

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

Attn:
Mr. Raymond Dai - Independent Environmental Checker

**Contract No. HY/2013/04 Hong Kong-Zhuhai-Macao Bridge (HZMB)
Hong Kong Boundary Crossing Facilities – Infrastructure Works Stage II
(Southern Portion)**

Our Reference
JFP/GC/bw/T355861/02/
02/L062

Monthly EM&A Report for October 2016

20/F AIA Kowloon Tower
Landmark East
100 How Ming Street
Kwun Tong
Kowloon
Hong Kong

15 November 2016

By Email

Dear Sir,

T +852 2828 5757
F +852 2827 1823
mottmac.hk

In accordance with Condition 5.4 of the Environmental Permit (EP-353/2009/K) covering the captioned contract, we are pleased to submit the certified Monthly EM&A Report for October 2016 for your verification.

Yours faithfully
For MOTT MACDONALD HONG KONG LIMITED



Gary Chow
Environmental Team Leader

Encl.

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

15 November 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. 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 October 2016**

Reference is made to the Environmental Team's submission of the Monthly Environmental Monitoring & Audit Report for October 2016 certified by the ET Leader (ET's ref.: "JFP/GC/bw/T355861/02/02/L062" dated 15 November 2016) and provided to us via e-mail on 15 November 2016.

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

The ET Leader is reminded that it is the ET's responsibility to ensure the report be timely submitted to the Director of Environmental Protection as per Condition 5.4 of the EP.

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

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





Raymond Dai
Independent Environmental Checker

c.c.	HyD	Mr. Vico Cheung	(By Fax: 3188 6614)
	HyD	Mr. Horace Hong	(By Fax: 3188 6614)
	MMHK	Mr. Gary Chow	(By Fax: 2827 1823)
	CSCE	Mr. Eddie Tang	(By Fax: 2459 4336)

Internal: DY, YH, ENPO Site

Q:\Projects\HYDZHMBEEM00\02_Proj_Mgt\02_Corr\HYDZHMBEEM00_0_4761L.16.doc



Contract No. HY/2013/04 HZMB HKBCF –
Infrastructure Works Stage II (Southern Portion)
Monthly EM&A Report for October 2016

November 2016

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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/K, was issued on 11 April 2016. 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 16th Monthly EM&A Report for the Contract which summaries findings of the EM&A works during the reporting period from 1 to 31 October 2016 (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 AMS7 and noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract Nos. HY/2010/02 and HY/2011/03. However, this is subject to ENPO’s final decision on which ET should carry out the monitoring work at these stations.

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

- Environmental Site Inspection: 4, 11, 18 and 24 October 2016

Breaches of Action and Limit Levels

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

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

- Pre-drilling, Bored Pile, Driven H Pile, Pile Cap, Pier Column, Pier Head.
- Generation of excavated marine sediment and/or transport to HKBCF Contract No. HY/2013/03 (if required).
- No marine works are scheduled under this contract.

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/K, was issued on 11 April 2016. 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 16th Monthly EM&A Report summarising the findings of EM&A activities conducted under the Contract from 1 to 31 October 2016 (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
Contractor (China State Construction Engineering (Hong Kong) Limited)	Site Agent	Eddie Tang	9863 7686	2459 4336
	Environmental Officer	Ricky Hon	9100 7509	2459 4336
Environmental Team (Mott MacDonald Hong Kong Limited)	Environmental Team Leader	Gary Chow	2828 5874	2827 1823
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:

- Pre-drilling: 5 completed
- Bored Pile: 18 completed
- Driven H Pile: 4 completed
- Pile Cap: 5 completed
- Pier Column: 5 completed
- Pier Head: 3 completed
- Generation of excavated marine sediment and transport to HKBCF Contract No. HY/2013/03 for disposal.

No marine works were conducted under this contract during the reporting period.

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 AMS7 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 ⁽¹⁾	Dragonair/CNAC (Group) Building
AMS7 ⁽¹⁾	Hong Kong SkyCity Marriot Hotel

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

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
AMS7 – Hong Kong SkyCity Marriot Hotel	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
AMS7 – Hong Kong SkyCity Marriot Hotel	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 AMS7 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 AMS7 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 ⁽¹⁾	Seaview Crescent
NMS3B ^{(1) (2)}	Site Boundary of Site Office Area at Works Area WA2

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

3.2 Monitoring Requirements

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 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 4, 11, 18 and 24 October 2016.

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

4 October 2016

- a. No new observations were made.

11 October 2016

- a. Some general refuse and stagnant water were observed in a skip but the intended use of the skip was not clear. Subsequently, the skip was designated for C&D material storage and cleared of general refuse and stagnant water. Tarpaulin covering was also provided to minimise further accumulation of stagnant water. The observation was closed on 18 October 2016.
- b. Oil container was observed on the ground. The Contractor was reminded to provide drip tray for the container. Subsequently, the oil container was removed and no longer observed. The observation was closed on 24 October 2016.

18 October 2016

- a. No new observations were made.

24 October 2016

- a. A small portion of haul road outside the HKBCF site office was dry. The Contractor was reminded to ensure that all portions of haul road are provided with water spray. Follow-up actions for the outstanding observation will be inspected during the upcoming site inspections and reported in the coming reporting period.
- b. NRMM label for a generator outside the HKBCF site office did not appear to be shown in the correct colour. The Contractor was reminded to ensure that the label meets the regulatory requirements. Follow-up actions for the outstanding observation will be inspected during the upcoming site inspections and reported in the coming reporting period.

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. As a practical means, the disposal operation is managed by a single HKBCF contractor who is also responsible for applying dumping permit and its subsequent extension applications from EPD. Contract No. HY/2013/03 has been assigned to coordinate and arrange for disposal of extracted marine sediment from this Contract.

There was no generation of excavated sediment for treatment during this reporting period. Any treatment of excavated marine sediment will be conducted using cement solidification/

stabilization (Cement S/S) techniques and the treated sediment 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.

4.2.1 Disposal of Marine Sediment Extracted from Bored Piling Works

4.2.1.1 Background

After the acceptance of the review of the approved Sediment Quality Report (SQR) for this Project under EPD letter dated 19 August 2015, an approval to dispose the marine sediment extracted from bored piling for this Project was then approved under memo from Secretary, Marine Fill Committee (MFC) of CEDD dated 20 August 2015 for the disposal of marine sediment extracted from bored piling works. The disposal sites allocated to this Project are the Mud Pit CMP2 of the Confined Marine Sediment Disposal Facility to the South of The Brothers (or at the East of Sha Chau). As advised by CEDD in the memo dated 19 February 2016, from 00:00 on 22 March 2016 onward, the disposal space at CMP2 of the South of The Brothers is closed and all disposal of contaminated sediment is to be carried out at CMP Vd to the East of Sha Chau (ESC).

There was no generation of excavated sediment for treatment during this reporting period. The marine sediment extracted from this Contract was disposed to the MFC allocated disposal sites directly without treatment.

4.2.1.2 Dumping Arrangements

The barge for disposal of marine sediment will morn at the temporary loading and unloading at the east shore of the HKBCF Island, which has been being used by reclamation contractor (Contract No. HY/2010/02) for reclamation activities. In terms of safety consideration and to avoid mixing of sediment between contracts, each dumping date will be allocated to one Contract. The quantity of marine sediment disposed on each date is from one Contract.

During dumping, each Contractor is responsible for transporting the marine sediment from his site area to the barge. The estimated quantity of marine sediment in each truck is confirmed by Resident Site Staff of each Contract. The trip tickets for transportation and disposal of marine sediment are collected and checked. Contract No. HY/2013/03 as the dumping permit holder is responsible for reporting to EPD the quantity disposed of as the condition stipulated in the dumping permit.

4.2.1.3 Reporting

Marine sediment extracted from bored piling in this Contract was disposed to MFC allocated dumping site via Contract No. HY/2013/03 on 3, 4, 5, 11, 12, 13, 14, 17, 26 and 27 October 2016. The quantities disposed up to end of October 2016 are in following table (**Table 4.1**):

Table 4.1: Summary of Marine Sediment disposed to Dumping Site via Contract No. HY/2013/03

Month/Year	Quantity Disposed (m ³)
Up to end September 2016	24,058
October 2016	5,286

Month/Year	Quantity Disposed (m ³)
Total =	29,344

Note: For monthly breakdown of these quantities, please refer to the waste flow table in **Appendix E**.

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 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 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 November 2016 are summarized in **Table 5.1**.

Table 5.1: Construction Activities for November 2016

Site Area	Description of Activities
HKBCF	<ul style="list-style-type: none"> ● Pre-drilling, Bored Pile, Driven H Pile, Pile Cap, Pier Column, Pier Head. ● Generation of excavated marine sediment and/or transport to HKBCF Contract No. HY/2013/03 (if required). ● No marine works are scheduled under this contract.

5.2 Environmental Site Inspection Schedule for the Coming Month

The tentative schedule for weekly site inspections for November 2016 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 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 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 4, 11, 18 and 24 October 2016. 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

Plot File by: Manky 19/08/2013
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Project Management Initials:

Checked:

ISO A3 297mm x 420mm

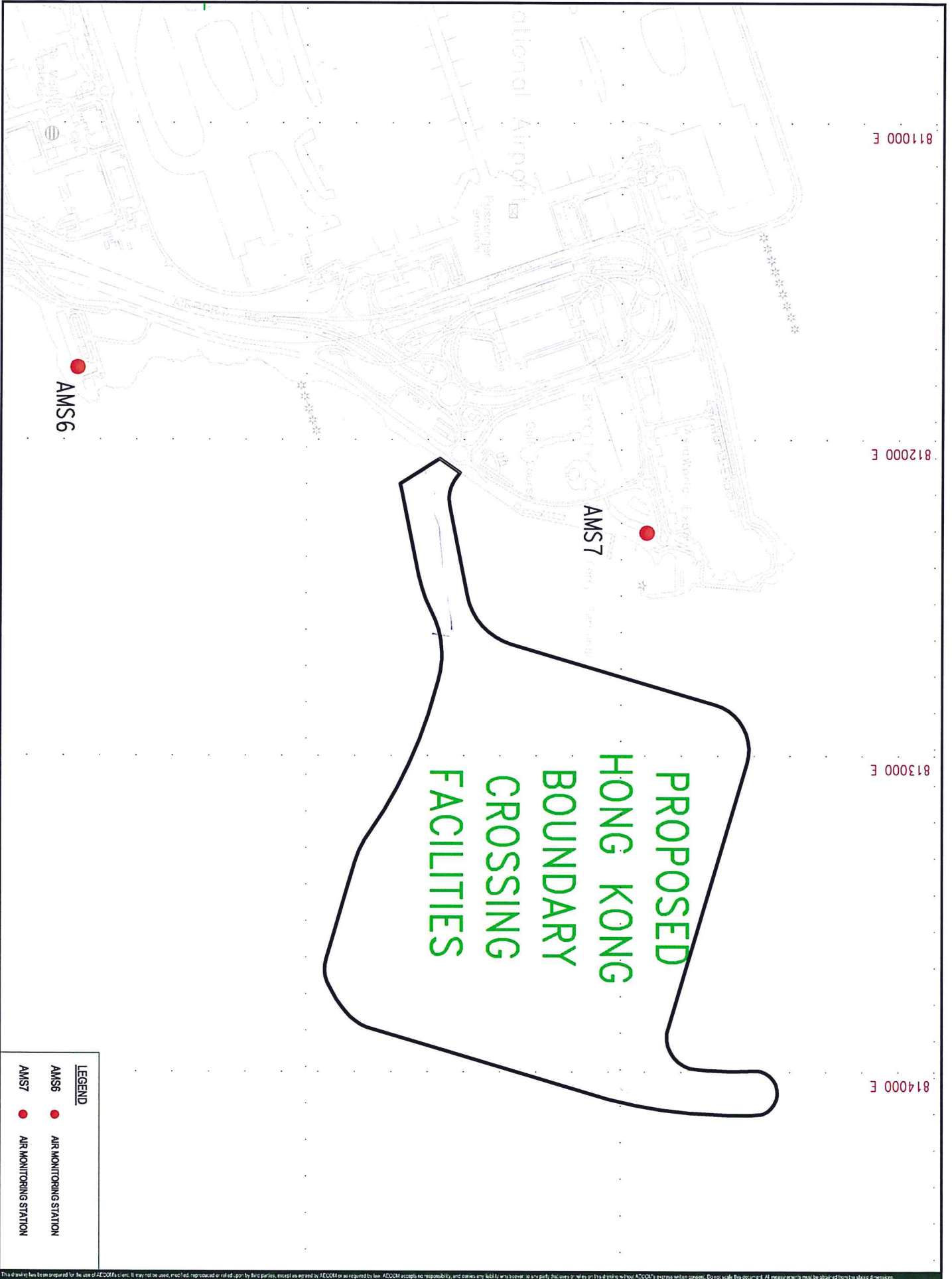
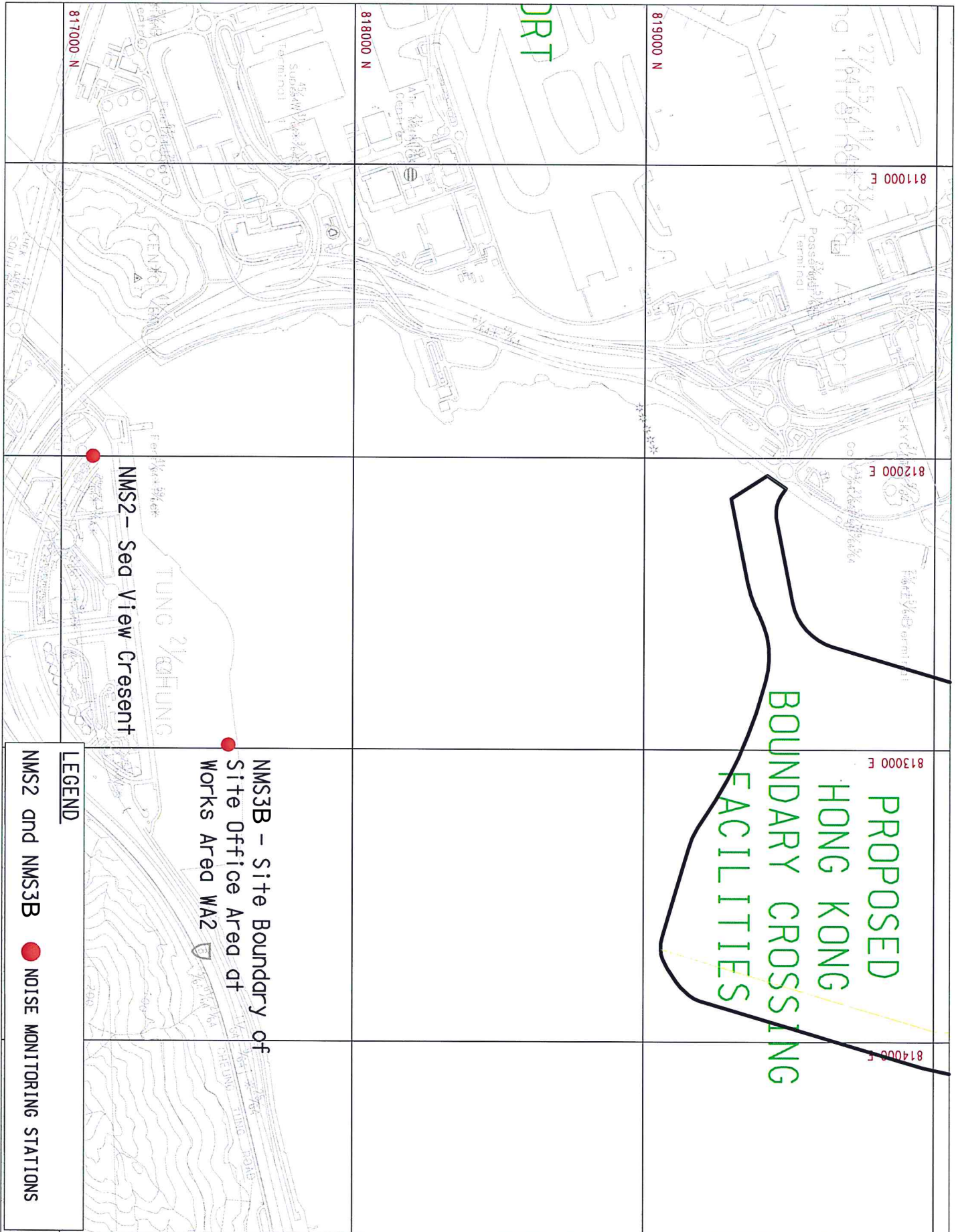


Figure 2 Location of Noise Quality Monitoring Stations

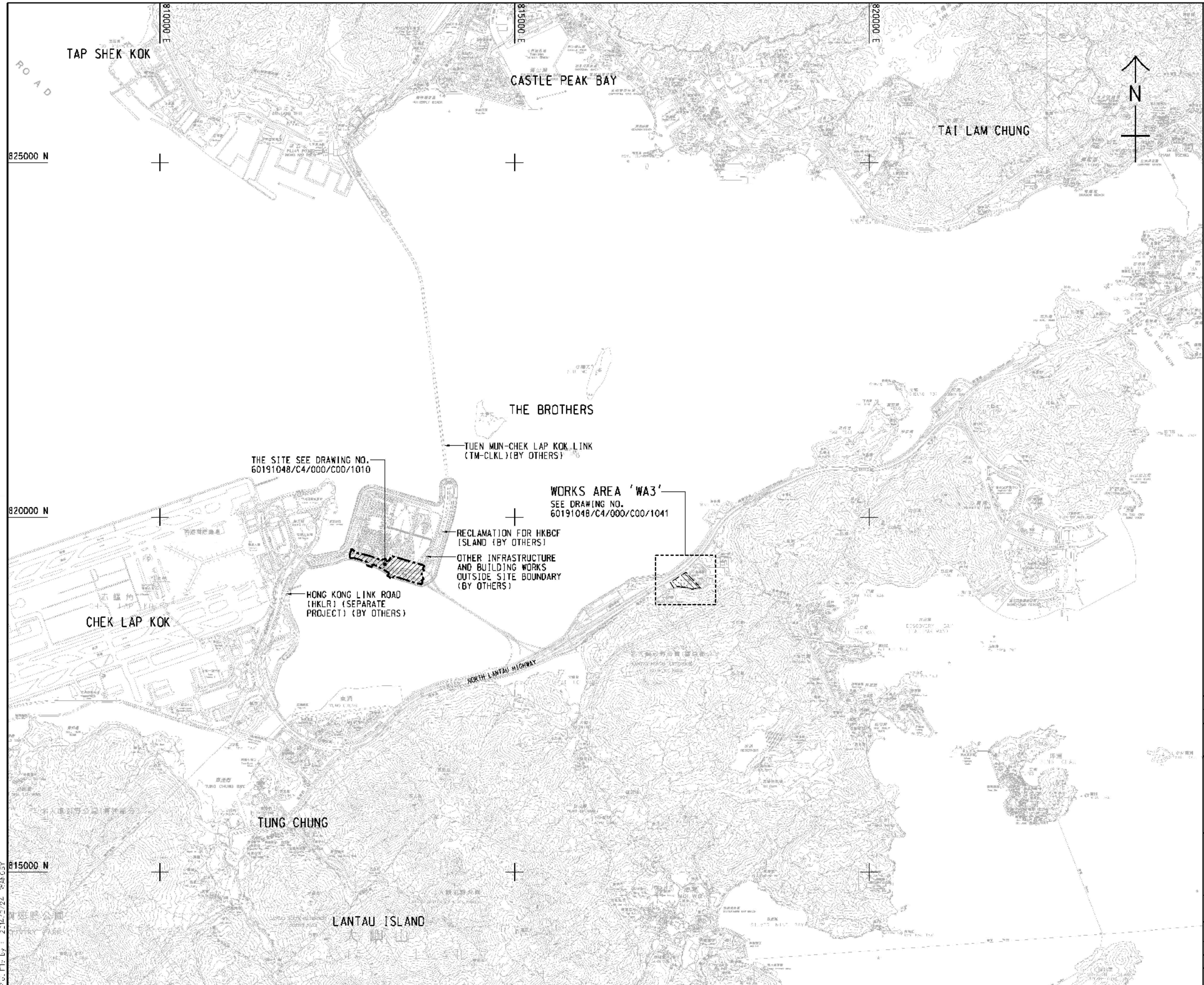
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Project Management Initials: Checked:

ISO A3 297mm x 420mm



Appendix A. Location of Works Areas



NOTES:

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

LEGEND:

-  SITE BOUNDARY
-  WORKS AREA

P. S. [] : 2.14.2/24. 24.03

- TENDER DRAWING		B/CW	SG1	FEB.14
REV.	DESCRIPTION	DATE	BY	CHK.
01	ISSUED FOR TENDERS			

路政處
HIGHWAYS DEPARTMENT
港珠澳大橋粵港工務管理處
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)

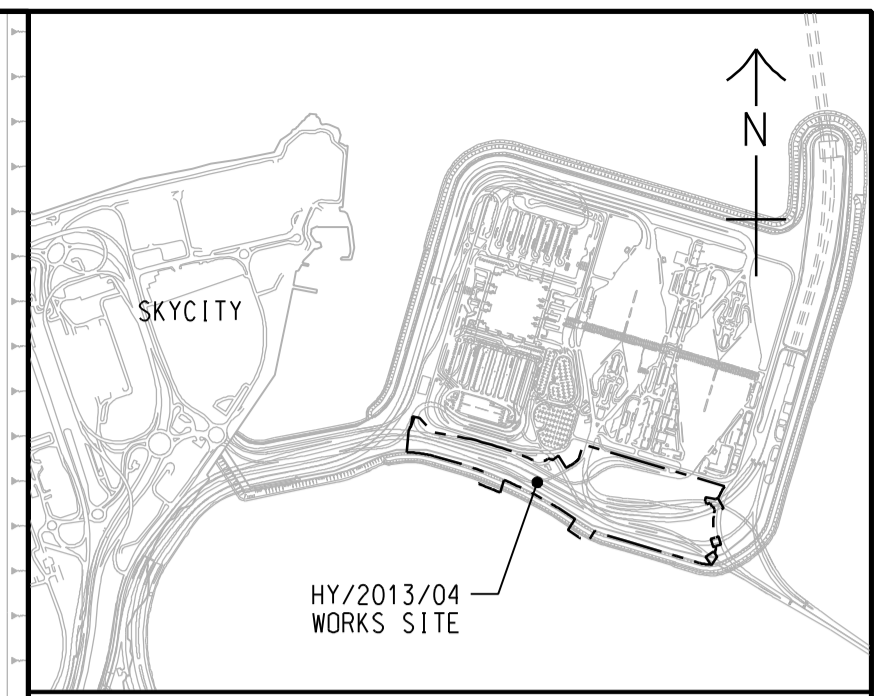
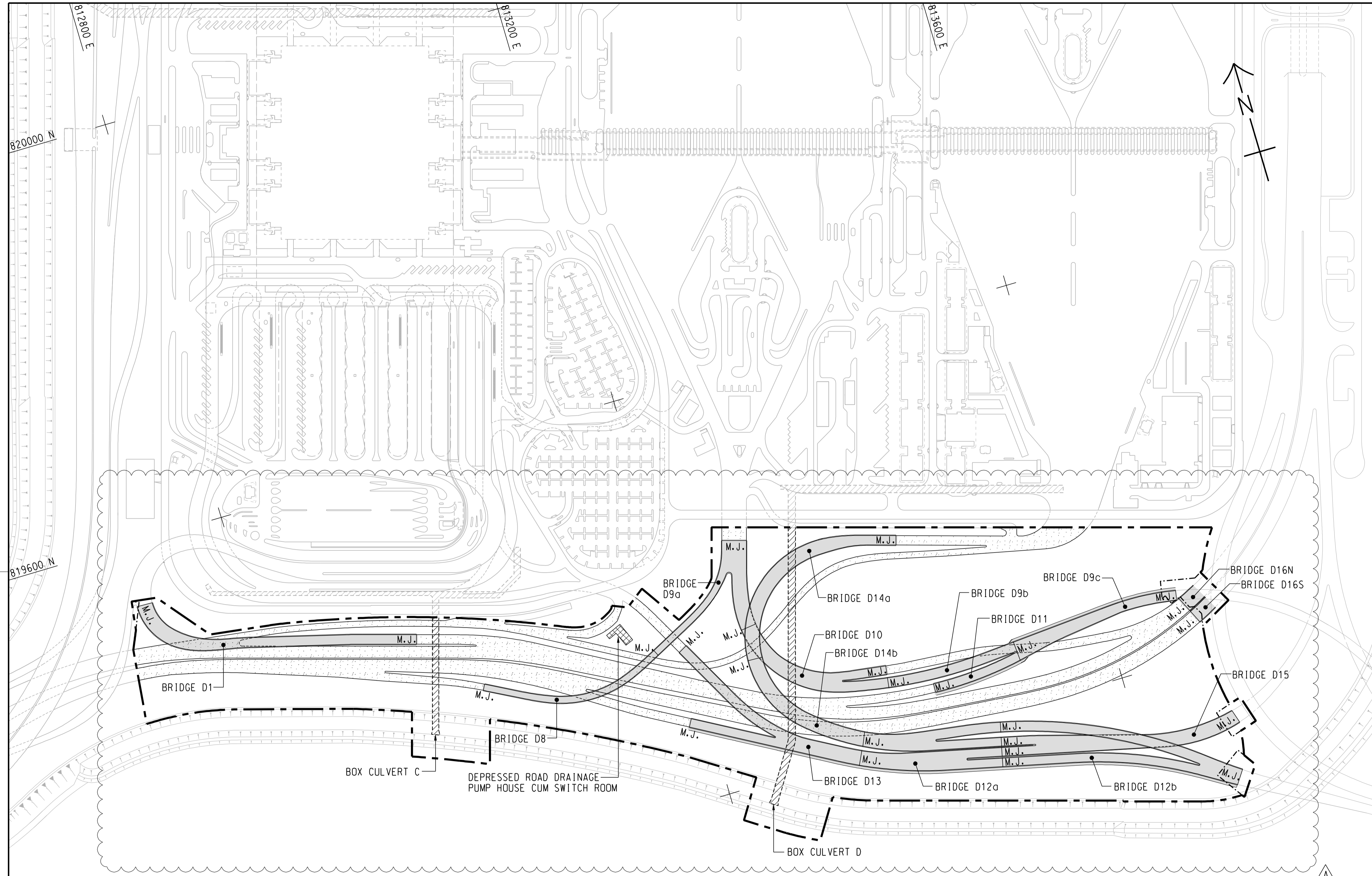
SITE LOCATION PLAN

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

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

DESIGNED BY B/CW	CONTRACT NO. HY/2013/04	P. I. CHECKED BY TKH
DRAWN BY MSY	STATUS REV.	
SCALE A1 1 : 25000		

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

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

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

GENERAL ARRANGEMENT

AECOM
 Rogers Stirk Harbour + Partners
Aedas
 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
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DRAWN BY
繪圖
WSY
STATUS
階段
WORKING DRAWING

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
317	817566.404	819028.472
318	817568.506	819008.526
319	817531.155	819001.066
320	817533.346	818991.306

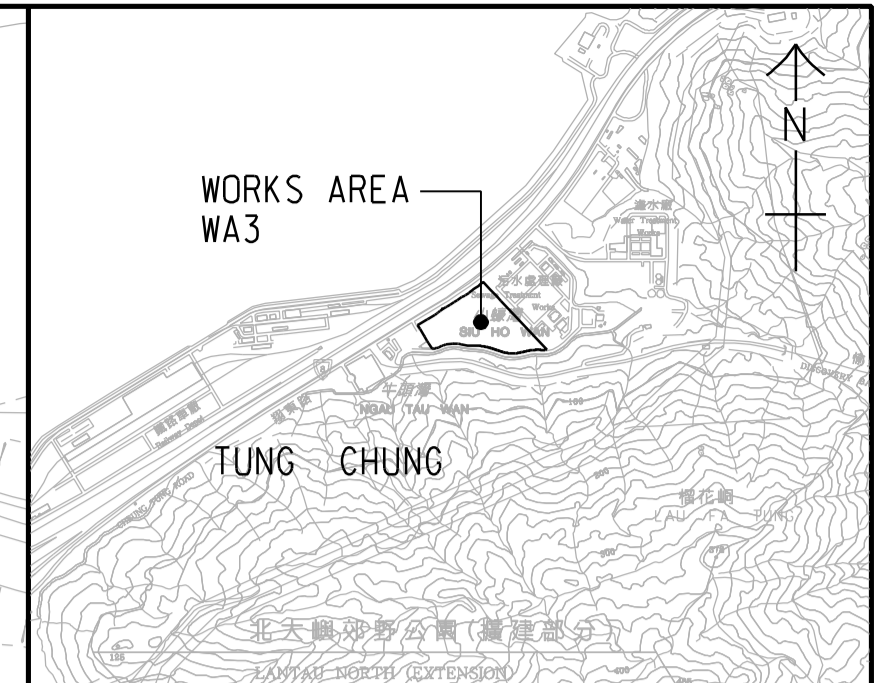
81200 E

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

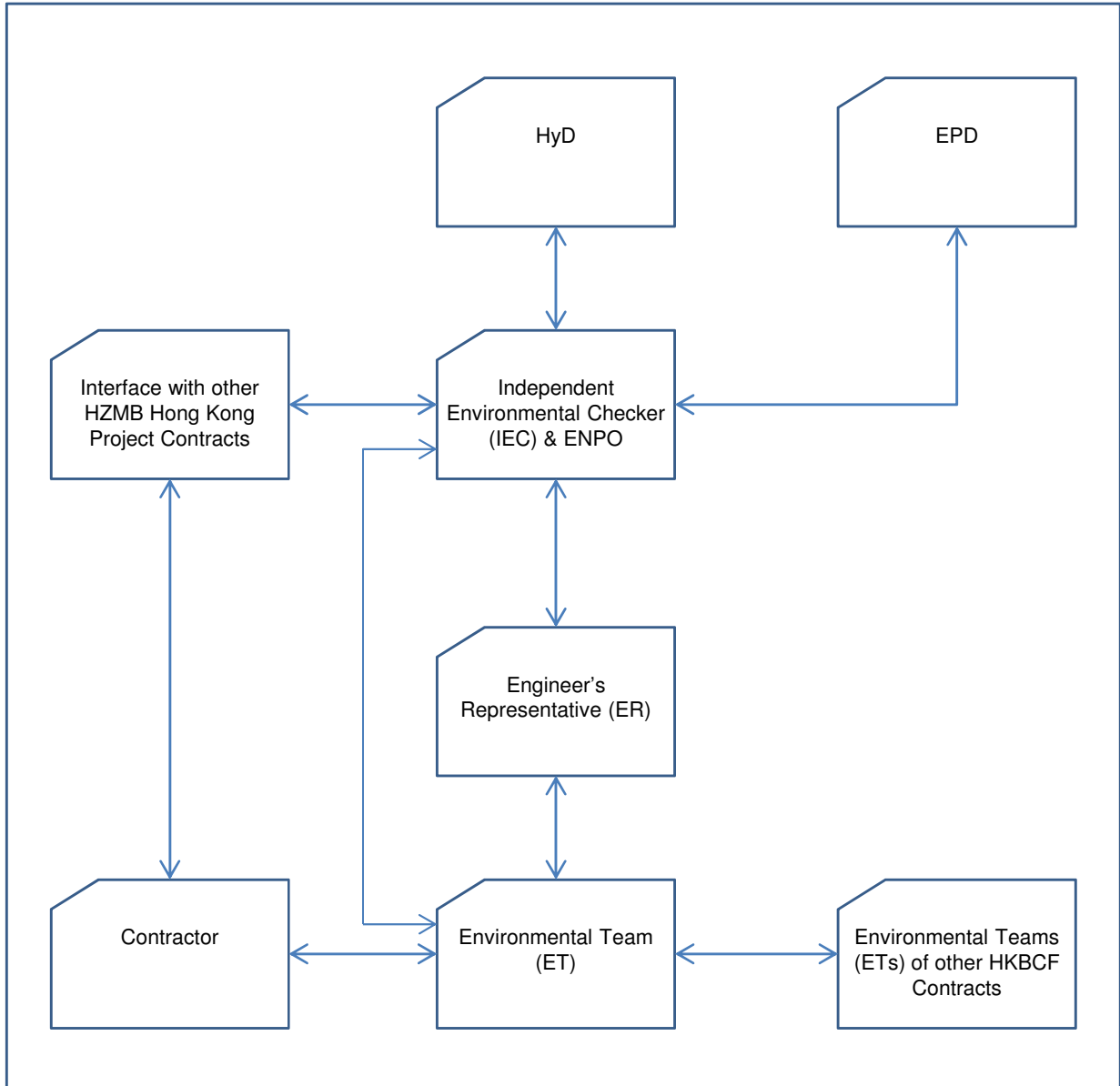
AECOM Aedas
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

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	WORKING DRAWING		
SCALE 比例	A1 1 : 1000				
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Appendix B. Project Organization for Environmental Works

Project Organisation for Environmental Works



↔ Line of Communication

Appendix C. Construction Programme

Table with columns: Activity ID, Activity Name, Orig Dur, Early Start, Early Finish, Total Float, Calendar, Remarks, and monthly progress bars for years 2015 through 2020. Rows include categories like Pier Segment, E&M Works, Steel Structures, Roads and Bridge Lighting, Irrigation System, Soft Landscaping, and Construction/Installation.

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	Calendar	Remarks	2015					2016					2017					2018					2019					2020																																																										
								J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
								[Gantt Chart Data]												[Gantt Chart Data]												[Gantt Chart Data]												[Gantt Chart Data]												[Gantt Chart Data]																																			
CONS.A1.1240	Bridge D9c - Construct Deck (Cast in Situ) (1 span, P910 to P911)	36d	06-Jul-17	16-Aug-17	-476d	CAL 2 - 6 day	1 span (cast in-situ)																																																																																				
CONS.A1.1250	Bridge D9c - Erect Precast Segments Pier P911 to Pier P913	16d	26-Oct-17	14-Nov-17	-447d	CAL 2 - 6 day	28 segments, 2 spans x 8 days / span																																																																																				
CONS.A1.1260	D9c Bridge Ancillary - Parapet/TCSS, Railing, MJ, Drainage, Bridge	32d	29-Nov-17	08-Jan-18	-410d	CAL 2 - 6 day	126m / 2 Steel moulds @ 7 day cycle / 10m bay																																																																																				
CONS.A1.1270	D9c Bridge Ancillary - Parapet + Railing, MJ, Drainage, Bridge	32d	09-Jan-18	14-Feb-18	-220d	CAL 2 - 6 day	126m / 2 Steel moulds @ 7 day cycle / 10m bay																																																																																				
Bridge D9c in Portion A3 (Interface with Contract HY/2012/07)																																																																																											
CONS.A3.1010	Site Possession / Access to Portion A3	0d	06-Oct-16		-118d	CAL 2 - 6 day																																																																																					
CONS.A3.1020	Mob/ Survey / Setting Out	12d	06-Oct-16	20-Oct-16	-118d	CAL 2 - 6 day																																																																																					
CONS.A3.1030	Bridge D9c (A3) - Erect Precast Segments Pier P913 to Contract	8d	29-Nov-17	07-Dec-17	-447d	CAL 2 - 6 day	14 segments, 1 span x 8 days																																																																																				
CONS.A3.1040	D9c Bridge Ancillary - Parapet/TCSS, Railing, MJ, Drainage, Bridge	35d	09-Jan-18	21-Feb-18	-398d	CAL 2 - 6 day	41m 1 Steel Moulds @ 5 days cycle / 10m bay																																																																																				
CONS.A3.1045	D9c Bridge Ancillary - Parapet + Railing, MJ, Drainage, Bridge	35d	22-Feb-18	07-Apr-18	-398d	CAL 2 - 6 day	41m 1 Steel Moulds @ 5 days cycle / 10m bay																																																																																				
CONS.A3.1050	D9c Final Asphalt Paving + Road Markings	21d	09-Apr-18	03-May-18	-398d	CAL 2 - 6 day																																																																																					
CONS.A3.1060	Completion of Works in Stage 1B (KD2)	0d		03-May-18	-398d	CAL 2 - 6 day																																																																																					
Bridge D10																																																																																											
CONS.A1.1290.10	Predrilling (14 nos) (D10)	35d	05-Aug-15 A	07-Nov-15 A		CAL 2 - 6 day	14 nos x 5d / 2 rigs																																																																																				
CONS.A1.1300	D10 Bored Piling (14 nos 1800-2200mm dia x 57m) (42m)	66d	12-Jan-16 A	06-May-16 A		CAL 2 - 6 day	14 nos x 14 days / 3 rigs																																																																																				
CONS.A1.9110	Pile Caps (P1008)	13d	03-Jun-16 A	12-Jul-16 A		CAL 2 - 6 day																																																																																					
CONS.A1.10120	Pile Caps (A1004)	13d	03-Jun-16 A	12-Jul-16 A		CAL 2 - 6 day																																																																																					
CONS.A1.1305	Pile Testing	66d	02-Jun-16 A	17-Aug-16 A		CAL 2 - 6 day																																																																																					
CONS.A1.9140	Pile Caps (P1002)	13d	14-Jul-16 A	06-Sep-16 A		CAL 2 - 6 day																																																																																					
CONS.A1.1284	Site Possession / Access to Portion A1	0d	06-Oct-16		1147d	CAL 2 - 6 day																																																																																					
CONS.A1.1286	Survey / Setting Out	6d	06-Oct-16	13-Oct-16	1147d	CAL 2 - 6 day																																																																																					
CONS.A1.1290.20	GI Report and Verification / Agreement to Founding Level	8d	06-Oct-16	15-Oct-16	1145d	CAL 2 - 6 day																																																																																					
CONS.A1.9120	Pile Caps (P1003)	30d	21-Sep-16 A	20-Oct-16	1102d	CAL 2 - 6 day																																																																																					
CONS.A1.9130	Pile Caps (P1007)	30d	21-Sep-16 A	20-Oct-16	1141d	CAL 2 - 6 day																																																																																					
CONS.A1.1310	Pile Trimming	50d	04-Jun-16 A	21-Oct-16	-480d	CAL 2 - 6 day																																																																																					
CONS.A1.9160	Pile Caps (P1001)	18d	06-Oct-16	27-Oct-16	-438d	CAL 2 - 6 day																																																																																					
CONS.A1.8850	Pier Columns (P1008)	12d	10-Nov-16	23-Nov-16	-464d	CAL 2 - 6 day																																																																																					
CONS.A1.9370	Pier Head & Bearing (P1008)	12d	24-Nov-16	07-Dec-16	-434d	CAL 2 - 6 day																																																																																					
CONS.A1.8860	Pier Columns (P1001 & P1005)	12d	28-Nov-16	10-Dec-16	-464d	CAL 2 - 6 day																																																																																					
CONS.A1.8840	Pier Columns (P1002 & P1006)	12d	01-Dec-16	14-Dec-16	-464d	CAL 2 - 6 day																																																																																					
CONS.A1.9400	Pier Head & Bearing (P1001 & 1005)	12d	12-Dec-16	24-Dec-16	-449d	CAL 2 - 6 day																																																																																					
CONS.A1.8870	Pier Columns (P1007)	12d	15-Dec-16	30-Dec-16	-464d	CAL 2 - 6 day																																																																																					
CONS.A1.9380	Pier Head & Bearing (P1002 & P1006)	12d	15-Dec-16	30-Dec-16	-452d	CAL 2 - 6 day																																																																																					
CONS.A1.8830	Pier Columns (P1003)	12d	23-Dec-16	09-Jan-17	1058d	CAL 2 - 6 day																																																																																					
CONS.A1.9360	Pier Head & Bearing (P1007)	12d	31-Dec-16	14-Jan-17	-464d	CAL 2 - 6 day																																																																																					
CONS.A1.9350	Pier Head & Bearing (P1003)	12d	16-Jan-17	01-Feb-17	1058d	CAL 2 - 6 day																																																																																					
CONS.A1.1315	Construct Abutment A1004	36d	20-Dec-16	06-Feb-17	-480d	CAL 2 - 6 day																																																																																					
CONS.A1.1340	Bridge D10 - Erect Precast Segments + Stitching + Stressing	64d	16-Mar-17	06-Jun-17	-512d	CAL 2 - 6 day	109 segments, 8 spans x 8 days / span																																																																																				
CONS.A1.1355	D10 Bridge Ancillary - Parapet + Railing, MJ, Drainage, Bridge	50d	03-Aug-17	29-Sep-17	-129d	CAL 2 - 6 day	195m / 2 Steel Moulds @ 5 days cycle / 10m bay +																																																																																				
CONS.A1.1350	D10 Bridge Ancillary - Parapet/TCSS, Railing, MJ, Drainage, Bridge	50d	03-Aug-17	29-Sep-17	-330d	CAL 2 - 6 day	195m / 2 Steel Moulds @ 5 days cycle / 10m bay																																																																																				
CONS.A1.1360	D10 Final Asphalt Paving + Road Markings	14d	30-Sep-17	18-Oct-17	-129d	CAL 2 - 6 day																																																																																					
CONS.A1.1370	Bridge D10 complete	0d		18-Oct-17	-129d	CAL 2 - 6 day																																																																																					
Bridge D11																																																																																											
CONS.A1.1380.10	Predrilling (3 nos) (D11)	15d	25-Aug-15 A	23-Oct-15 A		CAL 2 - 6 day	3 nos x 5 days / 1 rigs																																																																																				
CONS.A1.1380.20	GI Report and Verification / Agreement to Founding Level	8d	23-Oct-15 A	31-Oct-15 A		CAL 2 - 6 day																																																																																					
CONS.A1.1390	D11 Bored Piling (3 nos 2000mm dia x 65) (52m for abutment)	88d	27-Jan-16 A	18-May-16 A		CAL 2 - 6 day	3 nos x 14 days / 1 rig																																																																																				
CONS.A1.1395	Pile Testing	60d	22-Mar-16 A	30-Jun-16 A		CAL 2 - 6 day																																																																																					
CONS.A1.1400	Pile Trimming	38d	14-Jun-16 A	19-Jul-16 A		CAL 2 - 6 day																																																																																					
CONS.A1.9070	Pile Caps (P1102)	18d	21-Jun-16 A	26-Jul-16 A		CAL 2 - 6 day	8 days																																																																																				
CONS.A1.9080	Pile Caps (A1101)	15d	14-Jul-16 A	16-Aug-16 A		CAL 2 - 6 day	8 days																																																																																				
CONS.A1.8900	Pier Columns (P1102)	12d	07-Sep-16 A	30-Sep-16 A		CAL 2 - 6 day	12 days																																																																																				
CONS.A1.1375	Site Possession / Access to Portion A1 (61d)	0d	06-Oct-16		1147d	CAL 2 - 6 day																																																																																					
CONS.A1.1378	Survey / Setting Out	6d	06-Oct-16	13-Oct-16	1147d	CAL 2 - 6 day																																																																																					
CONS.A1.9420	Pier Head & Bearing (P1102)	12d	06-Oct-16	20-Oct-16	-102d	CAL 2 - 6 day	12 days																																																																																				
CONS.A1.1405	Abutment A1101	36d	25-Mar-17	12-May-17	-265d	CAL 2 - 6 day																																																																																					
CONS.A1.1430	Bridge D11 - Erect Precast Segments + Stitching + Stressing	16d	18-Dec-17	08-Jan-18	-447d	CAL 2 - 6 day	31 Segements, 2 spans x 8 days /span																																																																																				
CONS.A1.1440	D11 Bridge Ancillary - Parapet/TCSS, Railing, MJ, Drainage, Bridge	25d	23-Jan-18	23-Feb-18	-447d	CAL 2 - 6 day	93m / 2 steel moulds @ 5 days / cycle / 10m bay																																																																																				
CONS.A1.1445	D11 Bridge Ancillary - Parapet + Railing, MJ, Drainage, Bridge	25d	24-Feb-18	24-Mar-18	-269d	CAL 2 - 6 day	93m / 2 steel moulds @ 5 days / cycle / 10m bay																																																																																				
CONS.A1.1450	D11 Final Asphalt Paving + Road Markings	12d	26-Mar-18	12-Apr-18	-269d	CAL 2 - 6 day																																																																																					
CONS.A1.1460	Bridge D11 complete	0d		12-Apr-18	-269d	CAL 2 - 6 day																																																																																					
RW11 (42m / 3 bays)																																																																																											
CONS.A1.3320	Commence RW11 Retaining Wall (42m / 3 bays)	0d	13-May-17		-183d	CAL 2 - 6 day																																																																																					
CONS.A1.3330	Survey / Setting Out	6d	13-May-17	19-May-17	-183d	CAL 2 - 6 day																																																																																					
CONS.A1.3340	Excavate to formation level (open cut / slope)	18d	20-May-17	10-Jun-17	-183d	CAL 2 - 6 day																																																																																					
CONS.A1.3350	Cast Base & Wall Stem 3 bays (ribbed finish to 1m below F.G.L)	36d	12-Jun-17	24-Jul-17	-183d	CAL 2 - 6 day	3 bays x 12 days																																																																																				
CONS.A1.3360	Backfill to final ground level	24d	11-Jul-17	07-Aug-17	-183d	CAL 2 - 6 day																																																																																					

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	Calendar	Remarks	2015					2016					2017					2018					2019					2020													
								J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
CONSTRUCTION WORKS																																														
Road Formation to Base Course																																														
Installation of Railing and Fencing + Road Lighting and Signages																																														
CONS.RW.3700	Road Formation to Base Course	36d	24-Oct-17	05-Dec-17	806d	CAL 2 - 6 day																																								
Installation of Railing and Fencing + Road Lighting and Signages																																														
CONS.RW.3710	Install Road Railing and Fencing	45d	31-Oct-17	21-Dec-17	-177d	CAL 2 - 6 day																																								
CONS.RW.3720	Install Road Lighting and Signages	36d	13-Nov-17	23-Dec-17	-177d	CAL 2 - 6 day																																								
Final Paving and Road Markings																																														
CONS.RW.3730	Final Road Paving (Wearing Course)	10d	01-Dec-17	12-Dec-17	-177d	CAL 2 - 6 day																																								
CONS.RW.3740	Road Markings and Road Signages	7d	07-Dec-17	14-Dec-17	-177d	CAL 2 - 6 day																																								
Road SOL 104 (Phase 1)																																														
Kerbing and Footings for Railing, Fencing, Signages and Road Lighting																																														
CONS.RW.3320	Excavate and Construct Footings for Road Lightings / Railing /	50d	03-Jul-17	29-Aug-17	-181d	CAL 2 - 6 day																																								
CONS.RW.3330	Road Formation to Sub-base	45d	22-Jul-17	12-Sep-17	-172d	CAL 2 - 6 day																																								
CONS.RW.3340	Construct Precast Road Kerbings	45d	05-Aug-17	26-Sep-17	-172d	CAL 2 - 6 day																																								
Road Works to Road Base and Base Course																																														
CONS.RW.3350	Road Formation to Road Base	45d	02-Sep-17	26-Oct-17	-172d	CAL 2 - 6 day																																								
CONS.RW.3360	Road Formation to Base Course	36d	25-Sep-17	08-Nov-17	-172d	CAL 2 - 6 day																																								
Installation of Railing and Fencing + Road Lighting and Signages																																														
CONS.RW.3380	Install Road Lighting and Signages	30d	13-Nov-17	16-Dec-17	-183d	CAL 2 - 6 day																																								
CONS.RW.3370	Install Road Railing and Fencing	36d	10-Nov-17	21-Dec-17	-181d	CAL 2 - 6 day																																								
Final Paving and Road Markings																																														
CONS.RW.3310	Road Markings and Road Signages	5d	12-Dec-17	16-Dec-17	-179d	CAL 2 - 6 day																																								
CONS.RW.3300	Final Road Paving (Wearing Course)	7d	18-Dec-17	27-Dec-17	-179d	CAL 2 - 6 day																																								
Road SOL 104 (Phase 2)																																														
Kerbing and Footings for Railing, Fencing, Signages and Road Lighting																																														
CONS.RW.3800	Excavate and Construct Footings for Road Lightings / Railing /	50d	03-Jul-17	29-Aug-17	-181d	CAL 2 - 6 day																																								
CONS.RW.3810	Road Formation to Sub-base	45d	22-Jul-17	12-Sep-17	-181d	CAL 2 - 6 day																																								
CONS.RW.3820	Construct Precast Road Kerbings	45d	05-Aug-17	26-Sep-17	-173d	CAL 2 - 6 day																																								
Road Works to Road Base and Base Course																																														
CONS.RW.3830	Road Formation to Road Base	45d	13-Sep-17	07-Nov-17	-181d	CAL 2 - 6 day																																								
CONS.RW.3840	Road Formation to Base Course	36d	07-Oct-17	18-Nov-17	-181d	CAL 2 - 6 day																																								
Installation of Railing and Fencing + Road Lighting and Signages																																														
CONS.RW.3850	Install Road Railing and Fencing	36d	01-Nov-17	12-Dec-17	-181d	CAL 2 - 6 day																																								
CONS.RW.3860	Install Road Lighting and Signages	30d	13-Nov-17	16-Dec-17	-183d	CAL 2 - 6 day																																								
Final Paving and Road Markings																																														
CONS.RW.3780	Final Road Paving (Wearing Course)	7d	08-Dec-17	15-Dec-17	-183d	CAL 2 - 6 day																																								
CONS.RW.3790	Road Markings and Road Signages	5d	16-Dec-17	21-Dec-17	-183d	CAL 2 - 6 day																																								
Area 2 (East of Pump House Portion C1, A1, A2, B1, B2,B5)																																														
Road Works																																														
Road SOL 101 / 109 / 114 (Phase 1)																																														
Kerbing and Footings for Railing, Fencing, Signages and Road Lighting																																														
CONS.RE.3840	Excavate and Construct Footings for Road Lightings / Railing /	60d	01-Nov-17	12-Jan-18	-321d	CAL 2 - 6 day																																								
CONS.RE.3850	Road Formation to Sub-base	45d	02-Dec-17	26-Jan-18	-321d	CAL 2 - 6 day																																								
CONS.RE.3860	Construct Precast Road Kerbings	45d	16-Dec-17	09-Feb-18	-321d	CAL 2 - 6 day																																								
Road Works to Road Base and Base Course																																														
CONS.RE.3720	Road Formation to Road Base	45d	24-Jan-18	20-Mar-18	-321d	CAL 2 - 6 day																																								
CONS.RE.3730	Road Formation to Base Course	36d	07-Mar-18	21-Apr-18	-321d	CAL 2 - 6 day																																								
Installation of Railing and Fencing + Road Lighting and Signages																																														
CONS.RE.3740	Install Road Railing and Fencing	36d	11-Apr-18	24-May-18	-321d	CAL 2 - 6 day																																								
CONS.RE.3750	Install Road Lighting and Signages	36d	03-May-18	14-Jun-18	-321d	CAL 2 - 6 day																																								
Road SOL 101 / 109 / 114 (Phase 2)																																														
Kerbing and Footings for Railing, Fencing, Signages and Road Lighting																																														
CONS.RE.4420	Excavate and Construct Footings for Road Lightings / Railing /	60d	02-Nov-17	15-Jan-18	-311d	CAL 2 - 6 day																																								
CONS.RE.4430	Road Formation to Sub-base	45d	04-Dec-17	29-Jan-18	-311d	CAL 2 - 6 day																																								
CONS.RE.4440	Construct Precast Road Kerbings	45d	18-Dec-17	12-Feb-18	-311d	CAL 2 - 6 day																																								
Road Works to Road Base and Base Course																																														
CONS.RE.4380	Road Formation to Road Base	45d	25-Jan-18	22-Mar-18	-311d	CAL 2 - 6 day																																								
CONS.RE.4390	Road Formation to Base Course	36d	22-Feb-18	10-Apr-18	-311d	CAL 2 - 6 day																																								
Installation of Railing and Fencing + Road Lighting and Signages																																														
CONS.RE.4400	Install Road Railing and Fencing	36d	24-Mar-18	11-May-18	-311d	CAL 2 - 6 day																																								
CONS.RE.4410	Install Road Lighting and Signages	36d	19-Apr-18	02-Jun-18	-311d	CAL 2 - 6 day																																								
Road SOL 102 (Phase 1)																																														
Kerbing and Footings for Railing, Fencing, Signages and Road Lighting																																														
CONS.RE.4150	Excavate and Construct Footings for Road Lightings / Railing /	60d	09-Sep-17	21-Nov-17	-264d	CAL 2 - 6 day																																								
CONS.RE.4170	Road Formation to Sub-base	60d	23-Sep-17	05-Dec-17	-264d	CAL 2 - 6 day																																								
CONS.RE.4160	Construct Precast Road Kerbings	60d	10-Oct-17	19-Dec-17	-264d	CAL 2 - 6 day																																								
Road Works to Road Base and Base Course																																														
CONS.RE.4100	Road Formation to Road Base	50d	20-Nov-17	19-Jan-18	-264d	CAL 2 - 6 day																																								

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Total Float	Calendar	Remarks	2015					2016					2017					2018					2019					2020																																																										
								J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
CONS.C1.8220	Install Irrigation Main Line + Construct Swale	60d	03-Nov-17	15-Jan-18	-362d	CAL 2 - 6 day		Install Irrigation Main Line + Construct Swale																																																																																			
CONS.C1.8230	Install Lateral Irrigation Pipes / Sprinklers	60d	28-Nov-17	08-Feb-18	-362d	CAL 2 - 6 day		Install Lateral Irrigation Pipes / Sprinklers																																																																																			
CONS.C1.8240	Irrigation Coverage Test	14d	09-Feb-18	28-Feb-18	-362d	CAL 2 - 6 day		Irrigation Coverage Test																																																																																			
CONS.C1.8250	Soft Landscaping - Shrubs Planting / Ground Cover	60d	01-Mar-18	15-May-18	-362d	CAL 2 - 6 day	15,470 m2 / 10m2 / day / 26 workers	Soft Landscaping - Shrubs Planting / Ground Cover																																																																																			
CONS.C1.8260	Complete Landscape Works in Zone BC4 W02	0d		15-May-18	-362d	CAL 2 - 6 day		15-May-18, Complete Landscape Works in Zone BC4 W02																																																																																			
Zone BC4 in Portion D1																																																																																											
CONS.C1.8600	Commence Landscape Works in Portion D1	0d	17-Nov-17		-323d	CAL 2 - 6 day	Area 2,730 m2	17-Nov-17 Commence Landscape Works in Portion D1																																																																																			
CONS.C1.8610	Top Soil to Landscaped Areas	25d	17-Nov-17	15-Dec-17	-323d	CAL 2 - 6 day	1638 m3 / 100 m3 / day	Top Soil to Landscaped Areas																																																																																			
CONS.C1.8620	Install Irrigation Main Line + Construct Swale	44d	16-Dec-17	08-Feb-18	-323d	CAL 2 - 6 day		Install Irrigation Main Line + Construct Swale																																																																																			
CONS.C1.8630	Install Lateral Irrigation Pipes / Sprinklers	30d	02-Feb-18	12-Mar-18	-323d	CAL 2 - 6 day		Install Lateral Irrigation Pipes / Sprinklers																																																																																			
CONS.C1.8640	Irrigation Coverage Test	6d	13-Mar-18	19-Mar-18	-323d	CAL 2 - 6 day		Irrigation Coverage Test																																																																																			
CONS.C1.8650	Soft Landscaping - Shrubs Planting / Ground Cover	36d	20-Mar-18	05-May-18	-323d	CAL 2 - 6 day	2730 m2 / 10m2 / day / 10 workers	Soft Landscaping - Shrubs Planting / Ground Cover																																																																																			
CONS.C1.8660	Complete Landscape Works in Portion D1 of Zone BC4 W02	0d		05-May-18	-323d	CAL 2 - 6 day		05-May-18, Complete Landscape Works in Portion D1 of Zone BC4 W02																																																																																			
Zone CC4																																																																																											
CONS.C1.8270	Commence Landscape Works in Zone CC4	0d	15-Dec-17		-362d	CAL 2 - 6 day	Area 4,200 m2	15-Dec-17 Commence Landscape Works in Zone CC4																																																																																			
CONS.C1.8280	Top Soil to Landscaped Areas	26d	15-Dec-17	17-Jan-18	-362d	CAL 2 - 6 day	2,520 m3 / 100 m3 / day	Top Soil to Landscaped Areas																																																																																			
CONS.C1.8290	Install Irrigation Main Line	36d	18-Jan-18	03-Mar-18	-362d	CAL 2 - 6 day		Install Irrigation Main Line																																																																																			
CONS.C1.8300	Install Lateral Irrigation Pipes / Sprinklers	36d	08-Feb-18	24-Mar-18	-362d	CAL 2 - 6 day		Install Lateral Irrigation Pipes / Sprinklers																																																																																			
CONS.C1.8310	Irrigation Coverage Test	6d	26-Mar-18	04-Apr-18	-362d	CAL 2 - 6 day		Irrigation Coverage Test																																																																																			
CONS.C1.8320	Soft Landscaping - Shrubs Planting / Ground Cover	28d	16-May-18	19-Jun-18	-362d	CAL 2 - 6 day	4,200 m2 / 10 m2 / 15 workers	Soft Landscaping - Shrubs Planting / Ground Cover																																																																																			
CONS.C1.8330	Complete Landscape Works in Zone CC4	0d		19-Jun-18	-362d	CAL 2 - 6 day		19-Jun-18, Complete Landscape Works in Zone CC4																																																																																			
Zone EC4																																																																																											
CONS.C1.8340	Commence Landscape Works	0d	18-Jan-18		-362d	CAL 2 - 6 day	Area 2,400 m2	18-Jan-18 Commence Landscape Works																																																																																			
CONS.C1.8350	Top Soil to Landscaped Areas	15d	18-Jan-18	03-Feb-18	-362d	CAL 2 - 6 day	1,440 m3 / 100 m3 / day	Top Soil to Landscaped Areas																																																																																			
CONS.C1.8360	Install Irrigation Main Line	24d	05-Feb-18	07-Mar-18	-362d	CAL 2 - 6 day		Install Irrigation Main Line																																																																																			
CONS.C1.8370	Install Lateral Irrigation Pipes / Sprinklers	15d	08-Mar-18	24-Mar-18	-362d	CAL 2 - 6 day		Install Lateral Irrigation Pipes / Sprinklers																																																																																			
CONS.C1.8380	Irrigation Coverage Test	3d	26-Mar-18	28-Mar-18	-362d	CAL 2 - 6 day		Irrigation Coverage Test																																																																																			
CONS.C1.8390	Soft Landscaping - Shrubs Planting / Ground Cover	20d	20-Jun-18	13-Jul-18	-362d	CAL 2 - 6 day	2400 m2 / 10 m2 / 12 workers	Soft Landscaping - Shrubs Planting / Ground Cover																																																																																			
CONS.C1.8400	Complete Landscape Works in Zone EC4 W02	0d		13-Jul-18	-362d	CAL 2 - 6 day		13-Jul-18, Complete Landscape Works in Zone EC4 W02																																																																																			
Zone FC4																																																																																											
CONS.C1.8410	Commence Landscape Works	0d	05-Feb-18		-362d	CAL 2 - 6 day	Area 1,800 m2	05-Feb-18 Commence Landscape Works																																																																																			
CONS.C1.8420	Top Soil to Landscaped Areas	12d	05-Feb-18	21-Feb-18	-362d	CAL 2 - 6 day	1080 m3 / 100 m3 / day	Top Soil to Landscaped Areas																																																																																			
CONS.C1.8430	Install Irrigation Main Line	24d	22-Feb-18	21-Mar-18	-362d	CAL 2 - 6 day		Install Irrigation Main Line																																																																																			
CONS.C1.8440	Install Lateral Irrigation Pipes / Sprinklers	12d	22-Mar-18	09-Apr-18	-362d	CAL 2 - 6 day		Install Lateral Irrigation Pipes / Sprinklers																																																																																			
CONS.C1.8450	Irrigation Coverage Test	2d	10-Apr-18	11-Apr-18	-362d	CAL 2 - 6 day		Irrigation Coverage Test																																																																																			
CONS.C1.8460	Soft Landscaping - Shrubs Planting / Ground Cover	18d	14-Jul-18	03-Aug-18	-362d	CAL 2 - 6 day	1800 m2 / 10 m2 / 10 workers	Soft Landscaping - Shrubs Planting / Ground Cover																																																																																			
CONS.C1.8470	Complete Landscape Works in Zone FC4 W02	0d		03-Aug-18	-362d	CAL 2 - 6 day		03-Aug-18, Complete Landscape Works in Zone FC4 W02																																																																																			
Irrigation Water Tanks and Booster Pumps																																																																																											
CONS.C1.8790	Identify and Agree location with Engineer	12d	11-Oct-17	24-Oct-17	-358d	CAL 2 - 6 day		Identify and Agree location with Engineer																																																																																			
CONS.C1.8800	Construct Irrigation Water Tanks and Booster Pump Chamber	48d	25-Oct-17	20-Dec-17	-358d	CAL 2 - 6 day		Construct Irrigation Water Tanks and Booster Pump Chamber																																																																																			
CONS.C1.8810	MEP Works - Electrical and Mechanical Installation + T&C	36d	21-Dec-17	03-Feb-18	-358d	CAL 2 - 6 day		MEP Works - Electrical and Mechanical Installation + T&C																																																																																			
Establishment Period (1 year)																																																																																											
CONS.C1.8190	Establishment of Landscape Works	365d	04-Aug-18	03-Aug-19	-444d	CAL 1 - 7 day		Establishment of Landscape Works																																																																																			
Executive Summary																																																																																											
Box Culverts																																																																																											
Box Culvert D																																																																																											
BCD.ES.1010	Box Culvert D - Bored Piling, Testing + Pile caps (Bay 1-15)	170d	21-Apr-16 A	06-Jan-17	-539d	CAL 2 - 6 day		Box Culvert D - Bored Piling, Testing + Pile caps (Bay 1-15)																																																																																			
BCD.ES.1030	Box Culvert D - Bored Piling + Pile Testing (Bay 1-3)	122d	11-Oct-16	08-Mar-17	-226d	CAL 2 - 6 day		Box Culvert D - Bored Piling + Pile Testing (Bay 1-3)																																																																																			
BCD.ES.1020	Box Culvert D - RC Box Structure + Backfilling (Bay 1-15)	156d	02-Dec-16	17-Jun-17	-539d	CAL 2 - 6 day		Box Culvert D - RC Box Structure + Backfilling (Bay 1-15)																																																																																			
BCD.ES.1040	Box Culvert D - Cofferdam + ELS (Bay 1-3 + Outfall)	141d	27-Feb-17	19-Aug-17	-238d	CAL 2 - 6 day		Box Culvert D - Cofferdam + ELS (Bay 1-3 + Outfall)																																																																																			
BCD.ES.1050	Box Culvert D - Pile Caps + RC Box Structure (Bay 1-3 + Outfall)	158d	19-Aug-17	02-Mar-18	-238d	CAL 2 - 6 day		Box Culvert D - Pile Caps + RC Box Structure (Bay 1-3 + Outfall)																																																																																			
Box Culvert C																																																																																											
BCC.ES.2030	Box Culvert C - Driven H Pile + Load Testing (Bay 1-3)	79d	12-Jul-16 A	15-Feb-17	-227d	CAL 2 - 6 day		Box Culvert C - Driven H Pile + Load Testing (Bay 1-3)																																																																																			
BCC.ES.2010	Box Culvert C - Driven H Pile + Pile caps (Bay 4-8)	128d	05-Nov-16	11-Apr-17	-309d	CAL 2 - 6 day		Box Culvert C - Driven H Pile + Pile caps (Bay 4-8)																																																																																			
BCC.ES.2020	Box Culvert C - Construct RC Box Structure (Bay 4-8)	129d	14-Feb-17	22-Jul-17	-309d	CAL 2 - 6 day		Box Culvert C - Construct RC Box Structure (Bay 4-8)																																																																																			
BCC.ES.2040	Box Culvert C - Cofferdam + ELS (Bay 1-3 + Outfall)	126d	27-Feb-17	01-Aug-17	-236d	CAL 2 - 6 day		Box Culvert C - Cofferdam + ELS (Bay 1-3 + Outfall)																																																																																			
BCC.ES.2050	Box Culvert C - Pilecaps + RC Box Structure (Bay 1-3 + Outfall)	172d	02-Aug-17	28-Feb-18	-236d	CAL 2 - 6 day		Box Culvert C - Pilecaps + RC Box Structure (Bay 1-3 + Outfall)																																																																																			
Bridge Works																																																																																											
Bridges in Portion A & B																																																																																											
BRG.ES.1010	Bridges in Portion A & B - Bored Piling + Pilecaps	490d	05-Sep-15 A	23-Nov-16	-338d	CAL 2 - 6 day		Bridges in Portion A & B - Bored Piling + Pilecaps																																																																																			
BRG.ES.1020	Bridges in Portion A & B - Column / Pier Head + Bearings	61d	31-Oct-16	13-Jan-17	0d	CAL 2 - 6 day		Bridges in Portion A & B - Column / Pier Head + Bearings																																																																																			
BRG.ES.1040	Bridges in Portion A & B - Parapet + Ancillary Works	164d	14-Mar-17	29-Sep-17	-129d	CAL 2 - 6 day		Bridges in Portion A & B - Parapet + Ancillary Works																																																																																			
BRG.ES.1030	Bridges in Portion A & B - Decking / Segments Erection + Stitching	102d	08-Jan-18	16-May-18	-370d	CAL 2 - 6 day		Bridges in Portion A & B - Decking / Segments Erection																																																																																			
Bridges in Portion C & D																																																																																											
BRG.ES.2010	Bridges in Portion C & D - Bored Piling + Pilecaps	288d	01-Feb-16 A	23-Jan-17	-367d	CAL 2 - 6 day		Bridges in Portion C & D - Bored Piling + Pilecaps																																																																																			
BRG.ES.2020	Bridges in Portion C & D - Column, Pier Head + Bearings	2d	04-Mar-17	06-Mar-17	-367d	CAL 2 - 6 day		Bridges in Portion C & D - Column, Pier Head + Bearings																																																																																			

Appendix D. Event and Action Plan

Event/Action Plan for Air Quality

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

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Construction Noise Monitoring

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

Appendix E. Waste Flow Table

Monthly Summary Waste Flow Table for 2016

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	Transported to other Projects (Note 2)	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (Note 1)	Chemical Waste	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)
Jan	0.8	0	0	0.8	0	0	0	0	0	0	0.04
Feb	0.704	0	0	0.704	0	0	0	0	0	0	0.04
Mar	3.942	0	0	3.942	0	0	0	0	0	0	0.033
Apr	5.028	0	0	5.028	0	0	0	0	0	0	0.0186
May	0	0	0	0	0	0	0	0	0	0	0.0533
Jun	1.578	0	0	1.578	0	0	0	0	0	0	0.0829
Sub-total	12.052	0	0	12.052	0	0	0	0	0	0	0.2678
Jul	3.69	0	0	3.69	0	0	0	0	0	0	0.0837
Aug	4.428	0	0	4.428	0	0	0	0	0	0	0.0514
Sep	3.888	0	0	3.888	0	0	0	0	0	0	0.0483
Oct	5.286	0	0	5.286	0	0	0	0	0	0	0.0521
Nov											
Dec											
Total	29.344	0	0	29.344	0	0	0	0	0	0	0.5033

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

(2) "Other Projects" refers to HKBCF Contract No. HY/2013/03

Monthly Summary of Excavated Marine Sediment for 2016

Month	a. Estimated Volume of Excavated Marine Sediment Generated	b. Estimate Volume of Accumulated Excavated Marine Sediment Treated	c. Reused in the Contract	d. Estimated Volume of Excavated Marine Sediment Transported to Other Projects (Note 1)	e. Estimated Volume of Treated Excavated Marine Sediment Stored on Site (Unused)
	(in m ³)	(in m ³)	(in m ³)	(in m ³)	(in m ³)
Jan	800	0	0	800	0
Feb	704	0	0	704	0
Mar	3942	0	0	3942	0
Apr	5028	0	0	5028	0
May	0	0	0	0	0
Jun	1578	0	0	1578	0
Sub-total	12052	0	0	12052	0
Jul	3690	0	0	3690	0
Aug	4428	0	0	4428	0
Sep	3888	0	0	3888	0
Oct	5286	0	0	5286	0
Total	29344	0	0	29344	0

Note: (1) "Other Projects" refers to HKBCF Contract No. HY/2013/03

Appendix F. Environmental Licences and Permits

Environmental Licences and Permits

Item No.	Type of Permit / Licence	Reference No.	Application Date	Valid from	Valid until	Remark
1	Environmental Permit under EIAO	EP-353/2009/K	24 Mar 2016	11 Apr 2016	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-RS0665-16	14 Jun 2016	1 Jul 2016	31 Oct 2016	Expired during reporting month
7	Construction Noise Permit	PP-RS0022-16	25 July 2016	1 Sep 2016	28 Feb 2017	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
Air Quality				
S5.5.6.1	A1	1) The Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	All construction sites	V
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; 	All construction sites	V
S5.5.6.2	A2	<ul style="list-style-type: none"> • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides 	All construction sites	V
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. 	All construction sites	V
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	All construction sites	V
S5.5.6.4	A4	4) Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the Contractor's attention to the relevant latest Practice Notes issued by EPD.	All construction sites	V
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Selected representative dust monitoring station	V (covered by Contract No. HY/2010/02 & HY/2011/03)
S5.5.7.1	A6	The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant: <ul style="list-style-type: none"> • Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system; 	Selected representative dust monitoring station	N/A

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<ul style="list-style-type: none"> 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. 		
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. 	All construction sites	N/A
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. 	All construction sites	V
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	All construction sites	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.	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	V (covered by Contract No. HY/2010/02)
Sediment				
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
Waste Management (Construction Noise)				
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; 	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"> • 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 ETWB TC(W) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation. 		
S8.3.9- S8.3.11	WM2	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	All construction sites	V
S8.2.12- S8.3.15	WM3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly 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. • 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. 	All construction sites	V
S8.3.16	WM4	<p><u>Sewage</u></p> <ul style="list-style-type: none"> • Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly. 	All construction sites	V
S8.3.17	WM5	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminium 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. 	All construction sites	V
Water Quality (Construction Phase)				
S9.11.1.7	W2	<u>Land Works</u>	Land-based works	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<p>General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include:</p> <ul style="list-style-type: none"> • wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; • sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the W PCO or collected for disposal offsite. The use of soakaways shall be avoided; • storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks; • silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm; • temporary access roads should be surfaced with crushed stone or gravel; • rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; • measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; • open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; • manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers; • discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; • 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 W PCO 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. 	areas	
Ecology (Construction Phase)				
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"> • Control vessel speed • Skipper training • Predefined and regular routes for working vessels; avoid Brother Islands. 	Marine Traffic	N/A
Fisheries				
S11.7	F4	<ul style="list-style-type: none"> • Maritime Oil Spill Response Plan (MOSRP); • Contingency plan. 	HKBCF	V
Landscape & Visual (Detailed Design Phase)				
S14.3.3.1	LV1	<p>General design measures include:</p> <ul style="list-style-type: none"> • Roadside planting and planting along the edge of the HKBCF Island is proposed; 	HKBCF	V

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<ul style="list-style-type: none"> • 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. 		
Landscape & Visual (Construction Phase)				
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> <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>	HKBCF	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>		N/A
EM&A				
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	All construction sites	V
S15.5 - S15.6	EM2	<p>1) An Environmental Team needs to be employed as per the EM&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&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	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period	0	0	0
From commencement date of construction to end of reporting month	2	0	0

Appendix I. Environmental Site Inspection Schedule

Environmental Site Inspection Schedule for October 2016

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

Tentative Environmental Site Inspection Schedule for November 2016

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