



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

Your reference:

Our reference: HKHYD203/50/108423

Date: 2 December 2022

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
Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities
– Phase 2 and Other Works
Quarterly EM&A Report (December 2021 – February 2022)

We refer to the email of 23 November 2022, attaching the Quarterly EM&A Report (December 2021 – February 2022), prepared by the Environmental Team (ET) of the captioned.

We have no comment and hereby verify the Proposal in accordance with 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 Macavity Yau on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/YCFM/lsm

cc Highways Department – Mr Tony Wong (Fax no.: 3188 6614)
Highways Department – Mr YF Lau (Fax no.: 3188 6614)
AECOM Asia Co. Ltd. – Mr KP Wong (Fax no.: 2218 7399)
Fugro Technical Services Limited – Mr Calvin Leung (Fax no.: 2450 6138)

ANewR Consulting Limited
Unit 517, 5/F, Tower A, Regent Centre
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Tel: (852) 2618 2831 Fax: (852) 3007 8648
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FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Date 14 October 2022
Our Ref. MCL/ED/0400/2022/C

Ramboll Hong Kong Limited
21/F, BEA Harbour View Centre,
56 Gloucester Road,
Wan Chai, Hong Kong

BY EMAIL

Attn.: Mr. Brian Tam, Independent Environmental Checker

Dear Sir,

**Quarterly 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 Section 16.4 of the updated EM&A Manual for Hong Kong Boundary Crossing Facilities covering the captioned project, we hereby submit the certified Quarterly EM&A Report for December 2021 to February 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, Mr. Gordon Kok
Ramboll Attn: Mr. Y. H. Hui, Mr. K. C. Chan
CHEC Attn: Mr. Marko Chan, Mr. Matthew Wu



Quarterly EM&A Report (December 2021 - February 2022)

0002/20/ED/0481 02 |

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

Document Control




Document Information

Project Title	Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Phase 2 and Other Works (Contract No. HY/2019/01)
Document Title	Quarterly EM&A Report (December 2021 - February 2022)
Fugro Project No.	0002/20
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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	Assistant Environmental Consultant	

EXECUTIVE SUMMARY

This Quarterly 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 8th Quarterly EM&A Report for the Contract which summaries findings of the EM&A programme during the reporting period from 1 December 2021 to 28 February 2022.

Environmental Monitoring and Audit Progress

The Quarterly 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

No Action and Limit Level exceedance was recorded for air quality monitoring in the reporting period. Also, no Action and Limit Level exceedance was recorded for construction noise monitoring in the reporting 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.

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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 8th Quarterly 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 2021 to 28 February 2022 (reporting period) 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. Winston Wong	3748 8918
	Resident Engineer	Mr. Gordon Kok	3748 8967
Environmental Project Office / Independent Environmental Checker (Ramboll Hong Kong Limited)	Environmental Project Office Leader	Mr. Y. H. Hui	3465 2888
	Independent Environmental Checker (IEC)	Mr. Brian Tam	9700 6767
	Environmental Site Supervisor	Mr. K. C. Chan	3465 2882
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**.

1.5 Works undertaken during the report period

1.5.1 The main construction works carried out in the reporting period were as follow:

- Excavation at Vehicle Clearance Plaza (VCP) (land-based);
- Road & Drain works at South Public Transport Interchanges (SPTI), North Public Transport Interchanges (NPTI) and Vehicle Clearance Plaza (VCP) (land-based);
- Covered Walkway at South Public Transport Interchanges (SPTI) and North Public Transport Interchanges (NPTI) (land-based);
- Public Toilet at North Public Transport Interchanges (NPTI) (land-based);
- Kiosks Construction at Vehicle Clearance Plaza (VCP) (land-based);
- Landscape Works at G1 and G5 (land-based);
- Conceal Conduits Works at Vehicle Clearance Plaza (VCP) (land-based);
- E&M Works at South Public Transport Interchanges (SPTI) (land-based);
- Irrigation System at G1 and G5 (land-based).

2. EM&A REQUIREMENTS

2.1 Summary of EM&A Requirement

- 2.1.1 The Quarterly 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".
- 2.1.2 According to the Contract Specific EM&A Manual, air quality monitoring at station AMS2, AMS3C and AMS7B, and noise monitoring at station NMS2 and NMS3C are covered by Contract No. HY/2019/01. It should be noted that the air quality monitoring at station AMS6 is covered by Contract No. HY/2011/03. 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.
- 2.1.3 The most updated air and noise locations are summarized in **Table 2.1**. The locations of the air quality and noise monitoring stations shown in **Figure 2** and **Figure 3**, respectively.

Table 2.1 Air Quality and Noise Monitoring Location

Environmental Monitoring	Monitoring Station	Location
Air Quality	AMS2	Tung Chung Development Pier
	AMS3C	Ying Tung Estate Market Rooftop
	AMS6	Dragonair / CNAC (Group) Building (HKIA)
	AMS7B	Third Runway Site Office
Noise	NMS2	Seaview Crescent
	NMS3	Ying Tung Estate Refuse Collection Point

Remarks:

1. 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.
2. The Limit Levels for schools will be applied for NMS3C.

2.1.4 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 (CWD) monitoring works under this contract was completed on 1 March 2021.

2.2 Monitoring Requirement

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 report prepared for this Contract.

2.2.2 The air quality monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information for AMS6 are detailed in the monthly EM&A report prepared for Contract No. HY/2011/03.

2.3 Action and Limit Levels

2.3.1 The Action and Limit Levels for noise impact monitoring have been set and are presented in **Appendix C**.

2.4 Event and Action Plans

2.4.1 The event and action plans for air quality and noise monitoring are presented in **Appendix D**.

2.5 Mitigation Measures

2.5.1 The Contractor had implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix E**.

3. ENVIRONMENTAL MONITORING AND AUDIT

3.1 Air Quality Monitoring Results

- 3.1.1 1-hour TSP and 24-hour TSP impact monitoring at AMS2, AMS3C and AMS7B were carried out in the reporting period, the monitoring results are reported in the monthly EM&A Report prepared for this Contract.
- 3.1.2 There was no Action / Limit Level exceedance of 1-hour TSP level and 24-hour TSP level at AMS2, AMS3C and AMS7B was recorded during the reporting period.
- 3.1.3 The monitoring results for AMS6 are reported in the monthly EM&A Reports prepared for Contract No. HY/2011/03.
- 3.1.4 Summary of Action and Limit Level exceedance of 1-hour TSP level and 24-hour TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.

3.2 Noise Monitoring Results

- 3.2.1 Construction noise monitoring were carried out in the reporting period, the monitoring results for NMS2 and NMS3C are reported in the monthly EM&A Reports prepared for this Contract.
- 3.2.2 There was no Action / Limit Level exceedance for construction noise at NMS2 and NMS3C was recorded during the reporting period.
- 3.2.3 School calendar of Ho Yu College was checked against noise monitoring days at NMS3C.

3.3 Ecology Monitoring

- 3.3.1 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 suspended on 1 March 2021.

3.4 Site Inspection

- 3.4.1 Site inspections were carried out weekly to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix E**.
- 3.4.2 13 weekly environmental site inspections were carried out in the reporting period. Details of observations recorded during the site inspections are presented in **Appendix F**.

3.5 Landscape and Visual Site Audit

- 3.5.1 2 Bi-weekly Landscape and Visual Site audits were carried out by a Registered Landscape Architect in December 2021.

- 3.5.2 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.
- 3.5.3 A bi-monthly landscape and visual site audit was carried out on 24 February 2022 by a Registered Landscape Architect.

3.6 Advice on the Solid and Liquid Waste Management Status

- 3.6.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 3.6.2 The summary of waste flow table is detailed in **Appendix G**.
- 3.6.3 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.

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

4. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

4.1 Environmental Exceedance

- 4.1.1 No Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS2, AMS3C and AMS7B in the reporting period.
- 4.1.2 Summary of Action and Limit Level exceedance of 1-hour TSP level and 24-hour TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.
- 4.1.3 No Action / Limit Level exceedance for construction noise at NMS2 and NMS3C was recorded during the reporting period.

4.2 Complaints, Notification of Summons and Prosecution

- 4.2.1 No environmental complaint, notification of summons and successful prosecution were received in the reporting period.
- 4.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix H**.

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusions

- 5.1.1 1-hour TSP and 24-hour TSP impact monitoring at AMS2, AMS3C and AMS7B were carried out in the reporting period, no Action / Limit Level exceedance was recorded during the period.
- 5.1.2 Summary of Action and Limit Level exceedance of 1-hour TSP level and 24-hour TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.
- 5.1.3 Construction noise monitoring were carried out in the reporting period, no Action / Limit Level exceedance was recorded during the period.
- 5.1.4 13 weekly environmental site inspections were carried out in the reporting period. Recommendations on mitigation measures for air quality impact, water quality impact and chemical and waste management were given to the Contractor for remediating the deficiencies identified during the site inspections.
- 5.1.5 2 Bi-weekly Landscape and Visual Site audits were carried out by a Registered Landscape Architect in December 2021.
- 5.1.6 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.
- 5.1.7 A bi-monthly landscape and visual site audit was carried out on 24 February 2022 by a Registered Landscape Architect.
- 5.1.8 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting period.

5.2 Comment and Recommendations

- 5.2.1 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.

5.2.2 According to the environmental site inspections performed in the reporting period, the following recommendations were provided:

Air Quality Impact

- Cement material should be stored and covered properly.

Construction Noise Impact

- No specific observation was identified in the reporting period.

Water Quality Impact

- Stagnant water should be removed.

Chemical and Waste Management

- Waste generated at the site should be cleared and collected.
- Contractor is reminded to clear the chemical with the absorbent pad.
- Provide mitigation measure for the generator to prevent spillage of oil.

Landscape and Visual Impact

- No specific observation was identified in the reporting period.

Permit/ Licenses

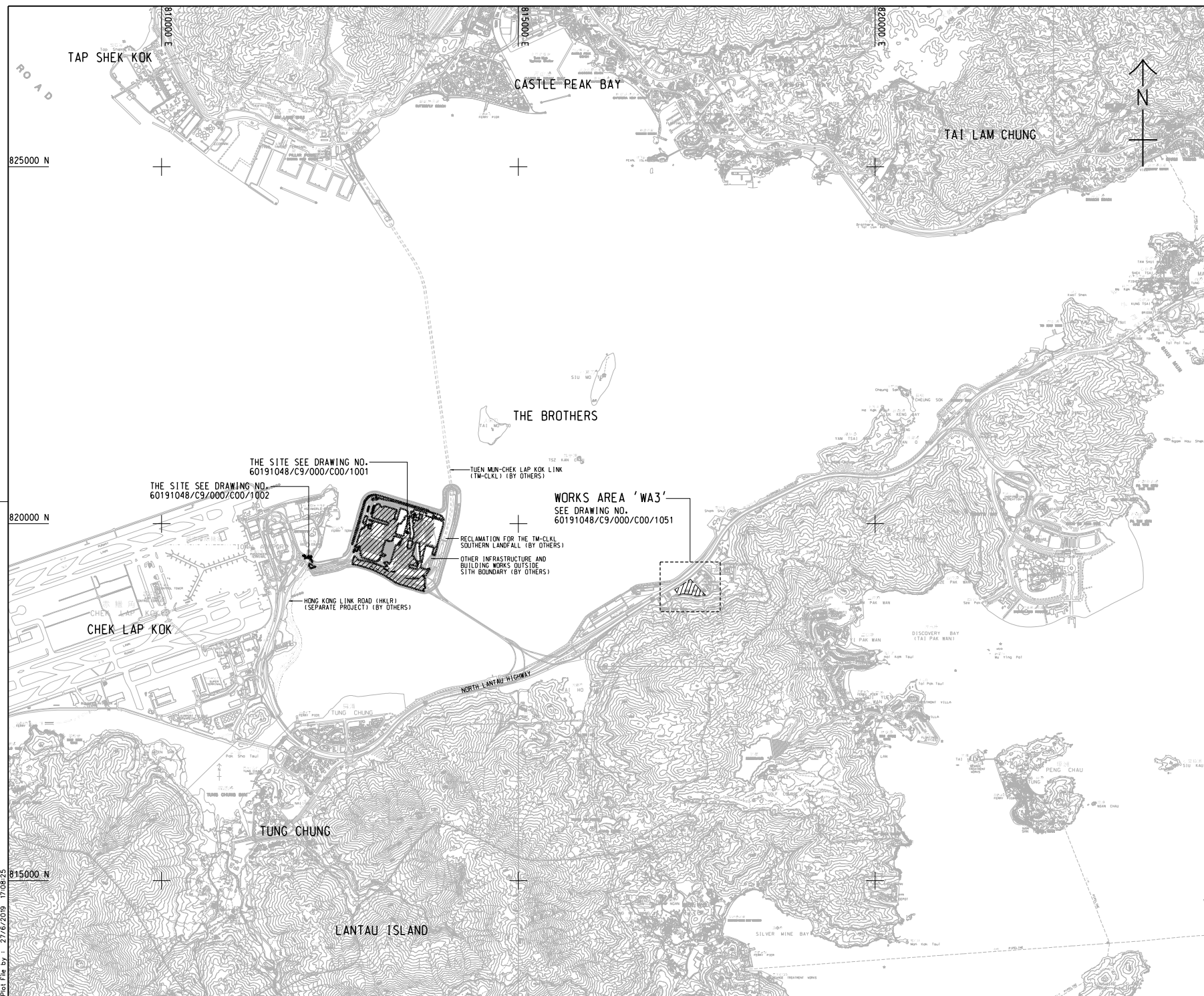
- No specific observation was identified in the reporting month.

Others

- No specific observation was identified in the reporting period.



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.

LEGEND:

 SITE BOUNDARY
 WORKS AREA

THE SITE SEE DRAWING NO. 60191048/C9/000/C00/1001
 THE SITE SEE DRAWING NO. 60191048/C9/000/C00/1002
 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)
 WORKS AREA 'WA3' SEE DRAWING NO. 60191048/C9/000/C00/1051

REV. NO.	DESCRIPTION	BY	DATE
-	TENDER DRAWING	TTHK	06/19



 HONG KONG-ZHULHA1-MACAO BRIDGE
 HONG KONG BOUNDARY CROSSING FACILITIES
 - PHASE 2 AND OTHER WORKS

SITE LOCATION PLAN

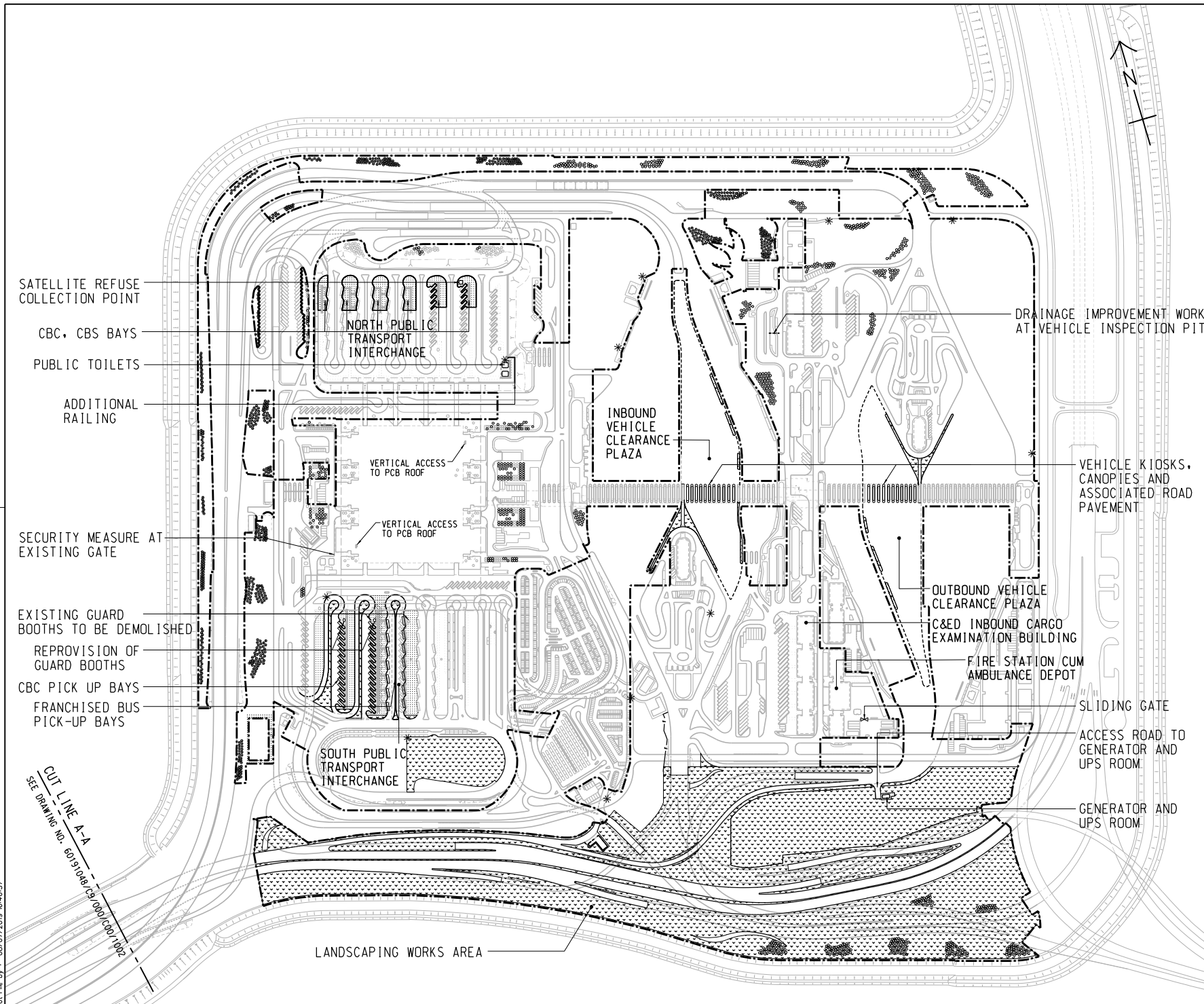
AECOM +
 Rogers Stirk Harbour + Partners
Aedas
 BURO HAPPOLD ATKINS ADI +

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 A1 1 : 25000	DRAWING UNIT IN METRES	

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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 IS 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
 BURO HAPPOLD ATKINS ADI +

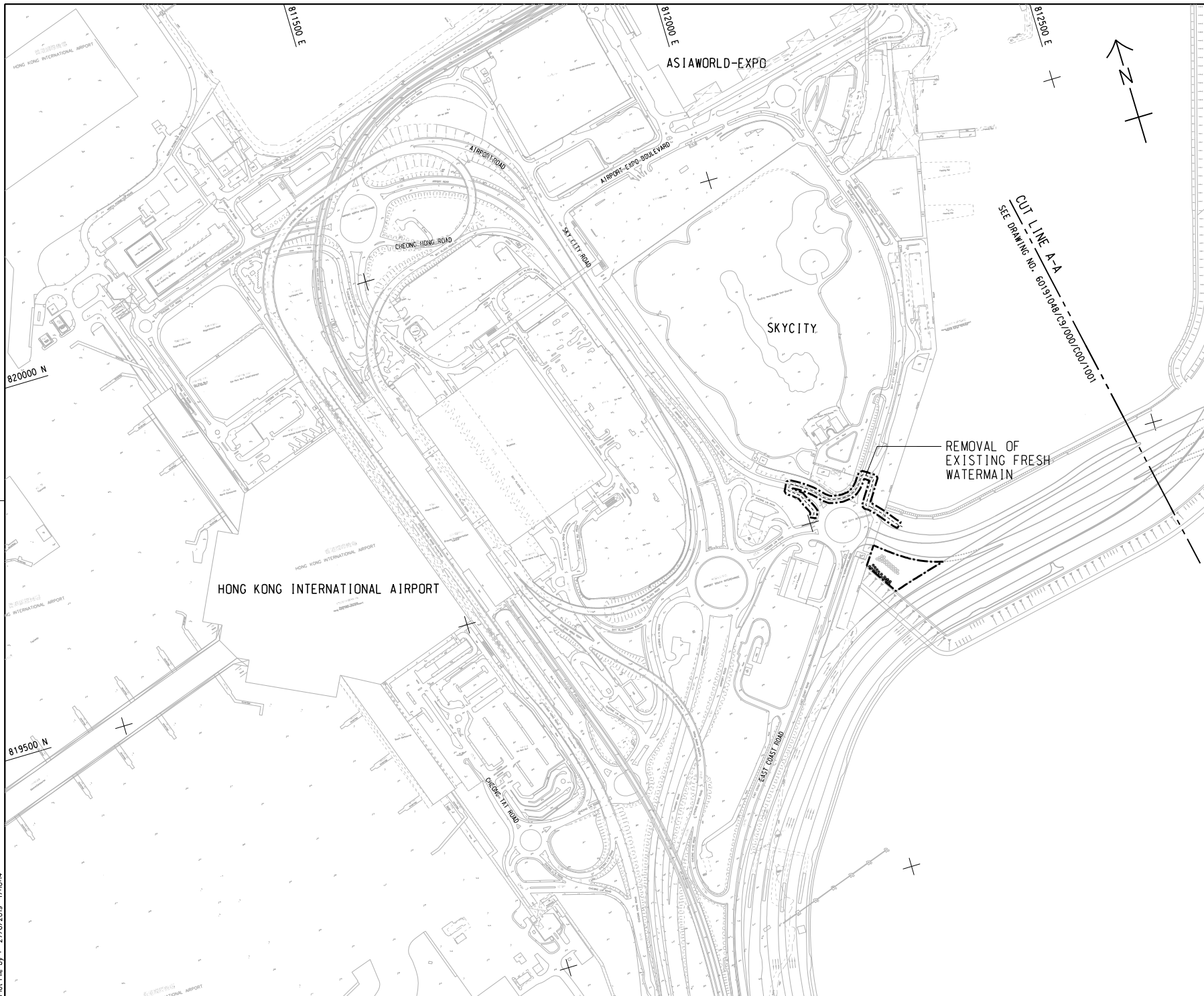
DRGNO 60191048/C9/000/C00/1001
 圖紙編號

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

香港特別行政區
 交通事務局
 HIGHWAYS DEPARTMENT
 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

Rogers Stirk Harbour + Partners
 BURO HAPPOLD ATKINS ADI

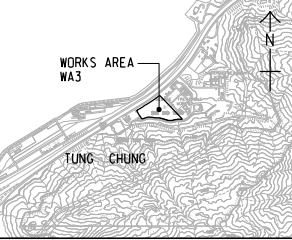
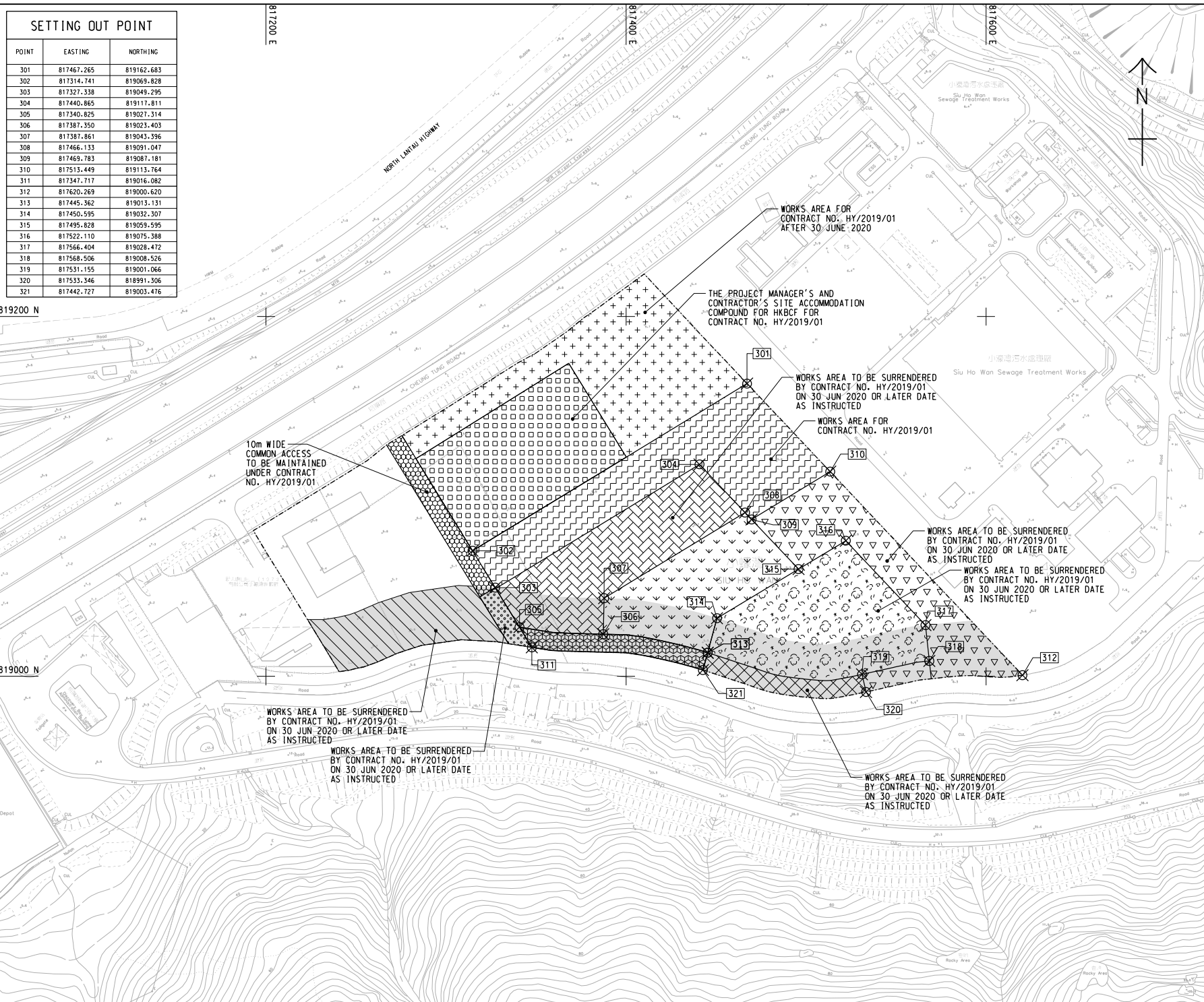
DRG. NO. 60191048/C9/000/C00/1002
 圖紙編號

DESIGNED BY 設計	THK	CONTRACT NO. 合約編號	HY/2019/01	FOR APPROVAL 審核	SC1
DRAWN BY 繪圖	JC	STATUS 狀態			

SCALE
 比例尺
 A1 1 : 2500
 DIMENSIONING UNIT IN METRES
 尺寸單位為公尺

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)

TENDER DRAWING	TTHK/000	JUL 19
REV. NO.	DESCRIPTION	DATE

HIGHWAYS DEPARTMENT
 Major Works Project Management Office (Special Duties)

HONG KONG-ZHUIHAI-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
 圖紙編號

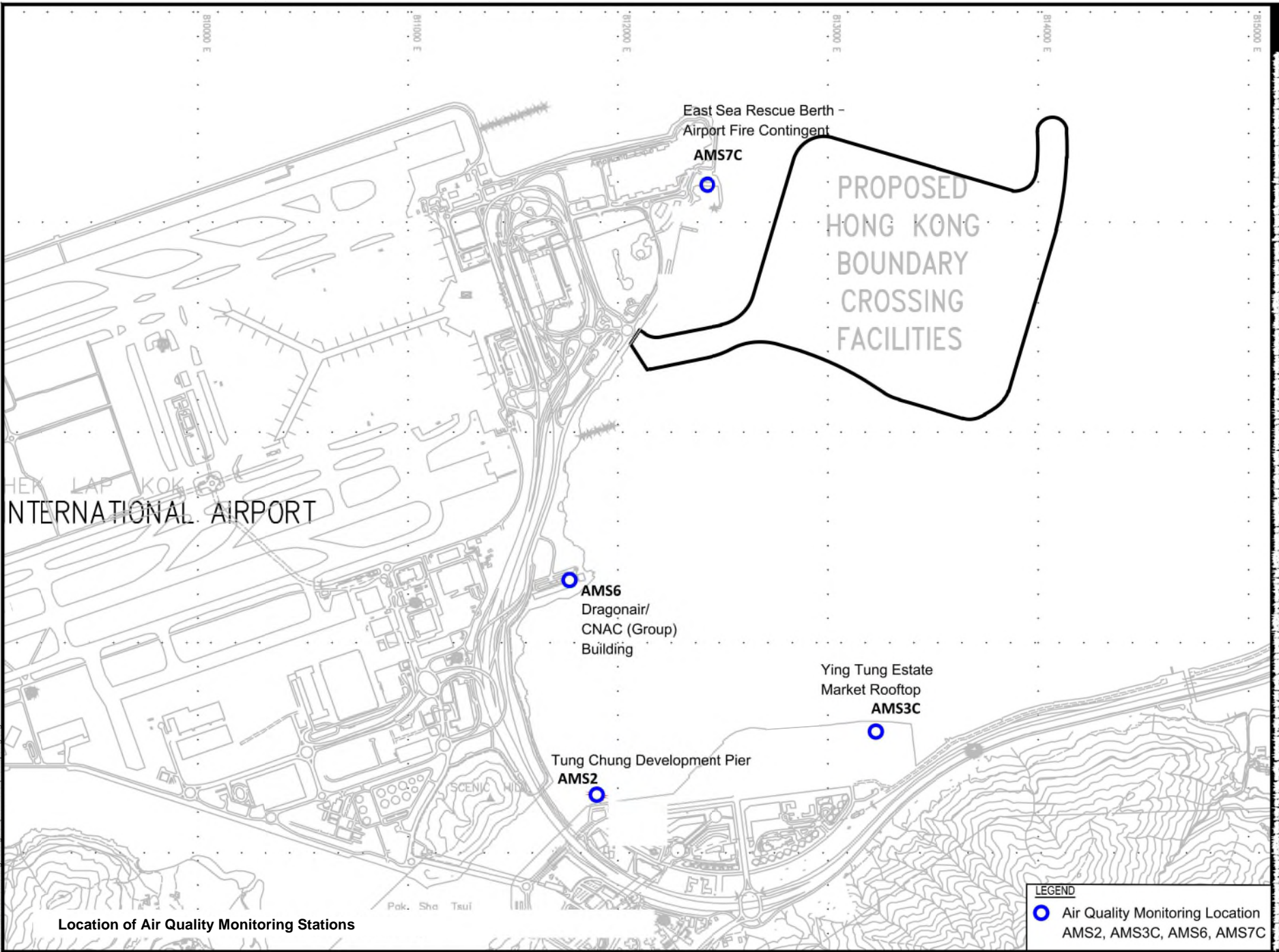
DESIGNED BY TTHK	CONTRACT NO. HY/2019/01	P. Dir. APPROVED SCL
DRAWN BY JC	STATUS REV	

SCALE
AS 1 : 1000
 DIMENSIONS ARE 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

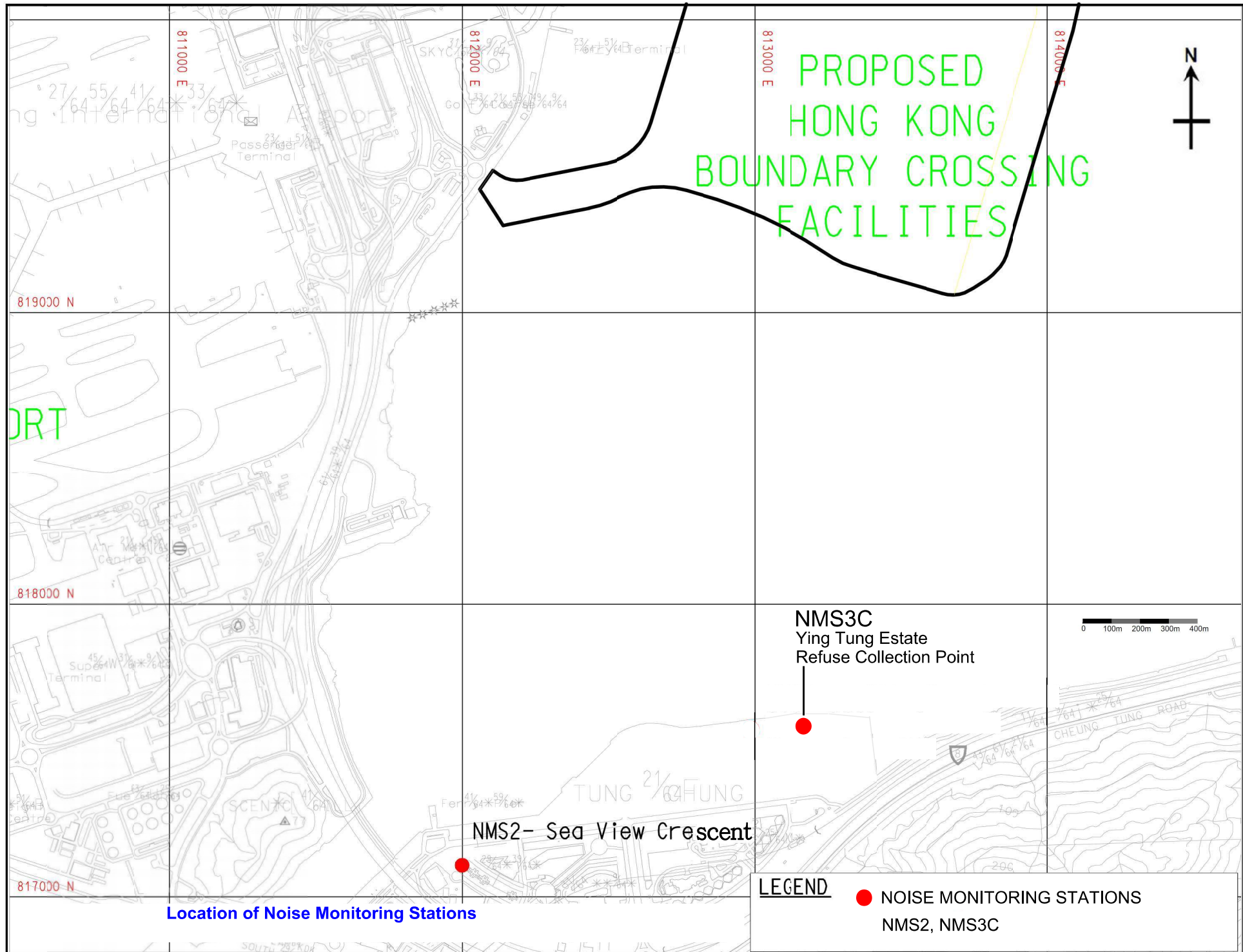
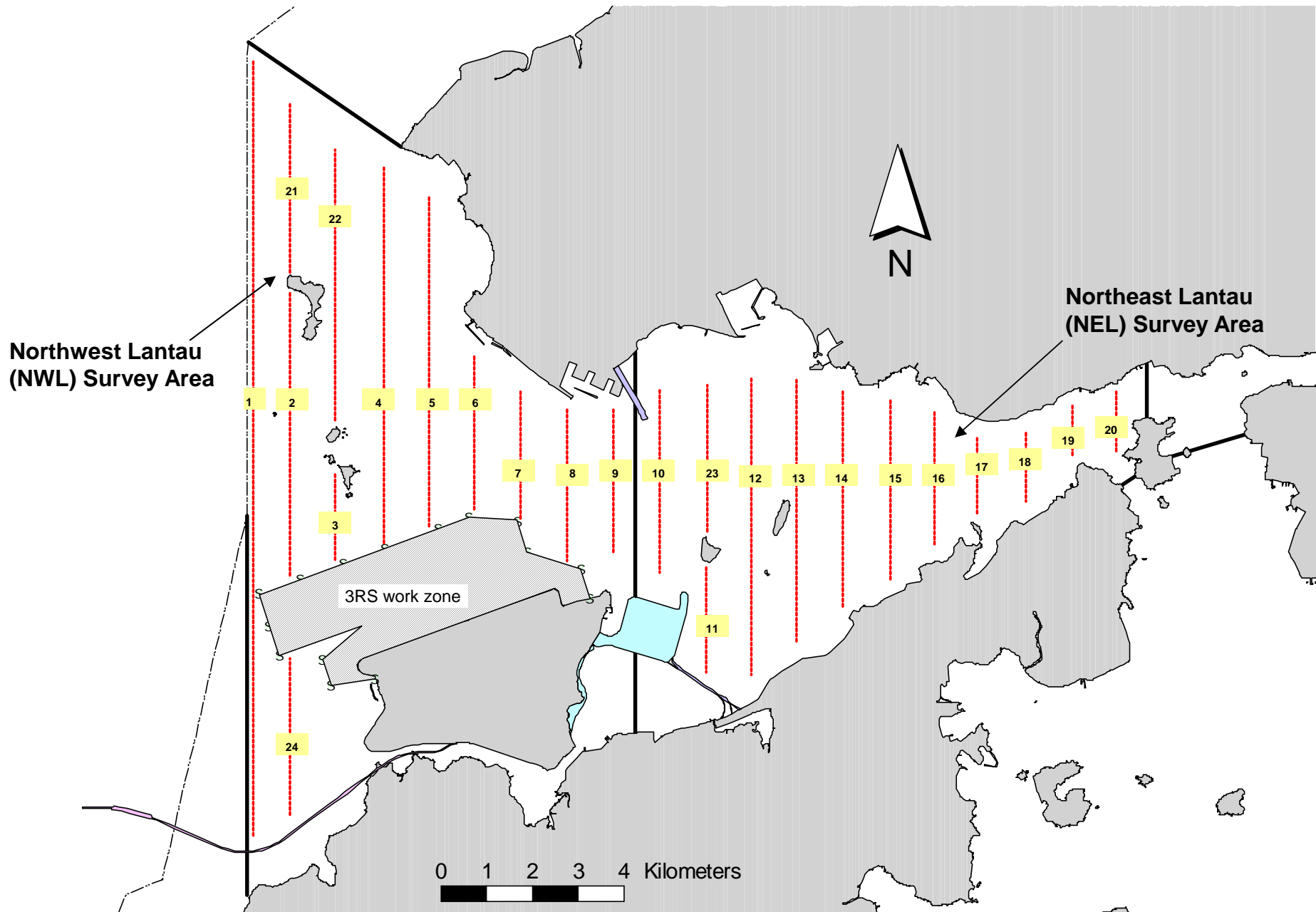


Figure 4

Post-Construction Dolphin Monitoring Line Transect
Layout Map



Transect Line Layout in Northwest and Northeast Lantau Survey Areas

Appendix A

Construction Programme

Activity ID	Activity Name	Remaining Duration	Start	Finish	2021					2022				
					Dec	Jan	Feb	Mar	Apr	Dec	Jan	Feb	Mar	Apr
Revised Works Programme for HKZMB Phase 2 and Other Works (HY/2019/01)														
CONTRACT DATES														
Starting Date														
A0090	Completion Date (730 +19 days)	0		13-Jan-22*						◆ Completion Date (730 +19 days)				
Sectional Completion														
A0310	Section 5: Remaining Works (730 +19 days) P.8 - P.12	0		13-Jan-22*						◆ Section 5: Remaining Works (730 +19 days) P.8 - P.12				
A0320	Section 6: Establishment Works (1095 + 19 days)	0		07-Dec-22*										
SUBMISSIONS														
A0460	Acceptance of TTA	1	01-Jan-20 A	03-Jan-22										
CONTRACTOR'S DESIGN														
A7980	Acceptance of the Design for Pump House	5	16-Aug-20 A	07-Jan-22										
BUILDING INFORMATION MODELING														
A7580	Completion of BIM 3D Model	28	17-Feb-20 A	30-Jan-22										
A7590	As-built BIM Model	41	08-Jan-21 A	12-Feb-22										
REFINEMENT WORKS AT HKP (4A)														
Installation of Sliding Gate at Building No. 041 (4A.J)														
A6710	Installation of Security Fence and Sliding Gate (Fire Station cum Ambulance Depot 041)	22	06-Dec-21 A	27-Jan-22										
A6720	T&C	3	28-Jan-22	31-Jan-22										
Painting for Volleyball Court														
A8850	Pavement rectification	24	03-Jan-22*	29-Jan-22										
A8860	Painting for Volleyball Ground, Part 2	6	31-Jan-22*	09-Feb-22										
SECTION 3: NPTI - PUBLIC TOILET, COVERED WALKWAY & PAVEMENT (6)														
Additional and Modification to Existing Covered Walkway, Area 1 - 6 (6.E)														
A6980	Installation of aluminum honey comb panels to the existing covered walkways	6	29-Dec-20 A	08-Jan-22										
A6990	T&C	6	07-Jul-21 A	08-Jan-22										
Additional & Modification of Covered Walkway adjacent to Building 003, Area 7 (6.C)														
A7010	T&C	6	16-Aug-21 A	08-Jan-22										
Public Toilet Type 1, Building 003 (6.B)														
A3390	TPIDC Authority Inspection & Approval	12	30-Aug-21 A	15-Jan-22										
A6100	ASD Approval, WWO Part V submission & Approval	12	30-Aug-21 A	15-Jan-22										
SECTION 5: REMAINING WORKS														
External Works at Plaza														
A1540B	Pavement Works (Roadbase and Base Course) at Outbound North	12	10-May-21 A	15-Jan-22										
A1540C	Pavement Works (Roadbase and Base Course) at Inbound South	11	08-Jun-21 A	14-Jan-22										
A8770	Pavement Works (Wearing Course) at Outbound	22	08-Nov-21 A	27-Jan-22										
A8780	Pavement Works (Wearing Course) at Inbound	24	08-Nov-21 A	29-Jan-22										
A8790	Road Marking & Signs	73	03-Jan-22	31-Mar-22										
Inbound: 11 No. of Private Car Kiosks between 027/028														
Builder Works (5.A)														
A1080C	ABWF Works at 4th Group Kiosks (3 nos.)	9	27-Jul-21 A	12-Jan-22										
A1080D	ABWF Works at Kiosks at Inbound VCP (miscellaneous external railing, cladding etc.)	58	17-Aug-21 A	14-Mar-22										
A1180A	MJ, Fall Arrest System, Maintenance Access	25	01-Sep-21 A	31-Jan-22										
A4480	Removal of all hoarding after OPT	12	14-Mar-22*	26-Mar-22										
A8800	Removal of TTA	4	28-Mar-22	31-Mar-22										
E&M Works														
A1120-46.2	8.1.2.2-Termination & Installation Test of all ODB (027/028)	37	29-Jan-22	16-Mar-22										

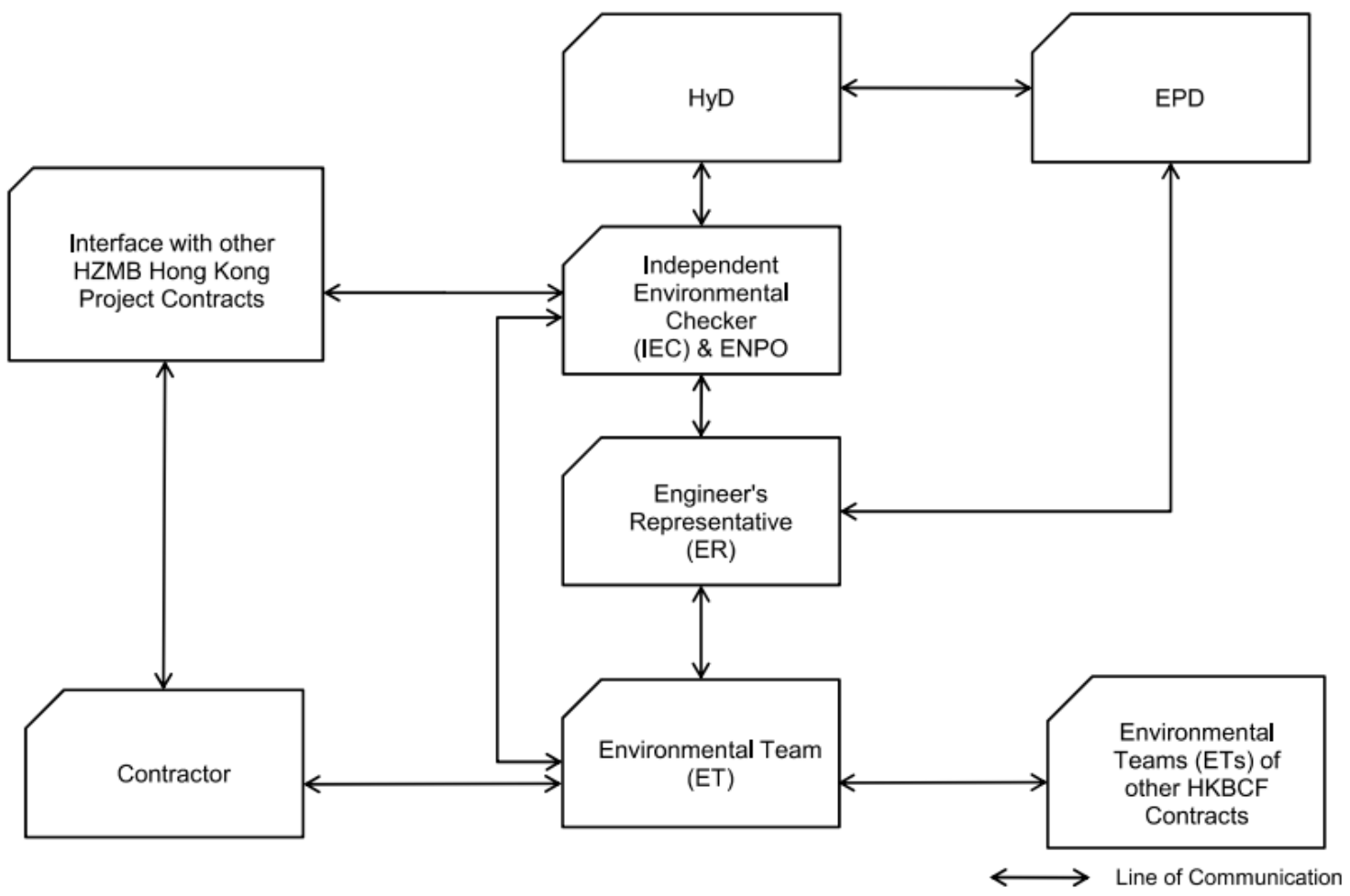
	Baseline		Critical
	Actual Work		Baseline Milestone
	Remaining Work		Milestone

**UPDATED WORKS PROGRAMME
FOR PHASE 2 AND OTHER WORKS, HKZMB**
Page 1 of 3

Date	Revision	Checked	Approved
09-Nov-21	Revised Works Programme for Phase 2	ZJ	
06-Jan-22	Revised Works Programme for Phase 2	ZJ	

Appendix B

Project Organization Chart



Appendix C

Action and Limit Levels

Action / Limit Levels for Air Quality

Parameters	Action Level	Limit Level
24-hour TSP Level in $\mu\text{g}/\text{m}^3$	¹ For baseline level $\leq 200 \mu\text{g}/\text{m}^3$, Action level = $(\text{baseline level} * 1.3 + \text{Limit level})/2$; For baseline level $> 200 \mu\text{g}/\text{m}^3$ Action level = Limit level	260 $\mu\text{g}/\text{m}^3$
1-hour TSP Level in $\mu\text{g}/\text{m}^3$	² For baseline level $\leq 384 \mu\text{g}/\text{m}^3$, Action level = $(\text{baseline level} * 1.3 + \text{Limit level})/2$; For baseline level $> 384 \mu\text{g}/\text{m}^3$, Action level = Limit level	500 $\mu\text{g}/\text{m}^3$

Notes:

1. The Action Level for 24-hour TSP Level:

a) AMS 2 = $(71.1 * 1.3 + 260) / 2 = 176 \mu\text{g}/\text{m}^3$; b) AMS 3C = $(56.9 * 1.3 + 260) / 2 = 167 \mu\text{g}/\text{m}^3$;
 c) AMS 6 = $(66.4 * 1.3 + 260) / 2 = 173 \mu\text{g}/\text{m}^3$; d) AMS 7B = $(82.3 * 1.3 + 260) / 2 = 183 \mu\text{g}/\text{m}^3$;

2. The Action Level for 1-hour TSP Level:

a) AMS 2 = $(191.5 * 1.3 + 500) / 2 = 374 \mu\text{g}/\text{m}^3$; b) AMS 3C = $(18.2 * 1.3 + 500) / 2 = 368 \mu\text{g}/\text{m}^3$;
 c) AMS 6 = $(169.2 * 1.3 + 500) / 2 = 360 \mu\text{g}/\text{m}^3$; d) AMS 7B = $(184.2 * 1.3 + 500) / 2 = 370 \mu\text{g}/\text{m}^3$;

Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700 - 1900 hours on normal weekdays	When one documented complaint is received	75 dB(A) *

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

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

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 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 remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix E

Implementation Status of

Environment mitigation Measures (Construction Phase)

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
Air Quality				
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	All construction sites	Implemented
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> •Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; •Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; •A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. •The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; •Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; 	All construction sites	Implemented
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. 	All construction sites	Implemented

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	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 	All construction sites	N/A
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	All construction sites	Implemented
S5.5.6.4	A4	4) Project Manager to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the contractor's attention to the relevant latest Practice Notes issued by EPD.	All construction sites	Implemented
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Selected representative dust monitoring station	Implemented
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. 	Selected representative dust monitoring station	Implemented
S5.5.2.7	A7	<p>The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point:</p> <ul style="list-style-type: none"> • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points. 	All construction sites	Implemented
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; 	All construction sites	Implemented

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<ul style="list-style-type: none"> 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. 		
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	All construction sites	Implemented
S6.4.12	N3	3) Install movable noise barriers (typically density@14kg/m acoustic mat or full enclosure close to noisy plants including compressor, generators, saw.	For plant items listed in Appendix 6D of the EIA report at all construction sites	N/A
S6.4.13	N4	4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.	For plant items listed in Appendix 6D of the EIA report at all construction sites	Implemented
S6.4.14	N5	5) Sequencing operation of construction plants where practicable	All construction sites where practicable	Implemented
S5.1	N6	6) Implement a noise monitoring under EM&A programme.	Selected representative noise monitoring station	Implemented
Waste Management (Construction Noise)				
S8.3.8	WM1	<p>Construction and Demolition Material</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; 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 E7WBTC (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. 	All construction sites	N/A
S8.3.9- S8.3.11	WM2	<p>C&D Waste</p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	All construction sites	Implemented

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
S8.2.12- S8.3.15	WM3	<p>Chemical Waste</p> <ul style="list-style-type: none"> •Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. •Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. •The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. •Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 	All construction sites	Implemented
S8.3.16	WM4	<p>Sewage</p> <ul style="list-style-type: none"> •Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly. 	All construction sites	Implemented
S8.3.17- S8.3.19	WM5	<p>General Refuse</p> <ul style="list-style-type: none"> •General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. •A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. •Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. •Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. •Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes. 	All construction sites	Partially Implemented

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
Water Quality (Construction Phase)				
S9.11.1.7	W2	<p>Land Works</p> <p>General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include:</p> <ul style="list-style-type: none"> •wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; •sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the 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; •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. 	All land-based construction sites	Implemented

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
Ecology (Construction Phase)				
S10.7	E4	•Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater	Seawall, reclamation area	N/A
	E9	•Dolphin vessel monitoring	North Lantau and West Lantau	N/A Completed on 1 March 2021
Landscape & Visual (Construction Phase)				
S14.3.3.3	LV2	Mitigate both Landscape and Visual Impacts G1. Grass-hydroseed bare soil surface and stock pile areas; G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge or footbridge to screen bridge and traffic. G3. Providing aesthetic architectural design on 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 harmonic atmosphere of the HKBCF. G4. Vegetation reinstatement and upgrading to disturbed areas; G5. Maximizing new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed; G6. Providing planting area around peripheral of HKBCF for tree planting screening effect; G7. Providing salt-tolerant native trees along the planter strip at affected seawall and newly reclaimed coastline; and G8. 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.	All construction site areas	G6, G8, G9 and V1 were Implemented
S14.3.3.3	LV3	Mitigate Visual Impacts V1. Minimize time for construction activities during construction period.	All construction site areas	Implemented
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	All construction sites	Implemented
S15.5 –	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual.	All construction sites	Implemented

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
S15.6		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.		

Appendix F

Summary of Site Audit in the Reporting Period

Summary of Site Audit in the Reporting Period

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	1 Dec 2021	Observation: Dusty materials should be removed immediately. (SPTI)	1 Dec 2021
	8 Dec 2021	Observation: Cement materials should be covered. (NPTI)	8 Dec 2021
Noise	NA		
Water Quality	22 Dec 2021	Reminder: Stagnant water should be removed. (VCP)	NA
	29 Dec 2021	Reminder: Stagnant water should be cleared. (SPTI)	NA
Chemical and Waste Management	1 Dec 2021	Reminder: Waste generated at the site should be cleared and collected. (VCP)	NA
	16 Dec 2021	Observation: Contractor is reminded to clear the chemical with the absorbent pad. (SPTI)	16 Dec 2021
	19 Jan 2022	Reminder: Waste generated at the site should be removed as soon as possible. (SPTI)	NA
	26 Jan 2022	Observation: Provide mitigation measure for the generator to prevent spillage of oil. (VCP)	26 Jan 2022
Land Contamination	NA		
Landscape and Visual Impact	NA		

Permit / Licenses	NA
Others	NA

Appendix G

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										
2022 Apr										
2022 May										
2022 Jun										
2022 Jul										
2022 Aug										
2022 Sep										
2022 Oct										
2022 Nov										
2022 Dec										
Total	218.57	0	0	0	218.57	0	0	0	0	79.40

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 H

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