



Highways Department
5th Floor, Ho Man Tin Government Offices
88 Chung Hau Street
Ho Man Tin
Kowloon

Your reference:

Our reference: HKHYD203/50/108543

Date: 17 January 2023

Attention: Mr Eric Wong

BY EMAIL & POST
(email: se4.mwsd@hyd.gov.hk)

Dear Sirs

Agreement No. HMWSD 6/2022 (EP)
Environmental Project Office for the Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road, Hong Kong-Zhuhai-Macao Bridge Hong Kong
Boundary Crossing Facilities & Tuen Mun-Chek Lap Kok Link – Investigation

Contract No. HY/2019/01
HZMB HKBCF – Phase 2 and Other Works
Monthly EM&A Report for 1 December 2022 – 4 January 2023

We refer to the emails of 10, 11 and 13 January 2023, attaching a Monthly EM&A Report for 1 December 2022 – 4 January 2023 prepared by the Environmental Team (ET) of the captioned.

We have no further comment and hereby verify the Monthly EM&A Report for 1 December 2022 – 4 January 2023 per Clause 5.4 of the Environmental Permit no. EP-353/2009/K.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Ricky Lau on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/lsmt

cc Highway Department – Mr YF Lau (email: pc7.mwsd@hyd.gov.hk)
Highway Department – Mr Nick Li (email: e10.mwsd@hyd.gov.hk)
AECOM Asia Co. Ltd. – Mr Jason Yu (email: jason.yu@hkbcf-c9-aecom.hk)
Fugro Technical Services Limited – Mr Calvin Leung (email: c.leung@fugro.com)
China Harbour Engineering Co. Ltd. – Mr Matthew Wu (email: matthew.wu@chec-eng.com)

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FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Date 17 January 2023
Our Ref. MCL/ED/0023/2023/C

ANewR Consulting Limited
Unit 517, 5/F, Tower A, Regent Centre
63 Wo Yi Hop Road, Kwai Chung, Hong Kong

BY EMAIL

Attn.: Mr. James Choi, Independent Environmental Checker

Dear Sir,

**EP Condition 5.4 – Monthly EM&A Report for
Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and
Other Works (Contract No. HY/2019/01)**

Pursuant to Condition 5.4 of the Environmental Permit (EP-353/2009K) for the captioned project, we hereby submit the certified Monthly EM&A Report for December 2022 for your verification.

Thank you for your attention, should there be any comments or queries, please contact our Mr. Cyrus Lai at 3565-4442 or the undersigned at 3565-4441.

Yours faithfully,
for and on behalf of
FUGRO TECHNICAL SERVICES LIMITED

Calvin Leung
Environmental Team Leader

c.c.	AECOM	Attn: Mr. Jason Yu
	ANewR	Attn: Mr. Louis Kwan, Mr. Ricky Lau
	CHEC	Attn: Mr. Marko Chan, Mr. Matthew Wu



Monthly EM&A Report (1 December 2022 – 4 January 2023)

0002/20/ED/0557 03 |

Contact No. HY/2019/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works

Document Control




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Client Information

Client	China Harbour Engineering Co., Ltd. - Contract No. HY/2019/01
Client Address	China Harbour Building, 370-4 King's Road, North Point Hong Kong
Client Contact	Matthew Wu

Environmental Team

Initials	Name	Role	Signature
MP	Calvin M.P. Leung	Environmental Team Leader	
CY	Cyrus C.Y. Lai	Senior Environmental Consultant	
KH	Toby K.H. Wan	Environmental Consultant	

EXECUTIVE SUMMARY

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2019/01 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works" (hereafter referred to as "the Contract") for the Highways Department of Hong Kong Special Administrative Region (HKSAR). Contract No. HY/2019/01 was awarded to China Harbour Engineering Co. Limited and Fugro Technical Services Limited (FTS) was appointed as the Environmental Team (ET) by the Contractor.

Contract No. HY/2019/01 is part of the "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities" (HZMB HKBCF) Project which is a "Designated Project" under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. Commencement of the Contract took place on 4 December 2019 and the construction site preparation works commenced in early February 2020.

Fugro Technical Services Limited (FTS) 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 is providing environmental team services for the Contract.

This is the 35th Monthly EM&A Report for the Contract which summaries findings of the EM&A programme during the reporting period from 1 December 2022 to 4 January 2023 (the date of the contract ends).

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, noise and the post-construction dolphin monitoring works for the Contract are covered by Contract No. HY/2019/01 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works". The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS6 as part of EM&A programme if the impact air quality monitoring work is no longer covered by Contract No. HY/2011/03 respectively. However, this is subject to ENPO's final decision on which ET should carry out the monitoring work at these stations.

Breaches of Action and Limit Levels

According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the air quality and noise monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022, no Action / Limit Level exceedance for air quality and noise monitoring was recorded during the period.

Complaint Log

No complaints were received in the reporting period.

Notifications of any Summons and Successful Prosecutions

No notifications of summons and prosecutions were received in the reporting period.

Reporting Change

No reporting change in the reporting period.

Future Key Issues

No main construction works will be carried out in the next reporting period.

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1. INTRODUCTION

1.1 Background

- 1.1.1 Fugro Technical Services Limited was commissioned by China Harbour Engineering Co. Limited (also referred to as “the Contractor”) to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for Contract No. HY/2019/01 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works”.
- 1.1.2 Contract No. HY/2019/01 is part of the “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities” (HZMB HKBCF) Project which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register. The general layout of the Project area is shown in **Figure 1**. Commencement of the Contract took place on 4 December 2019 and the construction site preparation works commenced in early February 2020.
- 1.1.3 This is the 35th Monthly EM&A report to document the findings of site inspection activities and EM&A programme carried out by the Contractor of Contract No. HY/2019/01 from 1 December 2022 to 4 January 2023 (the date of the contract ends) and is submitted to fulfil Condition 5.4 of the EP.

1.2 Project Description

- 1.2.1 The works to be executed under Contract No. HY/2019/01 include the following major items:
- Landscaping and establishment works;
 - Irrigation system and associated drainage pumping system and facilities;
 - Erection and installation in the Passenger Clearance Building;
 - Public transport interchange (PTI) public toilet, satellite refuse collection point (RCP) and observation guard booths;
 - PTI cross boundary shuttle (CBS) / cross boundary coach (CBC) lanes and covered walkway;
 - Vehicle clearance plazas (VCP) vehicle kiosks and associate automatic vehicle clearance supporting system (AVCSS).

1.3 Project Organization

1.3.1 The Project Organization 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
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Senior Resident Engineer	Mr. Jason Yu	3748 8903
	Resident Engineer	Mr. K.W. Wong	3748 8967
Environmental Project Office / Independent Environmental Checker (ANewR Consulting Limited)	Environmental Project Office Leader	Mr. Louis Kwan	2618 2836
	Independent Environmental Checker (IEC)	Mr. James Choi	2618 2836
	Environmental Site Supervisor	Mr. Ricky Lau	2618 2836
Contractor (China Harbour Engineering Co. Ltd)	Environmental Manager	Mr. Marko Chan	9427 2879
	Environmental Officer	Mr. Matthew Wu	6076 2675
Environmental Team (Fugro Technical Services Limited)	Environmental Team Leader (ETL)	Mr. Calvin Leung	3565 4441

1.4 Construction Programme and Activities

1.4.1 The site layout plan of the Contract is shown in **Figure 1**.

1.4.2 The construction programme of this Contract is shown in **Appendix A**.

1.4.3 The Proposal for Termination of EM&A Programme in Construction Phase (0002_20_ED_0467_04) was verified by IEC on 13 June 2022 and approved by EPD on 5 July 2022 (EPD ref. () in AX(12) in EP771/E1/100).

1.5 Works undertaken during the month

1.5.1 No main construction works was carried out in the reporting period.

1.6 Status of Environmental Licences, Notification and Permits

1.6.1 A summary of the relevant permits, licenses and/or notifications on environmental protection for this Contract is presented in **Table 1.2**.

Table 1.2 Environmental Licenses, Notification and Permits Summary

Permit/ Notification/ License	Reference No	Valid From	Valid Till
Environmental Permit	EP-353/2009/K	11-Apr-16	Not Applicable
Notification pursuant to Air Pollution (Construction Dust) Regulation	451380	28-Nov-19	Not Applicable
Billing Account for Disposal of C&D waste	A/C No. 7036097	18-Dec-19	Not Applicable
Chemical Waste Producer Registration	5296-951-C1186-32	6-Feb-20	Not Applicable
Water Discharge License	WT00035721-2020	8-Jun-21	30-Apr 25

2. AIR QUALITY

2.1 Monitoring Requirement

- 2.1.1 In accordance with the Contract Specific EM&A Manual, 1-hour and 24-hour Total Suspended Particulates (TSP) levels should be measured at the designated air quality monitoring stations to indicate the impacts of construction dust on air quality. Impact 1-hour TSP monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was carried out for at least once every 6 days.
- 2.1.2 According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the air quality monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022. The last monitoring was completed on 24 March 2022.

2.2 Monitoring Locations

- 2.2.1 In accordance with the Contract Specific EM&A Manual, four air quality monitoring locations, namely AMS2, AMS3C, AMS6 and AMS7B were set up at the proposed locations. AMS2, AMS3C and AMS7B are covered by Contract No. HY/2019/01 "Hong Kong-Zhuhai- Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works"
- 2.2.2 AMS6 is covered by Contract No. HY/2011/03 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road (HZMB HKLR) – 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 as part of EM&A programme if this air quality monitoring station is no longer covered by Contract No. HY/2011/03.
- 2.2.3 Due to the existing air quality monitoring location AMS7B would be hand over back to Airport Authority for their construction works. A new alternative air quality monitoring location is still under processing. Air quality monitoring location AMS7B was temporary suspended, effective from 10 December 2020.
- 2.2.4 According to the email date 11 August 2021, EPD have no comment on the Proposal for Relocation of Monitoring Location AMS 7B, the monitoring location AMS 7B are proposed to be relocated by alternative monitoring location AMS 7C for air quality monitoring. The monitoring location AMS 7C has resumed air quality monitoring on 5 October 2021.
- 2.2.5 The most updated locations of air quality monitoring are summarized in **Table 2.1** and they are shown in **Figure 2**.

Table 2.1 Air Quality Monitoring Location

Monitoring Station	Location
AMS2	Tung Chung Development Pier
AMS3C	Ying Tung Estate Market Rooftop
AMS6	Dragonair / CNAC (Group) Building (HKIA)
AMS7C	East Sea Rescue Berth – Airport Fire Contingent Third Runway Site Office

Remarks: The ET of this Contract should conduct impact air quality monitoring at station AMS6 listed in the table as part of EM&A programme according to latest notification from ENPO when the monitoring station is no longer covered by another ET of the HZMB project.

3. NOISE

3.1 Monitoring Requirement

- 3.1.1 In accordance with the Contract Specific EM&A Manuals, L_{eq} (30min) monitoring is conducted for at least once a week during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.
- 3.1.2 According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the noise monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022. The last monitoring was completed on 24 March 2022.

3.2 Monitoring Parameters and Frequency

- 3.2.1 The parameters and frequencies of impact noise monitoring is summarized in **Table 3.1**.

Table 3.1 Monitoring Parameters and Frequencies of Noise Monitoring

Parameter	Frequency
L_{eq} (30min) L_{10} and L_{90} will be recorded for reference	At each station at 0700-1900 hours on normal weekdays at a frequency of once a week

3.3 Monitoring Locations

- 3.3.1 In accordance with the Contract Specific EM&A Manual, two noise monitoring locations, namely NMS2 and NMS3C are covered under Contract No. HY/2019/01 "Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works.
- 3.3.2 Due to rejection from Ho Yu College (NMS3) for setting up a noise monitoring station at their school, an alternative location at site boundary of the site office area at Works Area WA2 (NMS3B) is proposed. Impact noise monitoring has been relocated from NMS3B to Ying Tung Estate Market Rooftop (NMS3C) on 20 August 2018 under Contract No. HY/2013/04. The same baseline and Action and Limit levels for noise, as derived from the baseline monitoring data recorded at Ho Yu College, are adopted for this alternative noise monitoring location.
- 3.3.3 The most updated locations are summarized in **Table 3.2** and the locations of the noise monitoring stations shown in **Figure 3**.

Table 3.2 Construction Noise Monitoring Location

Monitoring Station	Location
NMS2	Seaview Crescent
NMS3C	Ying Tung Estate Refuse Collection Point

Remark: The Limit Levels for schools will be applied for this alternative monitoring location at NMS3C.

4. ECOLOGY MONITORING

4.1 Monitoring Requirements

- 4.1.1 All marine-based construction activities for the HKBCF project were completed in January 2019. No marine-based construction activities will be undertaken under this Contract. However, the ET of this Contract or another ET of the HZMB is required to conduct post-construction dolphin monitoring in accordance with Section 10.7 of the updated EM&A Manual.
- 4.1.2 The CV of the proposed dolphin specialist for this Contract has been submitted to IEC for review prior to submission to AFCD for approval.
- 4.1.3 According to the Proposal on Post-construction Dolphin Monitoring (PCDM) prepared by Contract No. HY/2013/04 which has been verified by ENPO and approved by EPD on 8 March 2019 (EPD ref. () in Ax(5) to E771/E1/100) , the completion date of the PCDM is in February 2021. Therefore, the reporting of Chinese White Dolphins monitoring works under this contract was completed on 1 March 2021.

4.2 Monitoring Locations and Methodology

- 4.2.1 In accordance with the requirements of the updated EM&A manual, the dolphin monitoring programme have adopted the standard line-transect method (Buckland et al. 2001) to survey the pre-set and fixed transect lines defined by AFCD in the Northeast Lantau (NEL) and Northwest Lantau (NWL) survey areas. The layout map of the transect lines provided by AFCD is presented in **Figure 4**.

5. SITE INSPECTION AND AUDIT

5.1 Site Inspection

5.1.1 According to the EPD's letter (EPD ref. () in AX(12) in EP771/E1/100), EPD has no comment on the Proposal for Termination of EM&A Programme in Construction Phase, the site inspection for Contract No: HY/2019/01 have been terminated on 5 July 2022. The last inspection was completed on 29 June 2022.

5.2 Landscape and Visual Site Audit (Establishment Period)

5.2.1 As informed by AECOM, the commencement date of the 12-month establishment period for the landscape monitoring under this contract is 5 January 2022. Bi-monthly landscape and visual site audits will be conducted from 5 January 2022 to 4 January 2023.

5.2.2 A bi-monthly landscape and visual site audit was carried out on 12 December 2022. This was a joint inspection with the IEC, the engineer, the contractor and the ET's Registered Landscape Architect. The bi-monthly landscape and visual site audit checklist was counter-signed by IEC and presented in **Appendix J**.

5.2.3 The site audit conducted on 12 December 2022 would be the last site audit under the contract period.

5.3 Advice on the Solid and Liquid Waste Management Status

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

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

5.3.3 If off-site disposal is required, the excavated marine mud from the land-based works shall be disposed of at the designated disposal sites within Hong Kong as allocated by the Marine Fill Committee or other locations as agreed by the Director. The Contractor shall ensure no spilling and overflowing of materials during loading / unloading / transportation is allowed.

5.3.4 The Contractor was reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packing, Labelling and Storage of Chemical Waste.

6. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

6.1 Environmental Exceedance

6.1.1 According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the air quality and noise monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022, no Action / Limit Level exceedance for air quality and noise monitoring was recorded during the period.

6.2 Complaints, Notification of Summons and Prosecution

6.2.1 No environmental complaint, notification of summons and successful prosecution were received in the reporting month.

6.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix F**.

7. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURE

7.1 Implementation Status

According to the EPD's letter (EPD ref. () in AX(12) in EP771/E1/100), EPD has no comment on the Proposal for Termination of EM&A Programme in Construction Phase, the EM&A programme for Contract No: HY/2019/01 have been terminated on 5 July 2022. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**.

8. FUTURE KEY ISSUES

8.1 Construction Programme for the Next Month

- No main construction works will be carried out in the next reporting period.

8.2 Key Issues for the Coming Month

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, waste management and landscape and visual impact issues.

8.3 Monitoring Schedules for the Next Month

8.3.1 The tentative schedule for environmental monitoring in the coming month is provided in **Appendix I**.

9. CONCLUSION AND RECOMMENDATION

9.1 Conclusions

- 9.1.1 According to the EPD's reply email, EPD has no comment on the Proposal for Termination of Air quality and Noise Monitoring, the air quality and noise monitoring for Contract No: HY/2019/01 have been terminated on 25 March 2022, no Action / Limit Level exceedance for air quality and noise monitoring was recorded during the period.
- 9.1.2 According to the EPD's letter (EPD ref. () in AX(12) in EP771/E1/100), EPD has no comment on the Proposal for Termination of EM&A Programme in Construction Phase, the site inspection for Contract No: HY/2019/01 have been terminated on 5 July 2022.
- 9.1.3 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.
- 9.1.4 The date of the contract ends would be 4 January 2023.

9.2 Comment and Recommendations

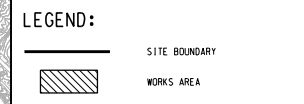
- 9.2.1 The recommended environmental mitigation measures, as proposed in the EIA reports and EM&A Manuals shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.
- 9.2.2 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:
- Air Quality Impact
- No specific observation was identified in the reporting month.
- Construction Noise Impact
- No specific observation was identified in the reporting month.
- Water Quality Impact
- No specific observation was identified in the reporting month.
- Chemical and Waste Management
- No specific observation was identified in the reporting month.
- Permit/ Licenses
- No specific observation was identified in the reporting month.

Figure 1

The Site Layout Plan of the Contract



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



THE SITE SEE DRAWING NO. 60191048/C9/000/C00/1001

THE SITE SEE DRAWING NO. 60191048/C9/000/C00/1002

WORKS AREA 'WA3'
SEE DRAWING NO. 60191048/C9/000/C00/1051

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

RECLAMATION FOR THE TM-CKLK SOUTHERN LANDFALL (BY OTHERS)

OTHER INFRASTRUCTURE AND BUILDING WORKS OUTSIDE SITE BOUNDARY (BY OTHERS)

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

REV. NO.	DESCRIPTION	BY	DATE
-	TENDER DRAWING	TTHK	JUL 19

香港高速公路局
HIGHWAYS DEPARTMENT
 主要工程管理處 (傳真與函)
 Major Works Project Management Office (Special Duties)

香港-珠海-澳門大橋
HONG KONG-ZHUHAI-MACAO BRIDGE
 香港-珠海-澳門大橋過境設施
 - PHASE 2 AND OTHER WORKS

SITE LOCATION PLAN

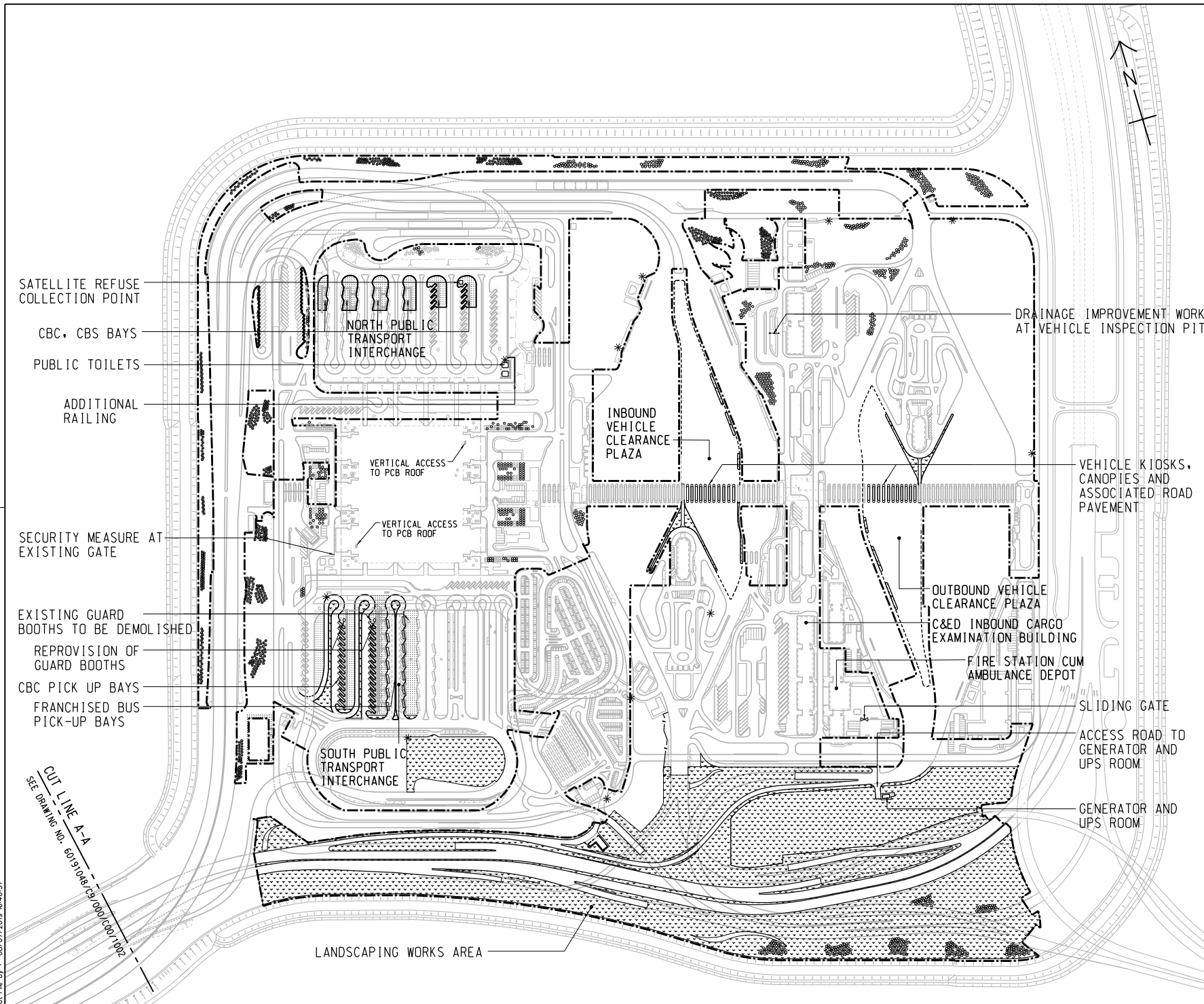
AECOM +
 Rogers Stirk Harbour + Partners
Aedas
 BURO HAPPOLD ATKINS ADI +

DRG. NO. 60191048/C9/000/C00/1000
 圖紙編號

DESIGNED BY TTHK	CONTRACT NO. HY/2019/01	APPROVED BY SC1
DRAWN BY JC	STATUS REV	

SCALE 1:25000
 縮尺 1:25000
 DIMENSIONS ARE IN METRES
 尺寸單位 公尺
 © COPYRIGHT RESERVED
 版權所有

Plot File by : 27/6/2019 17:08:25



REMARKS:

- IN SPT1:
 - DEMOLISH 2 NOS. EXISTING GUARD BOOTHS AND RE-PROVISION TO REVISED LOCATIONS AS SHOWN
 - CONSTRUCT COVERED WALKWAYS FOR THE NEW FB AND CBC PICK UP BAYS
 - MODIFY EXISTING DUCTING AND POLES FOR ELV SYSTEM, ROAD LIGHTING AND PILLAR BOXES, AND THE ASSOCIATED CABLING WORKS
 - RELOCATE AND REINSTATE 3 NOS. OF EXISTING BUS OPERATOR OFFICES AND FOOD TRUCK
 - REPLACEMENT OF DRAWPIT COVERS
- IN NPT1:
 - CONSTRUCT COVERED WALKWAYS FOR THE NEW CBC, CBS PICK UP BAYS AND PUBLIC TOILETS
 - PROVIDE AUTOMATIC IRRIGATION SYSTEM AT SLOPES
 - MODIFY EXISTING COVERED WALKWAY AND PROVISION OF LIGHTING
 - REPLACEMENT OF DRAWPIT COVERS
- LANDSCAPING WORKS AREA:
 - CONSTRUCT IRRIGATION SYSTEM WITH 13 NOS. OF NEW WATER POINT AND THE AUTOMATIC IRRIGATION SYSTEM AND PROVIDE MAINTENANCE WORKS
 - LANDSCAPE SOFTWORK, ESTABLISHMENT AND MAINTENANCE WORKS
 - CONSTRUCT RIVER WASHED STONE SWATHE AND MAINTENANCE WORKS
 - PROTECT EXISTING PLANTING AND HARD STRUCTURES
- PASSENGER CLEARANCE BUILDING
 - VERTICAL ACCESS
 - IMPROVEMENT WORKS FOR WATER FEATURE
 - MINOR REMAINING WORKS
 - PROVISION OF NEW CENTRAL AVSS EQUIPMENT WITH SUFFICIENT CAPACITY, PROCESSING POWER AND STORAGE TO ACCOMMODATE BOTH THE EXISTING AND NEW AVSS
- VEHICLE KIOSKS AT INBOUND & OUTBOUND VCP
 - PROVISION OF AVSS AT NEW KIOSKS TO SERVE 24 NOS. VEHICULAR LANES
 - REPLACEMENT OF BARRIER GATE WITH SKIRTING AT 72 NOS. EXISTING KIOSK
- C&E INBOUND CARGO EXAMINATION BUILDING
 - PROVISION OF NEW CENTRAL AVSS EQUIPMENT WITH SUFFICIENT CAPACITY, PROCESSING POWER AND STORAGE TO ACCOMMODATE BOTH THE EXISTING AND NEW AVSS

ABBREVIATION:

SPT1 - SOUTH PUBLIC TRANSPORT INTERCHANGE
 NPT1 - NORTH PUBLIC TRANSPORT INTERCHANGE
 VCP - VEHICLE CLEARANCE PLAZA
 PCB - PASSENGER CLEARANCE BUILDING
 FB - FRANCHISED BUS
 CBC - CROSS BOUNDARY COACH
 CBS - CROSS BOUNDARY SHUTTLE
 ELV - EXTRA LOW VOLTAGE
 AVSS - AUTOMATIC VEHICLE CLEARANCE SUPPORT SYSTEM

NOTE:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C9/000/C00/1002

LEGEND:

- SITE BOUNDARY
- AMENITY AREA
- FOOTPATH
- COVERED WALKWAY
- SECURITY FENCE
- TREE PLANTING
- IRRIGATION POINT

NO.	DESCRIPTION	DATE
-	TENDER DRAWING	TTHK 06/2019

GENERAL ARRANGEMENT

SHEET 1 OF 2

AECOM + **Aedas**
 Rogers Stirk Harbour + Partners
 BURU HAPFOLD ATKINS ADI +

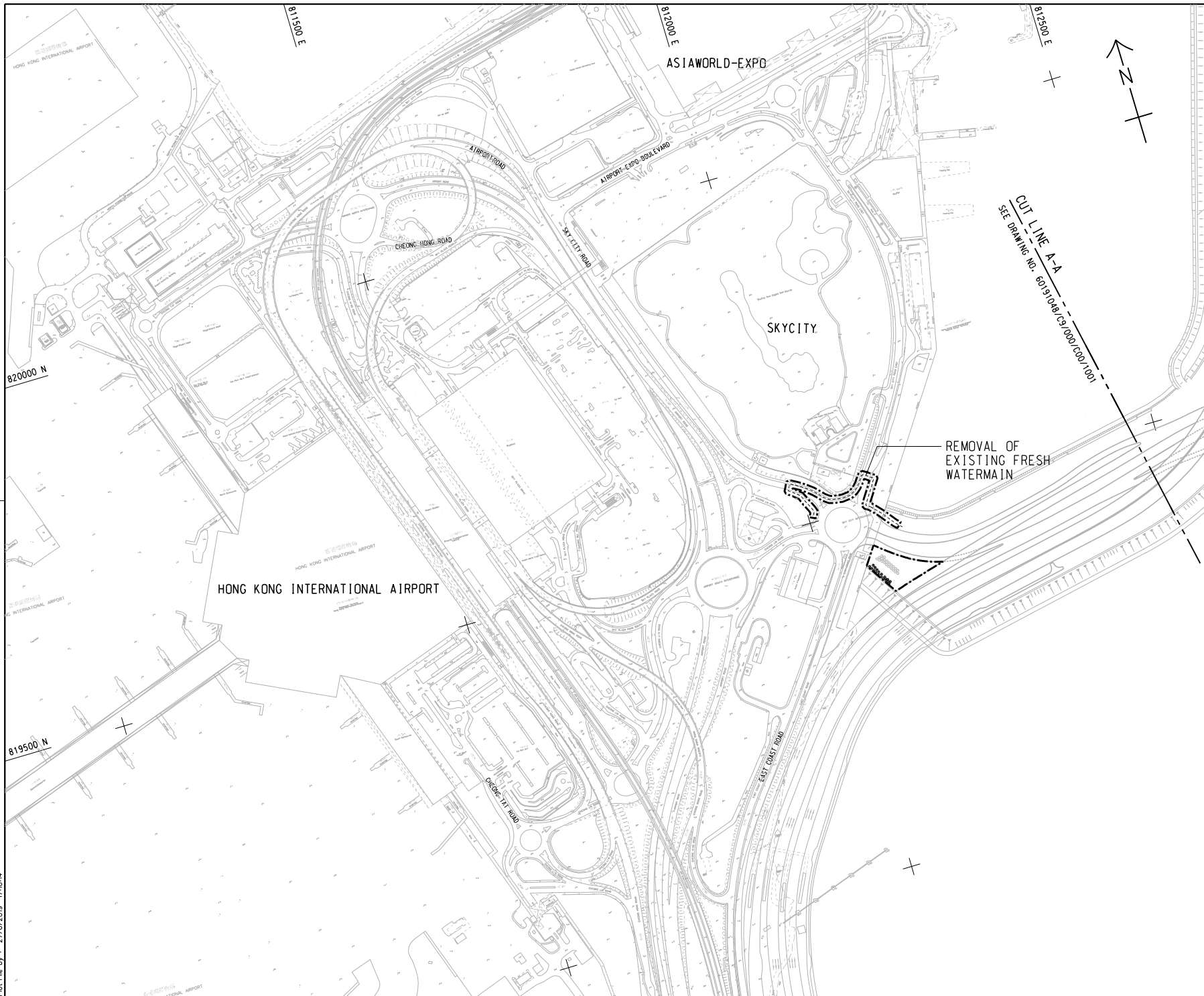
DRGNO 60191048/C9/000/C00/1001
 圖紙編號

DESIGNED BY TTHK CONTRACT NO. HY/2019/01 P. Dir. APPROVED
 CHECKED BY JC STATUS
 SCALE AT 1 : 2500
 DIMENSIONS ARE IN METRES

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Plot File by : 09/07/2019 B-4657

CUT LINE A-A
SEE DRAWING NO. 60191048/C9/000/C00/1002



NOTE:
 1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C9/000/C00/1001.

REV. NO.	DESCRIPTION	DATE
1	TENDER DRAWING	JUL 19

HIGHWAYS DEPARTMENT
 主要工程管理處 (傳真專組)
 Major Works Project Management Office (Special Duties)

HONG KONG-ZHUHAI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - PHASE 2 AND OTHER WORKS

GENERAL ARRANGEMENT
 SHEET 2 OF 2

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

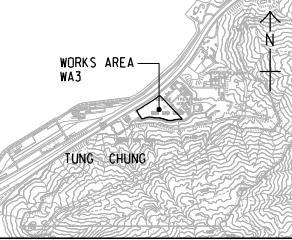
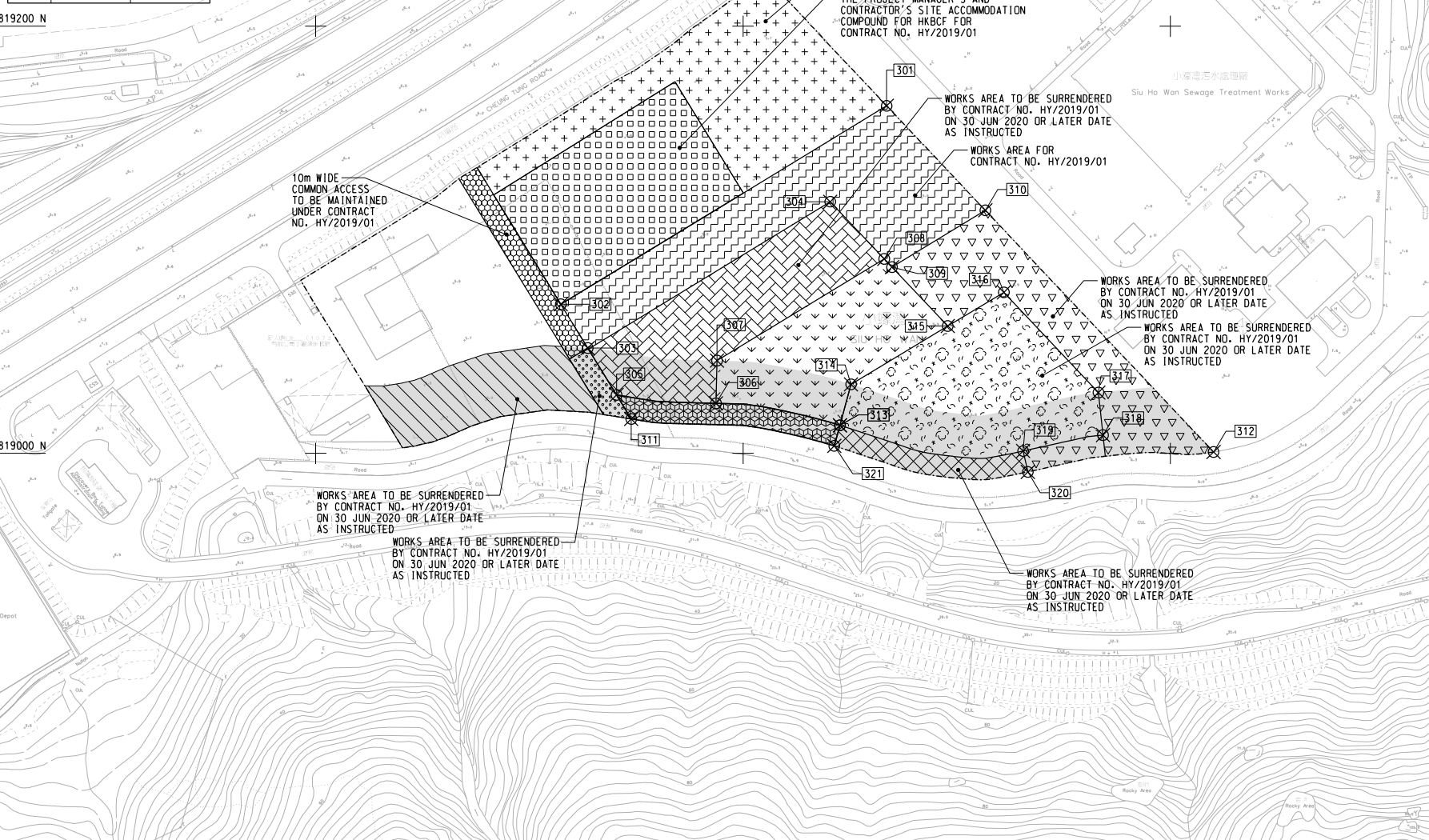
DRG. NO. 60191048/C9/000/C00/1002
 圖紙編號

DESIGNED BY TTHK	CONTRACT NO. HY/2019/01	P. Dir. APPROVED SC1
DRAWN BY JC	STATUS	

SCALE
 1 : 2500
 DIMENSIONS ARE IN METRES
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Plot File by : 27/6/2019 17:03:4

SETTING OUT POINT		
POINT	EASTING	NORTHING
301	817467.265	819162.683
302	817314.741	819069.828
303	817327.338	819049.295
304	817440.865	819117.811
305	817340.825	819027.314
306	817387.350	819023.403
307	817387.861	819043.396
308	817466.133	819091.047
309	817469.783	819087.181
310	817513.449	819113.764
311	817347.717	819016.082
312	817620.269	819000.620
313	817445.362	819013.131
314	817450.595	819032.307
315	817495.828	819059.595
316	817522.110	819075.388
317	817566.404	819028.472
318	817568.506	819008.526
319	817531.155	819001.066
320	817533.346	818991.306
321	817442.727	819003.476



LOCATION PLAN
SCALE 1 : 25000

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

LEGEND:

	WORKS AREA BOUNDARY
	PORTION 3.1
	PORTION 3.2
	PORTION 3.3
	PORTION 3.4
	PORTION 3.5
	PORTION 3.6
	PORTION 3.7
	PORTION 3.8
	PORTION 3.9
	PORTION 3.10
	PORTION 3.11
	PORTION 3.12
	NON-BUILDING AREA 8200m ² (WHOLE)

NO.	DESCRIPTION	DATE
1	TENDER DRAWING	TTHK 06/2019

HONG KONG HIGHWAYS DEPARTMENT
 Major Works Project Management Office (Special Duties)

HONG KONG-ZHUSHI-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - PHASE 2 AND OTHER WORKS

WORKS AREA WA3

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

DRGNO. 60191048/C9/000/C00/1051

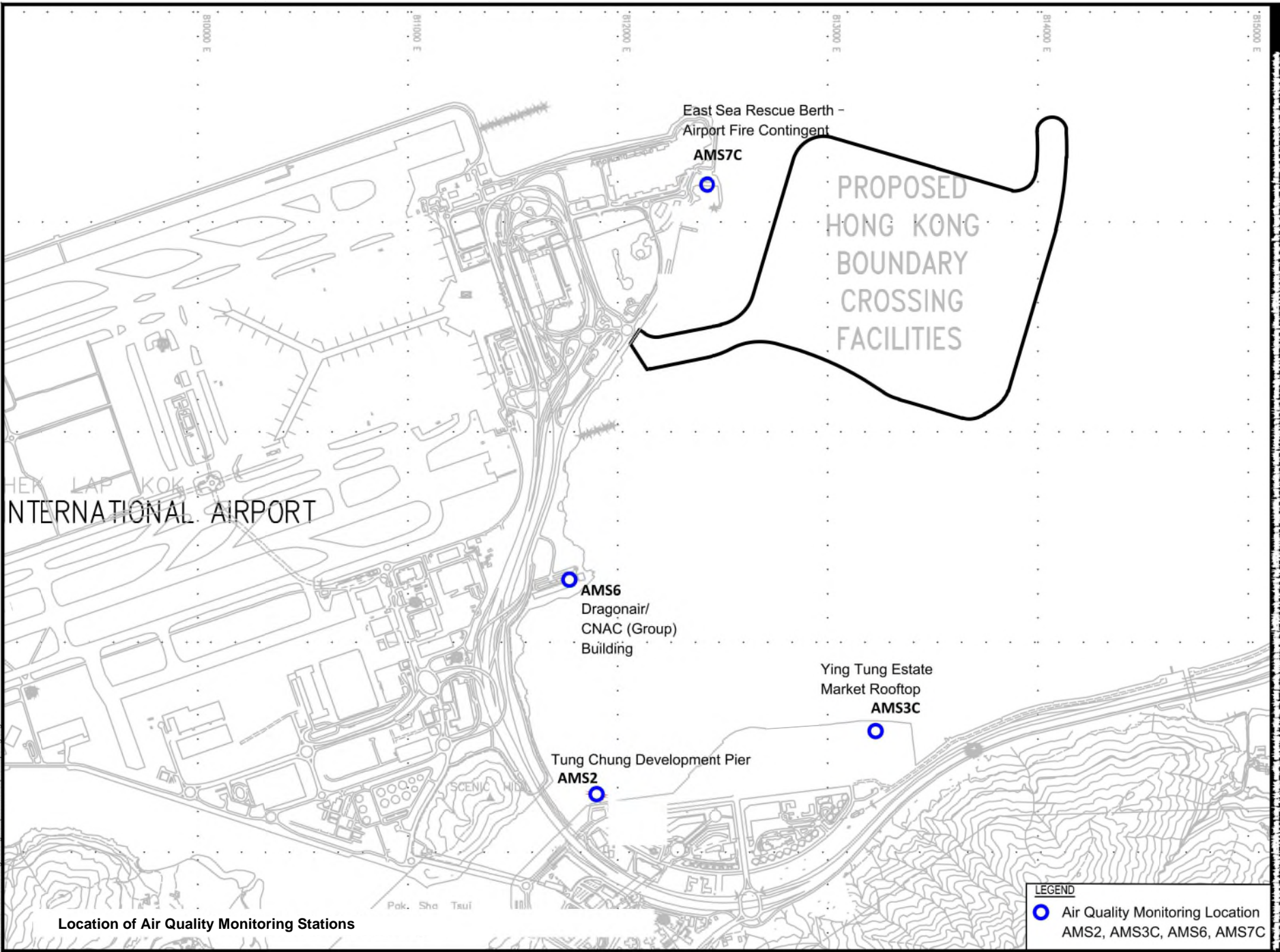
DESIGNED BY TTHK	CONTRACT NO. HY/2019/01	P. Dir. APPROVED SCL 1
DRAWN BY JC	STATUS REV	
SCALE AS 1 : 1000	DRAWING UNIT IN METRES	

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Plot File by : 22/6/2019 9:34:39

Figure 2

The Location of the Air Quality Monitoring Station



Location of Air Quality Monitoring Stations

LEGEND

- Air Quality Monitoring Location
AMS2, AMS3C, AMS6, AMS7C

Figure 3

The Location of the Noise Monitoring Station

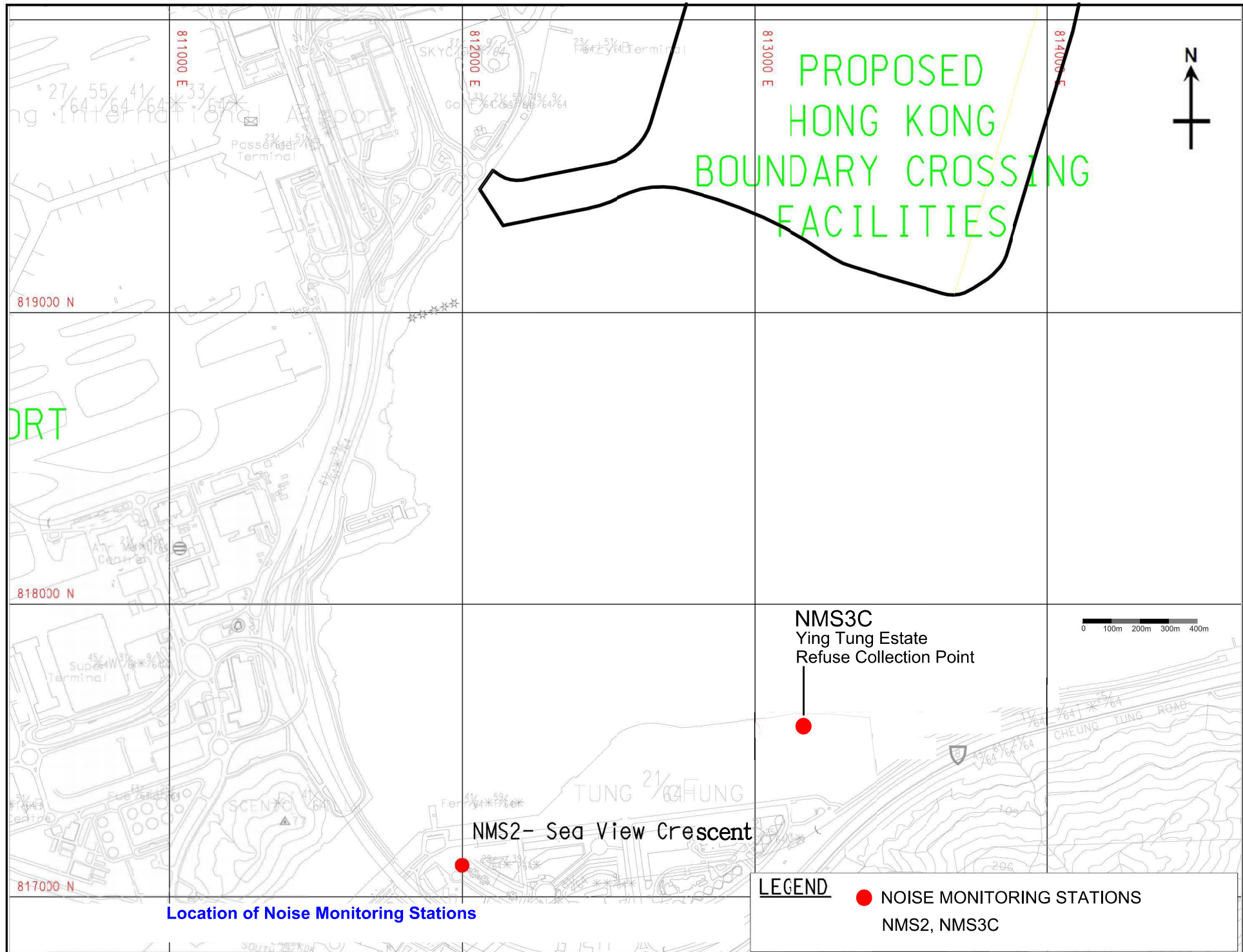
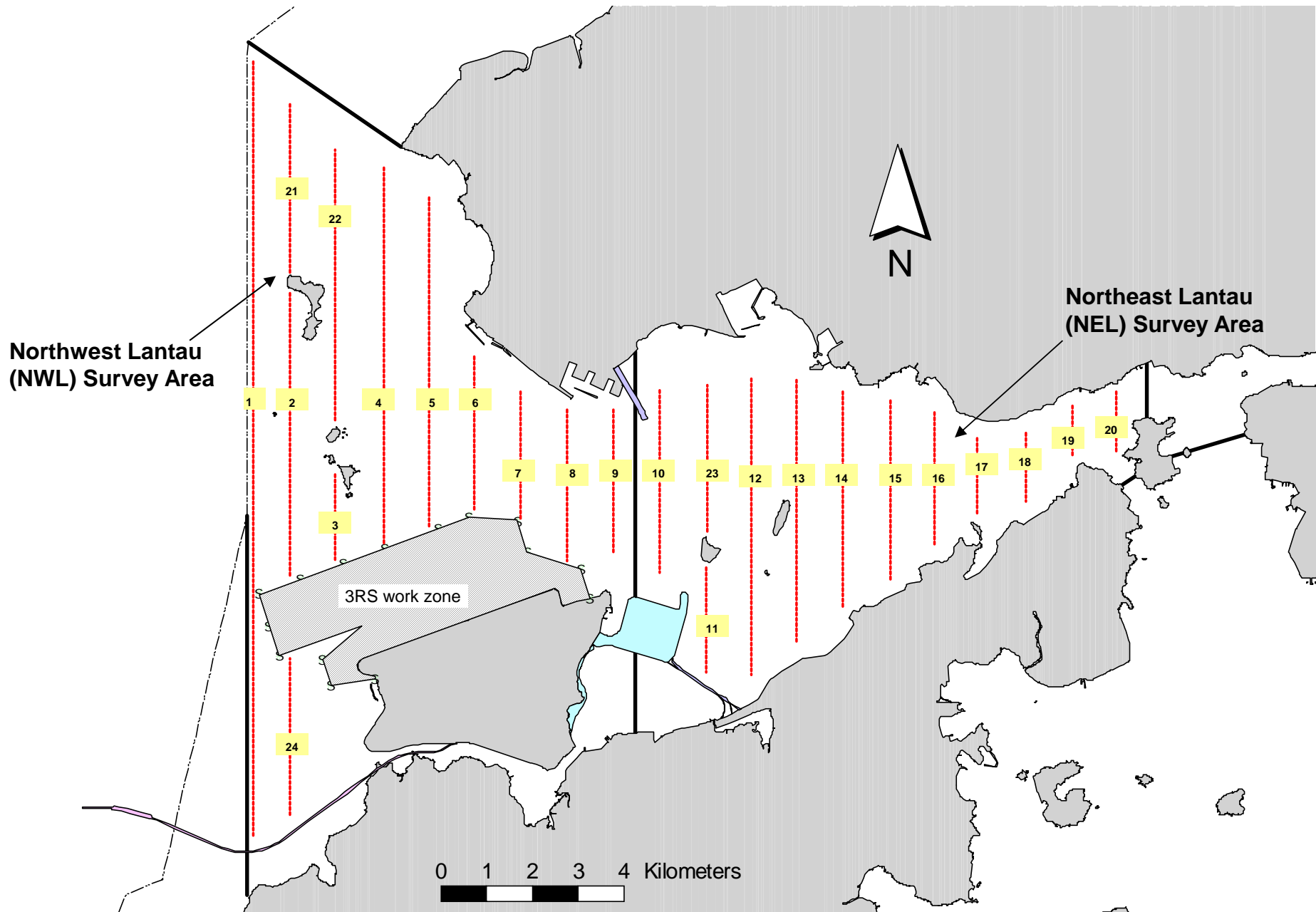


Figure 4

Post-Construction Dolphin Monitoring Line Transect
Layout Map



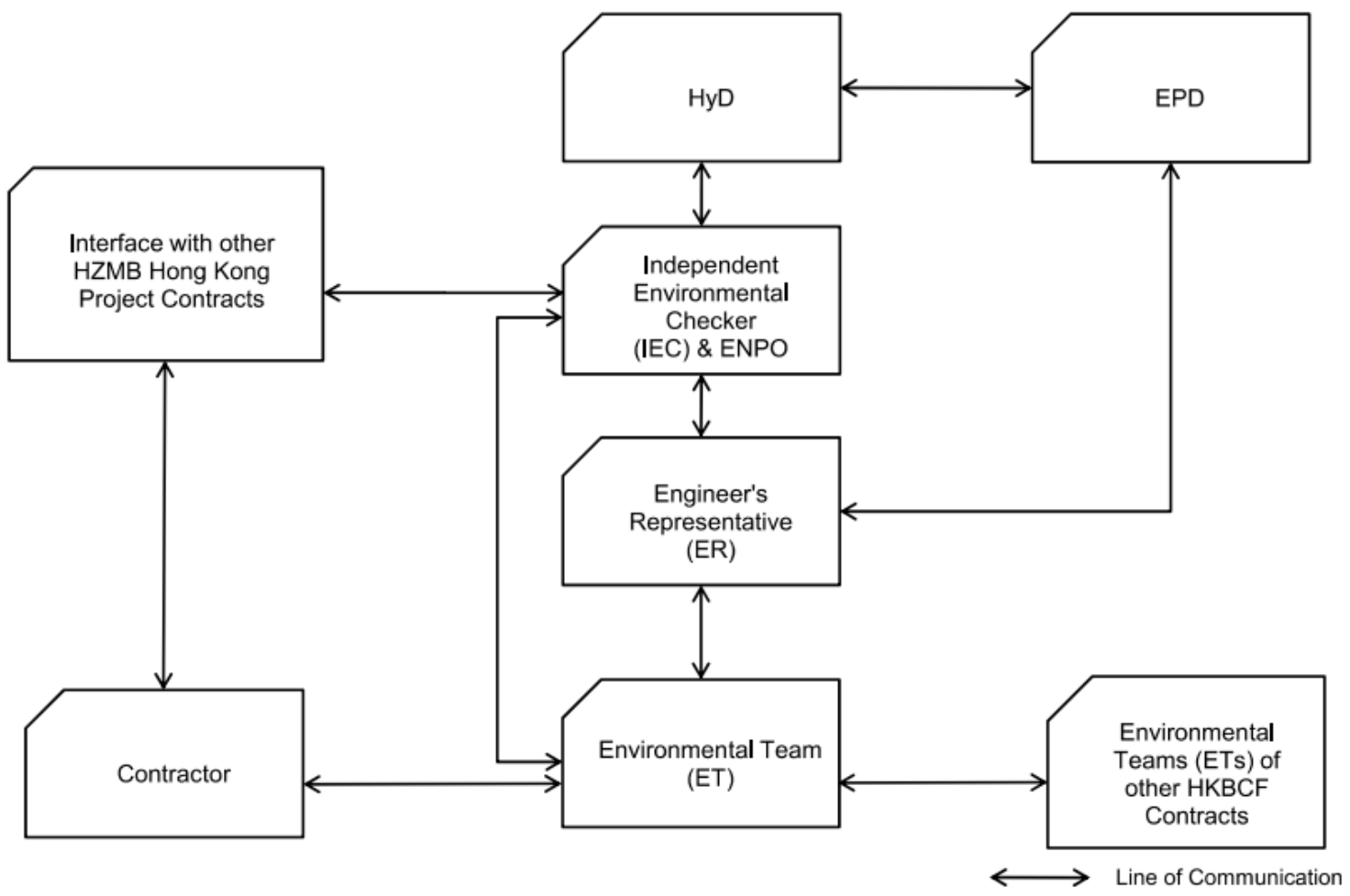
Transect Line Layout in Northwest and Northeast Lantau Survey Areas

Appendix A

Construction Programme

Appendix B

Project Organization Chart



Appendix C

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 ET 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; 	<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

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. <u>Notify IEC and Contractor;</u> 2. <u>Identify source, investigate the causes of exceedance and propose remedial measures;</u> 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. <u>Inform IEC, ER, EPD and Contractor;</u> 2. <u>Identify source;</u> 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 4. remedial 5. measures for the analysed noise problem; 6. Ensure remedial measures properly implemented; 7. 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 Dolphin Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor; 5. Check monitoring data. 6. Review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and finding with the ET and the Contractor. 	<ol style="list-style-type: none"> 1. Discuss monitoring with the IEC and any other measures proposed by the ET; 2. If ER/SOR is satisfied with the proposal of any other measures, ER/SOR to signify the agreement in writing on the measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the ER/SOR and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER/SOR; 3. Implement the agreed measures.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit Level	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, ER/SOR and Contractor of findings; 5. Check monitoring data; 6. Repeat review to ensure all the dolphin protective measures are fully and properly implemented and advise on additional measures if necessary. 7. If ET proves that the source of impact is caused by any of the construction activity by the works contract, ET to arrange a meeting to discuss with IEC, ER/SOR and Contractor the necessity of additional dolphin monitoring and/or any other potential mitigation measures (e.g., consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activity etc.) and submit to IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor; 2. Discuss monitoring results and findings with the ET and the Contractor; 3. Attend the meeting to discuss with ET, ER/SOR and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 4. Review proposals for additional monitoring and any other mitigation measures submitted by ET and Contractor and advise ER/SOR of the results and findings accordingly. 5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures and advise ER/SOR the results and findings accordingly. 	<ol style="list-style-type: none"> 1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures. 2. If ER/SOR is satisfied with the proposals for additional dolphin monitoring and/or any other mitigation measures submitted by ET and Contractor and verified by IEC, ER/SOR to signify the agreement in writing on such proposals and any other mitigation measures 3. Supervise the implementation of additional monitoring and/or any other mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the ER/SOR and confirm notification of the non-compliance in writing; 2. Attend the meeting to discuss with ET, IEC and ER/SOR the necessity of additional dolphin monitoring and any other potential mitigation measures. 3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary. 4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.

Appendix D

Waste Flow Table

Waste Flow Table for Year 2020										
Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)
2020 Jan	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
2020 Feb	720.34	Nil	720.34	Nil	Nil	Nil	0.335	Nil	Nil	2.23
2020 Mar	11344.57	Nil	10218.92	Nil	1125.65	Nil	0.669	Nil	Nil	8.05
2020 Apr	19649.37	Nil	18670.3	Nil	979.07	Nil	Nil	Nil	Nil	21.64
2020 May	26767.55	Nil	26692.04	Nil	75.51	Nil	2.42	Nil	Nil	196.64
2020 Jun	4628.13	Nil	4198.52	Nil	429.61	Nil	Nil	Nil	Nil	117.19
2020 Jul	4895.66	Nil	3398.41	Nil	1497.25	Nil	Nil	Nil	Nil	30.33
2020 Aug	4971.00	Nil	4774.49	Nil	196.51	Nil	0.418	Nil	Nil	36.91
2020 Sep	1175.26	Nil	736.1	Nil	439.16	Nil	Nil	Nil	Nil	36.16
2020 Oct	3433.83	Nil	Nil	2262.7	1171.13	Nil	Nil	Nil	Nil	32.25
2020 Nov	26481.72	Nil	Nil	24393.64	2088.08	Nil	Nil	Nil	Nil	40.09
2020 Dec	14361.90	Nil	Nil	13468.00	893.90	Nil	Nil	Nil	Nil	39.56
Total	118429.33	0	69409.12	40124.34	8895.87	0	3.842	0	0	561.05

Note:

- 1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
- 3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

Waste Flow Table for Year 2021										
Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)
2021 Jan	787.6	0	0	0	787.6	0	0	0	0	18.19
2021 Feb	254.95	0	0	0	254.95	0	0	0	0	154.94
2021 Mar	1899.61	0	0	1720.5	179.11	0	0	0	0	371.73
2021 Apr	4056.27	0	0	0	4056.27	2.13	8.17	0	0	144.08
2021 May	2738.81	0	0	0	2738.81	0.495	0	0	0	31.63
2021 Jun	1009.53	0	0	0	1009.53	0	0	0	0	90.91
2021 Jul	1384.29	0	0	0	1384.29	0	0	0	0	51.69
2021 Aug	340.46	0	0	0	340.46	5.85	0	0	0	42.99
2021 Sep	732.9	0	0	0	732.9	0	0	0	0	70.11
2021 Oct	1023.81	0	0	0	1023.81	0	0	0	0	74.68
2021 Nov	1155.56	0	0	0	1155.56	3.195	0	0	0	121.99
2021 Dec	271.67	0	0	0.00	271.67	0	0	0	0	70.97
Total	15655.46	0	0	1720.5	13934.96	11.665	8.17	0	0	1243.91

Note:

- 1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
- 3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

Waste Flow Table for Year 2022										
Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)
2022 Jan	167.72	0	0	0	167.72	0	0	0	0	58.92
2022 Feb	50.85	0	0	0	50.85	0	0	0	0	20.48
2022 Mar	10.10	0	0	0	10.10	0	0	0	0	16.46
2022 Apr	154.27	0	0	0	154.27	0	0	0	0	20.09
2022 May	186.03	0	0	0	186.03	0	0	0	0	6.33
2022 Jun	7.86	0	0	0	7.86	0	0	0	0	8.08
2022 Jul	0	0	0	0	0	0	0	0	0	0
2022 Aug	0	0	0	0	0	0	0	0	0	0
2022 Sep	0	0	0	0	0	0	0	0	0	0
2022 Oct	0	0	0	0	0	0	0	0	0	0
2022 Nov	0	0	0	0	0	0	0	0	0	0
2022 Dec	0	0	0	0	0	0	0	0	0	0
Total	576.83	0	0	0	576.83	0	0	0	0	130.36

Note:

- 1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
- 3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

Appendix E

Implementation Status of Environment Mitigation
Measures (Operation Phase)

Implementation Status of Environment Mitigation Measures (Construction Phase) - Contract No. HY/2019/01

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location / Duration of Measures	Implementation Status
Landscape & Visual (Operation Phase)				
S14.3.3.3	LV4	<p><u>Mitigate both Landscape and Visual Impacts</u> G10. Provide proper planting maintenance on the new planting areas to enhance the aesthetic degree.</p>	Operational stage	Implemented
Waste Management (Operational Waste)				
S8.4.3	WM6	<p><u>Chemical Waste</u> The requirements given in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes should be followed in handling of these chemical wastes. A trip-ticket system should be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical wastes which will be collected by a licensed collector to a licensed facility for final treatment and disposal.</p>	Operational stage	Implemented

Appendix F

Cumulative statistics on Environmental Complaints,
Notifications of Summons and Successful Prosecutions

Environmental Complaints Log

Reference No.	Date of Complaint Received	Received From	Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Cumulative Statistics on Notification of Summons and Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Notification of Summons and Prosecutions This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Appendix G (Not Applicable)

Summary of Site Audit in the Reporting Month

Appendix H (Not Applicable)

Outstanding Issues and Deficiencies

Appendix I

Environmental Monitoring Schedule

Project: Contract No. HY/2019/01 - Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works

Impact Monitoring Schedule (December 2022)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12 Bi-monthly landscape and visual site audit	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Remarks

- As informed by AECOM, the commencement date of the 12-month establishment period for the landscape monitoring under this contract is 5 January 2022. Bi-monthly landscape and visual site audits will be conducted from 5 Jan 2022 to 4 Jan 2023.

Project: Contract No. HY/2019/01 - Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works

Impact Monitoring Schedule (January 2023)

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

Remarks

- As informed by AECOM, the commencement date of the 12-month establishment period for the landscape monitoring under this contract is 5 January 2022. Bi-monthly landscape and visual site audits will be conducted from 5 Jan 2022 to 4 Jan 2023.

Appendix J

Bi-Monthly Landscape and Visual Audit Checklist

Contract No. HY/2019/01

Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities –
Phase 2 and Other Works

Establishment Inspection Checklist

Remarks / Recommendations for Contractor

Observation and/or Recommended Measures:

Portion A-1

- TG45: 5 *Grevillea banksii* (GB) are proposed to be replaced due to poor conditions.
- TG47: 22 *Grevillea robusta* (GR) are proposed to be replaced due to poor conditions.
- TG49: 1 *Grevillea banksii* (GB) is proposed to be replaced due to poor conditions.

Portion A-2

- Area C33 construction completed and handed over for disease control facilities. Other areas have no particular findings.

Portion A-3

- No Particular findings.

Portion B

- No particular findings.

Portion C

- TG19: 2 *Bauhinia variegata* (BV) are proposed to be replaced due to poor conditions.
- TG20: 1 *Heteropanax fragrans* (HF) is proposed to be replaced due to poor conditions.
- TG21: 1 *Bauhinia variegata* (BV), 6 *Heteropanax fragrans* (HF) are proposed to be replaced due to poor conditions.

Portion D

- TG02: 1 *Bauhinia variegata* (BV) is found dead.

Portion E

- No particular findings.

Portion F

- No particular findings.


Portion G

- TG38: 2 *Jacaranda acutifolia* (JA) are proposed to be replaced due to poor conditions.

Portion H

- No particular findings.

Signatures:

	Name	Signature	Date
ET's Representative	Aloysius Wong		12/12/2022
Contractor's Representative	Matthew Wu		12 Dec 22
PM's/Supervisor's Representative	CHAN Pak Kin (RSFO)		12 DEC 2022
IEC's Representative	Marcanty Yau		12 Dec 2022

Contract No. HY/2019/01**Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works****Establishment Inspection Checklist**

Date of Site Audit:	2022-12-12	Time of Site Audit:	9:30.- 11:30
Site Auditor:	Aloysius Wong	Humidity:	61%
Weather Condition:	Fine	Temperature:	15.1°C

Item	Description	N.A. or N.O.	Yes	No	Remarks
1 Portion A-1					
1.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
1.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			
1.3	Are litter and debris removed?		✓		
1.4	Are planting areas matched with the approved landscape plan?		✓		
1.5	Is planting pattern matched with the approved landscape plan?		✓		
1.6	Are planting locations and spacing matched with the approved landscape plan?		✓		
1.7	Are the planting species on site matched with the approved landscape plan?		✓		
1.8	Are the plants in satisfied condition?		✓		See Obs. for TG45, TG47 & TG48
1.9	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?		✓		
1.10	Are trees or limb overhanging branches pruned?	N.O.			
2 Portion A-2					
2.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
2.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			
2.3	Are litter and debris removed?		✓		
2.4	Are planting areas matched with the approved landscape plan?		✓		
2.5	Is planting pattern matched with the approved landscape plan?		✓		
2.6	Are planting locations and spacing matched with the approved landscape plan?		✓		

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Item	Description	N.A. or N.O.	Yes	No	Remarks
2.7	Are the planting species on site matched with the approved landscape plan?		✓		
2.8	Are the plants in satisfied condition?		✓		
3 Portion A-3					
3.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
3.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			
3.3	Are litter and debris removed?		✓		
3.4	Are planting areas matched with the approved landscape plan?		✓		
3.5	Is planting pattern matched with the approved landscape plan?		✓		
3.6	Are planting locations and spacing matched with the approved landscape plan?		✓		
3.7	Are the planting species on site matched with the approved landscape plan?		✓		
3.8	Are the plants in satisfied condition?		✓		
4 Portion B					
4.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
4.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			
4.3	Are litter and debris removed?		✓		
4.4	Are planting areas matched with the approved landscape plan?		✓		
4.5	Is planting pattern matched with the approved landscape plan?		✓		
4.6	Are planting locations and spacing matched with the approved landscape plan?		✓		
4.7	Are the planting species on site matched with the approved landscape plan?		✓		
4.8	Are the plants in satisfied condition?		✓		

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Item	Description	N.A. or N.O.	Yes	No	Remarks
4.9	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?		✓		
4.10	Are trees or limb overhanging branches pruned?	N.O.			
5 Portion C					
5.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
5.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			
5.3	Are litter and debris removed?		✓		
5.4	Are planting areas matched with the approved landscape plan?		✓		
5.5	Is planting pattern matched with the approved landscape plan?		✓		
5.6	Are planting locations and spacing matched with the approved landscape plan?		✓		
5.7	Are the planting species on site matched with the approved landscape plan?		✓		
5.8	Are the plants in satisfied condition?		✓		See Obs. for TG19, TG20 & TG21
5.9	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?		✓		
5.10	Are trees or limb overhanging branches pruned?	N.O.			
6 Portion D					
6.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
6.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			
6.3	Are litter and debris removed?		✓		
6.4	Are planting areas matched with the approved landscape plan?		✓		
6.5	Is planting pattern matched with the approved landscape plan?		✓		
6.6	Are planting locations and spacing matched with the approved landscape plan?		✓		

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Item	Description	N.A. or N.O.	Yes	No	Remarks
6.7	Are the planting species on site matched with the approved landscape plan?		✓		
6.8	Are the plants in satisfied condition?		✓		See Observations for TG02.
6.9	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?		✓		
6.10	Are trees or limb overhanging branches pruned?	N.O.			
7 Portion E					
7.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
7.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			
7.3	Are litter and debris removed?		✓		
7.4	Are planting areas matched with the approved landscape plan?		✓		
7.5	Is planting pattern matched with the approved landscape plan?		✓		
7.6	Are planting locations and spacing matched with the approved landscape plan?		✓		
7.7	Are the planting species on site matched with the approved landscape plan?		✓		
7.8	Are the plants in satisfied condition?		✓		
7.9	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?		✓		
7.10	Are trees or limb overhanging branches pruned?	N.O.			
8 Portion F					
8.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
8.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			
8.3	Are litter and debris removed?		✓		
8.4	Are planting areas matched with the approved landscape plan?		✓		




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Item	Description	N.A. or N.O.	Yes	No	Remarks
8.5	Is planting pattern matched with the approved landscape plan?		✓		
8.6	Are planting locations and spacing matched with the approved landscape plan?		✓		
8.7	Are the planting species on site matched with the approved landscape plan?		✓		
8.8	Are the plants in satisfied condition?		✓		
8.9	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?		✓		
8.10	Are trees or limb overhanging branches pruned?	N.O.			
9 Portion G					
9.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
9.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			
9.3	Are litter and debris removed?		✓		
9.4	Are planting areas matched with the approved landscape plan?		✓		
9.5	Is planting pattern matched with the approved landscape plan?		✓		
9.6	Are planting locations and spacing matched with the approved landscape plan?		✓		
9.7	Are the planting species on site matched with the approved landscape plan?		✓		
9.8	Are the plants in satisfied condition?		✓		See Obs. for TG38
9.9	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?		✓		
9.10	Are trees or limb overhanging branches pruned?	N.O.			
10 Portion H					
10.1	Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		✓		
10.2	After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	N.O.			

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Item	Description	N.A. or N.O.	Yes	No	Remarks
10.3	Are litter and debris removed?		✓		
10.4	Are planting areas matched with the approved landscape plan?		✓		
10.5	Is planting pattern matched with the approved landscape plan?		✓		
10.6	Are planting locations and spacing matched with the approved landscape plan?		✓		
10.7	Are the planting species on site matched with the approved landscape plan?		✓		
10.8	Are the plants in satisfied condition?		✓		
10.9	Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?		✓		
10.10	Are trees or limb overhanging branches pruned?	N.O.			




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Follow-Up Action		
Location	Photo Record	
Portion A1	 <p>TG45: 5 <i>Grevillea banksii</i> (GB) are replaced.</p>	 <p>TG47: 22 <i>Grevillea robusta</i> (GR) are replaced.</p>
	 <p>TG49: 1 <i>Grevillea banksii</i> (GB) are replaced.</p>	

*Note: According to AECOM, all the trees in poor condition are replaced.



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Follow-Up Action

Location	Photo Record	
		
Portion C	TG19: 2 <i>Bauhinia variegata</i> (BV) are replaced.	TG20: 1 <i>Heteropanax fragrans</i> (HF) is replaced.
		
	TG21: 1 <i>Bauhinia variegata</i> (BV), 6 <i>Heteropanax fragrans</i> (HF) are replaced.	



*Note: According to AECOM, all the trees in poor condition are replaced.

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Follow-Up Action		Photo Record	
Location			
Portion D			
	TG02: 1 <i>Bauhinia variegata</i> (BV) is replaced.		
Portion G			
	TG38: 2 <i>Jacaranda acutifolia</i> (JA) are replaced.		

*Note: According to AECOM, all the trees in poor condition are replaced.

GENERAL CONDITIONS



Location	Photo Record
Portion A-1	 A wide-angle photograph showing a grassy area in the foreground. To the right, there is a concrete embankment with some sparse vegetation. In the background, a multi-level bridge structure with white railings and blue signs is visible under a clear blue sky.
Portion A-2	 A photograph taken from a grassy area looking towards a bridge. The bridge has concrete pillars and a white railing. A white van is visible on the bridge deck. The foreground is filled with green grass and some weeds.

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GENERAL CONDITIONS

Location	Photo Record
<p>Portion A-3</p>	 A wide-angle photograph showing a large, flat area covered in tall, green grass. In the background, a multi-level concrete elevated roadway or bridge structure is visible under a blue sky with scattered white clouds. Several tall, thin utility poles are spaced along the roadway.
<p>Portion B</p>	 A photograph of a paved road area. In the foreground, there is a curved concrete curb bordering a small grassy median. A metal drainage grate is visible on the asphalt surface near the curb. In the background, a long, low structure with a series of repeating units, possibly a bus stop or a transit shelter, is visible under a blue sky with clouds.

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GENERAL CONDITIONS

Location	Photo Record
<p>Portion C</p>	
<p>Portion D</p>	

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GENERAL CONDITIONS

Location	Photo Record
<p>Portion E</p>	
<p>Portion F</p>	

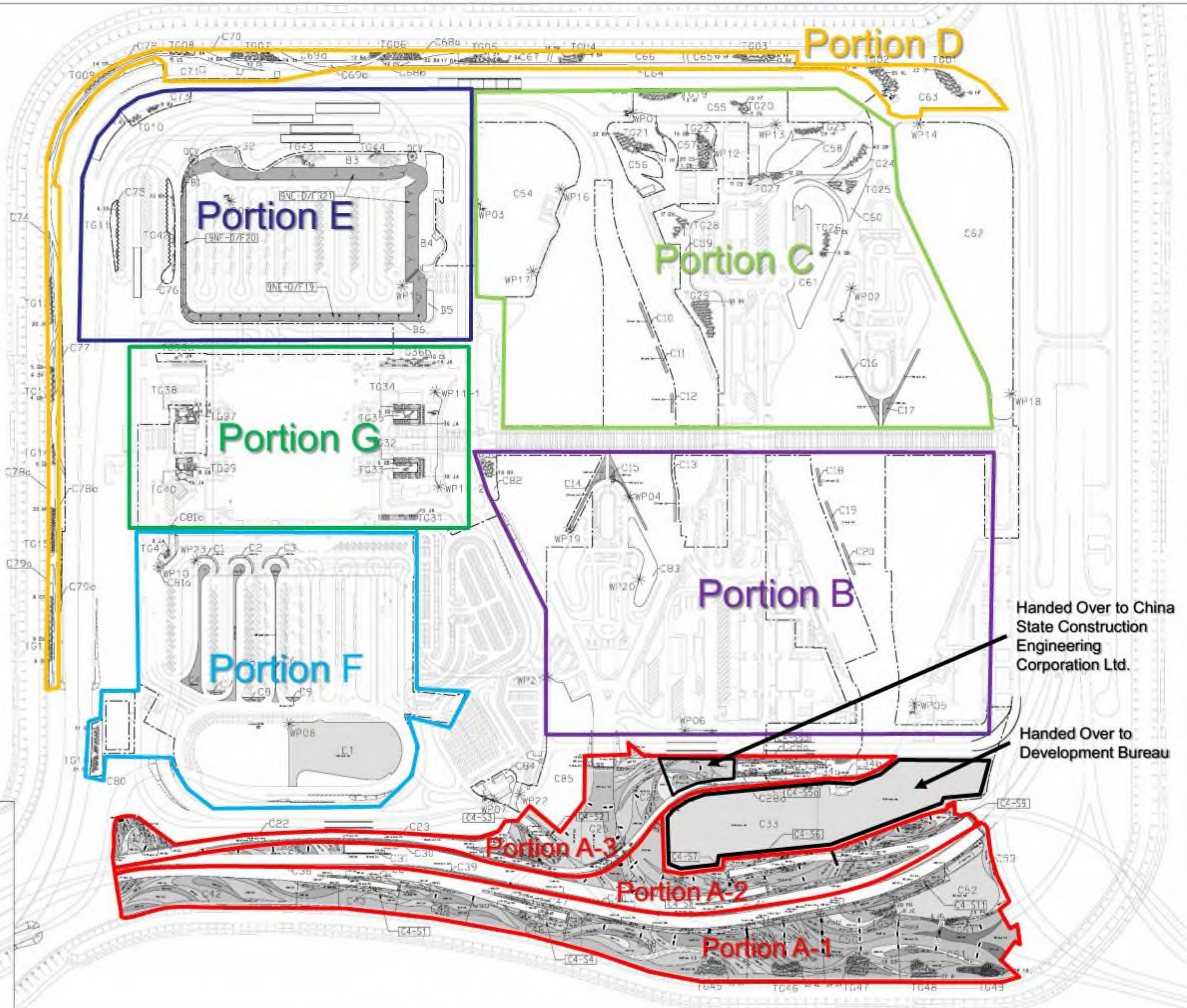
GENERAL CONDITIONS

Location	Photo Record
Portion G	 <p data-bbox="799 1061 1086 1095">Tree planting in Portion G</p>
Portion H	 <p data-bbox="799 1865 1086 1899">Tree planting in Portion H.</p>

LEGEND:

- SITE BOUNDARY
- EXISTING TURF MAINTAINED BY CH
- EXISTING SIMAR SLOPE MAINTAINED BY CH
- STONE SANITIC

Hydroseeding	
Ficus microcarpa 'golden leaves'	(700H x 700S) w/ 600 spacing
Ilex chinensis	(800H x 400S) w/ 350 spacing
Rhododendron pulcherrimum	(800H x 400S) w/ 300 spacing
Rhododendron smilax	(800H x 400S) w/ 300 spacing
Spatholium commutatum	(800H x 300S) w/ 200 spacing
Shorea robusta	(500H x 400S) w/ 350 spacing
Larrea tridentata	(200H x 300S) w/ 300 spacing
Ulmus parviflorus	(100H x 100S) w/ 100 spacing
Celastrus japonicus	(100H x 150S) w/ 100 spacing
Syringa pectinatifolia	(200H x 300S) w/ 200 spacing
Abutilon triflorum	(100H x 100S) w/ 150 spacing
Zephyranthes candida	(100H x 100S) w/ 100 spacing
Zephyranthes rosea	(150H x 200S) w/ 150 spacing
Zizia sp.	
AL Abies balsamica	(4.5m H x 3m S) w/ 4m spacing
BV Bauhinia variegata	(4.5m H x 3m S) w/ 4m spacing
BA Brassia actinophylla	(3.4m H x 2.5m S) w/ 3m spacing
CS Cassia coccinea	(4.5m H x 3m S) w/ 4m spacing
GB Grevillea bursifolia	(3.4m H x 2.5m S) w/ 3m spacing
GR Grevillea robusta	(4.5m H x 3m S) w/ 4m spacing
HF Hesperis matronalis	(3.4m H x 2.5m S) w/ 3m spacing
JA Jacaranda mimosifolia	(4.5m H x 3m S) w/ 4m spacing
JC Jasper chinensis	(4.5m H x 3m S) w/ 4m spacing
PR Platanus orientalis	(3.5m H x 2.5m S) w/ 3m spacing
TP Theophrasta populifolia	(4.5m H x 3m S) w/ 4m spacing



PLANTER PLAN

6/23/2020

60191048/C9/DF00022