



Our ref JFP/TK/bw/T355861/02/02/L033  
T 2828 5757  
E Terence.Kong@mottmac.com.hk  
Your ref -

Ramboll Environ Hong Kong Limited  
Room 2403, 24/F, Jubilee Centre  
18 Fenwick Street  
Wanchai, Hong Kong

8 October 2015  
By Email

**Attn: Mr. Raymond Dai – Independent Environmental Checker**

Dear Sir,

**Contract No. HY/2013/04 Hong Kong-Zhuhai-Macao Bridge (HZMB)  
Hong Kong Boundary Crossing Facilities – Infrastructure Works Stage II (Southern Portion)  
Monthly EM&A Report for September 2015**

In accordance with Condition 5.4 of the Environmental Permit (EP-353/2009/I) covering the captioned contract, we are pleased to submit the certified Monthly EM&A Report for September 2015 for your verification.

Yours faithfully  
For MOTT MACDONALD HONG KONG LIMITED

Terence Kong  
Environmental Team Leader

Encl.

cc. AECOM – Mr. Alfred Cheng (By Email)  
China State Construction Engineering (Hong Kong) Ltd. – Mr. Gary Ng (By Email)

9 October 2015

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. Alfred Cheng

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/2013/04 – HZMB HKBCF – Infrastructure Works Stage II  
(Southern Portion)  
Monthly Environmental Monitoring & Audit Report for September 2015**

Reference is made to the Environmental Team's submission of the Monthly Environmental Monitoring & Audit Report for September 2015 certified by the ET Leader (ET's ref.: "JFP/TK/bw/T355861/02/02/L033" dated 8 October 2015) and provided to us via e-mail on 9 October 2015.

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

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

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



Raymond Dai  
Independent Environmental Checker

c.c.	HyD	Mr. Matthew Fung	(By Fax: 3188 6614)
	HyD	Mr. Horace Hong	(By Fax: 3188 6614)
	MMHK	Mr. Terence Kong	(By Fax: 2827 1823)
	CSCE	Mr. Eddie Tang	(By Fax: 2459 4336)

Internal: DY, YH, LP, CL, ENPO Site

Q:\Projects\HYDZHMBEEM00\02\_Proj\_Mgt\02\_Corr\HYDZHMBEEM00\_0\_3447L.15.doc

# Contract No. HY/2013/04 HZMB HKBCF – Infrastructure Works Stage II (Southern Portion)

Monthly EM&A Report for September 2015

October 2015

China State Construction Engineering (Hong Kong) Limited

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# Executive Summary

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Infrastructure Works Stage II (Southern Portion)” (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR). The Contract was awarded to China State Construction Engineering (Hong Kong) Limited (hereafter referred to as “the Contractor”) and Mott MacDonald Hong Kong Limited (MMHK) was appointed as the Environmental Team (ET) by the Contractor.

The Contract is part of the “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities” (HZMB HKBCF) Project which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/I, was issued on 17 July 2015. These documents are available through the EIA Ordinance Register. Commencement of the Contract took place on 13 March 2015 and the construction works commenced on 13 July 2015.

Mott MacDonald Hong Kong 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 for the Contract.

This is the 3<sup>rd</sup> Monthly EM&A Report for the Contract which summaries findings of the EM&A works during the reporting period from 1 to 30 September 2015 (the “reporting period”).

## Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works” and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF”. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7A and noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract Nos. HY/2010/02 and HY/2011/03. However, this is subject to ENPO’s final decision on which ET should carry out the monitoring work at these stations.

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

- Environmental Site Inspection: 2, 11, 17, 24 and 29 September 2015

## Breaches of Action and Limit Levels

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

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

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

### Complaint Log

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

### Notifications of Summons and Successful Prosecutions

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

### Reporting Changes

There was no reporting change during the reporting period.

### Future Key Issues

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

- Preliminary Bored Piling at Abutment A1004; and
- Predrilling works.

# 1 Introduction

## 1.1 Background

On 13 March 2015, Mott MacDonald Hong Kong Limited (MMHK) was commissioned by China State Construction Engineering (Hong Kong) Limited (also referred to as “the Contractor”) to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Infrastructure Works Stage II (Southern Portion)” (“the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR).

The Contract is part of the “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities” (HZMB HKBCF) Project which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/I, was issued on 17 July 2015. These documents are available through the EIA Ordinance Register. Commencement of the Contract took place on 13 March 2015 and the construction works commenced on 13 July 2015. The works areas of the contract are shown in **Appendix A**.

This is the 3<sup>rd</sup> Monthly EM&A Report summarising the findings of EM&A activities conducted under the Contract from 1 to 30 September 2015 (the “reporting period”) and is submitted to fulfil Condition 5.4 of the EP.

## 1.2 Project Description

The Proposed works under this Contract comprise the following:

- Construction of vehicular bridge and at-grade roads at the southern portion of Hong Kong Boundary Crossing Facilities;
- Construction of associated street lighting, street furniture, road marking, road signage, box culverts and outfalls, drainage, sewerage, fresh water and flushing water supply, irrigation, landscape, electrical and mechanical (E&M), utilities and services works;
- Provisioning of civil engineering works and power supply for Traffic Control and Surveillance System (TCSS); and
- Other works in accordance with the Contract.

## 1.3 Project Organisation

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

Table 1.1: Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Engineer or Engineer’s Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Alfred Cheng	3958 7471	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
	Environmental Site Supervisor	Ray Yan	5181 8165	3465 2899



Party	Position	Name	Telephone	Fax
Contractor	Site Agent	Eddie Tang	9863 7686	2459 4336
(China State Construction Engineering (Hong Kong) Limited)	Environmental Officer	Gary Ng	9475 6832	2459 4336
Environmental Team	Environmental Team Leader	Terence Kong	2828 5919	2827 1823
(Mott MacDonald Hong Kong Limited)				
24-hour Complaint Hotline	-	-	5236 7111	-

#### 1.4 Construction Programme

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

#### 1.5 Construction Works undertaken during the Reporting Period

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

- 19 nos. predrilling holes completed on BCF Island;
- Preliminary bored pile for Pile No. P2 was completed on 21 September 2015; and
- Setting up Contractor's accommodation, material storage area and stockpile area.

## 2 Air Quality Monitoring

### 2.1 Monitoring Locations

The air quality monitoring works for the Contract are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works” and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF”. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7A as part of EM&A programme if these air quality monitoring stations are no longer covered under Contract No. HY/2010/02 and HY/2011/03. **Figure 1** shows the locations of air monitoring stations.

Table 2.1: Construction Dust Monitoring Locations

Identification No.	Location Description
AMS6 <sup>(1)</sup>	Dragonair/CNAC (Group) Building
AMS7A <sup>(1)</sup>	Chu Kong Air-Sea Union Transportation Co. Ltd

Remarks:

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

### 2.2 Monitoring Requirements

The air quality monitoring works for the Contract are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works” and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF”.

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

Table 2.2: Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS6 – Dragonair / SNAC (Group) Building (HKIA)	360	500
AMS7A –Chu Kong Air-Sea Union Transportation Co. Ltd.	370	500

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 / SNAC (Group) Building (HKIA)	173	260
AMS7A –Chu Kong Air-Sea Union Transportation Co. Ltd.	183	260

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

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

### **2.3 Monitoring Results**

The monitoring results for AMS6 and AMS7A are reported in the monthly EM&A Reports prepared for Contract Nos. HY/2011/03 and HY/2010/02 respectively.

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

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

## 3 Noise Monitoring

### 3.1 Monitoring Locations

The noise monitoring works for the Contract are covered by Contract No. HY/2010/02 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works”. The ET of the Contract or another ET of the HZMB project is required to conduct noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2010/02. **Figure 2** shows the locations of noise monitoring stations.

Table 3.1: Construction Noise Monitoring Locations

Identification No.	Location Description
NMS2 <sup>(1)</sup>	Seaview Crescent
NMS3B <sup>(1) (2)</sup>	Site Boundary of Site Office Area at Works Area WA2

Remarks:

- (1) The ET of this Contract should conduct impact noise monitoring at the NMS listed in the table as part of EM&A programme according to the latest notification from ENPO when the monitoring station(s) is/are no longer covered by another ET of the HZMB project.
- (2) The Action and Limit Levels for schools will be applied for this alternative monitoring location.

### 3.2 Monitoring Requirements

The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology and monitoring schedule are detailed in the monthly EM&A Reports prepared for Contract No. HY/2010/02.

The Action and Limit Levels for construction noise are defined in **Table 3.2**.

Table 3.2: Action and Limit Level for Construction Noise

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

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

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

### 3.3 Monitoring Results

The monitoring results for NMS2 and NMS3B are reported in the monthly EM&A Reports prepared for Contract No. HY/2010/02. No noise exceedances were recorded at stations NMS2 and NMS3B by the ET of Contract No. HY/2010/02 during the reporting period.

## 4 Environmental Site Inspection and Audit

### 4.1 Site Inspection

Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control mitigation measures for the project. During the reporting period, site inspections were carried out on 2, 11, 17, 24 and 29 September 2015.

Particular observations during the site inspections and corrective actions undertaken by the Contractor are described below.

#### 20 August 2015

- a. Part of a haul road was observed to be dry. Subsequently, the Contractor provided recorded records of water spraying for haul road and exposed areas 8 times per day for inspection. Haul road was observed to be wet during follow-up site inspection, and no dusty site activities were observed. The observation was closed on 2 September 2015.

#### 2 September 2015

- a. Stagnant water was observed in some stored construction materials after earlier heavy rain. Subsequently, the stagnant water was cleared. The observation was closed on 11 September 2015.

#### 11 September 2015

- a. No new observations were made.

#### 17 September 2015

- a. Some chemical containers were not stored in drip tray. Subsequently, chemical containers were removed from the observed works area. Also, affected soil was removed and was placed in the chemical waste storage area in Works Area WA3. The observation was closed on 24 September 2015.

#### 24 September 2015

- a. The surface of a newly-acquired portion of the works area was dry. The Contractor was reminded to provide water spray for this portion in addition to the existing works area. Follow-up actions for the outstanding observation will be inspected during the upcoming site inspections and reported in the coming reporting period.
- b. Oil stain on bare ground was observed. Subsequently, the oil stain was cleared and affected soil was placed in the chemical waste storage area. The observation was closed on 29 September 2015.

#### 29 September 2015

- a. No new observations were made.

### 4.2 Advice on the Solid and Liquid Waste Management Status

The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

There was no generation of C&D material during this reporting period. Also, there was no generation of excavated sediment for treatment during this reporting period. Excavated marine sediment will be treated using cement solidification/stabilization (Cement S/S) techniques and will be reused onsite for either backfilling or landscaping (e.g. berm material).

The monthly summary of waste flow table is detailed in **Appendix E**.

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 Packing, Labelling and Storage of Chemical Waste.

#### **4.3 Environmental Licenses and Permits**

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

#### **4.4 Implementation Status of Environmental Mitigation Measures**

In response to the site audit findings, the Contractor carried out corrective actions.

A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix G**. Most of the necessary mitigation measures were implemented properly.

#### **4.5 Summary of Exceedance of the Environmental Quality Performance Limit**

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

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

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

#### **4.6 Summary of Complaints, Notification of Summons and Successful Prosecution**

There were no complaints received in relation to the environmental impact during the reporting period. The details of cumulative statistics of Environmental Complaints are provided in **Appendix H**.

No notification of summons or prosecutions was received during the reporting period.

Statistics on notifications of summons and successful prosecutions are summarized in **Appendix H**.

## 5 Future Key Issues

### 5.1 Construction Programme for the Coming Months

As informed by the Contractor, the major construction activities for October 2015 are summarized in **Table 5.1**.

Table 5.1: Construction Activities for October 2015

Site Area	Description of Activities
HKBCF	<ul style="list-style-type: none"><li>• Preliminary Bored Piling at Abutment A1004; and</li><li>• Predrilling works.</li></ul>

### 5.2 Environmental Site Inspection Schedule for the Coming Month

The tentative schedule for weekly site inspections for October 2015 is provided in **Appendix I**.

## 6 Conclusions

### 6.1 Conclusions

Commencement of the Contract took place on 13 March 2015 and the construction works of the Contract commenced on 13 July 2015.

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

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

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

Environmental site inspections were carried out on 2, 11, 17, 24 and 29 September 2015. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site inspections.

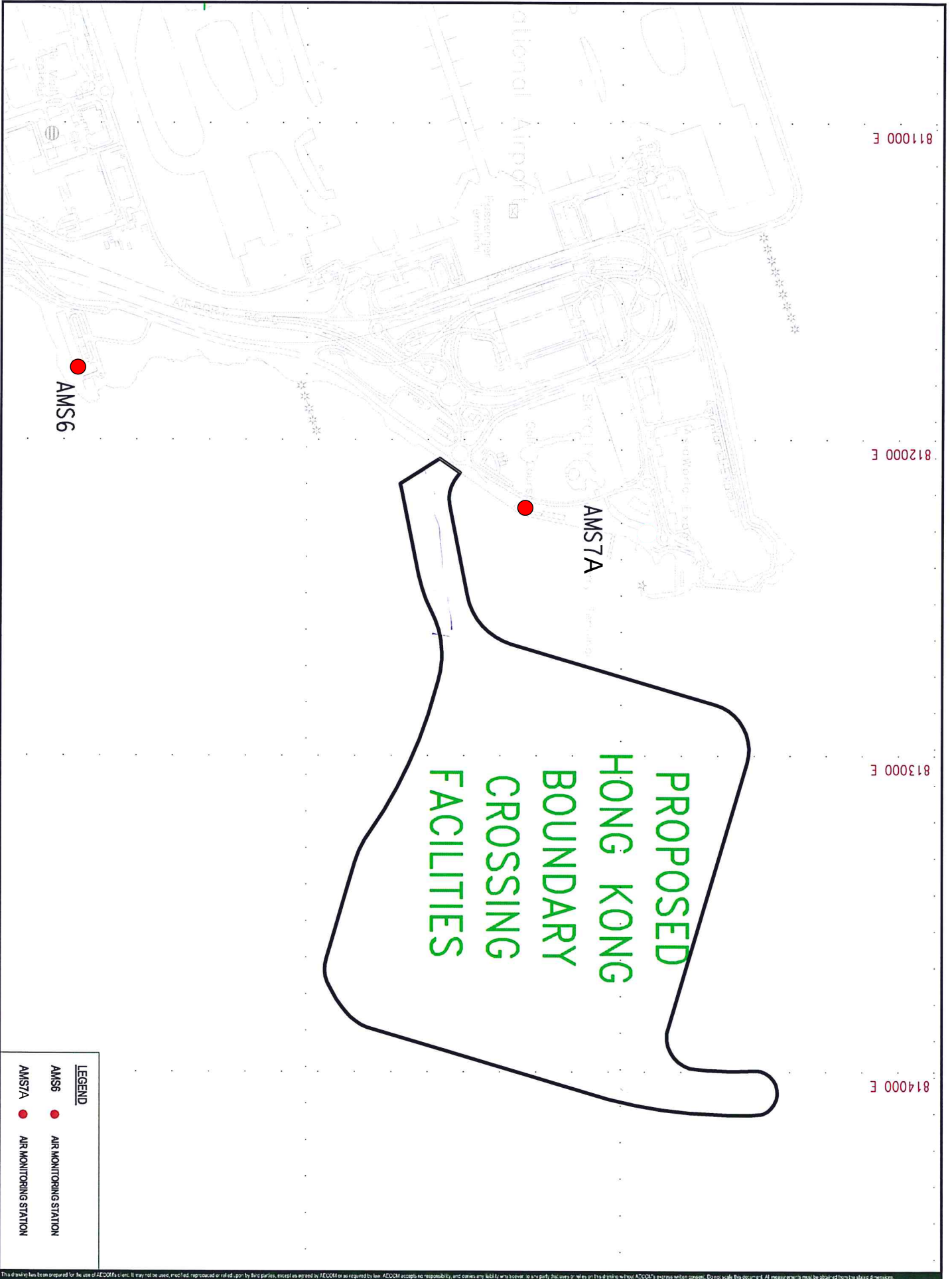
There were no complaints received in relation to the environmental impact during the reporting period.

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



# Figures

**Figure 1 Location of Air Quality Monitoring Stations**



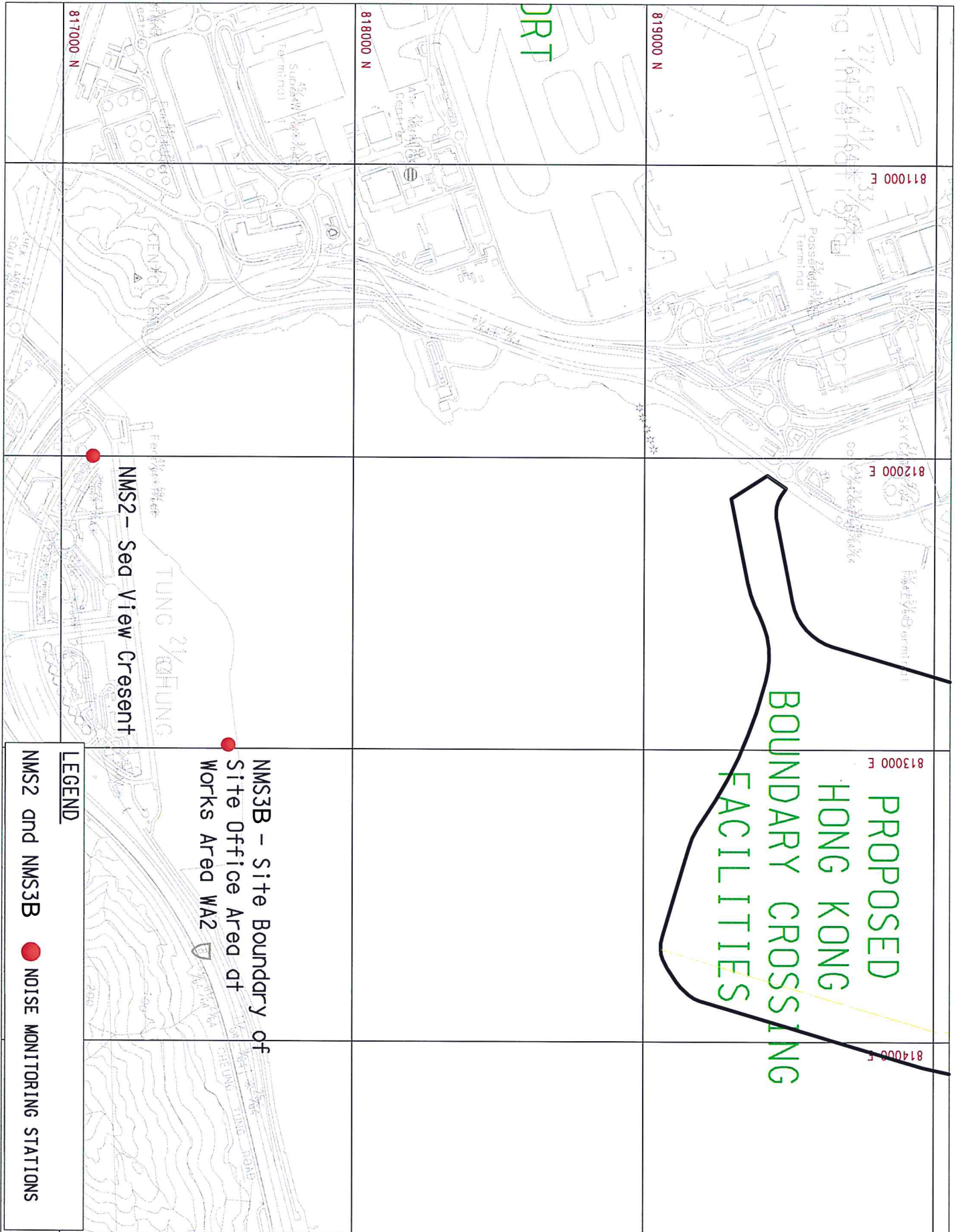
LEGEND	
AMS6	AIR MONITORING STATION
AMSTA	AIR MONITORING STATION

**Figure 2 Location of Noise Quality Monitoring Stations**

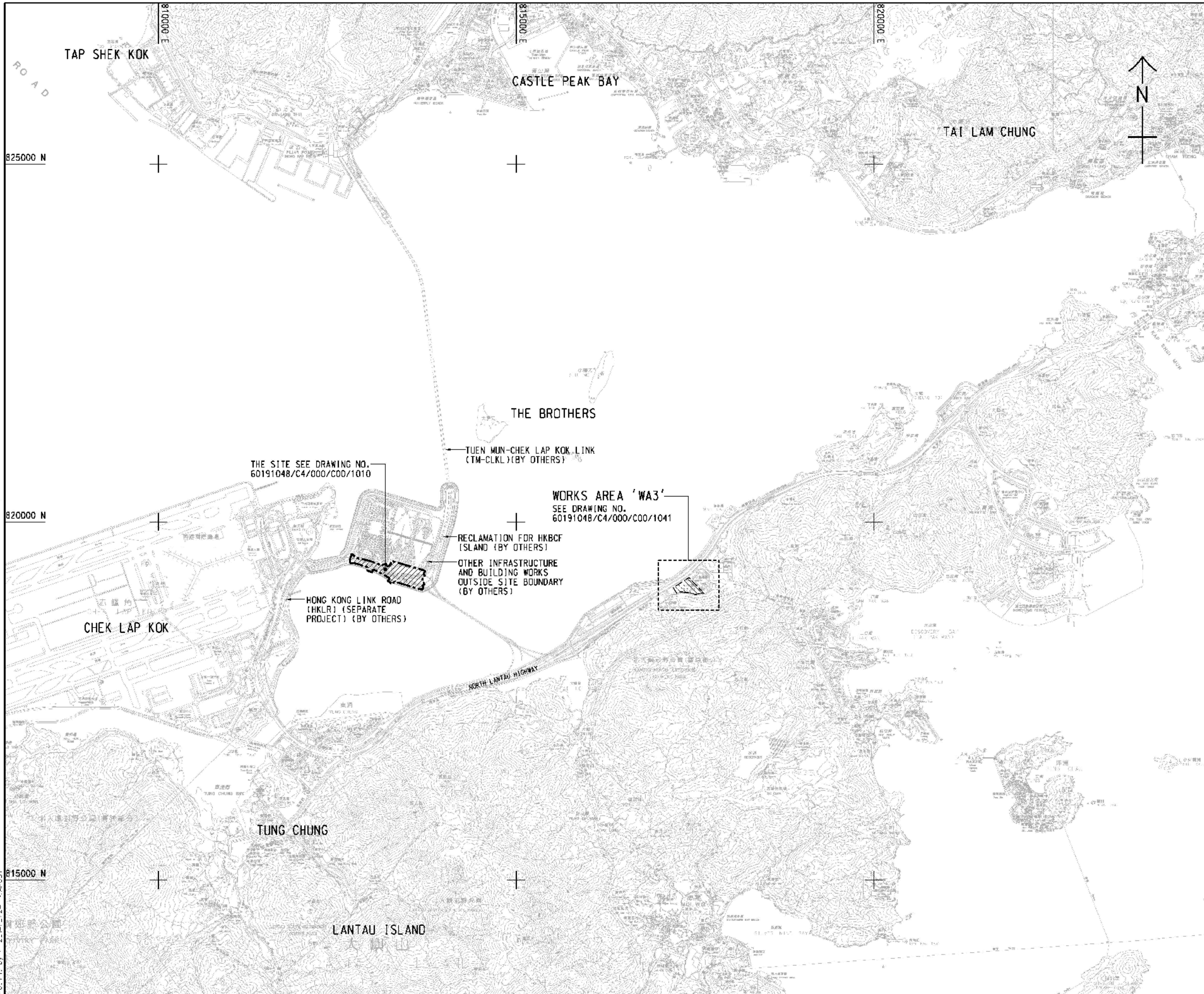
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Project Management Initials: Checked:

ISO A3 297mm x 420mm



# 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.

- LEGEND:**
- SITE BOUNDARY
  - WORKS AREA

ROAD  
 825000 N  
 820000 N  
 815000 N  
 P.S. [T: By : 22/11/24 14:03Y  
 P:\00\01\SYSTEM\DRAWING\CONTRACT\60191048\60191048-C00-1000-000.dwg

REV.	DESCRIPTION	DATE
1	TENDER DRAWING	FEB.14

路政處 HIGHWAYS DEPARTMENT  
 港珠澳大橋香港工程管理有限公司  
 Hong Kong-Zhuhai-Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - INFRASTRUCTURE WORKS STAGE 1 (SOUTHERN PORTION)

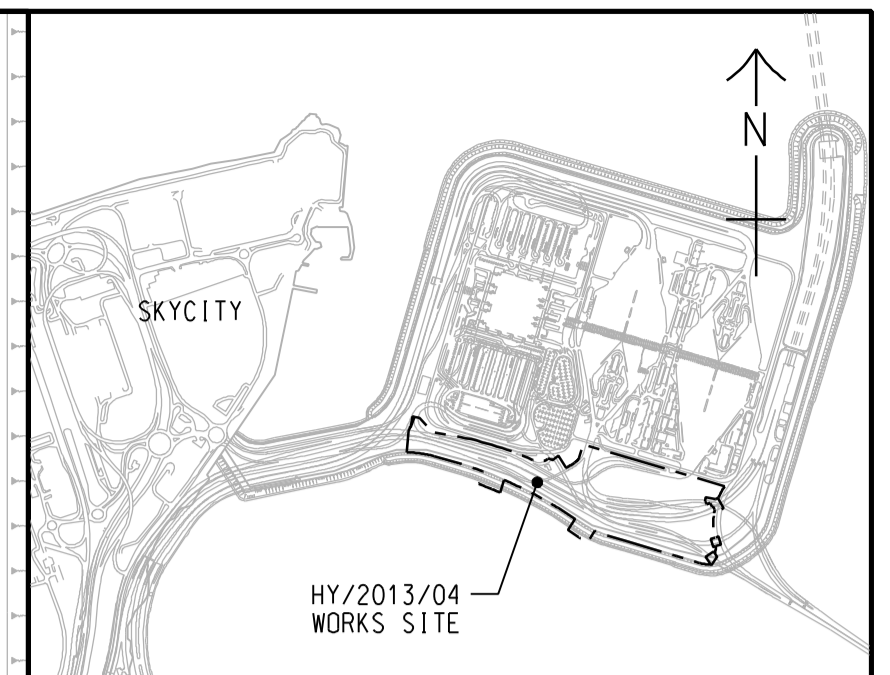
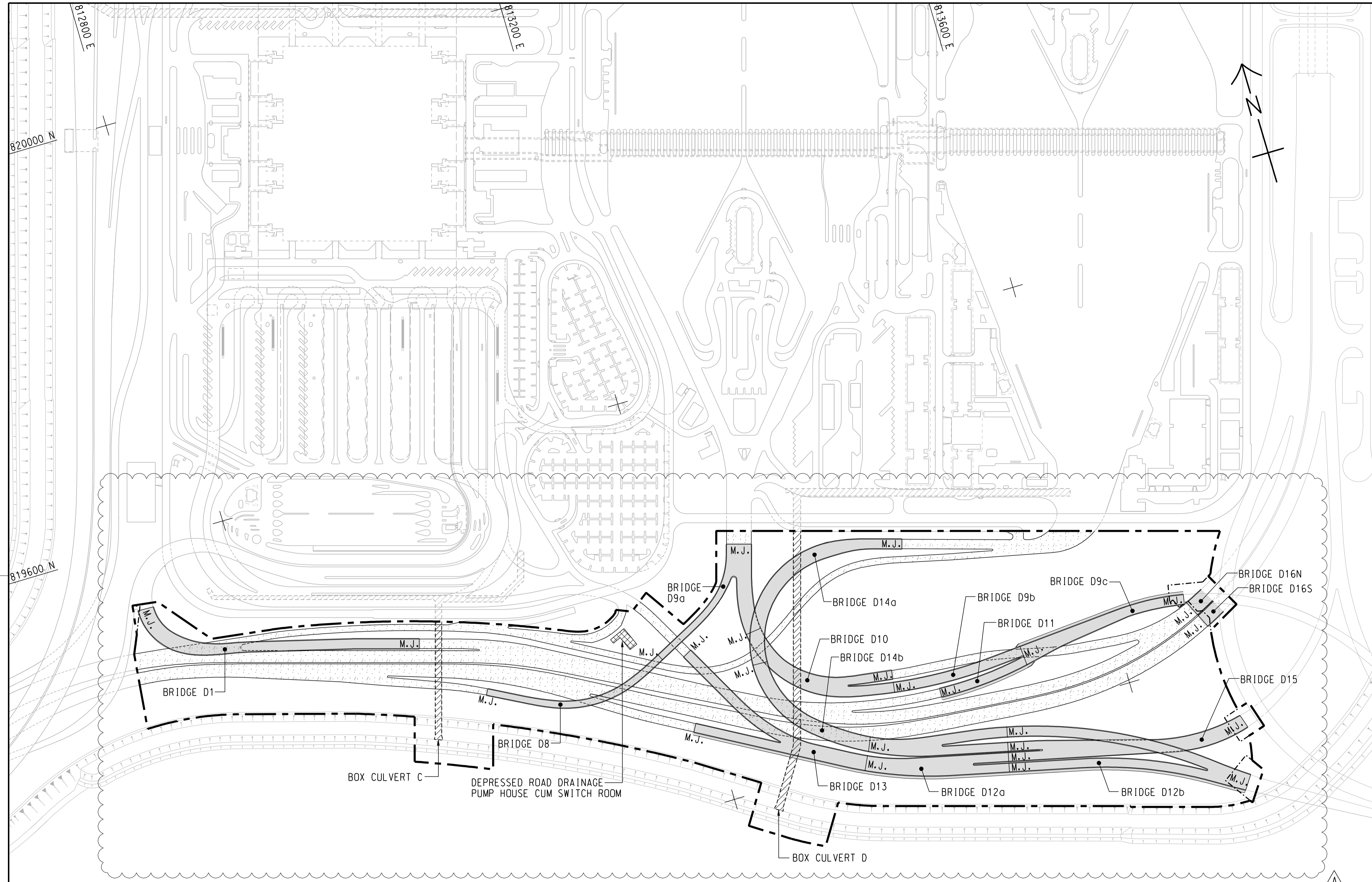
**SITE LOCATION PLAN**

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

DRG. NO. 60191048/C4/000/C00/1000  
 圖紙編號

DESIGNED BY BWC	CHECKED BY MSY	DATE HY/2013/04	SCALE A1 1 : 25000
DRAWN BY MSY		STATUS REV.	DATE TKH

DIMENSIONS ARE IN METRES  
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LOCATION PLAN  
SCALE 1 : 25000

- LEGEND:**
- SITE BOUNDARY
  - AT-GRADE WORKS LIMIT
  - MOVEMENT JOINT
  - BRIDGE
  - BUILDING/FACILITIES
  - AT-GRADE ROAD
  - BOX CULVERT

B	WORKING DRAWING	BWCW SCI	APR. 15
A	TENDER ADDENDUM NO. 3	BWCW SCI	MAY. 14
-	TENDER DRAWING	BWCW SCI	FEB. 14
REV.	DESCRIPTION	CHECKED	DATE
修訂	內容摘要	審核	日期

**路政署 HIGHWAYS DEPARTMENT**  
**港珠澳大橋香港工程管理有限公司**  
 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - INFRASTRUCTURE WORKS STAGE II (SOUTHERN PORTION)

**GENERAL ARRANGEMENT**

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

DRG.NO. 60191048/C4/000/C00/1002B  
 圖紙編號

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/04	P. O. APPROVED 批准人	TKH
DRAWN BY 繪圖	WSY	STATUS 階段	<b>WORKING DRAWING</b>		

SCALE 比例 A1 1 : 2000  
 DIMENSIONS ARE IN 尺寸單位 METRES  
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Plot File by : 2014/5/7 WANGSY

SETTING OUT POINT

POINT	EASTING	NORTHING
301	817467.265	819162.683
302	817314.741	819069.828
303	817327.338	819049.295
304	817440.865	819117.811
305	817340.825	819027.314
306	817387.350	819023.403
307	817387.861	819043.396
308	817466.133	819091.047
309	817469.783	819087.181
310	817513.449	819113.764
311	817347.717	819016.082
312	817620.269	819000.620
313	817445.362	819013.131
314	817450.595	819032.307
315	817495.828	819059.595
316	817522.110	819075.388
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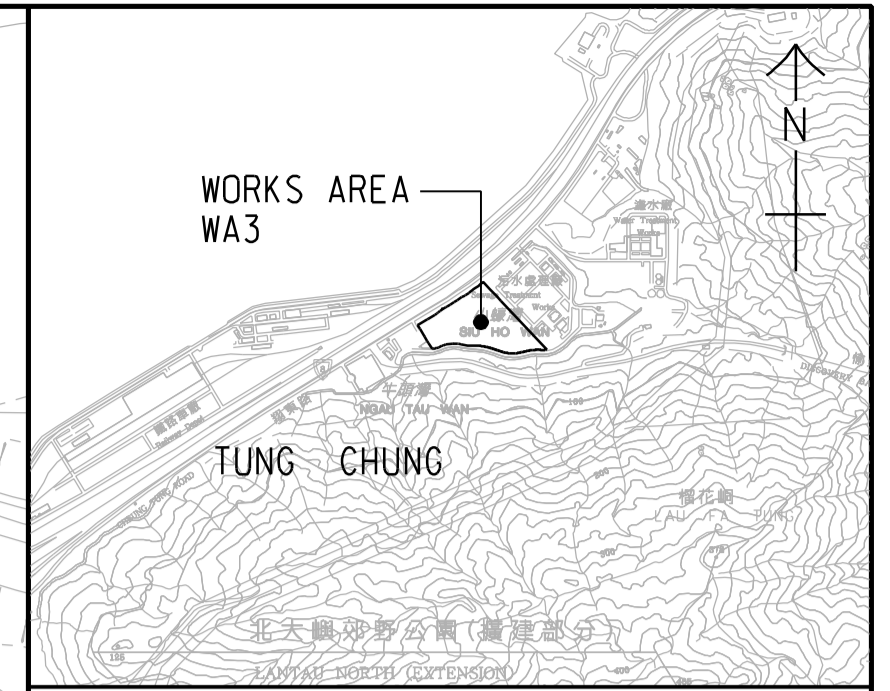
81200 E

81400 E

81600 E

819200 N

819000 N



LOCATION PLAN  
SCALE 1 : 25000

NOTES:

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

LEGEND:

	WORKS AREA BOUNDARY
	PORTION 3.1
	PORTION 3.2
	PORTION 3.3
	PORTION 3.4
	PORTION 3.5
	PORTION 3.6
	PORTION 3.7
	PORTION 3.8
	PORTION 3.9
	PORTION 3.10

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.

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2013/04

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2014/05

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

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

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2013/02

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2013/01

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2013/03

小濠灣污水處理廠  
Siu Ho Wan Sewage Treatment Works

小濠灣污水處理廠  
Siu Ho Wan Sewage Treatment Works

B	WORKING DRAWING	BWCW SCI	APR. 15
A	TENDER ADDENDUM NO. 2	BWCW SCI	APR. 14
-	TENDER DRAWING	BWCW SCI	FEB. 14
REV. 修改	DESCRIPTION 內容摘要	CHK. 校核	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  
- INFRASTRUCTURE WORKS STAGE II (SOUTHERN PORTION)

WORKS AREA WA3

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

DRG.NO. 60191048/C4/000/C00/1041B  
圖紙編號

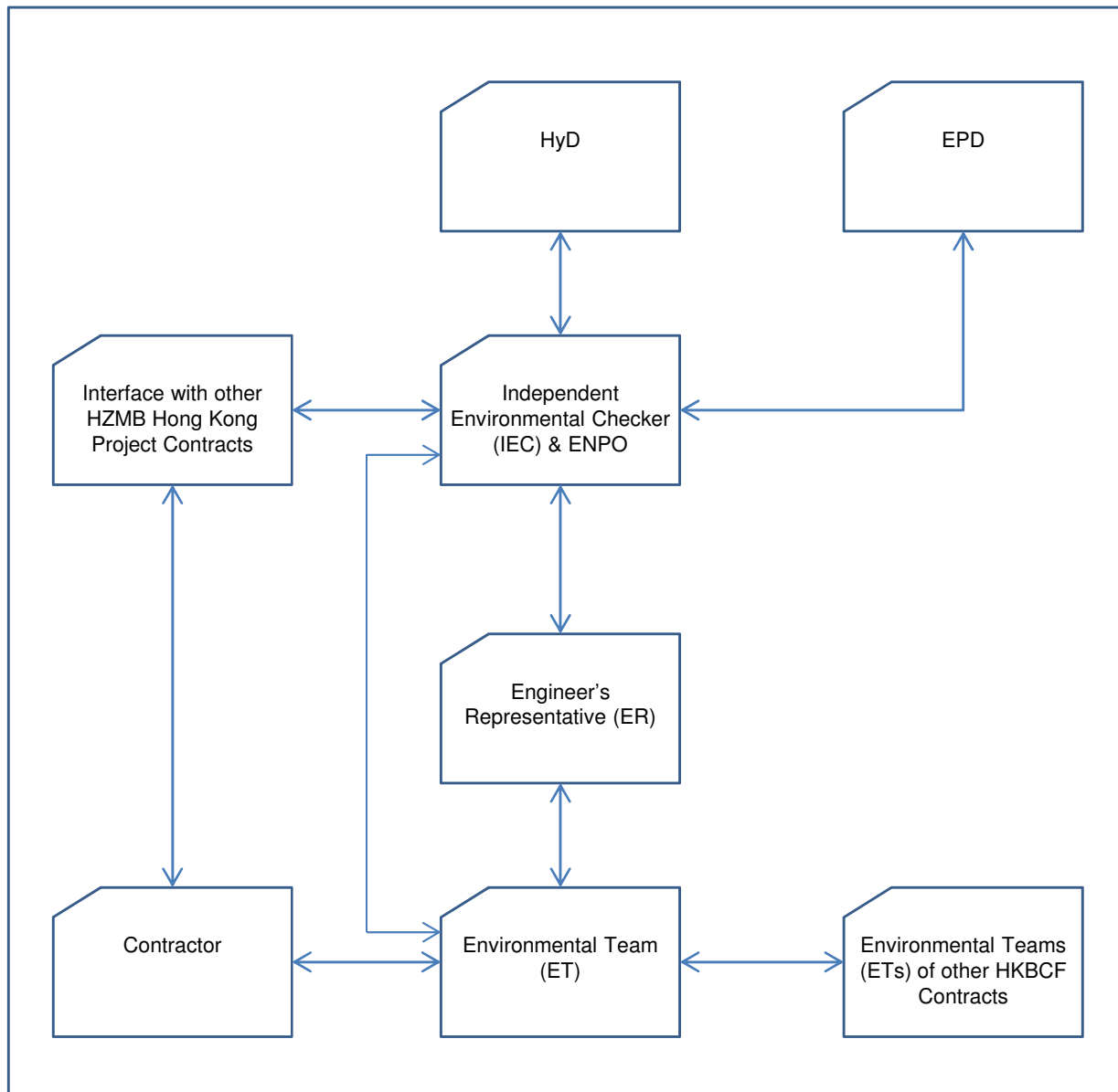
DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/04	P. Dir. APPROVED 批准人	TKH
DRAWN BY 繪圖	WSY	STATUS 階段	<b>WORKING DRAWING</b>		
SCALE 比例	A1 1 : 1000				
DIMENSIONS ARE IN 尺寸單位	METRES		© COPYRIGHT RESERVED 版權所 有		

Plot File by : 2014/4/11 WANGSY

# Appendix B. Project Organization for Environmental Works



## Project Organisation for Environmental Works



↔ Line of Communication

# Appendix C. Construction Programme





Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	Calendar	Remarks	2015												2016												2017												2018												2019																		
								O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A
<b>Initial Works Programme</b>																																																																										
CON.PR.1020.10	Prepare & Submit Initial Works Programme (IWP)	7	27-Feb-15	05-Mar-15	0	CAL 1 - 7 day	7 days from LOA																																																																			
CON.PR.1020.20	Engineer's Approval	30	06-Mar-15	04-Apr-15	0	CAL 1 - 7 day																																																																				
<b>Provisional Programme for Piling Works</b>																																																																										
CON.PR.1030.10	Prepare Detailed Piling Schedule (refer to IWP)	14	13-Mar-15	26-Mar-15	9	CAL 1 - 7 day																																																																				
CON.PR.1030.20	Engineer's Approval	24	27-Mar-15	19-Apr-15	9	CAL 1 - 7 day																																																																				
<b>3 Months Rolling Programme</b>																																																																										
CON.PR.1040.10	Prepare 3 Months Rolling Programme	14	27-Feb-15	12-Mar-15	0	CAL 1 - 7 day	14 days from LOA																																																																			
CON.PR.1040.20	Engineer's Approval	24	13-Mar-15	05-Apr-15	0	CAL 1 - 7 day																																																																				
<b>Detailed Works Programme</b>																																																																										
CON.PR.1050.10	Prepare Detailed Works Programme (DWP)	60	05-Apr-15	03-Jun-15	0	CAL 1 - 7 day																																																																				
CON.PR.1050.20	Engineer's Approval	30	04-Jun-15	03-Jul-15*	0	CAL 1 - 7 day																																																																				
<b>Safety &amp; Health</b>																																																																										
CON.PR.1060.10	Draft Safety Plan	14	09-Mar-15	22-Mar-15*	0	CAL 1 - 7 day	14 days from LOA																																																																			
CON.PR.1060.20	Finalized Safety Plan	21	23-Mar-15	12-Apr-15	30	CAL 1 - 7 day	35 days from LOA																																																																			
<b>Environmental Management Plan</b>																																																																										
CON.PR.1080.10	Draft Environmental Management Plan	21	27-Feb-15	19-Mar-15	30	CAL 1 - 7 day	21 days from LOA																																																																			
CON.PR.1080.20	Finalized EMP	24	20-Mar-15	12-Apr-15	30	CAL 1 - 7 day	45 days from LOA																																																																			
<b>Sub-Contractor Management Plan</b>																																																																										
CON.PR.1080.50	Prepare Sub-Contractor Management Plan	30	27-Feb-15	28-Mar-15	0	CAL 1 - 7 day	30 days from LOA																																																																			
CON.PR.1080.60	Engineer's Approval	24	29-Mar-15	21-Apr-15*	0	CAL 1 - 7 day																																																																				
<b>Temporary Facilities</b>																																																																										
CON.PR.0130	Site Possession / Access to Works Area WA3	0	13-Mar-15		10	CAL 2 - 6 day		13-Mar-15																																																																		
CON.PR.0140	Survey / Setting Out	6	13-Mar-15	19-Mar-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150	Engineer's Principal Site Office	45	20-Mar-15	16-May-15	11	CAL 2 - 6 day																																																																				
CON.PR.0150.10	Site Formation	3	20-Mar-15	23-Mar-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150.20	Foundation	5	24-Mar-15	28-Mar-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150.30	Base Slab	5	30-Mar-15	08-Apr-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150.40	Structural Steel Erection	10	09-Apr-15	20-Apr-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150.50	Roof and Wall Cladding	7	21-Apr-15	28-Apr-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150.60	Internal Partition	6	29-Apr-15	06-May-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150.70	Building Services	8	07-May-15	15-May-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150.80	Fit-Out and Office Furnitures	8	07-May-15	15-May-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150.90	T&C	2	16-May-15	18-May-15	10	CAL 2 - 6 day																																																																				
CON.PR.0150.95	Handover to Engineer	0		18-May-15*	10	CAL 2 - 6 day		18-May-15																																																																		
CON.PR.0160	Contractor's Site Office	45	08-Apr-15	01-Jun-15	11	CAL 2 - 6 day																																																																				
CON.PR.0170	External Works - Paving, Drainage and Fencing	24	18-May-15	15-Jun-15*	11	CAL 2 - 6 day																																																																				
<b>Procurement</b>																																																																										
<b>Bridge Bearings</b>																																																																										
PROC.MA.1610	Detailed Design / Shop Drawings and Materials Submission	60	08-Apr-15	18-Jun-15	31	CAL 2 - 6 day																																																																				
PROC.MA.1615	Engineer's Review / Approval	24	19-Jun-15	18-Jul-15	31	CAL 2 - 6 day																																																																				
PROC.MA.1650	Production / Manufacturing / Fabrication	90	20-Jul-15	04-Nov-15	31	CAL 2 - 6 day																																																																				
PROC.MA.1670	Materials Delivery (first delivery)	0	05-Nov-15		31	CAL 2 - 6 day		05-Nov-15																																																																		
<b>Precast Concrete - Segments</b>																																																																										
PROC.MA.1760	Moulds Detailed Design Preparation / Submission	48	08-Apr-15	04-Jun-15	11	CAL 2 - 6 day																																																																				















































Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	Calendar	Remarks	Gantt Chart																																																														
								2015					2016					2017					2018					2019																																										
								O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	Jul	A	S	O	N	D
RDE.ES.1050	Road Works East of Box Culvert D - Final Paving + Road Marking & Signages	428	25-Nov-16	10-May-18	0	CAL 2 - 6 day		[Gantt bar from 25-Nov-16 to 10-May-18]																																																														
<b>Road Works - West of Box Culvert D</b>																																																																						
RDW.ES.2010	Road Works West of Box Culvert D - Road Formation + Drainage	228	14-Sep-15	23-Jun-16	11	CAL 2 - 6 day		[Gantt bar from 14-Sep-15 to 23-Jun-16]																																																														
RDW.ES.2020	Road Works West of Box Culvert D - U/G Utilities	212	17-Nov-15	05-Aug-16	11	CAL 2 - 6 day		[Gantt bar from 17-Nov-15 to 05-Aug-16]																																																														
RDW.ES.2030	Road Works West of Box Culvert D - Road Formation to Sub-base + Kerbing	148	22-Mar-16	21-Sep-16	48	CAL 2 - 6 day		[Gantt bar from 22-Mar-16 to 21-Sep-16]																																																														
RDW.ES.2040	Road Works West of Box Culvert D - Road Formation to Base Course	154	31-May-16	02-Dec-16	24	CAL 2 - 6 day		[Gantt bar from 31-May-16 to 02-Dec-16]																																																														
RDW.ES.2050	Road Works West of Box Culvert D - Final Paving + Road Marking & Signages	68	18-Feb-17	15-May-17	0	CAL 2 - 6 day		[Gantt bar from 18-Feb-17 to 15-May-17]																																																														
<b>Sign Gantry</b>																																																																						
SGW.ES.1010	Sign Gantry - Driven H-Pile	213	14-Sep-15	04-Jun-16	0	CAL 2 - 6 day		[Gantt bar from 14-Sep-15 to 04-Jun-16]																																																														
SGW.ES.1020	Sign Gantry - Pile caps	140	07-Jan-16	29-Jun-16	0	CAL 2 - 6 day		[Gantt bar from 07-Jan-16 to 29-Jun-16]																																																														
SGW.ES.1030	Sign Gantry - Erection of Sign Gantry	90	03-May-16	18-Aug-16	0	CAL 2 - 6 day		[Gantt bar from 03-May-16 to 18-Aug-16]																																																														
<b>Retaining Walls</b>																																																																						
<b>Retaining Walls in Portion A (East)</b>																																																																						
RWW.ES.1040	Retaining Walls in Portion A - Excavation	358	22-Jul-15	04-Oct-16	0	CAL 2 - 6 day		[Gantt bar from 22-Jul-15 to 04-Oct-16]																																																														
RWW.ES.1050	Retaining Walls in Portion A - Construct Base + Wall Stem	354	19-Aug-15	28-Oct-16	0	CAL 2 - 6 day		[Gantt bar from 19-Aug-15 to 28-Oct-16]																																																														
RWW.ES.1060	Retaining Walls in Portion A - Backfill and Reinstatement Road	356	16-Sep-15	28-Nov-16	0	CAL 2 - 6 day		[Gantt bar from 16-Sep-15 to 28-Nov-16]																																																														
<b>Retaining Walls in Portion C (West)</b>																																																																						
RWW.ES.1010	Retaining Walls in Portion C - Excavation	81	17-Jun-16	22-Sep-16	23	CAL 2 - 6 day		[Gantt bar from 17-Jun-16 to 22-Sep-16]																																																														
RWW.ES.1020	Retaining Walls in Portion C - Construct Base + Wall Stem	99	09-Jul-16	05-Nov-16	23	CAL 2 - 6 day		[Gantt bar from 09-Jul-16 to 05-Nov-16]																																																														
RWW.ES.1030	Retaining Walls in Portion C - Backfill and Reinstatement Road	87	03-Sep-16	17-Dec-16	23	CAL 2 - 6 day		[Gantt bar from 03-Sep-16 to 17-Dec-16]																																																														
<b>Irrigation and Landscape</b>																																																																						
<b>Landscape Works - Water Meter O4</b>																																																																						
LSW.ES.1010	Irrigation & Landscape Works WM04 - Top Soil	397	22-Mar-16	27-Jul-17	0	CAL 2 - 6 day		[Gantt bar from 22-Mar-16 to 27-Jul-17]																																																														
LSW.ES.1020	Irrigation & Landscape Works WM04 - Install Irrigation Lines (Main & Lateral)	459	17-Jun-16	02-Jan-18	0	CAL 2 - 6 day		[Gantt bar from 17-Jun-16 to 02-Jan-18]																																																														
LSW.ES.1030	Irrigation & Landscape Works WM04 - Soft Landscaping Works (AC4 to FC4)	453	27-Oct-16	10-May-18	0	CAL 2 - 6 day		[Gantt bar from 27-Oct-16 to 10-May-18]																																																														
<b>Landscape Works - Water Meter O2</b>																																																																						
LSW.ES.2010	Irrigation & Landscape Works WM02 - Top Soil	130	21-Jul-16	23-Dec-16	0	CAL 2 - 6 day		[Gantt bar from 21-Jul-16 to 23-Dec-16]																																																														
LSW.ES.2020	Irrigation & Landscape Works WM02 - Install Irrigation Lines (Main & Lateral)	179	12-Aug-16	20-Mar-17	0	CAL 2 - 6 day		[Gantt bar from 12-Aug-16 to 20-Mar-17]																																																														
LSW.ES.2030	Irrigation & Landscape Works WM02 - Soft Landscaping Works (BC4 to FC4)	126	06-Dec-16	15-May-17	0	CAL 2 - 6 day		[Gantt bar from 06-Dec-16 to 15-May-17]																																																														

# Appendix D. Event and Action Plan

## Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings;</li> <li>5. Increase monitoring frequency to daily;</li> <li>6. Discuss with IEC and Contractor on remedial actions required;</li> <li>7. If exceedance continues, arrange meeting with IEC and ER;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial to ER within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>LIMIT LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform ER, Contractor and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	<ol style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>Notify IEC, ER, Contractor and EPD;</li> <li>Identify source;</li> <li>Repeat measurement to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

## Event / Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> <li>1. Notify IEC and Contractor;</li> <li>2. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>3. Report the results of investigation to the IEC, ER and Contractor;</li> <li>4. Discuss with the Contractor and formulate remedial measures;</li> <li>5 Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC;</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Inform IEC, ER, EPD and Contractor;</li> <li>2. Identify source;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>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.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

## Appendix E. Waste Flow Table

**Monthly Summary Waste Flow Table for 2015 (Year)**

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (Note 1)	Chemical Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan											
Feb											
Mar											
Apr											
May											
Jun											
Sub-total	0	0	0	0	0	0	0	0	0	0	0
Jul	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0
Sep	0	0	0	0	0	0	0	0	0	0	0
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0	0	0	0

Note: (1) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material



# Appendix F. Environmental Licenses and Permits

## Environmental Licenses and Permits

Item No.	Type of Permit / Licence	Reference No.	Application Date	Date of Issue	Date of Expiry	Remark
1	Environmental Permit under EIAO	EP-353/2009/I	30 Jun 2015	17 Jul 2015	N/A	Issued
2	Construction Dust Notification (HKBCF Southern Portion)	387156	26 Mar 2015	1 Apr 2015	N/A	Notified
3	Construction Waste Disposal Account	7022038	16 Mar 2015	1 Apr 2015	N/A	Account approved
4	Registration as a Chemical Waste Producer (HKBCF Southern Portion)	Waste Producer Number (WPN): 5213-951-C3952-01	27 Mar 2015	27 Apr 2015	N/A	Registration completed
5	Discharge Licence under WPCO (Works Area WA3)	WT00022316-2015	1 Jun 2015	14 Aug 2015	31 Aug 2020	Issued
6	Construction Noise Permit	GW-RS0874-15	24 Jul 2015	7 Aug 2015	1 Feb 2016	Issued

# Appendix G. Implementation Schedule for Environmental Mitigation Measures (EMIS)

## Appendix G – Implementation Schedule of Environmental Mitigation Measures (EMIS)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
<b>Air Quality</b>				
S5.5.6.1	A1	1) The Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	All construction sites	V
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> <li>• 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;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• 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;</li> <li>• 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;</li> </ul>	All construction sites	V
S5.5.6.2	A2	<ul style="list-style-type: none"> <li>• 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;</li> <li>• 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;</li> <li>• 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;</li> <li>• 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;</li> <li>• 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;</li> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• 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</li> </ul>	All construction sites	V
S5.5.6.2	A2	<ul style="list-style-type: none"> <li>• 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;</li> <li>• 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</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<ul style="list-style-type: none"> <li>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.</li> </ul>		
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	All construction sites	V
S5.5.6.4	A4	4) Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the Contractor's attention to the relevant latest Practice Notes issued by EPD.	All construction sites	V
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Selected representative dust monitoring station	N/A
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"> <li>Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system;</li> <li>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;</li> <li>Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system;</li> <li>The materials which may generate airborne dusty emissions should be wetted by water spray system;</li> <li>All receiving hoppers should be enclosed on three sides up to 3m above unloading point;</li> <li>All conveyor transfer points should be totally enclosed;</li> <li>All access and route roads within the premises should be paved and wetted; and</li> <li>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.</li> </ul>	Selected representative dust monitoring station	N/A
S5.5.2.7	A7	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point:</p> <ul style="list-style-type: none"> <li>All road surface within the barging facilities will be paved;</li> <li>Dust enclosures will be provided for the loading ramp;</li> <li>Vehicles will be required to pass through designated wheels wash facilities; and</li> <li>Continuous water spray at the loading points.</li> </ul>	All construction sites	N/A
<b>Construction Noise (Air borne)</b>				
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"> <li>only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>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;</li> <li>plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>mobile plant should be sited as far away from NSRs as possible</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		and practicable; <ul style="list-style-type: none"> <li>material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>		
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	All construction sites	N/A
S6.4.12	N3	3) Install movable noise barriers (typically density @14kg/m <sup>2</sup> ), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw.	For plant items listed in Appendix 6D of the EIA report at all construction sites	N/A
S6.4.13	N4	4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.	For plant items listed in Appendix 6D of the EIA report at all construction sites	V
S6.4.14	N5	5) Sequencing operation of construction plants where practicable.	All construction sites where practicable	V
	N6	6) Implement a noise monitoring under EM&A programme.	Selected representative noise monitoring station	N/A
<b>Sediment</b>				
S7.3	S1	1) The requirements as recommended in ETWB TC(W) 34/2002 Management of Dredged/Excavated Sediment shall be included in the Particular Specification as appropriate.	All construction sites	V
<b>Waste Management (Construction Noise)</b>				
S8.3.8	WM1	<u>Construction and Demolition Material</u> The following mitigation measures should be implemented in handling the waste: <ul style="list-style-type: none"> <li>Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>Carry out on-site sorting;</li> <li>Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</li> <li>Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>Implement an enhanced Waste Management Plan similar to ETWB TC(W) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> <li>In addition, disposal of the C&amp;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.</li> </ul>	All construction sites	V
S8.3.9- S8.3.11	WM2	<u>C&amp;D Waste</u> <ul style="list-style-type: none"> <li>Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;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</li> </ul>	All construction sites	N/A

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<p>and wastage.</p> <ul style="list-style-type: none"> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;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.</li> </ul>		
S8.2.12- S8.3.15	WM3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul>	All construction sites	V
S8.3.16	WM4	<p><u>Sewage</u></p> <ul style="list-style-type: none"> <li>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.</li> </ul>	All construction sites	V
S8.3.17	WM5	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>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.</li> <li>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.</li> <li>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, aluminium cans, plastic bottles etc., should be provided.</li> <li>Training should be provided to workers about the concepts of site</li> </ul>	All construction sites	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.		
<b>Water Quality (Construction Phase)</b>				
S9.11.1.7	W2	<p data-bbox="427 383 1034 427"><u>Land Works</u></p> <p data-bbox="427 427 1034 517">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 data-bbox="427 517 1034 2013" style="list-style-type: none"> <li data-bbox="427 517 1034 584">• wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;</li> <li data-bbox="427 584 1034 696">• sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the W PCO or collected for disposal offsite. The use of soakaways shall be avoided;</li> <li data-bbox="427 696 1034 875">• 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;</li> <li data-bbox="427 875 1034 965">• 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;</li> <li data-bbox="427 965 1034 1032">• temporary access roads should be surfaced with crushed stone or gravel;</li> <li data-bbox="427 1032 1034 1099">• rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;</li> <li data-bbox="427 1099 1034 1167">• measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;</li> <li data-bbox="427 1167 1034 1256">• open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;</li> <li data-bbox="427 1256 1034 1368">• 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;</li> <li data-bbox="427 1368 1034 1458">• discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;</li> <li data-bbox="427 1458 1034 1570">• 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;</li> <li data-bbox="427 1570 1034 1637">• wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain;</li> <li data-bbox="427 1637 1034 1727">• the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel;</li> <li data-bbox="427 1727 1034 1816">• wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects;</li> <li data-bbox="427 1816 1034 1951">• 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 W PCO or collected for off site disposal;</li> <li data-bbox="427 1951 1034 2013">• the Contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up</li> </ul>	Land-based works areas	V



EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<p>immediately;</p> <ul style="list-style-type: none"> <li>waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance;</li> <li>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</li> <li>surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.</li> </ul>		
<b>Ecology (Construction Phase)</b>				
S10.7	E4	Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater	Land-based works areas	V
S10.7	E5	Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time	Land-based works areas	V
S10.7	E8	<ul style="list-style-type: none"> <li>Control vessel speed</li> <li>Skipper training</li> <li>Predefined and regular routes for working vessels; avoid Brother Islands.</li> </ul>	Marine Traffic	N/A
<b>Fisheries</b>				
S11.7	F4	<ul style="list-style-type: none"> <li>Maritime Oil Spill Response Plan (MOSRP);</li> <li>Contingency plan.</li> </ul>	HKBCF	V
<b>Landscape &amp; Visual (Detailed Design Phase)</b>				
S14.3.3.1	LV1	<p>General design measures include:</p> <ul style="list-style-type: none"> <li>Roadside planting and planting along the edge of the HKBCF Island is proposed;</li> <li>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;</li> <li>Protection measures for the trees to be retained during construction activities;</li> <li>Optimizing the sizes and spacing of the bridge columns; Fine-tuning the location of the bridge columns to avoid visually-sensitive locations;</li> <li>Maximizing new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed;</li> <li>Providing planting area around peripheral of HKBCF for tree planting screening effect;</li> <li>Providing salt-tolerant native trees along the planter strip at affected seawall and newly reclaimed coastline;</li> <li>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</li> <li>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.</li> </ul>	HKBCF	V
<b>Landscape &amp; Visual (Construction Phase)</b>				
S14.3.3.3	LV2	<p><u>Mitigate both Landscape and Visual Impacts</u></p> <p>G1. Grass-hydroseed bare soil surface and stock pile areas.</p>	HKBCF	N/A

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<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>		
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>		N/A
<b>EM&amp;A</b>				
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	All construction sites	V
S15.5 - S15.6	EM2	<p>1) An Environmental Team needs to be employed as per the EM&amp;A Manual.</p> <p>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</p> <p>3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&amp;A Manual are fully complied with.</p>	All construction sites	V

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

# Appendix H. Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

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

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

# Appendix I. Environmental Site Inspection Schedule

**Environmental Site Inspection Schedule for September 2015**

Sep-15						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2 Weekly Audit	3 Public Holiday	4	5
6	7	8	9	10	11 Weekly Audit	12
13	14	15	16	17 Weekly Audit	18	19
20	21	22	23	24 Weekly Audit	25	26
27	28 Public Holiday	29 Weekly Audit	30			

**Tentative Environmental Site Inspection Schedule for October 2015**

Oct-15						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 Public Holiday	2	3
4	5	6	7	8 Weekly Audit	9	10
11	12	13	14	15 Weekly Audit	16	17
18	19	20	21 Public Holiday	22 Weekly Audit	23	24
25	26	27	28	29 Weekly Audit	30	31