

Your ref.
Our ref. 5126871/19.10/OC074/SO/RC

Date: 18 October 2016

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

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

Attn: Mr. Donald Ip

Dear Mr. Ip,

**Contract No. HY/2013/01
Hong Kong – Zhuhai – Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Certification of Monthly EM&A Report No. 24**

Atkins China Limited certifies, in the capacity of Environmental Team Leader, that the Monthly EM&A Report No. 24 for September 2016 (Revision 3) conforms the requirements provided in Condition 5.4 of the Environmental Permit No. EP-353/2009/K.

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



**Sharifah OR
Environmental Team Leader**

cc.

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

18 October 2016

By Fax (3468 2076) and By Post

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

Attention: Mr. Darrel Kingan

Dear Sir,

**Re: Agreement No. CE 48/2011 (EP)
Environmental Project Office for the
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities,
and Tuen Mun-Chek Lap Kok Link – Investigation**

**Contract No. HY/2013/01 – HZMB HKBCF – Passenger Clearance Building
Monthly Environmental Monitoring & Audit Report for September 2016**

Reference is made to the Environmental Team's submission of Monthly Environmental Monitoring & Audit Report No. 24 for September 2016 (Rev. 3) certified by the ET Leader (ET's ref.: "5126871/19.10/OC074/SO/RC" dated 18 October 2016) and provided to us via e-mail on 18 October 2016.

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

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 and the reported information be true, valid and correct as per Conditions 5.4 and 5.5 of the EP respectively.

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

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



Raymond Dai
Independent Environmental Checker

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

Internal: DY, YH, ENPO Site

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Contract No. HY/2013/01

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

Monthly EM&A Report No. 24

(Covering the Period from 1 September 2016 to 30 September 2016)

18 October 2016

Revision 3

Main Contractor



Leighton - Chun Wo
Joint Venture

Environmental Team

ATKINS

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Executive Summary

This monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract HY/2013/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) – Passenger Clearance Building (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR). The Contract was awarded to Leighton – Chun Wo Joint Venture (hereafter referred to as “the Contractor”) and Atkins China Limited was appointed as the Environmental Team (ET) by the Contractor.

The Contract is part of Hong Kong – Zhuhai – Macao Bridge HKBCF which is a “Designated Project”, under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap 499) and Environmental Impact Assessment (EIA) Report (Register No. AEIAR-145/2009) was prepared for the Project. The current Environmental Permit (EP) No. EP-353/2009/K for HKBCF was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. Site preparation works of the Contract started on 26 September 2014 and the construction works of the Contract commenced on 6 October 2014.

Atkins China Limited has been appointed by the Contractor to implement the Environmental Monitoring & Audit (EM&A) programme for the Contract in accordance with the Updated EM&A Manual for HKBCF (Version 1.0) and will be providing environmental team services to the Contract.

This is the twenty-fourth monthly EM&A Report for the Contract which summarizes findings of the EM&A works during the reporting period from 1 to 30 September 2016.

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works and Contract No. HY/2011/03 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 and AMS7 and noise monitoring at NMS2 and NMS3B as part of EM&A programme if these monitoring stations are no longer covered under Contract Nos. HY/2010/02 and HY/2011/03. However, this is subject to ENPO’s final decision on which ET should carry out the monitoring work at these stations.

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

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

Breaches of Action and Limit Levels

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

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

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

Complaint Log

There 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 Change

There was no reporting change during the reporting period.

Future Key Issues

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

Land-based work

- Bulk Excavation at Seawater Pump House (WA1)
- District Cooling System (DCS) intake (WA1);
- Pile Cropping (WA1);
- Tie Beams (WA1);
- Pile Capping (WA1);
- Service Troughs construction (WA1);
- Waterproofing (WA1);
- Tower Crane Erection(WA1);
- Suspended Slab Construction (WA1);
- Ground Floor Base Slab Construction (WA1);
- Backfilling (WA1);
- Mega Column Construction (WA1);
- Reinforced Concrete Structure Works at Common Utilities Enclosure (WA1);
- Formwork and Falsework Stripping (WA1);
- Column and Wall Construction (WA1);
- Blockwork Walls (WA1);
- Pipework and Ductwork (WA1);
- Seawater Pump House Reinforced Concrete Structure Works (WA1);
- Footings for Roof Erection (WA1);
- Hanger Rods for Cable Container (WA1);
- Wet Trade Works (WA1);
- Dry Trade Works (WA1);
- Launch Rail Installation (WA1);
- Façade Bracket for Cabins (WA1);
- Segment Travelling Works (WA1);
- Mechanical, Electrical and Plumbing High Level Containment (WA1);
- Steel Roof Erection Works (WA1);
- Removal of Temporary works (WA1);
- Footing Demolition works (WA1);
- Post Erection roofing works (WA1);
- District Cooling System Pipework Installation (WA1);
- Plinth Construction (WA1);
- Loading and Unloading of Steel Roof Segment at Temporary Loading and Unloading Point (WA1);

Marine-Based work

- Delivery of Steel Roof Segment by Marine Transportation (WA1).

1 Introduction

1.1 Basic Project Information

- 1.1.1 This monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract HY/2013/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Passenger Clearance Building (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region. The Contract was awarded to Leighton – Chun Wo Joint Venture (hereafter referred to as “the Contractor”) and Atkins China Limited was appointed as the Environmental Team (ET) by the Contractor.
- 1.1.2 The Contract is part of Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) which is a “Designated Project”, under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap 499). An Environmental Impact Assessment (EIA) Report (Register No. AEIAR-145/2009) was prepared for the Project. The current Environmental Permit (EP) No. EP-353/2009/K for HKBCF was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. Site preparation work of the Contract started on 26 September 2014 and the construction works of the Contract commenced on 6 October 2014. The works areas of the Contract are shown in **Appendix A**.
- 1.1.3 The proposed works under this Contract comprise the following:
- Construction of Passenger Clearance Building (PCB) including architectural and builders works, structural steel roof and reinforced concrete frames, basement, piled foundations, aluminium roof, curtain wall facades, building services and electrical and mechanical works;
 - Installation of district cooling system including seawater cooling intake pumping station, seawater intake and discharge water pipelines work; Installation of Chilled water cooling pipelines system, heat exchanger and chilled pumping system;
 - Construction of transport and associated facilities connecting to the PCB entailing the Emergency Vehicular Access, an at-grade mainland side drop-off area, an Hong Kong side elevated drop-off deck and 8 numbers of footbridge links;
 - Construction of a public toilet, 6 numbers of C&ED observation booths, a generator set building and a refuse storage & material recovery chamber;
 - Construction of a section of 70m common utilities enclosure and staff subway and civil provisions for associated electrical and mechanical works;
 - Construction of drainage, sewerage, fresh water & flushing water supply and utilities & service works;
 - Construction of civil provisions, including draw pits & ducting for Traffic Control and Surveillance System (TCSS) and Extra Low Voltage System (ELV);
 - Construction of box culvert A;
 - Construction of 2 numbers of vehicular bridge abutments at mainland side pickup area earthmound;
 - Construction of geotechnical works including top up the existing earth mound from +11.5mPD to the finished level as stated in the Contract, reinforced earth slope and fill slopes and special backdrop manhole at mainland side pick up area earthmound;
 - Landscape hardworks and softworks; and
 - Other works which are shown on the Drawings or specified in the Specification or which may be ordered in accordance with the Contract.
- 1.1.4 This is the twenty-fourth Monthly EM&A Report for the Contract which summarizes the audit findings of the EM&A programme during the reporting period from 1 to 30 September 2016.

1.2 Project Organisation

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

Table 1-1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Darrel Kingan	3958 7339	3468 2076
Environmental Project Office / Independent Environmental Checker (Ramboll Environ Hong Kong Limited)	Environmental Project Office Leader	Y. H. Hui	3465 2888	3465 2899
	Independent Environmental Checker	Raymond Dai	3465 2888	3465 2899
Contractor (Leighton – Chun Wo Joint Venture)	Project Manager	Gary Wong	3973 0488	3621 0180
	Environmental Officer	Michael Lee	9502 5887	3621 0180
Environmental Team (Atkins China Limited)	Environmental Team Leader	Sharifah Or	2972 1802	2890 6343
24 hours complaint hotline	---	---	3958 7300	---

1.3 Construction Programme

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

1.4 Construction Works Undertaken During the Reporting Period

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

Land-Base Work

- Bulk Excavation at Seawater pump house and District Cooling System (DCS) outfall (WA1);
- Pile Cropping (WA1);
- Tie Beams (WA1);
- Pile Capping (WA1);
- Service Troughs construction (WA1);
- Waterproofing (WA1);
- Tower Crane Erection (WA1);
- Suspended Slab Construction (WA1);
- Ground floor Base Slab Construction (WA1);
- Backfilling (WA1);
- Mega Column Construction (WA1);
- RC works at CUE (WA1);
- Formwork and falsework stripping (WA1);
- Column and Wall Construction (WA1);
- Blockwork walls (WA1);



- Pipework and ductwork (WA1);
- Seawater Pump House Jet Grouting (WA1);
- Footings for roof erection (WA1);
- Hanger rods for cable container (WA1);
- Wet trade works (WA1);
- Launch Rail Installation (WA1);
- Façade Bracket for Cabins (WA1);
- Segment Travelling works (WA1);
- MEP High Level Containment (WA1);
- Steel Roof Erection works (WA1);
- Trolley Removal works (WA1);
- Loading and Unloading of Steel Roof Segment at Temporary Loading and Unloading Point (WA1);
- District Cooling System Pipework installation (WA1);
- Water pump pit top slab (WA1);
- Plinth construction (WA1);

Marine-based work

- Delivery of Steel Roof Segment by Marine Transportation.

1.4.2 No marine works were undertaken under the Contract during the reporting period from 1 to 30 September 2016.

2 Air Quality Monitoring

2.1 Monitoring Locations

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

Table 2-1 Construction Dust Monitoring Locations

ID	Location Description
AMS 6 ⁽¹⁾	Dragonair/CNAC (Group) Building
AMS 7 ^{(1), (2)}	Hong Kong SkyCity Marriott Hotel

Remark:

- (1) The ET of this Contract should conduct impact air quality monitoring at the AMS listed in the table as part of EM&A programme according to the latest notification from ENPO when the monitoring station(s) is/are no longer covered by another ET of the HZMB project.
- (2) The original monitoring location was at Hong Kong SkyCity Marriott Hotel (AMS7). As the permission to carry out air quality monitoring at Hong Kong SkyCity Marriott Hotel was not granted after 31 January 2015, the monitoring location was relocated to Chu Kong Air-Sea Union Transportation Co. Ltd. (AMS7A) from 5 February 2015 to 30 December 2015. The alternative monitoring location at Chu Kong Air-Sea Union Transportation Co. Ltd. was approved by EPD on 5 February 2015. However, AMS7A was relocated back to its original location (AMS7-Hong Kong SkyCity Marriott Hotel) on 30 December 2015. The relocation of air quality monitoring location, AMS7A, back to AMS7 was approved by EPD on 21 December 2015.

2.2 Monitoring Requirements

- 2.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared for Contract Nos. HY/2010/02 and HY/2011/03.
- 2.2.2 The Action and Limit Levels for 1-hr TSP and 24-hr TSP are provided in **Table 2.2** and **Table 2.3**, respectively.

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

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

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

Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AMS 6 – Dragonair / CNAC (Group) Building (HKIA)	173	260
AMS 7 - Hong Kong SkyCity Marriott Hotel	183	

- 2.2.3 The event and action plan is provided in **Appendix D**.
- 2.2.4 If exceedance(s) at these station(s) is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the monthly EM&A Report.

2.3 Monitoring Results

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

3 Noise Monitoring

3.1 Monitoring Locations

3.1.1 The noise monitoring works for the Contract are covered by Contract No. HY/2010/02 Hong Kong-Zhuhai-Macao Bridge HKBCF – Reclamation Works. The ET of the Contract or another ET of the HZMB project is required to conduct impact noise monitoring at NMS2 and NMS3B as part of EM&A programme if these noise monitoring stations are no longer covered under Contract No. HY/2010/02. **Figure 3.1** shows the locations of noise monitoring stations.

Table 3-1 Construction Noise Monitoring Locations

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

Remarks:

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

3.2 Monitoring Requirements

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

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

Table 3-2 Action and Limit Level for Construction Noise

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

Notes:

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

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

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

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

3.3 Monitoring Results

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

4 Environmental Site Inspection and Audit

4.1 Site Inspection

4.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. During the reporting period, site inspections were carried out on 7, 14, 21 and 28 September 2016.

4.1.2 Particular observations during the site inspections and corrective actions undertaken by the Contractor are described in **Table 4.1**.

Table 4-1 Summary of Environmental Site Inspections

Date of Audit	Observations	Actions Taken by Contractor / Recommendation	Date of Observations Closed
31 August 2016	1. An oil stain was found on the ground at PCB building.	1. The oil stain was cleared on the ground at PCB building	7 September 2016
7 September 2016	1. Stagnant water/ chemicals inside a drip tray was nearly full.	1. The chemicals and drip tray were removed.	14 September 2016
	2. Oil product was stored in plastic bottles near site office and no drip trays were provided for these plastic bottles.	2. The plastic bottles were removed.	
14 September 2016	1. General refuse was accumulated at WA1.	1. The general refuse was removed from WA1	21 September 2016
	2. Mould oil spillage was observed at WA1.	2. The mould oil was cleaned up at WA1.	
21 September 2016	1. Silty wastewater discharge into marine waters through the seawall was observed.	1. No silty wastewater discharged into marine water. An additional wastewater treatment facility was on-site and it would be used to treat the wastewater generated on-site.	28 September 2016
28 September 2016	1. Chemical containers were not placed inside a drip tray.	1. The Contractor was reminded to provide a drip tray for the chemical containers.	Follow-up actions undertaken by the Contractor will be inspected during the site inspection to be undertaken in October 2016.
	2. No chemical labels were provided for chemical containers.	2. The Contractor was reminded to provide proper chemical labels for the chemical containers.	

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

4.3 Advice on the Solid and Liquid Waste Management Status

- 4.3.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 4.3.2 No marine sediment was generated in the reporting month. As informed by the Contractor in March 2016, the transfer of treated marine sediment to Contract no. HY/2010/02 has been discontinued since July 2015.
- 4.3.3 The monthly summary of waste flow table is detailed in **Appendix E**.
- 4.3.4 The Contractor was reminded that chemical waste should be properly treated and stored temporarily in designated chemical waste storage areas on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

4.4 Environmental Licenses and Permits

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

4.5 Implementation Status of Environmental Mitigation Measures

- 4.5.1 An incident in relation to direct discharge of wastewater without treatment from drainage pipes was reported by Environmental Site Supervisor of ENPO on 21 September 2016. The Contractor and RE also found the direct discharge of wastewater on the same day. The Contractor stopped the discharge immediately. It was found that one of the dosage pumps of the wastewater treatment system was broken down and insufficient chemical was being pumped into the treatment system. An additional treatment facility and sedimentation tank were provided on site to enhance the wastewater treatment system. The ET carried out a few site inspections during the reporting month to check the wastewater treatment system and provided recommendations for further improvement.
- 4.5.2 In response to the site audit findings, the Contractors carried out corrective actions.
- 4.5.3 The Contractor conducts watering on all exposed soil within the Contract site and associated works areas 8 times per day when construction activities are being undertaken.
- 4.5.4 The marine traffic records and geographical plots of all the vessels tracks for the reporting month will be submitted by the Contractor to ER, ETL and IEC/ENPO within 3 weeks after the reporting month. The marine traffic records and geographical plots for August 2016 was submitted by the Contractor to ER, ETL and IEC/ENPO on 14 October 2016. Training was provided for barge operators in accordance with the Regular Marine Travel Routes Plan and relevant records were kept. The marine traffic records and geographical record for September 2016 will be checked in next reporting month.
- 4.5.5 Training was provided for barge operators in accordance with the Regular Marine Travel Routes Plan and relevant records were kept properly.
- 4.5.6 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.

4.6 Summary of Exceedance of the Environmental Quality Performance Limit

- 4.6.1 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.
- 4.6.2 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.

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

4.7 Summary of Complaints, Notification of Summons and Successful Prosecution

- 4.7.1 There were no complaints received in relation to the environmental impact during the reporting period. No notification of summons and prosecution was received during the reporting period.
- 4.7.2 Statistics on environmental complaints, notifications of summons and successful prosecutions are summarized in **Appendix H**.



5 Future Key Issues

5.1 Construction Programme for the Coming Months

5.1.1 As informed by the Contractor, the major construction activities for October 2016 are summarized in **Table 5.1**.

Table 5.1 Construction Activities for October 2016

Site Area	Description of Activities	Nature of Activities
WA1	Bulk Excavation at Seawater Pump House	Land-Based
WA1	District Cooling System (DCS) intake	Land-Based
WA1	Pile Cropping	Land-Based
WA1	Tie Beams	Land-Based
WA1	Pile Capping	Land-Based
WA1	Service Troughs construction	Land-Based
WA1	Waterproofing	Land-Based
WA1	Tower Crane Erection	Land-Based
WA1	Suspended Slab Construction	Land-Based
WA1	Ground floor Base Slab Construction	Land-Based
WA1	Backfilling	Land-Based
WA1	Mega Column Construction	Land-Based
WA1	Reinforced Concrete Structure Works at Common Utilities Enclosure	Land-Based
WA1	Formwork and falsework stripping	Land-Based
WA1	Column and Wall Construction	Land-Based
WA1	Blockwork walls	Land-Based
WA1	Pipework and ductwork	Land-Based
WA1	Seawater Pump House Reinforced Concrete Structure Works	Land-Based
WA1	Footings for Roof Erection	Land-Based
WA1	Hanger Rods for Cable Container	Land-Based
WA1	Wet trade works	Land-Based
WA1	Dry trade works	Land-Based
WA1	Launch Rail Installation	Land-Based
WA1	Façade Bracket for Cabins	Land-Based
WA1	Segment Travelling works	Land-Based
WA1	Mechanical, Electrical and Plumbing High Level Containment	Land-Based
WA1	Steel Roof Erection works	Land-Based
WA1	Removal of Temporary works	Land-Based
WA1	Footing Demolition works	Land-Based
WA1	Post Erection Roofing works	Land-Based
WA1	District Cooling System Pipework Installation	Land-Based
WA1	Plinth Construction	Land-Based
WA1	Loading and Unloading of Steel Roof Segment at Temporary Loading and Unloading Point	Land-Based
WA1	Delivery of Steel Roof Segment by Marine Transportation	Marine-Based

5.2 Environmental Site Inspection Schedule for the Coming Month

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

6 Conclusions

6.1 Conclusions

- 6.1.1 The site preparation work of the Contract started on 26 September 2014 and the construction works of the Contract commenced on 6 October 2014. The twenty-fourth Monthly EM&A Report summarizes findings of the EM&A works during the reporting period from 1 to 30 September 2016.
- 6.1.2 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.
- 6.1.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at AMS7 by the Environmental Team of Contract No. HY/2010/02 during the reporting period.
- 6.1.4 There was no Action and Limit Level exceedance for noise recorded at NMS2 and NMS3B by the Environmental Team of Contract No. HY/2010/02 during the reporting period.
- 6.1.5 Environmental site inspections were carried out on 7, 14, 21 and 28 September 2016. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site inspections.
- 6.1.6 There were no complaints received in relation to the environmental impact during the reporting period.
- 6.1.7 No notification of summons and successful prosecution was received during the reporting period.



FIGURES

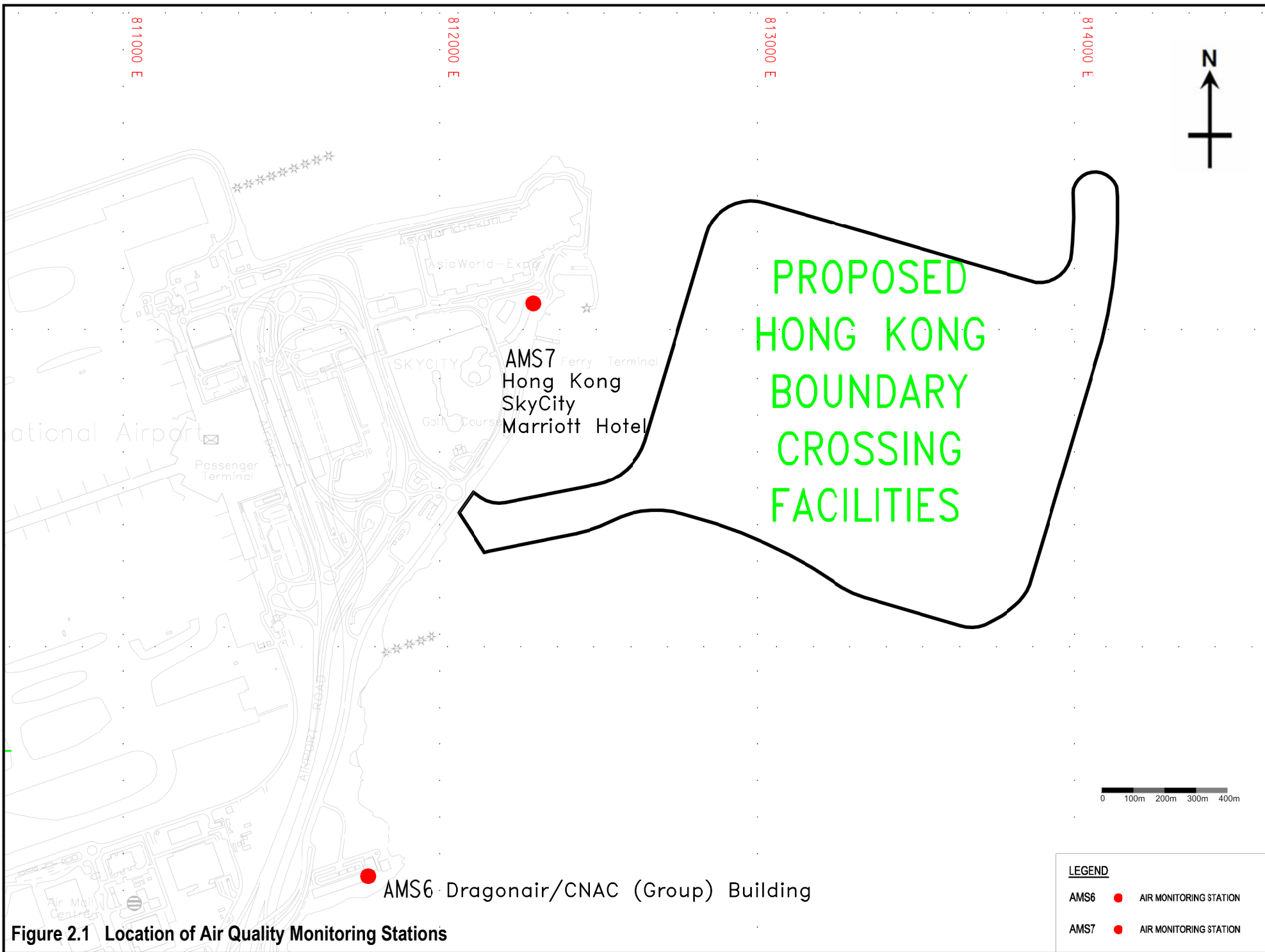


Figure 2.1 Location of Air Quality Monitoring Stations

LEGEND		
AMS6	●	AIR MONITORING STATION
AMS7	●	AIR MONITORING STATION

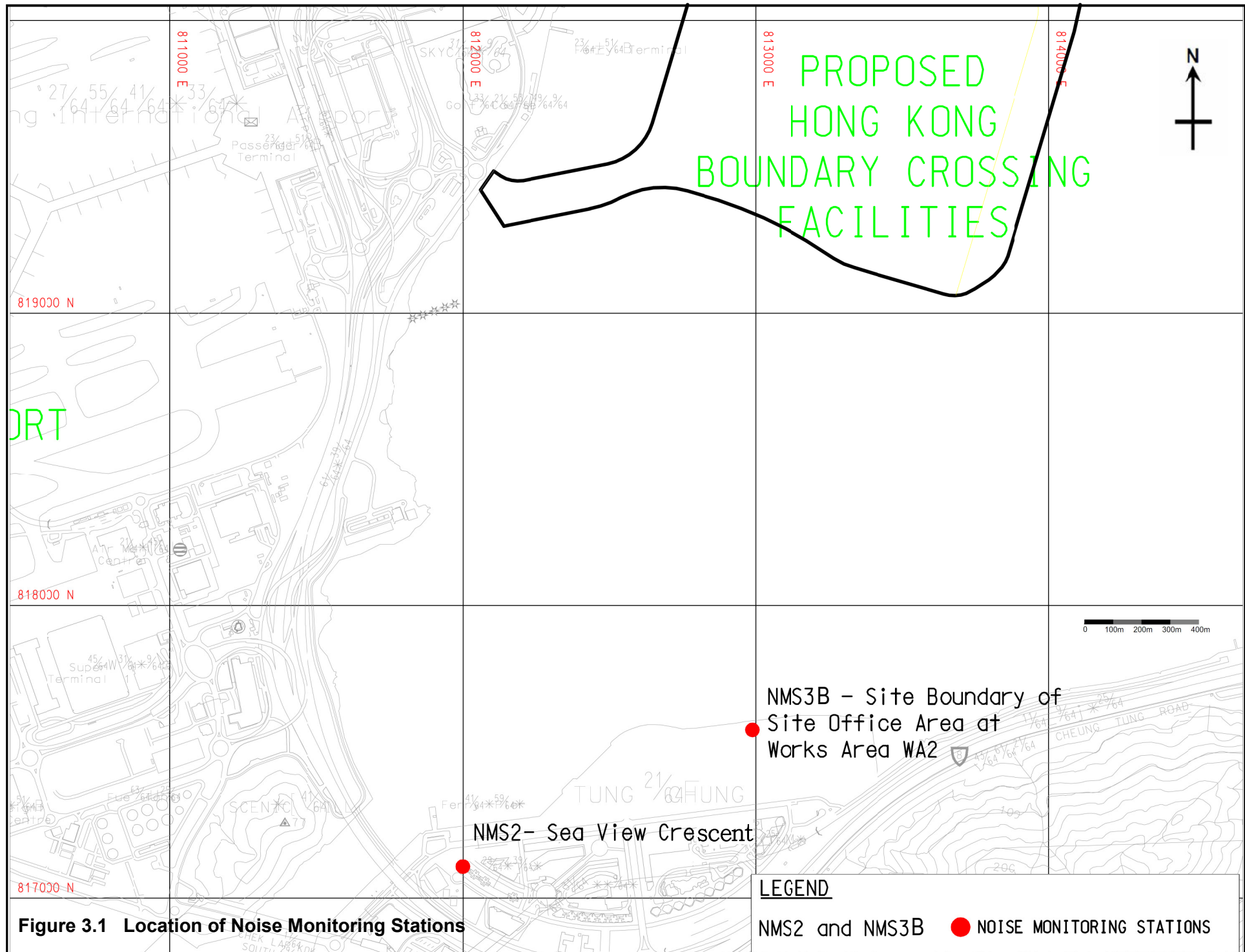


Figure 3.1 Location of Noise Monitoring Stations

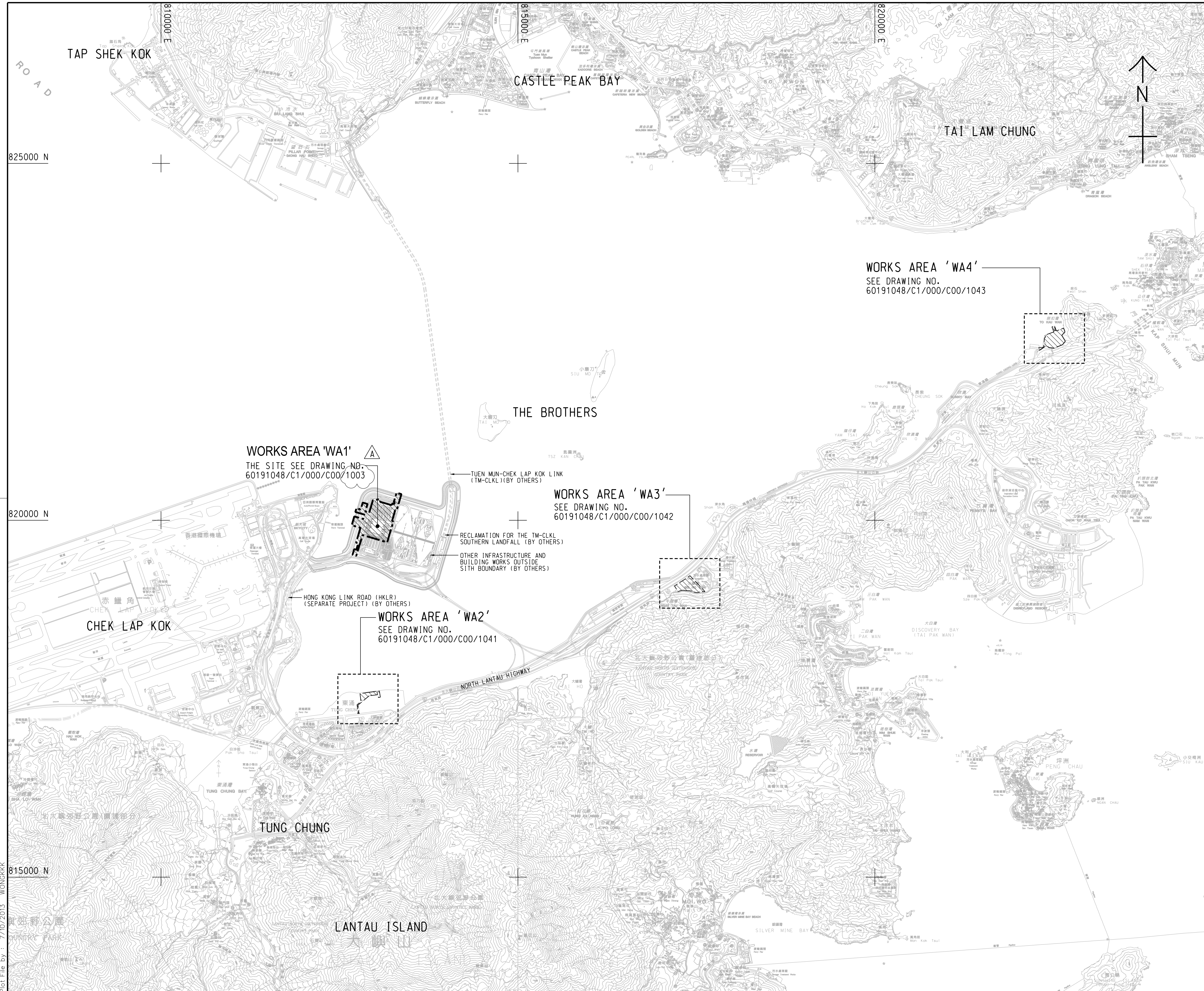
LEGEND

NMS2 and NMS3B ● NOISE MONITORING STATIONS

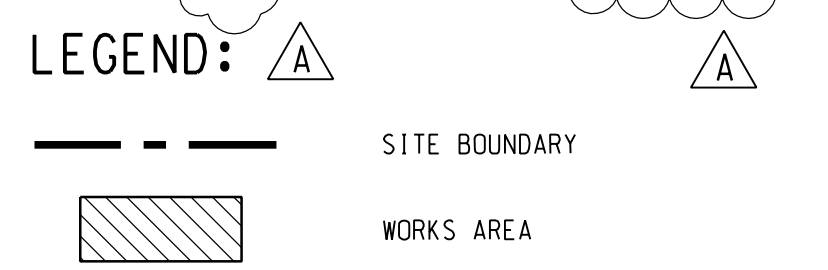


APPENDIX A

Location of Works Areas



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



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

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

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

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

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

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

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

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

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

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

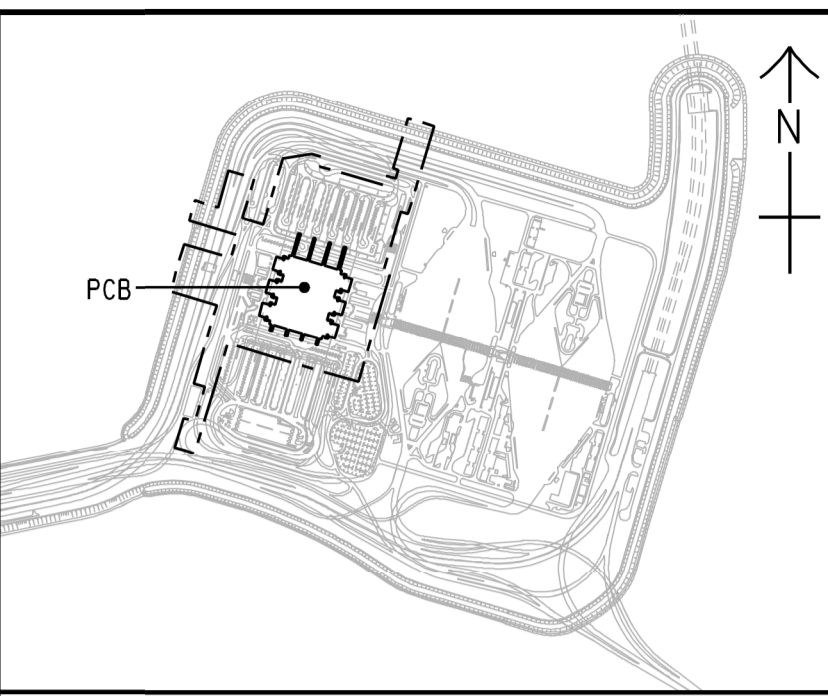
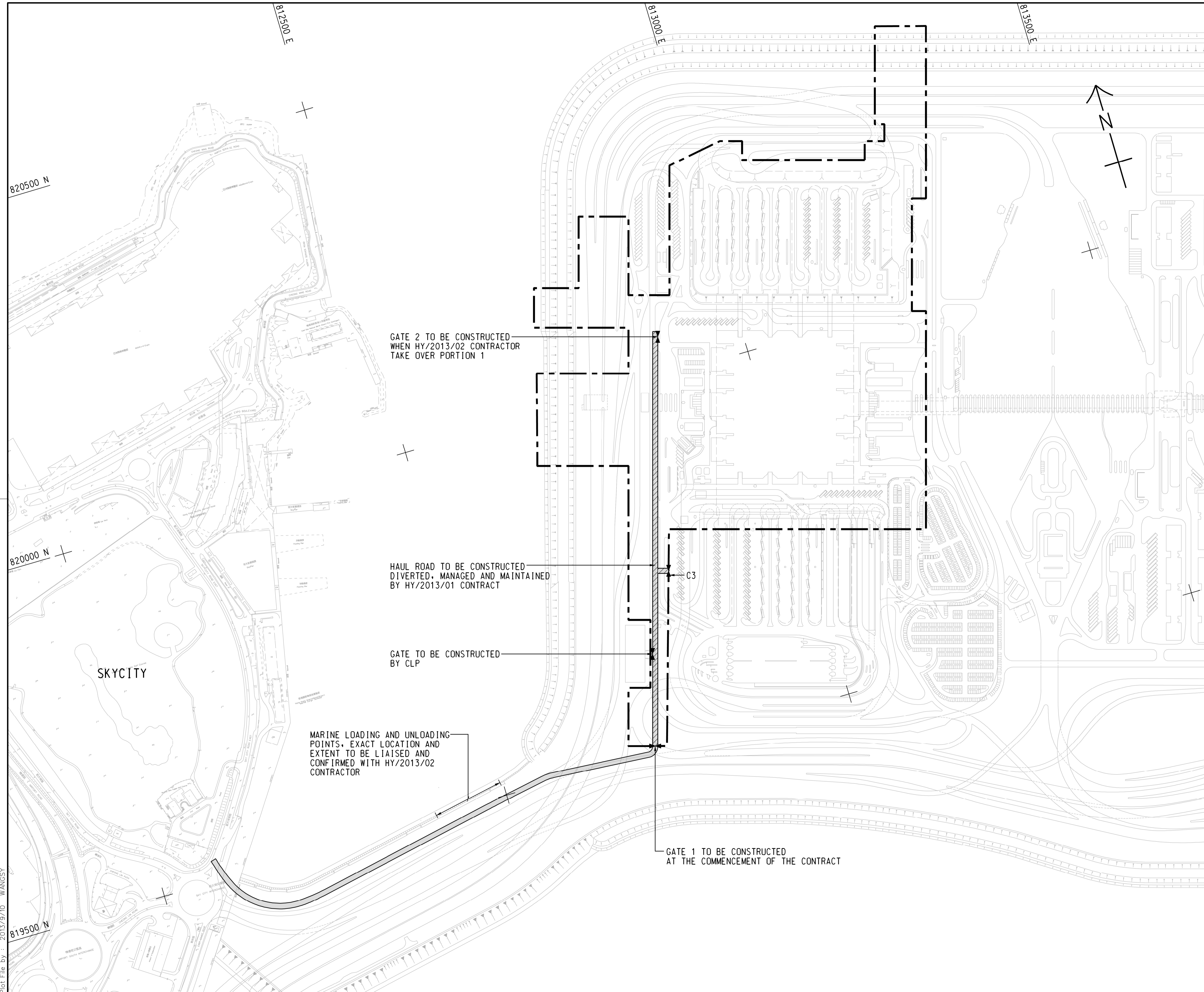
SITE LOCATION PLAN

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

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

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/01	P. DIR. APPROVED 批准人	TKH
DRAWN BY 繪圖	WSY	STATUS 階段	WORKING DRAWING		
SCALE 比例	A1 1 : 25000	DIMENSIONS ARE IN 尺寸單位 METRES			
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Plot File by : 7/10/2013 WONGKKK



LOCATION PLAN
SCALE 1 : 20000

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

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

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

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

GATE TO BE CONSTRUCTED BY CLP

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

GATE 1 TO BE CONSTRUCTED AT THE COMMENCEMENT OF THE CONTRACT

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

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

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

WORKS AREA WA1

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

Aedas

DRG.NO. 60191048/C1/000/C00/1044
圖紙編號

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/01	P. Dir. APPROVED 批准人	EMSC
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DRAWN BY 繪圖	WSY	STATUS 階段	
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SCALE 比例 1 : 2500

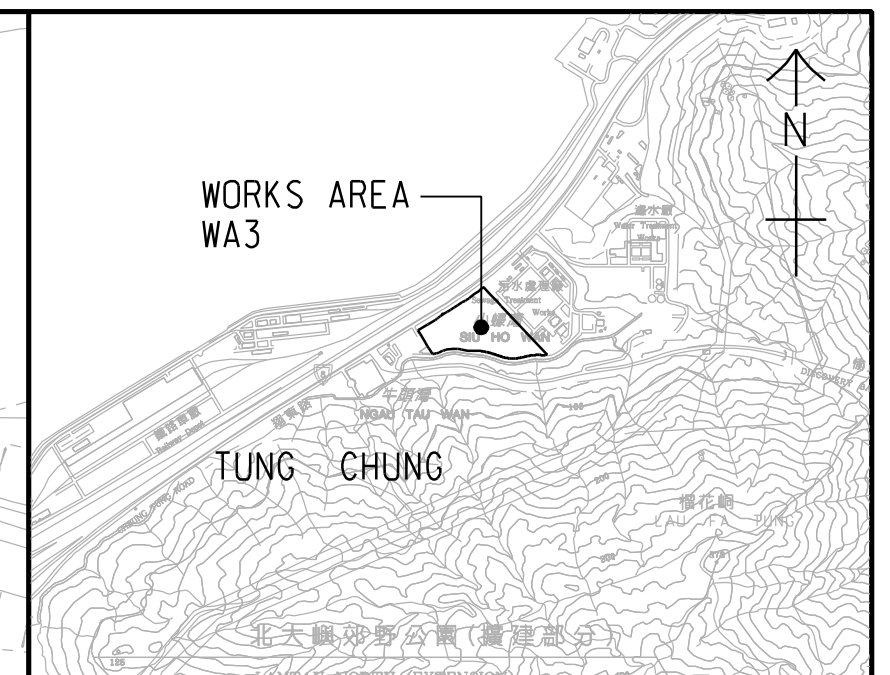
DIMENSIONS ARE IN 尺寸單位 METRES

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Plot File by : 2013/9/10 WANGSY

SETTING OUT POINT

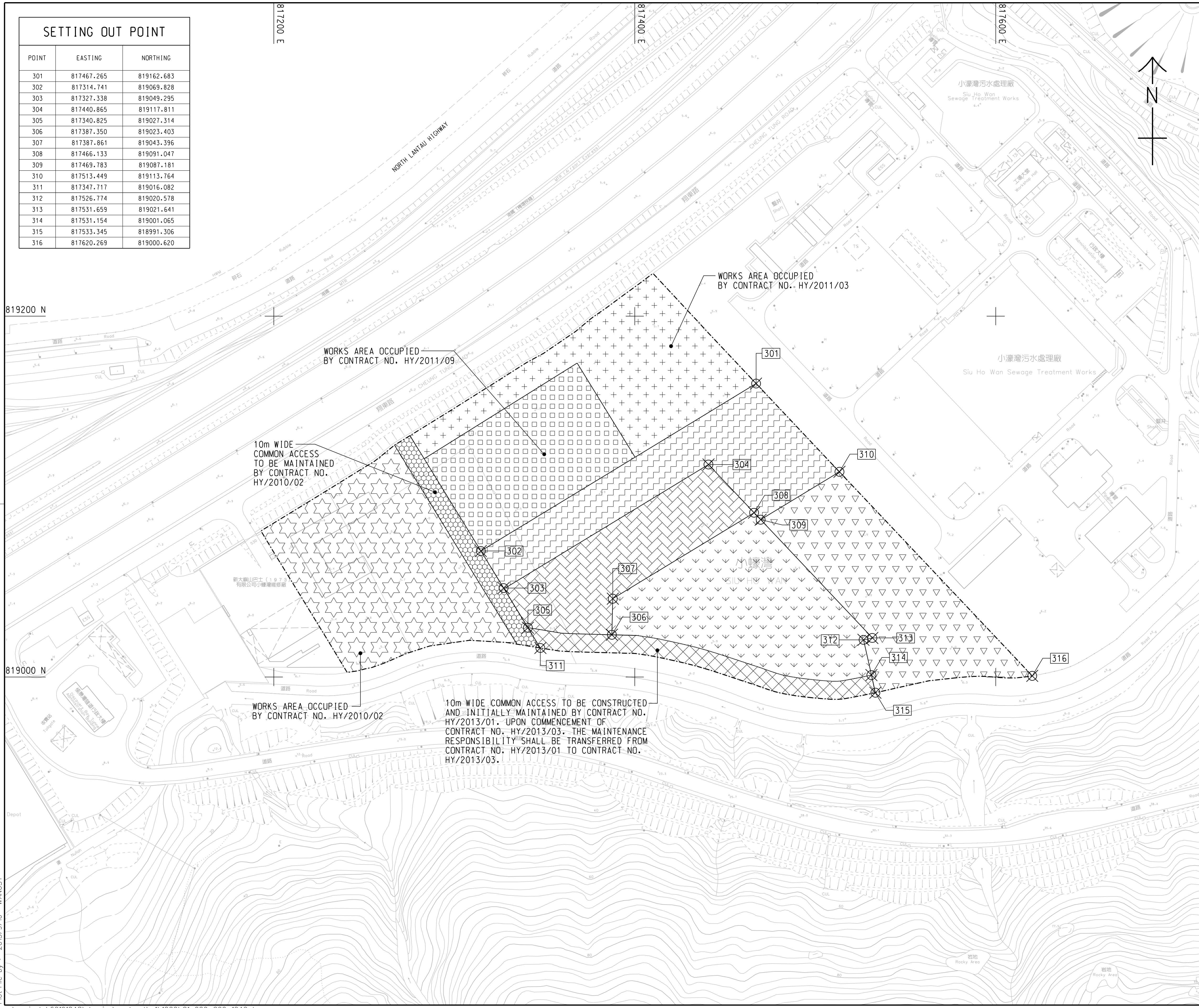
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303	817327.338	819049.295
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305	817340.825	819027.314
306	817387.350	819023.403
307	817387.861	819043.396
308	817466.133	819091.047
309	817469.783	819087.181
310	817513.449	819113.764
311	817347.717	819016.082
312	817526.774	819020.578
313	817531.659	819021.641
314	817531.154	819001.065
315	817533.345	818991.306
316	817620.269	819000.620



LOCATION PLAN
SCALE 1 : 25000

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

- LEGEND:
- WORKS AREA BOUNDARY
 - PORTION 3.1
 - PORTION 3.2
 - PORTION 3.3
 - PORTION 3.4
 - PORTION 3.5
 - PORTION 3.6
 - PORTION 3.7
 - PORTION 3.8
 - PORTION 3.9



REV. 01	WORKING DRAWING	DATE JUN. 14
REV. 02	TENDER DRAWING	DATE SEP. 13

路政署 HIGHWAYS DEPARTMENT
港珠澳大桥香港工程管理处
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

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

WORKS AREA WA3

AECOM Aedas
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

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

DESIGNED BY WY	CONTRACT NO. HY/2013/01	P. DIR. APPROVED TKH
SCALE A1 1 : 1000	STATUS WORKING DRAWING	
DIMENSIONS ARE IN METRES		

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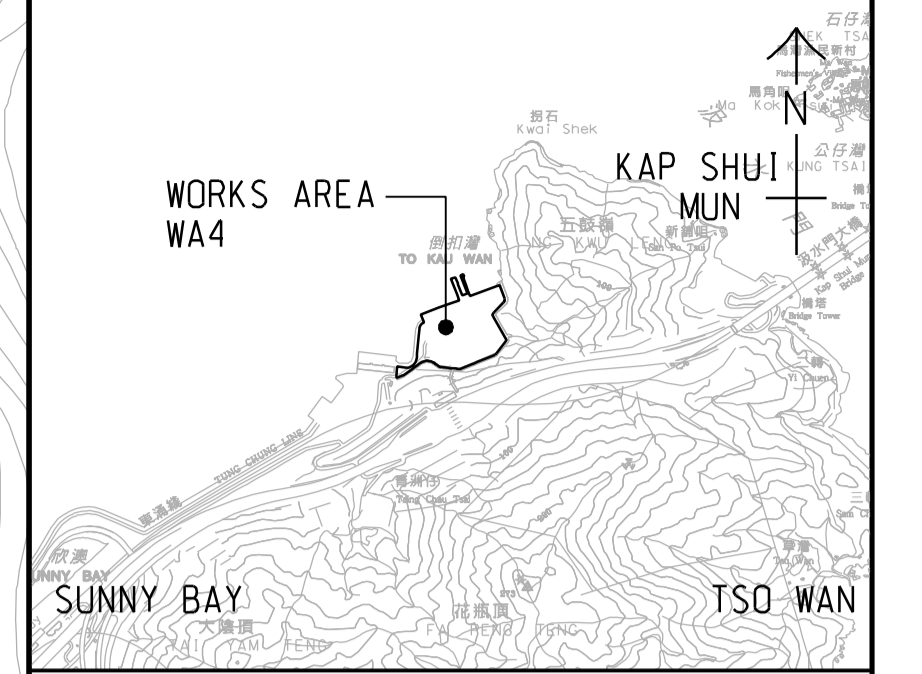
SETTING OUT POINT

POINT	EASTING	NORTHING
401	822488.151	822632.315
402	822640.593	822689.415
403	822515.608	822559.848
404	822610.940	822599.642
405	822629.428	822607.359
406	822526.988	822529.813
407	822618.348	822567.950
408	822542.232	822489.581
409	822584.983	822507.426
410	822606.866	822516.561
411	822560.278	822441.956
412	822602.949	822460.010
413	822621.914	822467.959
414	822624.130	822470.998
415	822651.725	822508.856

822400 E

822600 E

TO KAU WAN



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:

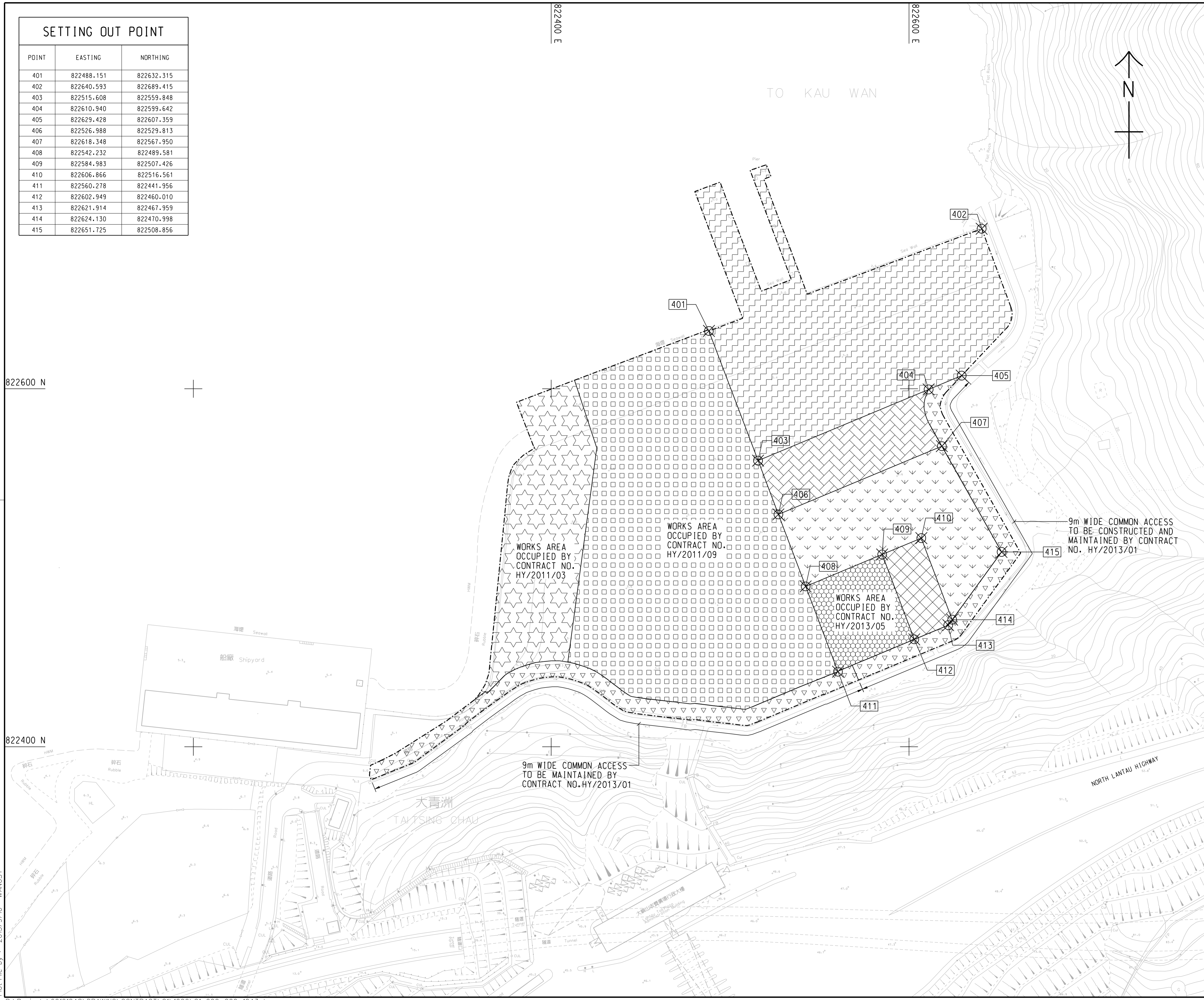
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- [Symbol] PORTION 4.8

822600 N

822400 N

Plot File by : 2013/9/10 WANGSY

P:\Projects\60191048\DRAWING\CONTRACT\C1\1000\C1_000_C00_1043.dgn



REV.	DESCRIPTION	DATE
1	TENDER DRAWING	SEP.13

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

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

WORKS AREA WA4

AECOM Aedas
 Rogers Stirk Harbour + Partners
 BURO HAPPOLD ATKINS ADI

DRG.NO. 60191048/C1/000/C00/1043
 圖紙編號

DESIGNED BY BWCW CONTRACT NO. HY/2013/01 P. Dir. APPROVED EMSC

DRAWN BY WSY STATUS 補放

SCALE 1:1000 DIMENSIONS ARE IN METRES

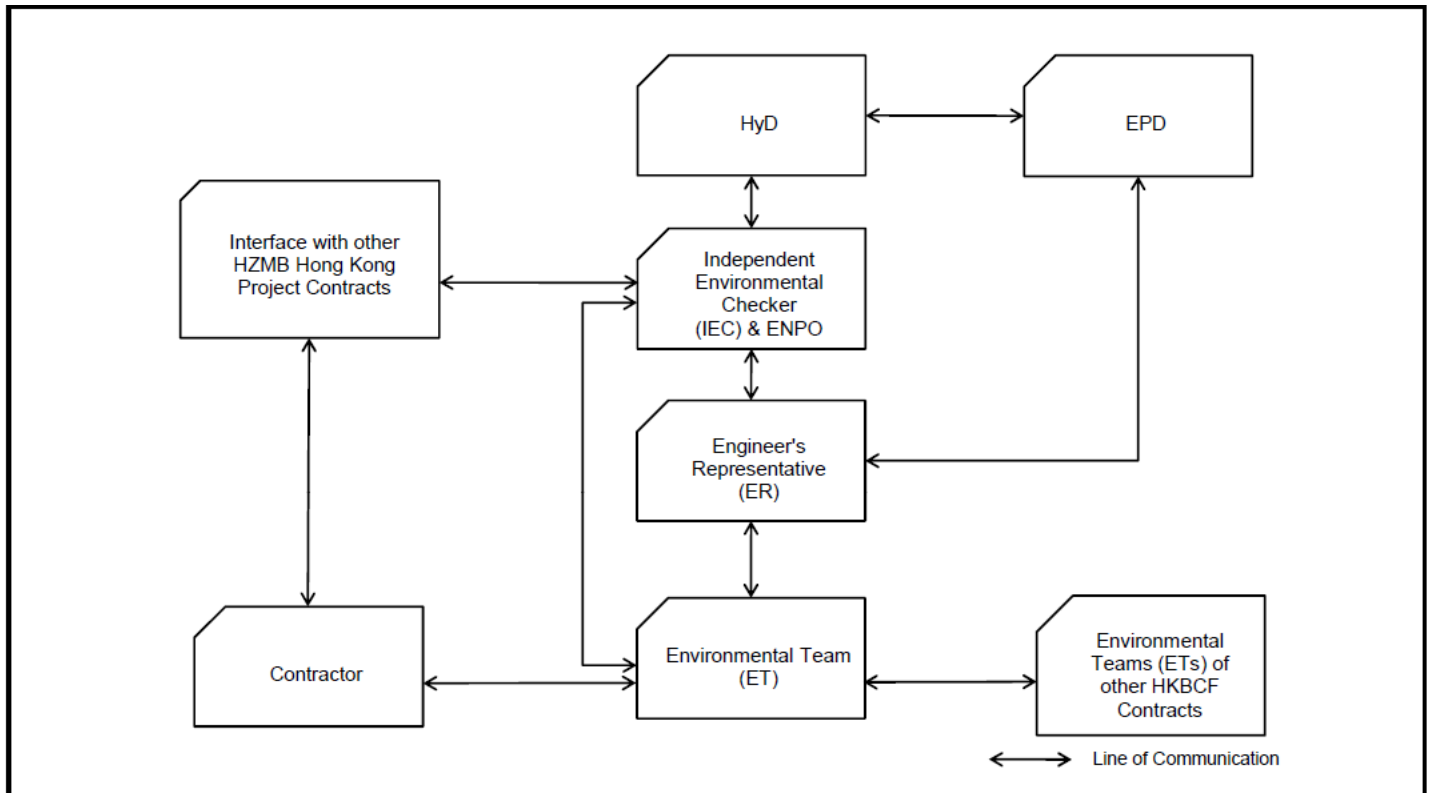
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APPENDIX B

Project Organization for Environmental Works

Project Organisation for Environmental Works





路政署
HIGHWAYS DEPARTMENT

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

Contract No. HY/2013/01

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Boundary Crossing Facilities – Passenger Clearance Building

24th Monthly EM&A Report

APPENDIX C

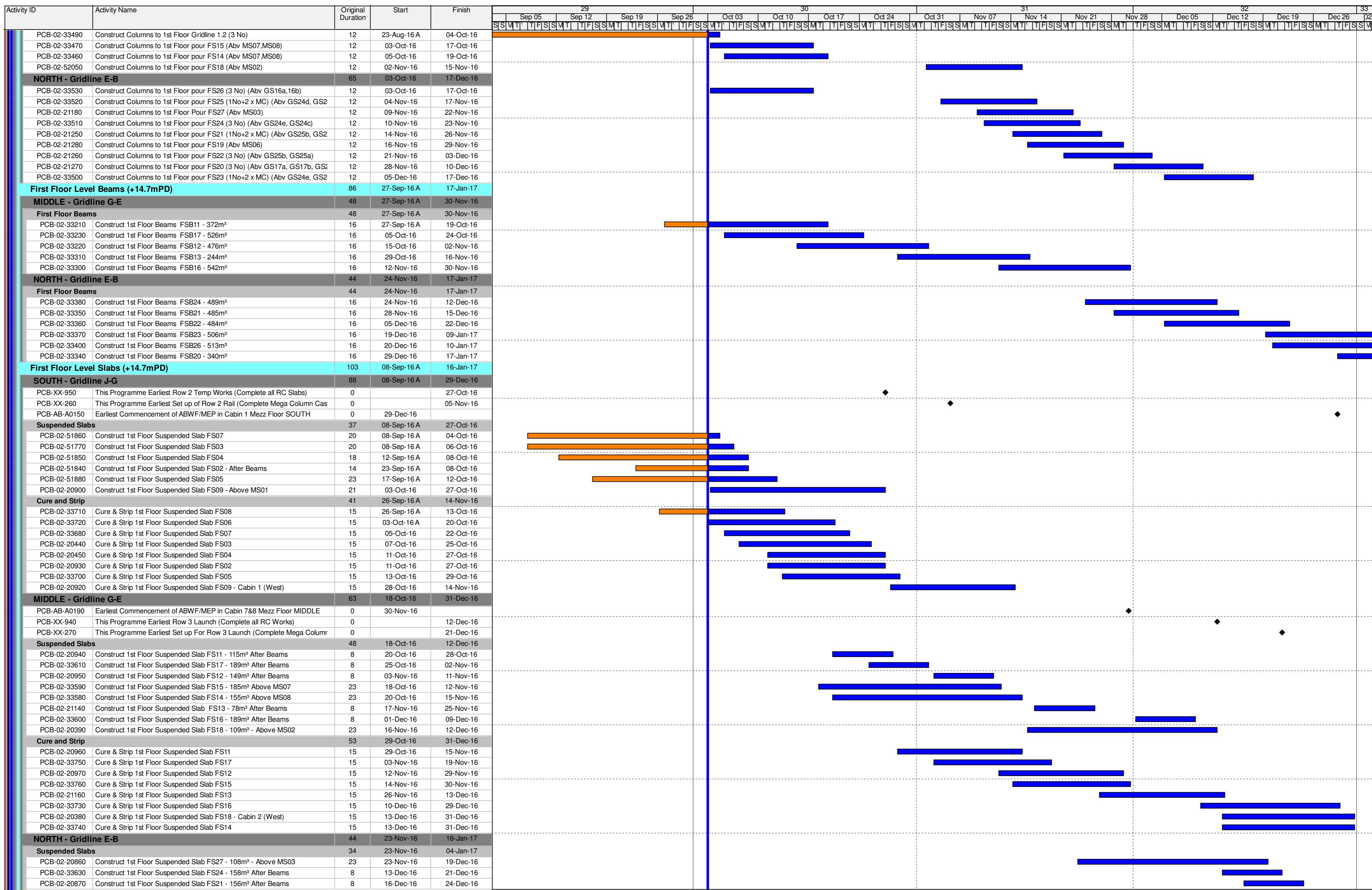
Construction Programme

Activity ID	Activity Name	Original Duration	Start	Finish	3 MONTH ROLLING PROGRAMME																											
					Sep 05	Sep 12	Sep 19	Sep 26	Oct 03	Oct 10	Oct 17	Oct 24	Oct 31	Nov 07	Nov 14	Nov 21	Nov 28	Dec 05	Dec 12	Dec 19	Dec 26	Dec 31										
NORTH Gridline C-B																																
PCB-02-35250	PCB - Waterproofing Pile Caps and Tie Beams to GF17c	3	03-Oct-16 A	22-Nov-16																												
PCB-02-35210	PCB - Waterproofing Pile Caps and Tie Beams to GF27	3	10-Nov-16	12-Nov-16																												
PCB-02-35230	PCB - Waterproofing Pile Caps and Tie Beams to GF26b	3	15-Nov-16	17-Nov-16																												
PCB-02-35220	PCB - Waterproofing Pile Caps and Tie Beams to GF26a	3	19-Nov-16	22-Nov-16																												
Backfilling to Top Level of Ground Beams (+5.0mPD Generally)																																
SOUTH Gridline E-D																																
PCB-02-35260	PCB - Backfilling to Pile Caps and Tie Beams to GF24c	4	27-Oct-16	31-Oct-16																												
PCB-02-35310	PCB - Backfilling to Pile Caps and Tie Beams to GF25a	4	31-Oct-16	03-Nov-16																												
PCB-02-52030	PCB - Backfilling to Pile Caps and Tie Beams to GF24f	4	21-Nov-16	24-Nov-16																												
MIDDLE Gridline D-C																																
PCB-02-35730	PCB - Backfilling to Pile Caps and Tie Beams to GF24e (TC2)	4	03-Oct-16	06-Oct-16																												
PCB-02-35290	PCB - Backfilling to Pile Caps and Tie Beams to GF24d	4	21-Oct-16	25-Oct-16																												
PCB-02-35320	PCB - Backfilling to Pile Caps and Tie Beams to GF25b	4	28-Oct-16	01-Nov-16																												
NORTH Gridline C-B																																
PCB-02-35360	PCB - Backfilling to Pile Caps and Tie Beams to GF16c	4	03-Oct-16	06-Oct-16																												
PCB-02-35370	PCB - Backfilling to Pile Caps and Tie Beams to GF17c	4	06-Oct-16	11-Oct-16																												
PCB-02-35330	PCB - Backfilling to Pile Caps and Tie Beams to GF27	4	14-Nov-16	17-Nov-16																												
PCB-02-35350	PCB - Backfilling to Pile Caps and Tie Beams to GF26b	4	18-Nov-16	22-Nov-16																												
PCB-02-35340	PCB - Backfilling to Pile Caps and Tie Beams to GF26a	4	23-Nov-16	26-Nov-16																												
Ground Slabs (+5.450mPD)																																
SOUTH Gridline E-D																																
PCB-02-52120	PCB - Construct Ground Floor Base Slab Pour GS24b (Abv GF24a)	8	03-Oct-16	12-Nov-16																												
PCB-02-35400	PCB - Construct Ground Floor Base Slab Pour GS24c (Abv GF24c)	8	01-Nov-16	09-Nov-16																												
PCB-02-35380	PCB - Construct Ground Floor Base Slab Pour GS25a (Abv GF25a)	8	04-Nov-16	12-Nov-16																												
MIDDLE Gridline D-C																																
PCB-02-35740	PCB - Construct Ground Floor Base Slab Pour GS24e (Abv GF24e)	8	07-Oct-16	17-Oct-16																												
PCB-02-52130	PCB - Construct Ground Floor Base Slab Pour GS24d (Abv GF24d)	8	26-Oct-16	03-Nov-16																												
PCB-02-35410	PCB - Construct Ground Floor Base Slab Pour GS25b (Abv GF25b)	8	02-Nov-16	10-Nov-16																												
PCB-02-35440	PCB - Construct Ground Floor Base Slab Pour GS24f (Abv GF24f)	8	25-Nov-16	03-Dec-16																												
NORTH Gridline C-B																																
PCB-02-35480	PCB - Construct Ground Floor Base Slab Pour GS16c (Abv GF16c)	8	07-Oct-16	17-Oct-16																												
PCB-02-35490	PCB - Construct Ground Floor Base Slab Pour GS17c (Abv GF17c)	8	12-Oct-16	20-Oct-16																												
PCB-02-35450	PCB - Construct Ground Floor Base Slab Pour GS27 (Abv GF27)	8	18-Nov-16	26-Nov-16																												
PCB-02-35470	PCB - Construct Ground Floor Base Slab Pour GS26b (Abv GF26b)	8	23-Nov-16	01-Dec-16																												
PCB-02-35460	PCB - Construct Ground Floor Base Slab Pour GS26a (Abv GF26a)	8	28-Nov-16	06-Dec-16																												
Ground Floor Slabs (+5.450mPD)																																
NORTH - Gridline E-B																																
PCB-AB-A0060	Earliest Commencement of ABWF/MEP in Basement NORTH WEST	0	03-Oct-16																													
PCB-AB-A0050	Earliest Commencement of ABWF/MEP in Basement NORTH EAST	0	03-Oct-16																													
Columns to Mezzanine Slab (+10.250mPD)																																
MIDDLE - Gridline G-E																																
PCB-02-20770	Construct Columns to Mezz Floor MS02	12	06-Sep-16 A	04-Oct-16																												
NORTH - Gridline E-B																																
PCB-02-20740	Construct Columns to Mezz Floor Pour MS03	8	03-Oct-16	12-Oct-16																												
PCB-02-20750	Construct Columns to Mezz Floor Pour MS06	8	03-Oct-16	12-Oct-16																												
Mezzanine Floor Slabs (+10.250mPD)																																
SOUTH - Gridline J-G																																
PCB-AB-A0080	Earliest Commencement of ABWF/MEP in Cabin 1 Ground Floor SOUTH	0	05-Oct-16																													
Cure and Strip																																
PCB-02-21120	Cure & Strip Mezzanine Floor Slab Cabin Pour MS01	15	17-Sep-16 A	04-Oct-16																												
MIDDLE - Gridline G-E																																
PCB-AB-A0100	Earliest Commencement of ABWF/MEP in Cabin 7&8 Ground Floor MIDDLE	0	24-Oct-16																													
PCB-AB-A0110	Earliest Commencement of ABWF/MEP in Cabin 2 Ground Floor MIDDLE	0	19-Nov-16																													
Suspended Slabs																																
PCB-02-21010	Construct Mezzanine Floor Slab Pour MS08 - 290m³	23	25-Aug-16 A	04-Oct-16																												
PCB-02-20980	Construct Mezzanine Floor Slab Pour MS02 - 322m³	23	05-Oct-16	01-Nov-16																												
Cure and Strip																																
PCB-02-21030	Cure & Strip Mezzanine Floor Slab Pour MS07	15	03-Oct-16	20-Oct-16																												
PCB-02-21040	Cure & Strip Mezzanine Floor Slab Pour MS08	15	05-Oct-16	22-Oct-16																												
PCB-02-21050	Cure & Strip Mezzanine Floor Slab Pour MS02	15	02-Nov-16	18-Nov-16																												
NORTH - Gridline E-B																																
PCB-AB-A0120	Earliest Commencement of ABWF/MEP in Cabin 6 Ground Floor NORTH	0	26-Nov-16																													
PCB-AB-A0130	Earliest Commencement of ABWF/MEP in Cabin 3 Ground Floor NORTH	0	26-Nov-16																													
Suspended Slabs																																
PCB-02-21060	Construct Mezzanine Floor Slab Pour MS06 - 323m³	23	13-Oct-16	08-Nov-16																												
PCB-02-21070	Construct Mezzanine Floor Slab Pour MS03 - 335m³	23	13-Oct-16	08-Nov-16																												
Cure and Strip																																
PCB-02-21080	Cure & Strip Mezzanine Floor Slab Pour MS03	15	09-Nov-16	25-Nov-16																												
PCB-02-21090	Cure & Strip Mezzanine Floor Slab Pour MS06	15	09-Nov-16	25-Nov-16																												
Columns to First Floor (+14.700mPD)																																
SOUTH - Gridline J-G																																
PCB-02-21170	Construct Columns to 1st Floor Pour FS09 (Abv MS01)	8	24-Sep-16 A	04-Oct-16																												
MIDDLE - Gridline G-E																																
PCB-02-21150	Construct Columns to 1st Floor Gridline 4.2 (3 No)	12	15-Aug-16 A	04-Oct-16																												
PCB-02-21300	Construct Columns to 1st Floor Gridline 4 (3 No)	12	16-Aug-16 A	04-Oct-16																												
PCB-02-33480	Construct Columns to 1st Floor Gridline 2 (3 No)	12	18-Aug-16 A	04-Oct-16																												

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

3 MONTH ROLLING PROGRAMME

Date	Revision	Checked	Approved
	3 Month Rolling Programme		



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

3 MONTH ROLLING PROGRAMME

Date	Revision	Checked	Approved
	3 Month Rolling Programme		

Activity ID	Activity Name	Original Duration	Start	Finish	29																												30																												31																												32																												33																											
					05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33																								
PCB-02-20340	Construct 1st Floor Suspended Slab FS19 - 108m³ - Above MS06	23	30-Nov-16	28-Dec-16																																																																																																																																												
PCB-02-21190	Construct 1st Floor Suspended Slab FS22 - 158m³ After Beams	8	23-Dec-16	04-Jan-17																																																																																																																																												
Cure and Strip		21	20-Dec-16	16-Jan-17																																																																																																																																												
PCB-02-20880	Cure & Strip 1st Floor Suspended Slab FS27 - Cabin 3 (West)	15	20-Dec-16	09-Jan-17																																																																																																																																												
PCB-02-33790	Cure & Strip 1st Floor Suspended Slab FS24	15	22-Dec-16	11-Jan-17																																																																																																																																												
PCB-02-20890	Cure & Strip 1st Floor Suspended Slab FS21	15	28-Dec-16	14-Jan-17																																																																																																																																												
PCB-02-20360	Cure & Strip 1st Floor Suspended Slab FS19 - Cabin 6 (East)	15	29-Dec-16	16-Jan-17																																																																																																																																												
Internal Mega Columns to +19.5mPD (Multi Lift)		76	03-Oct-16	03-Jan-17																																																																																																																																												
South - Gridline G to H		27	05-Oct-16	05-Nov-16																																																																																																																																												
Gridline G		27	05-Oct-16	05-Nov-16																																																																																																																																												
Mega Column G1		8	28-Oct-16	05-Nov-16																																																																																																																																												
PCB-02-23890	Construct Mega Column G1 (+15.45mPD to +19.50mPD)	4	28-Oct-16	01-Nov-16																																																																																																																																												
PCB-02-24570	Mega Column G1 Minimum Curing Time and Strip	4	02-Nov-16	05-Nov-16																																																																																																																																												
Mega Column G2		8	05-Oct-16	14-Oct-16																																																																																																																																												
PCB-02-24180	Construct Mega Column G2 (+15.45mPD to +19.50mPD)	4	05-Oct-16	08-Oct-16																																																																																																																																												
PCB-02-24600	Mega Column G2 Minimum Curing Time and Strip	4	11-Oct-16	14-Oct-16																																																																																																																																												
Mega Column G3		8	13-Oct-16	21-Oct-16																																																																																																																																												
PCB-02-24190	Construct Mega Column G3 (+15.45mPD to +19.50mPD)	4	13-Oct-16	17-Oct-16																																																																																																																																												
PCB-02-24590	Mega Column G3 Minimum Curing Time and Strip	4	18-Oct-16	21-Oct-16																																																																																																																																												
Mega Column G4		8	07-Oct-16	17-Oct-16																																																																																																																																												
PCB-02-24200	Construct Mega Column G4 (+15.45mPD to +19.50mPD)	4	07-Oct-16	12-Oct-16																																																																																																																																												
PCB-02-24580	Mega Column G4 Minimum Curing Time and Strip	4	13-Oct-16	17-Oct-16																																																																																																																																												
Gridline H		27	05-Oct-16	05-Nov-16																																																																																																																																												
PCB-XX-220	This Programme Earliest Set up For Row 2 Launch	0																																																																																																																																														
Mega Column H1		8	28-Oct-16	05-Nov-16																																																																																																																																												
PCB-02-23850	Construct Mega Column H1 (+15.45mPD to +19.50mPD)	4	28-Oct-16	01-Nov-16																																																																																																																																												
PCB-02-24620	Mega Column H1 Minimum Curing Time and Strip	4	02-Nov-16	05-Nov-16																																																																																																																																												
Mega Column H2		8	05-Oct-16	14-Oct-16																																																																																																																																												
PCB-02-23810	Construct Mega Column H2 (+15.45mPD to +19.50mPD)	4	05-Oct-16	08-Oct-16																																																																																																																																												
PCB-02-24650	Mega Column H2 Minimum Curing Time and Strip	4	11-Oct-16	14-Oct-16																																																																																																																																												
Mega Column H3		8	13-Oct-16	21-Oct-16																																																																																																																																												
PCB-02-23820	Construct Mega Column H3 (+15.45mPD to +19.50mPD)	4	13-Oct-16	17-Oct-16																																																																																																																																												
PCB-02-24640	Mega Column H3 Minimum Curing Time and Strip	4	18-Oct-16	21-Oct-16																																																																																																																																												
Mega Column H4		8	07-Oct-16	17-Oct-16																																																																																																																																												
PCB-02-23830	Construct Mega Column H4 (+15.45mPD to +19.50mPD)	4	07-Oct-16	12-Oct-16																																																																																																																																												
PCB-02-24630	Mega Column H4 Minimum Curing Time and Strip	4	13-Oct-16	17-Oct-16																																																																																																																																												
Middle - Gridline F to E		68	03-Oct-16	21-Dec-16																																																																																																																																												
Gridline F		68	03-Oct-16	21-Dec-16																																																																																																																																												
PCB-XX-240	Earliest Set up of Rail and Towers For Row 3 Launch	0																																																																																																																																														
Mega Column F1		8	13-Dec-16	21-Dec-16																																																																																																																																												
PCB-02-23990	Construct Mega Column F1 (+15.45mPD to +19.50mPD)	4	13-Dec-16	16-Dec-16																																																																																																																																												
PCB-02-24560	Mega Column F1 Minimum Curing Time and Strip	4	17-Dec-16	21-Dec-16																																																																																																																																												
Mega Column F2		8	10-Dec-16	19-Dec-16																																																																																																																																												
PCB-02-24000	Construct Mega Column F2 (+15.45mPD to +19.50mPD)	4	10-Dec-16	14-Dec-16																																																																																																																																												
PCB-02-24550	Mega Column F2 Minimum Curing Time and Strip	4	15-Dec-16	19-Dec-16																																																																																																																																												
Mega Column F3		8	13-Dec-16	21-Dec-16																																																																																																																																												
PCB-02-24010	Construct Mega Column F3 (+15.45mPD to +19.50mPD)	4	13-Dec-16	16-Dec-16																																																																																																																																												
PCB-02-24540	Mega Column F3 Minimum Curing Time and Strip	4	17-Dec-16	21-Dec-16																																																																																																																																												
Mega Column F4		8	12-Nov-16	21-Nov-16																																																																																																																																												
PCB-02-24020	Construct Mega Column F4 (+15.45mPD to +19.50mPD)	4	12-Nov-16	16-Nov-16																																																																																																																																												
PCB-02-24530	Mega Column F4 Minimum Curing Time and Strip	4	17-Nov-16	21-Nov-16																																																																																																																																												
Mega Column F5		8	03-Oct-16	12-Oct-16																																																																																																																																												
PCB-02-23970	Construct Mega Column F5 (+15.45mPD to +19.50mPD)	4	03-Oct-16	06-Oct-16																																																																																																																																												
PCB-02-24520	Mega Column F5 Minimum Curing Time and Strip	4	07-Oct-16	12-Oct-16																																																																																																																																												
Gridline E		68	03-Oct-16	21-Dec-16																																																																																																																																												
Mega Column E1		8	13-Dec-16	21-Dec-16																																																																																																																																												
PCB-02-24040	Construct Mega Column E1 (+15.45mPD to +19.50mPD)	4	13-Dec-16	16-Dec-16																																																																																																																																												
PCB-02-24510	Mega Column E1 Minimum Curing Time and Strip	4	17-Dec-16	21-Dec-16																																																																																																																																												
Mega Column E2		8	10-Dec-16	19-Dec-16																																																																																																																																												
PCB-02-24050	Construct Mega Column E2 (+15.45mPD to +19.50mPD)	4	10-Dec-16	14-Dec-16																																																																																																																																												
PCB-02-24500	Mega Column E2 Minimum Curing Time and Strip	4	15-Dec-16	19-Dec-16																																																																																																																																												
Mega Column E3		8	13-Dec-16	21-Dec-16																																																																																																																																												
PCB-02-24060	Construct Mega Column E3 (+15.45mPD to +19.50mPD)	4	13-Dec-16	16-Dec-16																																																																																																																																												
PCB-02-24490	Mega Column E3 Minimum Curing Time and Strip	4	17-Dec-16	21-Dec-16																																																																																																																																												
Mega Column E4		8	12-Nov-16	21-Nov-16																																																																																																																																												
PCB-02-24070	Construct Mega Column E4 (+15.45mPD to +19.50mPD)	4	12-Nov-16	16-Nov-16																																																																																																																																												
PCB-02-24480	Mega Column E4 Minimum Curing Time and Strip	4	17-Nov-16	21-Nov-16																																																																																																																																												
Mega Column E5		8	03-Oct-16	12-Oct-16																																																																																																																																												
PCB-02-23950	Construct Mega Column E5 (+15.45mPD to +19.50mPD)	4	03-Oct-16	06-Oct-16																																																																																																																																												
PCB-02-24470	Mega Column E5 Minimum Curing Time and Strip	4	07-Oct-16	12-Oct-16																																																																																																																																												
North Gridline D to C		10	20-Dec-16	03-Jan-17																																																																																																																																												
Gridline D		10	20-Dec-16	03-Jan-17																																																																																																																																												
Mega Column D1		8	20-Dec-16	30-Dec-16																																																																																																																																												
PCB-02-24090	Construct Mega Column D1 (+15.45mPD to +19.50mPD)	4	20-Dec-16	23-Dec-16																																																																																																																																												
PCB-02-24670	Mega Column D1 Minimum Curing Time and Strip	4	24-Dec-16	30-Dec-16																																																																																																																																												
Mega Column D4		4	28-Dec-16	31-Dec-16																																																																																																																																												
PCB-02-24120	Construct Mega Column D4 (+15.45mPD to +19.50mPD)	4	28-Dec-16	31-Dec-16																																																																																																																																												
Mega Column D5		4	29-Dec-16	03-Jan-17																																																																																																																																												
PCB-02-23930	Construct Mega Column D5 (+15.45mPD to +19.50mPD)	4	29-Dec-16	03-Jan-17																																																																																																																																												

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

3 MONTH ROLLING PROGRAMME

Date	Revision	Checked	Approved
	3 Month Rolling Programme		

Activity ID	Activity Name	Original Duration	Start	Finish	29 30 31																												
					Sep 05	Sep 12	Sep 19	Sep 26	Oct 03	Oct 10	Oct 17	Oct 24	Oct 31	Nov 07	Nov 14	Nov 21	Nov 28	Dec 05	Dec 12	Dec 19	Dec 26	Dec 31											
Gridline C																																	
Mega Column C1																																	
PCB-02-24110	Construct Mega Column C1 (+15.45mPD to +19.50mPD)	4	20-Dec-16	23-Dec-16																													
PCB-02-24720	Mega Column C1 Minimum Curing Time and Strip	4	24-Dec-16	30-Dec-16																													
Mega Column C4																																	
PCB-02-24170	Construct Mega Column C4 (+15.45mPD to +19.50mPD)	4	28-Dec-16	31-Dec-16																													
Mega Column C5																																	
PCB-02-23910	Construct Mega Column C5 (+15.45mPD to +19.50mPD)	4	29-Dec-16	03-Jan-17																													
ABWF & BS / MEP / E&M Works																																	
Level 1 Basement																																	
SOUTH - Gridline J-G																																	
Zone J																																	
ABW-02-60000	PCB (BF) ABWF: PCB Block Wall - South East	21	19-Apr-16 A	05-Oct-16																													
Degree 1																																	
ABWF																																	
ABW-02-418	PCB (BF) ABWF: Work to Degree 1: AHU Rm	13	06-Oct-16	21-Oct-16																													
ABW-02-602	PCB (BF) ABWF: Work to Degree 1: Corridors/Lobby	17	06-Oct-16	26-Oct-16																													
ABW-02-418	PCB (BF) ABWF: Work to Degree 1: Elec/ELV/CBS Rms	14	27-Oct-16	11-Nov-16																													
ABW-02-417	PCB (BF) ABWF: Work to Degree 1: Tx Rm 1e (01J028)	35	06-Oct-16	16-Nov-16																													
ABW-02-417	PCB (BF) ABWF: Work to Degree 1: Switchrooms	20	17-Nov-16	09-Dec-16																													
ABW-02-419	PCB (BF) ABWF: Work to Degree 1: Service Trench	3	31-Dec-16	04-Jan-17																													
ABW-02-417	PCB (BF) ABWF: Work to Degree 1: Genset/Fuel Pmp/Fuel Trnk Rms	25	10-Dec-16	11-Jan-17																													
E&M																																	
MEP-02-41840	PCB (BF) E&M: Work to Degree 1: AHU Rm	45	22-Oct-16	13-Dec-16																													
MEP-02-41720	PCB (BF) E&M: Work to Degree 1: Tx Rm 1e (01J028)	24	17-Nov-16	14-Dec-16																													
MEP-02-64090	PCB (BF) E&M: Work to Degree 1: Corridors/Lobby	40	12-Nov-16	30-Dec-16																													
MEP-02-41780	PCB (BF) E&M: Work to Degree 1: Switchrooms	31	10-Dec-16	18-Jan-17																													
Degree 2																																	
ABWF																																	
ABW-02-418	PCB (BF) ABWF: Work to Degree 2: AHU Rm	6	14-Dec-16	20-Dec-16																													
ABW-02-417	PCB (BF) ABWF: Work to Degree 2: Tx Rm 1e (01J028)	12	15-Dec-16	30-Dec-16																													
E&M																																	
MEP-02-41730	PCB (BF) E&M: Work to Degree 2: Tx Rm 1e (01J028)	13	31-Dec-16	16-Jan-17																													
MEP-02-41850	PCB (BF) E&M: Work to Degree 2: AHU Rm	61	21-Dec-16	11-Mar-17																													
Zone G																																	
ABW-02-60003	PCB (BF) ABWF: PCB Block Wall - South West	42	01-Aug-16 A	06-Oct-16																													
Degree 1																																	
ABWF																																	
ABW-02-415	PCB (BF) ABWF: Work to Degree 1: AHU Rm	13	22-Oct-16	05-Nov-16																													
ABW-02-416	PCB (BF) ABWF: Work to Degree 1: Corridors/Lobby	17	27-Oct-16	15-Nov-16																													
ABW-02-416	PCB (BF) ABWF: Work to Degree 1: Elec/ELV/CBS Rms	14	16-Nov-16	01-Dec-16																													
ABW-02-414	PCB (BF) ABWF: Work to Degree 1: Tx Rm 1a (01G023)	35	17-Nov-16	29-Dec-16																													
ABW-02-415	PCB (BF) ABWF: Work to Degree 1: Switchrooms	20	10-Dec-16	05-Jan-17																													
E&M																																	
MEP-02-41570	PCB (BF) E&M: Work to Degree 1: AHU Rm	45	07-Nov-16	30-Dec-16																													
MEP-02-41660	PCB (BF) E&M: Work to Degree 1: Corridors/Lobby	40	16-Nov-16	04-Jan-17																													
MEP-02-41450	PCB (BF) E&M: Work to Degree 1: Tx Rm 1a (01G023)	24	30-Dec-16	27-Jan-17																													
Degree 2																																	
ABWF																																	
ABW-02-415	PCB (BF) ABWF: Work to Degree 2: AHU Rm	6	31-Dec-16	07-Jan-17																													
Zone H (Service Trough South)																																	
Degree 1																																	
ABWF																																	
ABW-02-41605	PCB (BF) ABWF: Work to Degree 1: Corridors/Lobby	17	16-Nov-16	05-Dec-16																													
ABW-02-41690	PCB (BF) ABWF: Work to Degree 1: Service Trench	3	06-Dec-16	08-Dec-16																													
MEP-02-41605	PCB (BF) E&M: Work to Degree 1: Corridors/Lobby	40	06-Dec-16	24-Jan-17																													
MIDDLE - Gridline G-E																																	
ABW-02-60013a	PCB (BF) ABWF: PCB Wearing Slab Zone D - Middle West	27	01-Sep-16 A	15-Oct-16																													
Zone D																																	
ABW-02-60013	PCB (BF) ABWF: PCB Block Wall - Middle West	48	17-Oct-16	10-Dec-16																													
Degree 1																																	
ABWF																																	
ABW-02-407	PCB (BF) ABWF: Work to Degree 1: Smoke Vent Comp Rm	15	12-Dec-16	30-Dec-16																													
ABW-02-408	PCB (BF) ABWF: Work to Degree 1: Plant Rms/Grease Trp	15	12-Dec-16	30-Dec-16																													
ABW-02-409	PCB (BF) ABWF: Work to Degree 1: Corridors/Lobby	17	12-Dec-16	03-Jan-17																													
ABW-02-406	PCB (BF) ABWF: Work to Degree 1: Tx Rm 1d (01D001)	35	12-Dec-16	24-Jan-17																													
ABW-02-408	PCB (BF) ABWF: Work to Degree 1: Water Feature Filtrn Rms (Type A&B)	42	12-Dec-16	08-Feb-17																													
E&M																																	
MEP-02-40790	PCB (BF) E&M: Work to Degree 1: Smoke Vent Comp Rm	45	31-Dec-16	01-Mar-17																													
MEP-02-40880	PCB (BF) E&M: Work to Degree 1: Plant Rms/Grease Trp	51	31-Dec-16	08-Mar-17																													
Zone F																																	
Degree 1																																	
ABWF																																	
ABW-02-412	PCB (BF) ABWF: Work to Degree 1: AHU Rm	13	10-Nov-16	24-Nov-16																													
ABW-02-414	PCB (BF) ABWF: Work to Degree 1: Corridors/Lobby	17	10-Nov-16	29-Nov-16																													
ABW-02-413	PCB (BF) ABWF: Work to Degree 1: Service Trench	3	06-Dec-16	08-Dec-16																													
ABW-02-413	PCB (BF) ABWF: Work to Degree 1: Elec/ELV/CBS Rms	14	02-Dec-16	17-Dec-16																													
ABW-02-411	PCB (BF) ABWF: Work to Degree 1: FS Tank/Sprinkler & Pmp/Sprkr Tank R	41	10-Nov-16	29-Dec-16																													
ABW-02-412	PCB (BF) ABWF: Work to Degree 1: PABX/Telecom Leadup Rm	17	30-Dec-16	19-Jan-17																													

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

3 MONTH ROLLING PROGRAMME

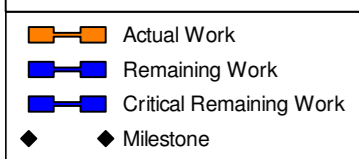
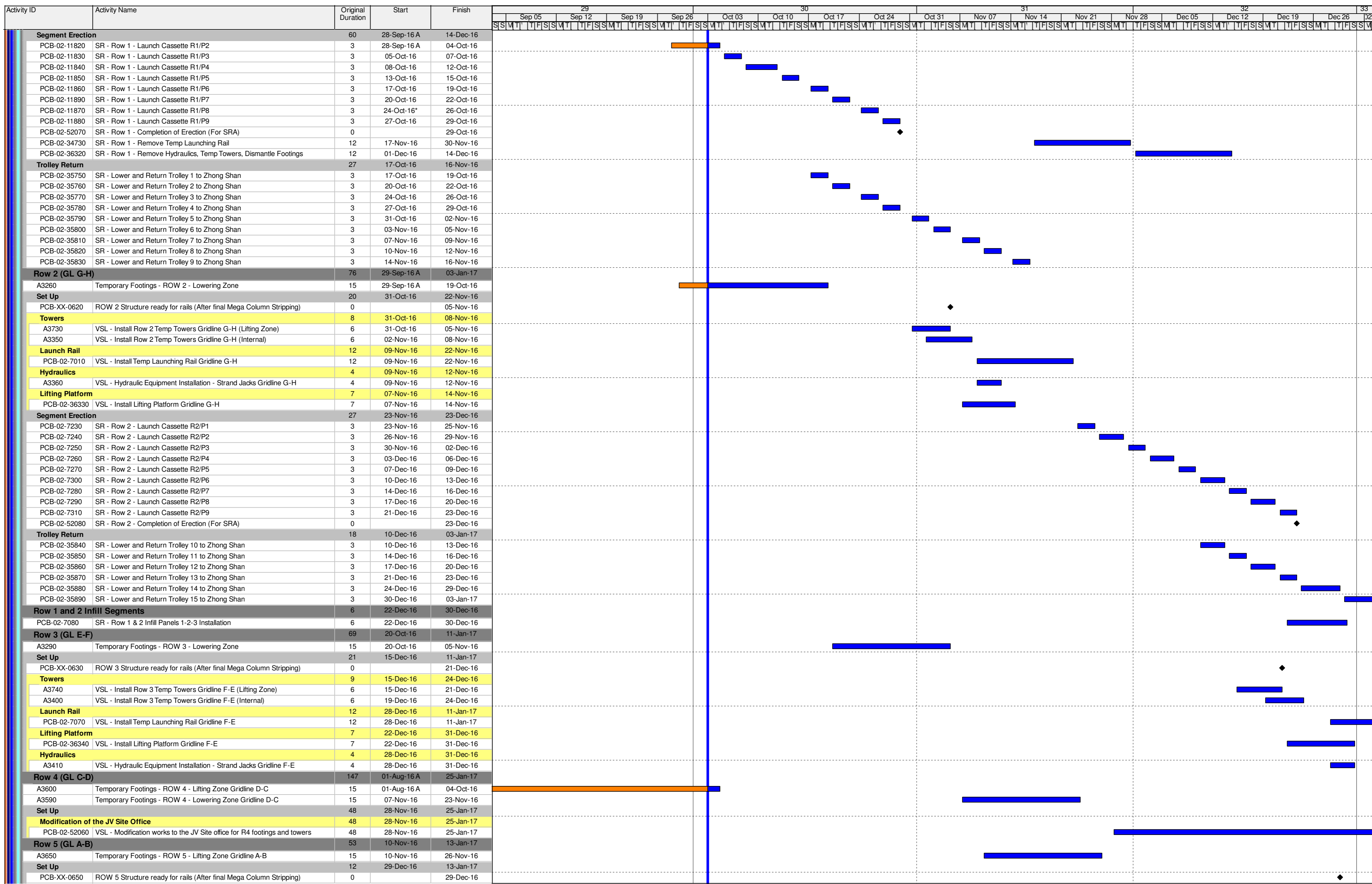
Date	Revision	Checked	Approved
	3 Month Rolling Programme		

Activity ID	Activity Name	Original Duration	Start	Finish	3 MONTH ROLLING PROGRAMME																											
					Sep 05	Sep 12	Sep 19	Sep 26	Oct 03	Oct 10	Oct 17	Oct 24	Oct 31	Nov 07	Nov 14	Nov 21	Nov 28	Dec 05	Dec 12	Dec 19	Dec 26	Jan 02										
ABW-02-413	PCB (BF) ABWF: Work to Degree 1: Smoke Vent Comp/Plant Rms/Grease	75	15-Dec-16	22-Mar-17	[Gantt bar: 15-Dec-16 to 22-Mar-17]																											
E&M		99	30-Nov-16	04-Apr-17	[Gantt bar: 30-Nov-16 to 04-Apr-17]																											
MEP-02-41300	PCB (BF) E&M: Work to Degree 1: Elec/ELV/CBS Rms	19	19-Dec-16	12-Jan-17	[Gantt bar: 19-Dec-16 to 12-Jan-17]																											
MEP-02-41420	PCB (BF) E&M: Work to Degree 1: Corridors/Lobby	40	30-Nov-16	18-Jan-17	[Gantt bar: 30-Nov-16 to 18-Jan-17]																											
MEP-02-41270	PCB (BF) E&M: Work to Degree 1: AHU Rm	45	14-Dec-16	14-Feb-17	[Gantt bar: 14-Dec-16 to 14-Feb-17]																											
MEP-02-41390	PCB (BF) E&M: Work to Degree 1: Service Trench	54	09-Dec-16	20-Feb-17	[Gantt bar: 09-Dec-16 to 20-Feb-17]																											
MEP-02-41180	PCB (BF) E&M: Work to Degree 1: FS Tank/Sprinkler & Pmp/Sprkr Tank Rm	75	30-Dec-16	04-Apr-17	[Gantt bar: 30-Dec-16 to 04-Apr-17]																											
Zone E		118	01-Jun-16 A	09-Jan-17	[Gantt bar: 01-Jun-16 to 09-Jan-17]																											
ABW-02-60012	PCB (BF) ABWF: PCB Block Wall - Middle West	48	03-Aug-16 A	17-Oct-16	[Gantt bar: 03-Aug-16 to 17-Oct-16]																											
Degree 1		112	01-Jun-16 A	09-Jan-17	[Gantt bar: 01-Jun-16 to 09-Jan-17]																											
ABWF		112	01-Jun-16 A	09-Jan-17	[Gantt bar: 01-Jun-16 to 09-Jan-17]																											
ABW-02-600	PCB (BF) ABWF: PCB Block Wall - Middle East	48	01-Jun-16 A	09-Nov-16	[Gantt bar: 01-Jun-16 to 09-Nov-16]																											
ABW-02-4100	PCB (BF) ABWF: Work to Degree 1: Chiller	34	21-Nov-16	31-Dec-16	[Gantt bar: 21-Nov-16 to 31-Dec-16]																											
ABW-02-410	PCB (BF) ABWF: Work to Degree 1: Corridors/Lobby	17	12-Dec-16	03-Jan-17	[Gantt bar: 12-Dec-16 to 03-Jan-17]																											
ABW-02-411	PCB (BF) ABWF: Work to Degree 1: FSD Stage Area	22	12-Dec-16	09-Jan-17	[Gantt bar: 12-Dec-16 to 09-Jan-17]																											
NORTH - Gridline E-B		112	03-Oct-16	21-Feb-17	[Gantt bar: 03-Oct-16 to 21-Feb-17]																											
ABW-02-60023a	PCB (BF) ABWF: PCB Wearing Slab Zone A - North West	24	03-Oct-16	31-Oct-16	[Gantt bar: 03-Oct-16 to 31-Oct-16]																											
ABW-02-60020a	PCB (BF) ABWF: PCB Wearing Slab Zone C - North East	24	03-Oct-16	31-Oct-16	[Gantt bar: 03-Oct-16 to 31-Oct-16]																											
Zone A		78	01-Nov-16	09-Feb-17	[Gantt bar: 01-Nov-16 to 09-Feb-17]																											
ABW-02-60023	PCB (BF) ABWF: PCB Block Wall - North West	21	01-Nov-16	24-Nov-16	[Gantt bar: 01-Nov-16 to 24-Nov-16]																											
Degree 1		57	25-Nov-16	09-Feb-17	[Gantt bar: 25-Nov-16 to 09-Feb-17]																											
ABWF		35	25-Nov-16	07-Jan-17	[Gantt bar: 25-Nov-16 to 07-Jan-17]																											
ABW-02-401	PCB (BF) ABWF: Work to Degree 1: Elec/ELV/CBS Rms	14	25-Nov-16	10-Dec-16	[Gantt bar: 25-Nov-16 to 10-Dec-16]																											
ABW-02-402	PCB (BF) ABWF: Work to Degree 1: Corridors/Lobby	17	25-Nov-16	14-Dec-16	[Gantt bar: 25-Nov-16 to 14-Dec-16]																											
ABW-02-400	PCB (BF) ABWF: Work to Degree 1: Tx Rm 1b (01A003)	35	25-Nov-16	07-Jan-17	[Gantt bar: 25-Nov-16 to 07-Jan-17]																											
E&M		43	12-Dec-16	09-Feb-17	[Gantt bar: 12-Dec-16 to 09-Feb-17]																											
MEP-02-40160	PCB (BF) E&M: Work to Degree 1: Elec/ELV/CBS Rms	19	12-Dec-16	05-Jan-17	[Gantt bar: 12-Dec-16 to 05-Jan-17]																											
MEP-02-40280	PCB (BF) E&M: Work to Degree 1: Corridors/Lobby	40	15-Dec-16	09-Feb-17	[Gantt bar: 15-Dec-16 to 09-Feb-17]																											
Zone B Service Troughs		21	03-Oct-16	27-Oct-16	[Gantt bar: 03-Oct-16 to 27-Oct-16]																											
ABW-02-60022	PCB (BF) ABWF: PCB Block Wall - North West	21	03-Oct-16	27-Oct-16	[Gantt bar: 03-Oct-16 to 27-Oct-16]																											
Zone C		88	01-Nov-16	21-Feb-17	[Gantt bar: 01-Nov-16 to 21-Feb-17]																											
ABW-02-60020	PCB (BF) ABWF: PCB Block Wall - North East	21	01-Nov-16	24-Nov-16	[Gantt bar: 01-Nov-16 to 24-Nov-16]																											
Degree 1		67	25-Nov-16	21-Feb-17	[Gantt bar: 25-Nov-16 to 21-Feb-17]																											
ABWF		35	25-Nov-16	07-Jan-17	[Gantt bar: 25-Nov-16 to 07-Jan-17]																											
ABW-02-405	PCB (BF) ABWF: Work to Degree 1: Service Trench	3	07-Dec-16	09-Dec-16	[Gantt bar: 07-Dec-16 to 09-Dec-16]																											
ABW-02-404	PCB (BF) ABWF: Work to Degree 1: Elec/ELV/CBS Rms	14	25-Nov-16	10-Dec-16	[Gantt bar: 25-Nov-16 to 10-Dec-16]																											
ABW-02-601	PCB (BF) ABWF: Work to Degree 1: Corridors/Lobby	17	25-Nov-16	14-Dec-16	[Gantt bar: 25-Nov-16 to 14-Dec-16]																											
ABW-02-403	PCB (BF) ABWF: Work to Degree 1: Tx Rm 1c (01C002)	35	25-Nov-16	07-Jan-17	[Gantt bar: 25-Nov-16 to 07-Jan-17]																											
E&M		54	10-Dec-16	21-Feb-17	[Gantt bar: 10-Dec-16 to 21-Feb-17]																											
MEP-02-40490	PCB (BF) E&M: Work to Degree 1: Elec/ELV/CBS Rms	19	12-Dec-16	05-Jan-17	[Gantt bar: 12-Dec-16 to 05-Jan-17]																											
MEP-02-64060	PCB (BF) E&M: Work to Degree 1: Corridors/Lobby	40	15-Dec-16	09-Feb-17	[Gantt bar: 15-Dec-16 to 09-Feb-17]																											
MEP-02-40580	PCB (BF) E&M: Work to Degree 1: Service Trench	54	10-Dec-16	21-Feb-17	[Gantt bar: 10-Dec-16 to 21-Feb-17]																											
Level 3 Ground Floor		268	01-Jun-16 A	17-Jul-17	[Gantt bar: 01-Jun-16 to 17-Jul-17]																											
SOUTH - Gridline J-G		103	27-Jun-16 A	13-Feb-17	[Gantt bar: 27-Jun-16 to 13-Feb-17]																											
ABW-02-60040	PCB (GF) ABWF: PCB Block Wall - South West (under MS01)	27	05-Oct-16	05-Nov-16	[Gantt bar: 05-Oct-16 to 05-Nov-16]																											
Zone J		98	27-Jun-16 A	13-Feb-17	[Gantt bar: 27-Jun-16 to 13-Feb-17]																											
Degree 1		88	27-Jun-16 A	25-Jan-17	[Gantt bar: 27-Jun-16 to 25-Jan-17]																											
ABWF		68	27-Jun-16 A	31-Dec-16	[Gantt bar: 27-Jun-16 to 31-Dec-16]																											
ABW-02-600	PCB (GF) ABWF: PCB Block Wall - South East (under MS04)	27	27-Jun-16 A	11-Oct-16	[Gantt bar: 27-Jun-16 to 11-Oct-16]																											
ABW-02-439	PCB (GF) ABWF: Work to Degree 1: BOH - Elec/ELV Rms	14	12-Oct-16	27-Oct-16	[Gantt bar: 12-Oct-16 to 27-Oct-16]																											
ABW-02-417	PCB (GF) ABWF: Work to Degree 1: Tx Rm	18	12-Oct-16	01-Nov-16	[Gantt bar: 12-Oct-16 to 01-Nov-16]																											
ABW-02-439	PCB (GF) ABWF: Work to Degree 1: BOH - Stairs	30	12-Oct-16	15-Nov-16	[Gantt bar: 12-Oct-16 to 15-Nov-16]																											
ABW-02-440	PCB (GF) ABWF: Work to Degree 1: BOH - Toilets/Cleaners Rm	34	12-Oct-16	19-Nov-16	[Gantt bar: 12-Oct-16 to 19-Nov-16]																											
ABW-02-440	PCB (GF) ABWF: Work to Degree 1: BOH - Corridors/Lobby	20	28-Oct-16	19-Nov-16	[Gantt bar: 28-Oct-16 to 19-Nov-16]																											
ABW-02-440	PCB (GF) ABWF: Work to Degree 1: BOH - Rms	46	07-Nov-16	31-Dec-16	[Gantt bar: 07-Nov-16 to 31-Dec-16]																											
E&M		74	28-Oct-16	25-Jan-17	[Gantt bar: 28-Oct-16 to 25-Jan-17]																											
MEP-02-41721	PCB (GF) E&M: Work to Degree 1: Tx Rm	12	02-Nov-16	15-Nov-16	[Gantt bar: 02-Nov-16 to 15-Nov-16]																											
MEP-02-43960	PCB (GF) E&M: Work to Degree 1: BOH - Elec/ELV Rms	19	28-Oct-16	18-Nov-16	[Gantt bar: 28-Oct-16 to 18-Nov-16]																											
MEP-02-44020	PCB (GF) E&M: Work to Degree 1: BOH - Toilets/Cleaners Rm	30	03-Nov-16	07-Dec-16	[Gantt bar: 03-Nov-16 to 07-Dec-16]																											
MEP-02-44050	PCB (GF) E&M: Work to Degree 1: BOH - Corridors/Lobby	26	21-Nov-16	20-Dec-16	[Gantt bar: 21-Nov-16 to 20-Dec-16]																											
MEP-02-43990	PCB (GF) E&M: Work to Degree 1: BOH - Stairs	32	16-Nov-16	22-Dec-16	[Gantt bar: 16-Nov-16 to 22-Dec-16]																											
MEP-02-44080	PCB (GF) E&M: Work to Degree 1: BOH - Rms	46	30-Nov-16	25-Jan-17	[Gantt bar: 30-Nov-16 to 25-Jan-17]																											
Degree 2		68	16-Nov-16	13-Feb-17	[Gantt bar: 16-Nov-16 to 13-Feb-17]																											
ABWF		68	16-Nov-16	13-Feb-17	[Gantt bar: 16-Nov-16 to 13-Feb-17]																											
ABW-02-417	PCB (GF) ABWF: Work to Degree 2: Tx Rm	12	16-Nov-16	29-Nov-16	[Gantt bar: 16-Nov-16 to 29-Nov-16]																											
ABW-02-440	PCB (GF) ABWF: Work to Degree 2: BOH - Toilets/Cleaners Rm	22	08-Dec-16	05-Jan-17	[Gantt bar: 08-Dec-16 to 05-Jan-17]																											
ABW-02-440	PCB (GF) ABWF: Work to Degree 2: BOH - Corridors/Lobby	32	21-Dec-16	06-Feb-17	[Gantt bar: 21-Dec-16 to 06-Feb-17]																											
ABW-02-440	PCB (GF) ABWF: Work to Degree 2: BOH - Rms	36	23-Dec-16	13-Feb-17	[Gantt bar: 23-Dec-16 to 13-Feb-17]																											
E&M		49	30-Nov-16	04-Feb-17	[Gantt bar: 30-Nov-16 to 04-Feb-17]																											
MEP-02-41731	PCB (GF) E&M: Work to Degree 2: Tx Rm	6	30-Nov-16	06-Dec-16	[Gantt bar: 30-Nov-16 to 06-Dec-16]																											
MEP-02-44030	PCB (GF) E&M: Work to Degree 2: BOH - Toilets/Cleaners Rm	30	22-Dec-16	04-Feb-17	[Gantt bar: 22-Dec-16 to 04-Feb-17]																											
Degree 3		8	07-Dec-16	15-Dec-16	[Gantt bar: 07-Dec-16 to 15-Dec-16]																											
ABWF		4	07-Dec-16	10-Dec-16	[Gantt bar: 07-Dec-16 to 10-Dec-16]																											
ABW-02-417	PCB (GF) ABWF: Work to Degree 3: Tx Rm	4	07-Dec-16	10-Dec-16	[Gantt bar: 07-Dec-16 to 10-Dec-16]																											
E&M		4	12-Dec-16	15-Dec-16	[Gantt bar: 12-Dec-16 to 15-Dec-16]																											
MEP-02-41741	PCB (GF) E&M: Work to Degree 3: Tx Rm	4	12-Dec-16	15-Dec-16	[Gantt bar: 12-Dec-16 to 15-Dec-16]																											
Zone G		76	07-Nov-16	13-Feb-17	[Gantt bar: 07-Nov-16 to 13-Feb-17]																											
Degree 1		66	07-Nov-16	25-Jan-17	[Gantt bar: 07-Nov-16 to 25-Jan-17]																											
ABWF		64	07-Nov-16	23-Jan-17	[Gantt bar: 07-Nov-16 to 23-Jan-17]																											

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

3 MONTH ROLLING PROGRAMME

Date	Revision	Checked	Approved
	3 Month Rolling Programme		



3 MONTH ROLLING PROGRAMME

Date	Revision	Checked	Approved
	3 Month Rolling Programme		



路政署
HIGHWAYS DEPARTMENT

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

Contract No. HY/2013/01
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
24th Monthly EM&A Report

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				
	a.Total Quantity Generated (see Note 8)	b. Hard Rock and Large Broken Concrete (see Note 9)	c. Reused in the Contract	d. Reused in Other Projects (see Note 11)	e. Disposed as Public Fill (see Note 10)	f. Imported Fill	g. Metals (see Note 5)	h. Paper / Cardboard Packaging (see Note 5)	i. Plastics (see Note 3) (see Note 5)	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
January	3.209	0.233	0.000	2.079	1.130	0.000	145.240	0.935	0.000	1.200	0.123
February	1.526	0.025	0.000	0.000	1.526	0.000	74.800	0.000	0.000	0.000	0.125
March	3.698	0.364	0.000	0.099	3.599	0.036	100.720	1.908	0.000	0.000	0.170
April	3.300	0.605	0.000	0.198	3.102	0.000	102.030	0.000	0.000	0.000	0.169
May	1.016	0.264	0.000	0.000	1.016	0.000	88.010	1.062	0.000	2.600	0.278
June	0.903	0.038	0.000	0.000	0.903	5.382	139.740	1.197	0.000	0.000	0.262
Sub-total	13.652	1.529	0.000	2.376	11.276	5.418	650.540	5.102	0.000	3.800	1.127
July	1.863	0.220	0.000	1.238	0.625	21.896	16.520	0.000	0.000	0.600	0.445
August	4.056	0.000	4.056	0.000	0.000	9.290	15.930	1.344	0.000	0.000	0.390
September	0.806	0.000	0.806	0.000	0.000	2.591	30.360	1.290	0.000	0.000	0.469
October											
November											
December											
Total	20.377	1.749	4.862	3.614	11.901	39.195	713.350	7.736	0.000	4.400	2.431

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

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

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

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

Notes: (1) The performance target are given in PS Clause 6(14)

(2) The waste flow table shall also include C&D materials that are not specified in the Contract to be imported for use at the Site.

(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(4) The Contractor shall also submit the latest forecast of the amount of C&D materials expected to be generated from the Works, together with a break down of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m³.

(5) All recyclable materials, including metals, paper / cardboard packaging, plastics, etc. will be collected by registered collector for recycling.

(6) Conversion factors for reporting purpose:

in-situ: rock = 2.5 tonnes/m³; soil = 2.0 tonnes/m³

excavated: rock = 2.0 tonnes/m³; soil = 1.8 tonnes/m³; broken concrete and bitumen = 2.4 tonnes/m³

C&D Waste = 0.9 tonnes/m³; bentonite slurry = 2.8 tonnes/m³

Diesel density: 0.8kg/l

(7) Numbers are rounded off to the nearest three decimal places.

(8) The "Total Quantity Generated" equals to the sum of "Reuse in the Contract", "Reuse in Other Projects" and "Disposed as Public Fill".

(9) The "Hard Rock and Large Broken Concrete" were disposed as public fill.

(10) The amount in "Disposed as Public Fill" included the "Hard Rock and Large Broken Concrete" disposed as public fill.

(11) The item d "Reused in Other Projects" includes sand only. Other projects refer to Contracts No. HY/2010/02 and HY/2014/05. Inert C&D Materials were transferred to Contract No. HY/2010/02 in January 2016 and to Contract No. HY/2014/05 in March and April 2016.

Monthly Summary of Excavated Marine Sediment for 2016

Month	a. Estimated Volume of Excavated Marine Sediment Generated (m³)	b. Estimated Volume of Accumulated Excavated Marine Sediment Treated (m³)	c. Reused in the Contract (m³)	d. Estimated Volume of Excavated Marine Sediment Reused in Other Project (m³)⁽²⁾	e. Estimated Volume of Treated Excavated Marine Sediment Stored on Site (Unused) (m³)
Year 2016					
Jan 2016	511	400	0	0	2155
Feb 2016	693	275	0	0	2430
Mar 2016	672	1,363	1215	0	2578
Apr 2016	259	756	700	0	2634
May 2016	287	402	0	0	3036
Jun 2016	240	336	2836	0	536
Jul 2016	331	464	1000	0	0
Aug 2016	0	0	0	0	0
Sep 2016	0	0	0	0	0
Total	2,993	3,996	5,751	0	0⁽¹⁾

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



APPENDIX F

Environmental Licenses and Permits

Environmental License/ Permits /Notification Register

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

Date : September 2016

Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	Remark
	Work Area	Date	Reference						
1.	All Areas	29 Jul 2013	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/G	6 Aug 2013	N/A	EPD	Superseded by EP-353/2009/H
2.	All Areas	16 Jan 2015	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/H	19 Jan 2015	N/A	EPD	Superseded by EP-353/2009/I
3.	All Areas	30 Jun 2015	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/I	17 Jul 2015	N/A	EPD	Superseded by EP-353/2009/J
4.	All Areas	18 Feb 2016	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/J	25 Feb 2016	N/A	EPD	Superseded by EP-353/2009/K
5.	All Areas	24 Mar 2016	N/A	Environmental Permit for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities	EP-353/2009/K	11 Apr 2016	N/A	EPD	
6.	All Areas	29 Apr 2014	H2620-LTR-EPD-AU-000006	Billing Account for disposal of construction waste	Billing Account No.: 7019944	16 May 2014	N/A	EPD	

Environmental License/ Permits /Notification Register

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

Date : September 2016

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

Environmental License/ Permits /Notification Register

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

Date : September 2016

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

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Date : September 2016

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

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	Work Area	Date	Reference						
20.	PCB	12 Mar 2015	H2620-LTR-EPD-AU-000051	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0308-15	26 Mar 2015	25 Jun 2015	EPD	Superseded by GW-RS0476-15
21.	PCB	31 Jul 2014	H2620-LTR-EPD-AU-000038	Water Discharge License for construction works on PCB island	WT00020335-2014	13 Nov 2014	30 Nov 2019	EPD	
22.	WA4	27 Mar 2015	H2620-LTR-EPD-AU-000054	CNP for the use of powered mechanical equipment from 19:00 to 23:00. (Non-designated area)	GW-RW0171-15	20 Apr 2015	19 Oct 2015	EPD	Superseded by GW-RW0351-15
23.	PCB	15 Apr 2015	H2620-LTR-EPD-AU-000057	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0476-15	1 May 2015	31 Jul 2015	EPD	Superseded by GW-RS0685-15

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Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date		Issuing Office
	Work Area	Date	Reference						
24.	PCB	9 Jun 2015	H2620-LTR-EPD-AU-000063	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0685-15	1 Jul 2015	30 Sep 2015	EPD	Superseded by GW-RS0877-15
25.	WA4	29 Jun 2015	H2620-LTR-EPD-AU-000066	CNP for the use of powered mechanical equipment from 19:00 to 23:00. (Non-designated area)	GW-RW0351-15	17 Jul 2015	12 Jan 2016	EPD	Expired. Replaced by GW-RW0003-16
26.	PCB	27 Jul 2015	H2620-LTR-EPD-AU-000069	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0877-15	10 Aug 2015	09 Nov 2015	EPD	Superseded by GW-RS1016-15
27.	PCB	2 Sep 2015	H2620-LTR-EPD-AU-000072	CNP for the use of powered mechanical equipment for the purpose of carry out pre-drill and bore piling works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1016-15	18 Sep 2015	17 Dec 2015	EPD	Superseded by GW-RS1195-15

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	Work Area	Date	Reference						
28.	PCB	22 Oct 2015	H2620-LTR-EPD-AU-000075	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1195-15	9 Nov 2015	8 Feb 2016	EPD	Superseded by GW-RS1444-15
29.	PCB	17 Dec 2015	H2620-LTR-EPD-AU-000076	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS1444-15	31 Dec 2015	30 Mar 2016	EPD	Superseded by GW-RS0191-16
30.	WA4	24 Dec 2015	H2620-LTR-EPD-AU-000080	CNP for the use of powered mechanical equipment from 19:00 to 23:00. (Non-designated area)	GW-RW0003-16	13 Jan 2016	6 Jul 2016	EPD	Superseded by GW-RW0394-16
31.	PCB	17 Feb 2016	H2620-LTR-EPD-AU-000083	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0191-16	3 Mar 2016	2 Jun 2016	EPD	Superseded by GW-RS0543-16

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	Work Area	Date	Reference						
32.	PCB	18 May 2016	H2620-LTR-EPD-AU-000086	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0543-16	2 Jun 2016	1 Sep 2016	EPD	Superseded by GW-RS0879-16
33.	WA4	20 Jun 2016	H2620-LTR-EPD-AU-000089	CNP for the use of powered mechanical equipment from 19:00 to 23:00. (Non-designated area)	GW-RW0394-16	07 Jul 2016	06 Jan 2017	EPD	
34.	PCB	09 Aug 2016	H2620-LTR-EPD-AU-000092	CNP for the use of powered mechanical equipment for the purpose of carry out works from 19:00 to 23:00 and 23:00 to 07:00. (Non-designated area)	GW-RS0879-16	23 Aug 2016	22 Dec 2016	EPD	



APPENDIX G

Implementation Schedule for Environmental Mitigation Measures (EMIS)

Contract No. HY/2013/01 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Implementation Schedule for Environmental Mitigation Measures

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Air Quality								
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively)	√
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; 	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively)	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S5.5.6.2	A2	<ul style="list-style-type: none"> • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; 	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively)	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S5.5.6.2	A2	<ul style="list-style-type: none"> Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively)	√
S5.5.6.4	A3	The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	Control construction dust	Contractor	All construction sites	Construction stage	To control the dust impact	√
S5.5.6.5	A4	Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the contractor's attention to the relevant latest Practice Notes issued by EPD.	Control construction dust	Engineer	All construction sites	Design Stage	Air Pollution Control (Construction Dust) Regulation	√
S5.5.6.5	A5	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitor the 24 hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period.	Contractor	Selected representative dust monitoring station	Construction stage	<ul style="list-style-type: none"> Air Pollution Control (Construction Dust) Regulation To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are 500 $\mu\text{g}\text{m}^{-3}$ and 260 $\mu\text{g}\text{m}^{-3}$, respectively) 	√ (The dust monitoring works under EM&A programme for the Contract are covered by Contract No. HY/2010/02 and Contract No. HY/2011/03.)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S5.5.7.1	A6	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant:</p> <ul style="list-style-type: none"> • Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system; • All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP; • Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system; • The materials which may generate airborne dusty emissions should be wetted by water spray system; • All receiving hoppers should be enclosed on three sides up to 3m above unloading point; • All conveyor transfer points should be totally enclosed; • All access and route roads within the premises should be paved and wetted; and • Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body. 	Monitor the 24 hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period.	Contractor	Selected representative dust monitoring station	Construction stage	<ul style="list-style-type: none"> • Air Pollution Control (Construction Dust) Regulation • To control the dust impact to within the HKAQO and TM-EIA criteria (Ref. 1- hr and 24hr TSP levels are $500 \mu\text{g}\text{m}^{-3}$ and $260 \mu\text{g}\text{m}^{-3}$, respectively) 	N/A
S5.5.2.7	A7	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point:</p> <ul style="list-style-type: none"> • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points. 	Control construction dust	Contractor	All construction sites	Construction stage	Air Pollution Control (Construction Dust) Regulation	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Construction Noise (Air borne)								
S6.4.10	N1	<p>1) Use of good site practices to limit noise emissions by considering the following:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; mobile plant should be sited as far away from NSRs as possible and practicable; material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Control construction airborne noise by means of good site practices	Contractor	All construction sites	Construction stage	Noise Control Ordinance	√
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance Annex 5, TM-EIA 	N/A
S6.4.12	N3	3) Install movable noise barriers (typically density @14kg/m ²), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw.	Screen the noisy plant items to be used at all construction sites	Contractor	For plant items listed in Appendix 6D of the EIA report at all construction sites	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance Annex 5, TM-EIA 75dB(A) for residential premises The movable barrier should achieve at least 5dB(A) and the full enclosure should be 	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S6.4.13	N4	4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.	Reduce the noise levels of plant items	Contractor	For plant items listed in Appendix 6D of the EIA report at all construction sites	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance & its TM Annex 5, TM-EIA 	√
S6.4.14	N5	5) Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance Annex 5, TM-EIA 	√
/	N6	6) Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	<ul style="list-style-type: none"> Noise Control Ordinance Annex 5, TM-EIA 75dB(A) for residential premises 	√ (The noise monitoring works under EM&A programme for the Contract are covered by Contract No. HY/2010/02.)
Sediment								
S7.3	S1	1) The requirements as recommended in ETWB TC 34/2002 Management of Dredged/Excavated Sediment shall be included in the Particular Specification as appropriate.	Develop sediment disposal arrangement	Engineer	All construction sites	Design stage	<ul style="list-style-type: none"> Waste Disposal Ordinance ETW B TC 34/2002 	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Waste Management (Construction Waste)								
S8.3.8	WM1	<p><u>Construction and Demolition Material</u></p> <p>The following mitigation measures should be implemented in handling the waste:</p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETW BTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation. 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETW BTC 19/2005 	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S8.3.9- S8.3.11	WM2	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TC 19/2005 	√
S8.2.12- S8.3.15	WM3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 						√
S8.3.16	WM4	<u>Sewage</u> <ul style="list-style-type: none"> Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly. 	Proper handling of sewage from worker to avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance 	√
S8.3.17	WM5	<u>General Refuse</u> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans, plastic bottles etc., should be provided. Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance 	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Water Quality (Construction Phase)								
S.9.11.1.7	W2	<p><u>Land Works</u> General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include:</p> <ul style="list-style-type: none"> • wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; • sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided; • storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks; • silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm; • temporary access roads should be surfaced with crushed stone or gravel; • rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; • measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; • open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; • manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers; • discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; 	To control construction water quality	Contractor	Land-based works areas	Construction stage	TM-EIAO	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S9.11.1.7	W2	<ul style="list-style-type: none"> • all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit; • wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain; • the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel; • wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects; • vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal; • the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately; • waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance; • all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and • surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system. 	To control construction water quality	Contractor	Land-based works areas	Construction stage	TM-EIAO	√

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Ecology (Construction Phase)								
S10.7	E4	<ul style="list-style-type: none"> Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater 	Prevent Sedimentation from Land-based works areas	Contractor	Land-based works areas	During construction	TM-Water	√
S10.7	E5	<ul style="list-style-type: none"> Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time 	Prevent disturbance to terrestrial fauna and habitats	Contractor	Land-based works areas	During construction		√
S10.7	E8	<ul style="list-style-type: none"> Control vessel speed Skipper training Predefined and regular routes for working vessels; avoid Brother Islands. 	Minimise marine traffic disturbance on dolphins	Contractor	Marine Traffic	During construction		√
Fisheries								
S11.7	F4	<ul style="list-style-type: none"> Maritime Oil Spill Response Plan (MOSRP); Contingency plan. 	Minimise impacts on marine water quality impacts	Marine Department	HKBCF	During operation		N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Landscape & Visual (Detailed Design Phase)								
S14.3.3.1	LV1	<p>General design measures include:</p> <ul style="list-style-type: none"> • Roadside planting and planting along the edge of the HKBCF Island is proposed; • Transplanting of mature trees in good health and amenity value where appropriate and reinstatement of areas disturbed during construction by compensatory hydro-seeding and planting; • Protection measures for the trees to be retained during construction activities; • Optimizing the sizes and spacing of the bridge columns; Fine-tuning the location of the bridge columns to avoid visually-sensitive locations; • Maximizing new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed; • Providing planting area around peripheral of HKBCF for tree planting screening effect; • Providing salt-tolerant native trees along the planter strip at affected seawall and newly reclaimed coastline; • For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF; and • Fine-tuning the sizes of the structural members to minimize the bulkiness of buildings and adjustment of building arrangement to minimise disturbance to surrounding vegetation in the HKBCF. 	Minimise visual & landscape impact	Detailed designer	HKBCF	Design Stage		N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
<i>Landscape & Visual (Construction Phase)</i>								
S14.3.3.3	LV2	<p>Mitigate both Landscape and Visual Impacts</p> <p>G1. Grass-hydroseed bare soil surface and stock pile areas.</p> <p>G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge footbridge to screen bridge and traffic.</p> <p>G3. Not applicable as this is for HKLR.</p> <p>G4. For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF</p> <p>G5. Vegetation reinstatement and upgrading to disturbed areas</p> <p>G6. Maximizing new tree shrub and other vegetation planting to compensate tree felled and vegetation removed</p> <p>G7. Providing planting area around peripheral of HKBCF for tree planting screening effect;</p> <p>G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall.</p> <p>G9. Reserve of loose natural granite rocks for re-use. Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of the new coastline.</p>	Minimise visual & landscape impact	Contractor	HKBCF	Construction stage		N/A
S14.3.3.3	LV3	<p><u>Mitigate Visual Impacts</u></p> <p>V1.Minimize time for construction activities during construction period.</p> <p>V2.Provide screen hoarding at the portion of the project site / works areas / storage areas near VSRs who have close low-level views to the Project during HKBCF construction.</p>						√ for V1. N/A for V2.

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

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



路政署
HIGHWAYS DEPARTMENT

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

Contract No. HY/2013/01
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
24th Monthly EM&A Report

APPENDIX H

Statistics on Environmental Complaints, Notification of Summons and
Successful Prosecutions

Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period	0	0	0
From commencement date of contract to end of reporting month	2	0	0



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APPENDIX I

Environmental Site Inspection Schedule

Oct 2016

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