aug-16						
PCB-02-34840	Construct Mezzanine Floor Slab Pour MS07 - 327m³	27	09-Jul-16	09-Aug-16						
Cure and Strip										
PCB-02-21020	Cure & Strip Mezzanine Floor Slab Pour MS05	7	07-Jun-16	15-Jun-16						
PCB-02-34850	Cure & Strip Mezzanine Floor Slab Pour MS08	7	26-Jul-16	02-Aug-16						
ABWF & BS / MEP / E&M Works										
Level 1 Basement										
SOUTH - Gridline J-G										
PCB-02-B1010	PCB - Blockworks Zone J	21	18-Apr-16 A	20-Jun-16						
PCB-02-B1020	PCB - Blockworks Zone G	24	17-Jun-16	15-Jul-16						
Degree 1										
PCB-02-A1000	PCB - ABWF DOC 1 Zone J	28	21-Jun-16	23-Jul-16						
PCB-02-M1020	PCB - MEP high level works Zone J	24	18-May-16	15-Jun-16						
PCB-02-M1030	PCB - MEP DOC 1 Zone J	24	16-Jun-16	14-Jul-16						
PCB-02-M1040	PCB - MEP DOC 1 Zone J	24	15-Jul-16	11-Aug-16						
Steel Roof Erection										
Structural Steel Roof (HLEM)										
SPMT Path-1										
A2120	SR - Construct SPMT Path to Row 1	7	25-May-16*	02-Jun-16						
A2660	SR - Construct SPMT Path to Row 2	7	02-Jun-16	11-Jun-16						
A2850	SR - Construct SPMT Path to Row 3	7	21-Jun-16	28-Jun-16						
A3340	PCB - Complete W1 WaI and Backfill	0		03-May-16*						
A3350	PCB - Complete W2 WaI and Backfill	0		20-May-16*						
A3400	SR - Construct SPMT Path to Row 4	7	29-Jun-16	07-Jul-16						
Temporary Footings for Support Towers										
Row 1										
A1340	Temporary Footings - ROW 1 - Lifting Zone	15	06-May-16*	25-May-16						
A2060	Erect Temporary Launch Towers	6	16-May-16	23-May-16						
A2680	Erect Temporary Launch Towers	6	21-May-16	27-May-16						
A3200	Temporary Footings - ROW 1 - Gridline 0.1	15	03-May-16*	20-May-16						
A3210	Temporary Footings - ROW 1 - Gridline 1 to 4	15	18-Apr-16 A	11-May-16						
A3220	Temporary Footings - ROW 1 - Gridline 4-5.2	15	13-Apr-16 A	16-May-16						
A3230	Temporary Footings - ROW 1 - Lowering Zone	15	03-May-16*	20-May-16						
A3300	Erect Temporary Launch Towers	6	12-May-16	19-May-16						
A3310	Erect Temporary Launch Towers	6	21-May-16	27-May-16						
A3320	Erect Temporary Launch Towers	6	25-May-16	01-Jun-16						
Row 2										
A1770	SR - Erect Temporary Launch Towers Gridline G-H (Row 2)	30	02-Jun-16	08-Jul-16						
A3240	Temporary Footings - ROW 2 - Lifting Zone (Tentative)	15	10-May-16*	27-May-16						
A3250	Temporary Footings - ROW 2 - Gridline 0.1 (Tentative)	15	03-May-16*	20-May-16						
A3260	Temporary Footings - ROW 2 - Lowering Zone (Tentative)	15	16-May-16*	01-Jun-16						
A3360	Erect Temporary Launch Towers	6	21-May-16	27-May-16						
A3370	Erect Temporary Launch Towers	6	28-May-16	03-Jun-16						
A3380	Erect Temporary Launch Towers	6	02-Jun-16	08-Jun-16						
A3390	Conversion area Steel Frame	21	27-May-16	27-Jun-16						
Row 3										
A1780	SR - Erect Temporary Launch Towers Gridline F-E (Row 3)	30	09-Jul-16	12-Aug-16						
A3270	Temporary Footings - ROW 3 - Lifting Zone (Tentative)	15	02-Jun-16*	20-Jun-16						
A3280	Temporary Footings - ROW 3 - Gridline 0.1 (Tentative)	15	20-May-16*	06-Jun-16						
A3290	Temporary Footings - ROW 3 - Lowering Zone (Tentative)	15	20-May-16*	06-Jun-16						
Row 1 ROOF LAUNCH										
This Programme										
A2140	VSL - Hydraulic Equipment Installation - Strand Jacks	7	16-Jun-16	24-Jun-16						
A2210	VSL - Hydraulic Equipment Commissioning	2	24-Jun-16	27-Jun-16						
A2630	This Programme Earliest Set up For Row 1 Launch	0		01-Jun-16						
A2810	VSL - Install Row 1 Launch Rail and Lift Platform	12	01-Jun-16	16-Jun-16						
A3040	VSL - Install Row 1 Steel Roof Segments	27	11-Jul-16	10-Aug-16						
A3330	VSL - 110% Overload Testing	2	08-Jul-16	09-Jul-16						
Facade										
Façade - Window Wall to Cabins										
East Side										
SOUTH - Gridline J-G - CABIN 4										
Ground Floor										
PCB-02-31290	PCB (GF) - Set up works for GF Window wall erection	30	17-Jun-16	22-Jul-16						
PCB-02-31490	PCB (GF) - Window WaI Primary Steelwork (Cabin 4)	10	23-Jul-16	03-Aug-16						
Gridline K										
Gridline K - RC Works (5 Mega Columns)										
Gridline K - RC Works (5 Mega Columns)										
K4 (to +19.0mPD) - Shutter No.2 - Cycle 1										

- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone

Three Month Rolling Programme

HKMZB HKBCF - Passenger Clearance Building

Date	Revision	Checked	Approved
01-May-16	Three Month Rolling Programme	JW/SGJ	

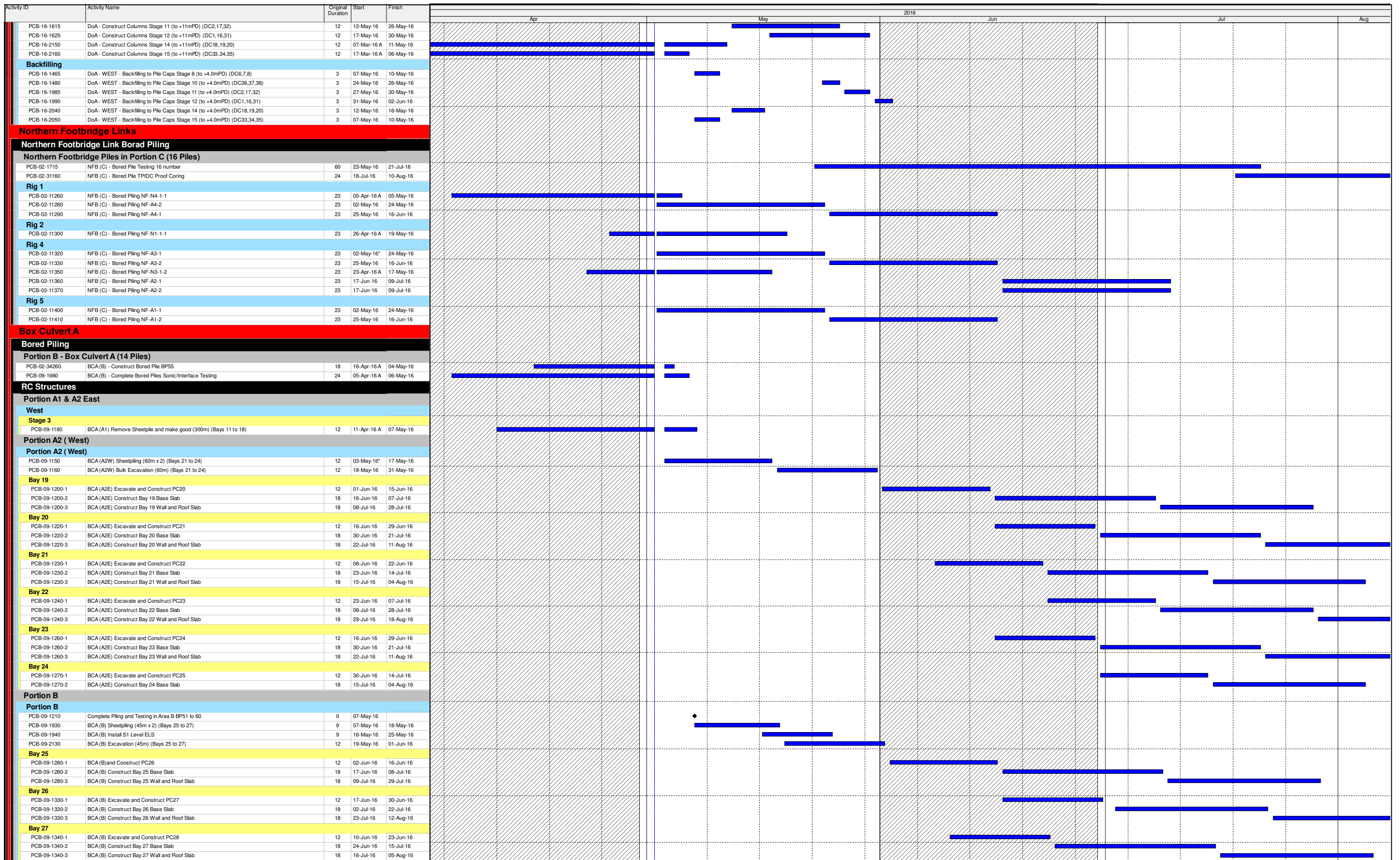
Activity ID	Activity Name	Original Duration	Start	Finish	Apr	May	2016	Jun	Jul	Aug
A1600	Scaffolding and Rebar Fixing - K4	7	21-Apr-16	06-May-16						
A1640	PCB - Mega Column Fix Shutters and Cast (+6.2 to +16.5mPD) - K4	2	07-May-16	09-May-16						
A1740	PCB - Scaffolding-Embed Rebar Fixing+MEP - K4	7	10-May-16	18-May-16						
A1800	PCB - Mega Column Final Pour (+16.5 to +19.45mPD) - K4	1	19-May-16	19-May-16						
A1870	Minimum Curing before Stripping Shutter K4	2	20-May-16	21-May-16						
K3 (to +19.0mPD) - Shutter No.2 - Cycle 2										
A1830	Scaffolding and Rebar Fixing - K3	7	26-Apr-16	07-May-16						
A1970	PCB - Mega Column Fix Shutters and Cast (+6.2 to +16.5mPD) - K3	2	09-May-16	10-May-16						
A2170	PCB - Scaffolding-Embed Rebar Fixing+MEP - K3	7	11-May-16	19-May-16						
A2190	PCB - Mega Column Final Pour (+16.5 to +19.45mPD) - K3	1	20-May-16	20-May-16						
A2270	Minimum Curing before Stripping Shutter K3	2	21-May-16	23-May-16						
K2 (to +19.0mPD) - Shutter No.1 - Cycle 3										
A2250	Scaffolding and Rebar Fixing - K2	7	03-May-16	10-May-16						
A2320	PCB - Mega Column Fix Shutters and Cast (+6.2 to +16.5mPD) - K2	2	11-May-16	12-May-16						
A2460	PCB - Scaffolding-Embed Rebar Fixing+MEP - K2	7	13-May-16	21-May-16						
A2490	PCB - Mega Column Final Pour (+16.5 to +19.45mPD) - K2	1	23-May-16	23-May-16						
A2550	Minimum Curing before Stripping Shutter K2	2	24-May-16	25-May-16						
K1 (to +19.0mPD) - Shutter No.3 - Cycle 4										
A1950	Construct Pile Cap (Gridline K) - K1	10	22-Apr-16	12-May-16						
A1960	Construct Tie Beams - K1	10	03-May-16	13-May-16						
A2090	PCB - Mega Columns K Kicker (+4.0 to +6.2mPD) - K1	4	19-May-16	23-May-16						
A2350	Scaffolding and Rebar Fixing - K1	7	24-May-16	31-May-16						
A2420	PCB - Mega Column Fix Shutters and Cast (+6.2 to +16.5mPD) - K1	2	01-Jun-16	02-Jun-16						
A2560	PCB - Scaffolding-Embed Rebar Fixing+MEP - K1	7	03-Jun-16	11-Jun-16						
A2600	PCB - Mega Column Final Pour (+16.5 to +19.45mPD) - K1	1	13-Jun-16	13-Jun-16						
A2620	Minimum Curing before Stripping Shutter K1	2	14-Jun-16	15-Jun-16						
Gridline J										
Gridline J - RC Works (5 Mega Columns)										
Gridline J - RC Works (5 Mega Columns)										
J5 (to +19.0mPD) - Shutter No.3 - Cycle 1										
A1470	PCB - Mega Column Fix Shutters and Cast (+6.2 to +16.5mPD) - J5	2	03-May-16	04-May-16						
A1580	PCB - Scaffolding-Embed Rebar Fixing+MEP - J5	7	05-May-16	12-May-16						
A1610	PCB - Mega Column Final Pour (+16.5 to +19.45mPD) - J5	1	13-May-16	13-May-16						
A1660	Minimum Curing before Stripping Shutter J5	2	16-May-16	17-May-16						
J4 (to +19.0mPD) - Shutter No.1 - Cycle 1										
A1860	Minimum Curing before Stripping Shutter J4	2	29-Apr-16	03-May-16						
J3 (to +19.0mPD) - Shutter No.1 - Cycle 2										
A1670	PCB - Mega Column Kicker (+4.0 to +6.2mPD) - J3	4	03-May-16	06-May-16						
A1820	Scaffolding and Rebar Fixing - J3	7	07-May-16	16-May-16						
A1940	PCB - Mega Column Fix Shutters and Cast (+6.2 to +16.5mPD) - J3	2	17-May-16	18-May-16						
A2180	PCB - Scaffolding-Embed Rebar Fixing+MEP - J3	7	19-May-16	26-May-16						
A2200	PCB - Mega Column Final Pour (+16.5 to +19.45mPD) - J3	1	27-May-16	27-May-16						
A2260	Minimum Curing before Stripping Shutter J3	2	28-May-16	30-May-16						
J2 (to +19.0mPD) - Shutter No.3 - Cycle 3										
A1710	PCB - Mega Columns J Kicker (+4.0 to +6.2mPD) - J2	4	03-May-16	06-May-16						
A1990	Scaffolding and Rebar Fixing - J2	7	07-May-16	16-May-16						
A2040	PCB - Mega Column Fix Shutters and Cast (+6.2 to +16.5mPD) - J2	2	17-May-16	18-May-16						
A2280	PCB - Scaffolding-Embed Rebar Fixing+MEP - J2	7	19-May-16	26-May-16						
A2330	PCB - Mega Column Final Pour (+16.5 to +19.45mPD) - J2	1	27-May-16	27-May-16						
A2370	Minimum Curing before Stripping Shutter J2	2	28-May-16	30-May-16						
J1 (to +19.0mPD) - Shutter No.2 - Cycle 3										
A1920	Construct Pile Cap - J1	10	03-May-16	13-May-16						
A1930	Construct Tie Beams - J1	10	03-May-16	13-May-16						
A2010	PCB - Mega Columns J Kicker (+4.0 to +6.2mPD) - J1	4	16-May-16	19-May-16						
A2240	Scaffolding and Rebar Fixing - J1	7	20-May-16	27-May-16						
A2310	PCB - Mega Column Fix Shutters and Cast (+6.2 to +16.5mPD) - J1	2	28-May-16	30-May-16						
A2470	PCB - Scaffolding-Embed Rebar Fixing+MEP - J1	7	31-May-16	07-Jun-16						
A2500	PCB - Mega Column Final Pour (+16.5 to +19.45mPD) - J1	1	08-Jun-16	08-Jun-16						
A2540	Minimum Curing before Stripping Shutter J1	2	10-Jun-16	11-Jun-16						
Gridline A										
Gridline A Bored Piling Works										
Gridline A Bored Piles (15 Piles)-1										
PCB-02-1580	GL A - Bored Pile Testing 15 number	60	01-Mar-16	11-Jun-16						
PCB-02-29200	GL A - Bored Pile Proof Coring and TPIDC	18	20-Jun-16	11-Jul-16						
Rig 3										
PCB-02-34170	GL A - Bored Piling BP#2	23	13-Apr-16	11-May-16						
Southern Drop-Off Area										
Southern Drop off Area - Pile Caps										
Southern Drop Off Area - East										
Column 1st Lift										
PCB-16-2070	DoA - EAST - Construct Column Kickers Stage 6 (DC14,29,44)	3	03-May-16	05-May-16						
PCB-16-2080	DoA - EAST - Construct Column Kickers Stage 7 (DC15,30,45)	3	03-May-16	05-May-16						
Southern Drop Off Area - West										
Pile Caps										
PCB-16-1880	DoA - WEST - Construct Pile Caps Stage 10 (to +4.0mPD) (DC3,4,5)	4	25-Apr-16	04-May-16						
PCB-16-1900	DoA - WEST - Construct Pile Caps Stage 12 (to +4.0mPD) (DC1,16,31)	8	18-Apr-16	04-May-16						
Column 1st Lift										
PCB-16-1470	DoA - WEST - Construct Kickers Stage 8 (to +7.294mPD) (DC6,7,8)	3	06-Jan-16	03-May-16						
PCB-16-1940	DoA - WEST - Construct Kickers Stage 10 (to +7.294mPD) (DC3,4,5)	3	05-May-16	07-May-16						
PCB-16-1950	DoA - WEST - Construct Kickers Stage 11 (to +7.294mPD) (DC2,17,32)	3	09-May-16	11-May-16						
PCB-16-2090	DoA - WEST - Construct Kickers Stage 12 (to +7.294mPD) (DC1,16,31)	3	12-May-16	16-May-16						
PCB-16-2110	DoA - WEST - Construct Kickers Stage 14 (to +7.294mPD) (DC18,19,20)	3	19-Feb-16	04-May-16						
PCB-16-2120	DoA - WEST - Construct Kickers Stage 15 (to +7.294mPD) (DC33,34,35)	3	03-Mar-16	03-May-16						
Columns, Piers and Bearings										
PCB-16-1490	DoA - Construct Columns Stage 8 (to +11mPD) (DC6,7,8)	12	26-Jan-16	06-May-16						
PCB-16-1610	DoA - Construct Columns Stage 10 (to +11mPD) (DC3,4,5)	12	09-May-16	23-May-16						

- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone

Three Month Rolling Programme

HKMZB HKBCF - Passenger Clearance Building

Date	Revision	Checked	Approved
01-May-16	Three Month Rolling Programme	JW/SGJ	

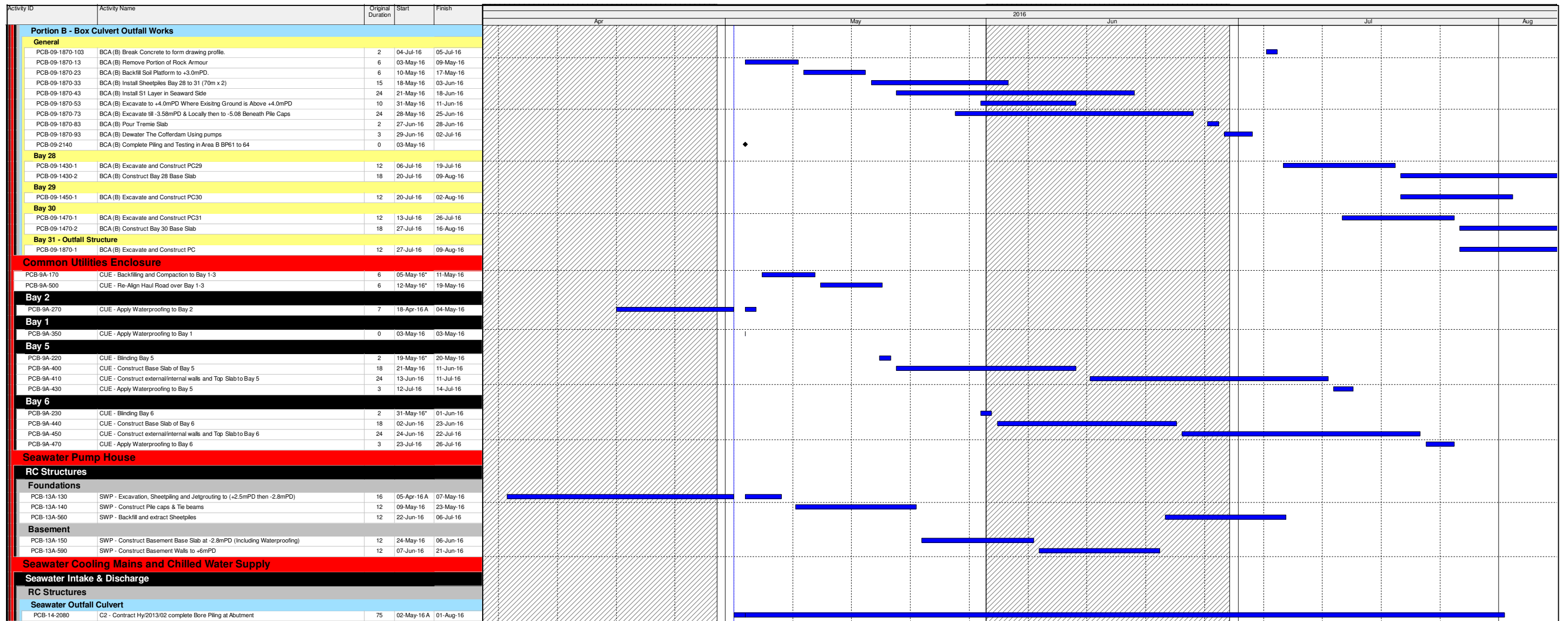


- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone

Three Month Rolling Programme

HKMZB HKBCF - Passenger Clearance Building

Date	Revision	Checked	Approved
01-May-16	Three Month Rolling Programme	JW/SGJ	



- Actual Work
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Three Month Rolling Programme

HKMZB HKBCF - Passenger Clearance Building

Date	Revision	Checked	Approved
01-May-16	Three Month Rolling Programme	JW/SGJ	



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

Implementation Schedule for Environmental Mitigation Measures (EMIS)

Contract No. HY/2013/01 – Hong Kong Zhuhai and Macao Bridge Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
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.

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

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



APPENDIX F

Site Audit Findings and Corrective Actions

Appendix F – Site Audit Findings and Corrective Actions

1.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. During the reporting period, thirteen site inspections were carried out on 6, 13, 20 and 27 April, 4, 11, 18 and 25 May and 1, 8, 15, 22 and 29 June 2016.

1.1.2 Particular observations during the site inspections are described in the table below.

Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
9 March 2016	1. Stagnant water was found near Public Toilet No.7.	1. The stagnant water was cleared near Public Toilet No. 7.	1 June 2016
30 March 2016	1. More than 20 bags of cement were not covered properly.	1. The bag of cement were covered	6 April 2016
	2. Stagnant water was found in a drip tray for chemical drums.	2. The drip tray for the chemical drums was removed.	
	3. Stagnant water was found in a drip tray for a generator and the plug of the drip tray was missing.	3. The stagnant water inside the drip tray for the generator was cleared and a plug was provided for the drip tray.	
6 April 2016	1. A chemical container was found without drip tray at southern drop off deck of WA1.	1. The chemical container was removed at southern drop off deck of WA1.	13 April 2016
	2. Rubbish was found near a waste skip at the western side of site area.	2. The rubbish was removed near the waste skip at the western side of site area.	13 April 2016
13 April 2016	1. Dark smoke was emitted form an excavator at WA1 within Tysan Works Area.	1. Maintenance was provided for the excavator. No dark smoke was emitted from the excavator during site inspection.	20 April 2016
20 April 2016	No particular environmental issue was recorded during the site inspection.	NIL	NIL
27 April 2016	1. Chemical containers were placed without drip tray at Portion A1 and Portion A2.	1. The Contractor is reminded to provide drip trays for chemical containers	4 May 2016
	2. No proper labels were provided for chemical drums at Portion A1.	2. The Contractor is reminded to provide proper labels for the chemical drums.	4 May 2016



Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
4 May 2016	No particular environmental issue was recorded during the site inspection.	NIL	NIL
11 May 2016	1. Rubbish was found on the ground.	1. Rubbish was cleared on the ground.	18 May 2016
18 May 2016	1. Chemicals containers were found without drip tray.	1. The chemical containers were removed.	25 May 2016
25 May 2016	1. No drip tray was provided for chemical containers at Common Utilities Enclosure (CUE).	1. The Contractor was reminded to provide a drip tray for chemical containers at CUE.	1 June 2016
1 June 2016	1. The haul road near the temporary loading and unloading point was dry.	1. The haul road was wet near the temporary loading and unloading point.	8 June 2016
	2. Stagnant water/chemicals inside a drip tray was nearly full.	2. The chemical drums and drip tray were removed.	8 June 2016
8 June 2016	1. A chemical container was found without drip tray.	1. The chemical container was removed.	15 June 2016
15 June 2016	No particular environmental issue was recorded during the site inspection.	NIL	NIL
22 June 2016	1. Rubbish was scattered on the ground.	1. Rubbish was cleared on the ground	29 June 2016
29 June 2016	1. Rubbish was found on the basement floor at CUE.	1. The Contractor was reminded to clear the rubbish on the basement floor at CUE.	Follow-up actions undertaken by the Contractor will be inspected during the site inspection to be undertaken in July 2016.



APPENDIX G

Waste Flow Table

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 (see Note 9)	c. Reused in the Contract	d. Reused in Other Projects (see Note 11)	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	3.209	0.233	0.000	2.079	1.130	0.000	145.240	0.935	0.000	1.200	0.123
February	1.526	0.025	0.000	0.000	1.526	0.000	74.800	0.000	0.000	0.000	0.125
March	3.698	0.364	0.000	0.099	3.599	0.036	100.720	1.908	0.000	0.000	0.170
April	3.300	0.605	0.000	0.198	3.102	0.000	102.030	0.000	0.000	0.000	0.169
May	1.016	0.264	0.000	0.000	1.016	0.000	88.010	1.062	0.000	2.600	0.278
June	0.903	0.038	0.000	0.000	0.903	5.382	139.740	1.197	0.000	0.000	0.262
Sub-total	13.652	1.529	0.000	2.376	11.276	5.418	650.540	5.102	0.000	3.800	1.127
July											
August											
September											
October											
November											
December											
Total	13.652	1.529	0.000	2.376	11.276	5.418	650.540	5.102	0.000	3.800	1.127

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

- 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
 - Diesel density: 0.8kg/l
 - (7) Numbers are rounded off to the nearest three decimal places.
 - (8) The "Total Quantity Generated" equals to the sum of "Reuse in the Contract", "Reuse in Other Projects" and "Disposed as Public Fill".
 - (9) The "Hard Rock and Large Broken Concrete" were disposed as public fill.
 - (10) The amount in "Disposed as Public Fill" included the "Hard Rock and Large Broken Concrete" disposed as public fill.
 - (11) The item d "Reused in Other Projects" includes sand only. Other projects refer to Contracts No. HY/2010/02 and HY/2014/05. Inert C&D Materials were transferred to Contract No. HY/2010/02 in January 2016 and to Contract No. HY/2014/05 in March and April 2016.

Monthly Summary of Excavated Marine Sediment for 2016

Month	a. Estimated Volume of Excavated Marine Sediment Generated (m³)	b. Estimated Volume of Accumulated Excavated Marine Sediment Treated (m³)	c. Reused in the Contract (m³)	d. Estimated Volume of Excavated Marine Sediment Reused in Other Project (m³)⁽²⁾	e. Estimated Volume of Treated Excavated Marine Sediment Stored on Site (Unused) (m³)
Year 2016					
Jan 2016	511	400	0	0	2155
Feb 2016	693	275	0	0	2430
Mar 2016	672	1,363	1215	0	2578
Apr 2016	259	756	700	0	2634
May 2016	287	402	0	0	3036
Jun 2016	240	336	2836	0	536
Total	2,662	3,532	4,751	0	536⁽¹⁾

Notes: (1) This presents the total quantity of unused treated excavated marine sediment stored on site during the reporting month. This figure includes 1,755 m³ of treated excavated marine sediment from 2015.



APPENDIX H

Environmental Licenses and Permits

Environmental License/ Permits /Notification Register

Contract No. HY/2013/01 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Passenger Clearance Building

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	29 Jul 2013	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/G	6 Aug 2013	N/A	EPD	Superseded by EP-353/2009/H
2.	All Areas	16 Jan 2015	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/H	19 Jan 2015	N/A	EPD	Superseded by EP-353/2009/I
3.	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
4.	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
5.	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	
6.	All Areas	29 Apr 2014	H2620-LTR-EPD-AU-000006	Billing Account for disposal of construction waste	Billing Account No.: 7019944	16 May 2014	N/A	EPD	

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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.	PCB	30 Apr 2014	H2620-LTR- EPD-000002	Notification that notifiable works are anticipated to commence (Form NA).	Acknowledge Receipt Ref. No. 373961	5 May 2014	N/A	EPD	
8.	WA2	30 Apr 2014	H2620-LTR- EPD-000003	Notification that notifiable works are anticipated to commence (Form NA).	Acknowledge Receipt Ref. No. 373956	5 May 2014	N/A	EPD	
9.	WA3	30 Apr 2014	H2620-LTR-EPD-AU-000001	Notification that notifiable works are anticipated to commence (Form NA).	Acknowledge Receipt Ref. No. 373962	5 May 2014	N/A	EPD	
10.	PCB	30 May 2014	H2620-LTR-EPD-AU-000020	Registration as Chemical Waste Producer for disposal of spent batteries, used lubrication oil and surplus paint at PCB area	WPN: 5213-951-L2846-01	8 Jul 2014	N/A	EPD	
11.	PCB	23 Jun 2014	In H2620-LTR-EPD-000017	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0683-14	3 Jul 2014	29 Dec 2014	EPD	Superseded by GW-RS0908-14

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Date : June 2016								Remark	
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date		Issuing Office
	Work Area	Date	Reference						
12.	WA2	2 Jul 2014	H2620-LTR-LCJ-AU-000280	CNP for the use of powered mechanical equipment for the purpose of carry out ER Office construction works from 19:00 to 23:00. (Non-designated area)	GW-RS0715-14	17 Jul 2014	15 Jan 2015	EPD	Superseded by GW-RS1034-14
13.	WA3	2 Jul 2014	H2620-LTR-LCJ-AU-000324	CNP for the use of powered mechanical equipment for the purpose of carry out construction of JV site office from 19:00 to 23:00. (Non-designated)	GW-RS0716-14	17 Jul 2014	15 Jan 2015	EPD	Expired
14.	PCB	23 Jun 2014	H2620-LTR- EPD-000527	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0908-14	3 Sep 2014	22 Dec 2014	EPD	Superseded by GW-RS1044-14
15.	PCB	29 Sep 2014	H2620-LTR-EPD-AU-000034	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1044-14	29 Sep 2014	24 Dec 2014	EPD	Superseded by GW-RS1300-14

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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						
16.	WA2	12 Sep 14	H2620-LTR-EPD-AU-000032	CNP for the use of powered mechanical equipment for the purpose of carry out ER Office construction works from 19:00 to 23:00. (Non-designated area)	GW-RS1034-14	29 Sep 2014	28 Mar 2015	EPD	Expired
17.	WA4	17 Oct 2014	H2620-LTR-EPD-AU-000036	CNP for the use of powered mechanical equipment from 19:00 to 23:00. (Non-designated area)	GW-RW0814-14	20 Oct 2014	19 Apr 2015	EPD	Expired and replaced by GW-RW0171-15
18.	PCB	3 Nov 14	H2620-LTR-EPD-AU-000040	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1300-14	17 Nov 2014	16 Feb 2015	EPD	Superseded by GW-RS0087-15
19.	PCB	12 Jan 2015	H2620-LTR-EPD-AU-000046	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0087-15	26 Jan 2015	25 Apr 2015	EPD	Superseded by GW-RS0308-15

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Date : June 2016								Remark	
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date		Issuing Office
	Work Area	Date	Reference						
20.	PCB	12 Mar 2015	H2620-LTR-EPD-AU-000051	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0308-15	26 Mar 2015	25 Jun 2015	EPD	Superseded by GW-RS0476-15
21.	PCB	31 Jul 2014	H2620-LTR-EPD-AU-000038	Water Discharge License for construction works on PCB island	WT00020335-2014	13 Nov 2014	30 Nov 2019	EPD	
22.	WA4	27 Mar 2015	H2620-LTR-EPD-AU-000054	CNP for the use of powered mechanical equipment from 19:00 to 23:00. (Non-designated area)	GW-RW0171-15	20 Apr 2015	19 Oct 2015	EPD	Superseded by GW-RW0351-15
23.	PCB	15 Apr 2015	H2620-LTR-EPD-AU-000057	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0476-15	1 May 2015	31 Jul 2015	EPD	Superseded by GW-RS0685-15

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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						
24.	PCB	9 Jun 2015	H2620-LTR-EPD-AU-000063	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0685-15	1 Jul 2015	30 Sep 2015	EPD	Superseded by GW-RS0877-15
25.	WA4	29 Jun 2015	H2620-LTR-EPD-AU-000066	CNP for the use of powered mechanical equipment from 19:00 to 23:00. (Non-designated area)	GW-RW0351-15	17 Jul 2015	12 Jan 2016	EPD	Expired. Replaced by GW-RW0003-16
26.	PCB	27 Jul 2015	H2620-LTR-EPD-AU-000069	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0877-15	10 Aug 2015	09 Nov 2015	EPD	Superseded by GW-RS1016-15
27.	PCB	2 Sep 2015	H2620-LTR-EPD-AU-000072	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1016-15	18 Sep 2015	17 Dec 2015	EPD	Superseded by GW-RS1195-15

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Date : June 2016								Remark	
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date		Issuing Office
	Work Area	Date	Reference						
28.	PCB	22 Oct 2015	H2620-LTR-EPD-AU-000075	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1195-15	9 Nov 2015	8 Feb 2016	EPD	Superseded by GW-RS1444-15
29.	PCB	17 Dec 2015	H2620-LTR-EPD-AU-000076	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-RS1444-15	31 Dec 2015	30 Mar 2016	EPD	Superseded by GW-RS0191-16
30.	WA4	24 Dec 2015	H2620-LTR-EPD-AU-000080	CNP for the use of powered mechanical equipment from 19:00 to 23:00. (Non-designated area)	GW-RW0003-16	13 Jan 2016	6 Jul 2016	EPD	
31.	PCB	17 Feb 2016	H2620-LTR-EPD-AU-000083	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-RS0191-16	3 Mar 2016	2 Jun 2016	EPD	Superseded by GW-RS0543-16

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Date : June 2016								Remark	
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date		Issuing Office
	Work Area	Date	Reference						
32.	PCB	18 May 16	H2620-LTR-EPD-AU-000086	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-RS0543-16	2 Jun 16	1 Sep 16	EPD	

APPENDIX I

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 May 2015	Air Quality and Noise	According to ENPO's email to the ET on 22 May 2015, it was noted that EPD had received a complaint regarding the noise nuisance and dark smoke emission during the night time at HKBCF Project work area recently.	After investigation, there is no sufficient evidence to justify the concerned dark smoke and noise nuisance are related to Contract No. HY/2013/01. In this case, no follow up action is required. However, the Contractor has been reminded to provide maintenance for all machinery regularly to prevent dark smoke emission and comply with CNP conditions for construction works undertaken during the restricted hours.	Closed.
002	13 July 2015	Noise	According to ENPO's email to Highways Department on 13 July 2015, it is noted that EPD received a complaint regarding the noise nuisance generated from the construction site near Tung Chung Development Ferry Pier and HKBCF construction site opposite to Seaview Crescent during night time period from 3 to 12 July 2015. Afterwards, EPD sent an email to Highways Department on 15 July 2015 to clarify that the noise complaint referred to the noise generated due to excavation with a grab dredger, transfer of excavated material using a derrick barge and a tug boat, and backfilling with a pelican barge at the Hong Kong Boundary Crossing Facilities Site near Hong Kong Skycity Marriott Hotel. Based on EPD's record, the above construction activities were covered by Construction Noise Permit (CNP) no. GW-RS0503-15.	The Contractor confirmed that CNP no. GW-S0503-15 is not for Contract No. HY/2013/01. In addition, no barges, dredger and tug boats were used for Contract No. HY/2013/01. Based on the investigation results, it is found that the noise nuisance is not related to Contract No. HY/2013/01. No follow up action is required. It is noted that the Contractor has Construction Noise Permit (CNP) No. GW-RS0685-15 to undertake construction works during restricted hours. The Contractor has been reminded to comply with CNP conditions for construction works undertaken during the restricted hours. To minimize the potential noise impact during restricted hours, the Contractor has implemented the following measures to minimize noise nuisance. <ul style="list-style-type: none"> - Minimize the quantities of plant used during restricted hours as far as practicable; and - Regular review of working duration for restricted hours works and switch off all unnecessary machinery and plant during restricted hours. 	Closed



Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of summons	Successful prosecutions
This reporting period	0	0	0
From commencement date of contract to end of reporting period	2	0	0