



Expansion of Hong Kong International Airport into a Three-Runway System

Construction Phase Quarterly EM&A Report
No.20 (1 October to 31 December 2020)

March 2021

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**This Construction Phase Quarterly EM&A Report No. 20 has been
reviewed and certified by**

the Environmental Team Leader (ETL) in accordance with

Section 15.4 of the Updated EM&A Manual

Certified by:

A handwritten signature in black ink, appearing to read 'Terence Kong', is positioned above a horizontal line.

Terence Kong
Environmental Team Leader (ETL)
Mott MacDonald Hong Kong Limited

Date 16 March 2021



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By Email

Airport Authority Hong Kong
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Attn: Mr. Lawrence Tsui, Principal Manager, Environmental Compliance

16 March 2021

Dear Sir,

Contract No. 3102
3RS Independent Environmental Checker Consultancy Services

Quarterly EM&A Report No. 20 (For 1 October 2020 to 31 December 2020)

Reference is made to the Environmental Team's submission of Quarterly EM&A Report No.20 (For 1 October 2020 to 31 December 2020) under section 15.4 of the Updated EM&A Manual certified by the ET Leader on 16 March 2021.

We would like to inform you that we have no adverse comment and verify the captioned submission.

Should you have any query, please feel free to contact the undersigned at 3922 9376.

Yours faithfully,
AECOM Asia Co. Ltd.

Jackel Law
Independent Environmental Checker

c.c. Mott MacDonald – Terence Kong (ETL)

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Abbreviations

3RS	Three-Runway System
AAHK	Airport Authority Hong Kong
AECOM	AECOM Asia Company Limited
AFCD	Agriculture, Fisheries and Conservation Department
AIS	Automatic Information System
ANI	Encounter Rate of Number of Dolphins
APM	Automated People Mover
AW	Airport West
BHS	Baggage Handling System
CAP	Contamination Assessment Plan
CAR	Contamination Assessment Report
CWD	Chinese White Dolphin
DCM	Deep Cement Mixing
DEZ	Dolphin Exclusion Zone
DO	Dissolved Oxygen
EAR	Ecological Acoustic Recorder
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring & Audit
EMIS	Environmental Mitigation Implementation Schedule
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
FCZ	Fish Culture Zone
HKBCF	Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities
HKIA	Hong Kong International Airport
HSF	High Speed Ferry
IEC	Independent Environmental Checker
LKC	Lung Kwu Chau
MTCC	Marine Traffic Control Centre
MMHK	Mott MacDonald Hong Kong Limited
MMWP	Marine Mammal Watching Plan
MSS	Maritime Surveillance System
MTRMP-CAV	Updated Marine Travel Routes and Management Plan for Construction and Associated Vessel
NEL	Northeast Lantau
NWL	Northwest Lantau
PAM	Passive Acoustic Monitoring
SC	Sha Chau
SCZ	Speed Control Zone
SCLKCMP	Sha Chau and Lung Kwu Chau Marine Park
SS	Suspended Solids
STG	Encounter Rate of Number of Dolphin Sightings
SWL	Southwest Lantau
The Manual	The Updated EM&A Manual

The Project	The Expansion of Hong Kong International Airport into a Three-Runway System
The SkyPier Plan	Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier
TSP	Total Suspended Particulates
WL	West Lantau
WMP	Waste Management Plan

Executive Summary

The “Expansion of Hong Kong International Airport into a Three-Runway System” (the Project) serves to meet the future air traffic demands at Hong Kong International Airport (HKIA). On 7 November 2014, the Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-185/2014) for the Project was approved and an Environmental Permit (EP) (Permit No.: EP-489/2014) was issued for the construction and operation of the Project.

Airport Authority Hong Kong (AAHK) commissioned Mott MacDonald Hong Kong Limited (MMHK) to undertake the role of Environmental Team (ET) for carrying out the Environmental Monitoring & Audit (EM&A) works during the construction phase of the Project in accordance with the Updated EM&A Manual (the Manual).

This is the 20th Construction Phase Quarterly EM&A Report for the Project which summarises the monitoring results and audit findings of the EM&A programme during the reporting period from 1 October 2020 to 31 December 2020.

Key Activities in the Reporting Period

The key activities of the Project carried out in the reporting period included reclamation works and land-based works. Works in the reclamation areas included deep cement mixing (DCM) works, marine filling, seawall and facilities construction, together with runway and associated works such as bored piling for approach lights. Land-based works on existing airport island involved mainly airfield works, foundation and substructure work for Terminal 2 expansion, modification and tunnel work for Automated People Mover (APM) and Baggage Handling System (BHS), and preparation work for utilities, with activities include site establishment, site office construction, road and drainage works, cable ducting, demolition, piling, and excavation works.


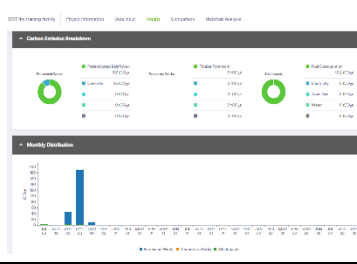

EM&A Activities Conducted in the Reporting Period

The EM&A programme was undertaken in accordance with the Manual of the Project. Summary of the monitoring activities during this reporting period is presented as below:

Monitoring Activities	Number of Sessions
1-hour Total Suspended Particulates (TSP) air quality monitoring	96
Noise monitoring	52
Water quality monitoring	39
Vessel line-transect surveys for Chinese White Dolphin (CWD) monitoring	6
Land-based theodolite tracking survey effort for CWD monitoring	6

Environmental auditing works, including weekly site inspections of construction works conducted by the ET and bi-weekly site inspections conducted by the Independent Environmental Checker (IEC), audit of SkyPier High Speed Ferries (HSF), audit of construction and associated vessels, and audit of implementation of Marine Mammal Watching Plan (MMWP) and Dolphin Exclusion Zone (DEZ) Plan, were conducted in the reporting period. Based on information including ET's observations, records of Maritime Surveillance System (MSS), and contractors' site records, it is noted that environmental pollution control and mitigation measures were properly implemented and construction activities of the Project in the reporting period did not introduce adverse impacts to the sensitive receivers.

Snapshots of Good Environmental Practices in the Reporting Period

		
<p>Installation of Energy Efficient Battery System</p>	<p>Use of CIC carbon assessment tool to monitor carbon emissions of on-site construction process</p>	<p>Obtained ISO 50001:2018 Energy Management System Certification</p>

Key examples of good site practices implemented in the Project are highlighted as below:

1. Replacing traditional diesel generators with an energy efficient battery system for tower crane operation to improve site safety, minimize carbon emissions and noise levels.
2. A carbon assessment tool established by Construction Industry Council (CIC) was deployed by a contractor to monitor carbon emissions of on-site construction process. Aided by this software application, contractor can measure the carbon footprint of their project and analyse their carbon emissions data in an effective manner.
3. A 3RS contractor obtained ISO 50001:2018 Energy Management System certification in December 2020 to improve the energy use and enhance the energy consumption performance during the construction operation.

Summary Findings of the EM&A Programme

The monitoring works for construction dust, construction noise, water quality, construction waste, landscape & visual, and CWD were conducted during the reporting period in accordance with the Manual.

Monitoring results of construction dust, construction noise, construction waste, and CWD monitoring did not trigger the corresponding Action and Limit Levels in the reporting period.

The water quality monitoring results for all parameters, except suspended solids (SS) and chromium, obtained during the reporting period were within the corresponding Action and Limit Levels stipulated in the EM&A programme. Relevant investigation and follow-up actions will be conducted according to the EM&A programme if the corresponding Action and Limit Levels are triggered. For SS and chromium, some testing results triggered the relevant Action or Limit Level, and the corresponding investigations were conducted accordingly. The investigation findings concluded that the case was not related to the Project. To conclude, the construction activities in the reporting period did not introduce adverse impact to all water quality sensitive receivers.

The key findings of the EM&A programme during the reporting period is summarised as below:

	Yes	No	Details	Analysis / Recommendation / Remedial Actions
Breach of Limit Level [^]		√	No breach of Limit Level was recorded.	Nil
Breach of Action Level [^]		√	No breach of Action Level was recorded.	Nil
Complaints Received	√		A complaint regarding solid waste and suspected open burning at 3RS was received on 6 Oct 2020	ET requested the relevant contractors for details related to the complaint. Site inspections and on-site investigation were also conducted by ET and IEC during which there was no related observation found on improper storage of solid waste or opening burning. All contractors were reminded to continue with the proper handling of general waste. The case was considered closed.
			A complaint regarding oil spillage from barges at 3RS project area was received on 15 Oct 2020.	ET requested the relevant contractors for details related to the complaint. Regular site inspections and night-time ad-hoc inspections were also conducted by ET during which there was no observation indicating malpractice leading to oil spillage. All contractors were reminded to continue with their current proper practice in handling of oil and fuel to prevent spillage. The case was considered closed.
			A complaint regarding illegal fuel delivery at 3RS project area was received on 20 Oct 2020.	ET requested the relevant contractors for details related to the complaint. Regular site inspections and night-time ad-hoc inspections were also conducted by ET during which there was no observation indicating malpractice leading to fuel spillage. ET also conducted random check on contractors' fuel purchasing record of Ultra Low Sulphur Diesel (ULSD) or equivalent were purchased by the contractors. All contractors were reminded to continue with their current proper practice in handling fuel and implementation on their spill response plans. The case was considered closed.
			A complaint regarding dust issue at 3RS construction site area was received on 6 Nov 2020.	ET requested the relevant contractor to provide information related to the complaint. During regular site inspections, no dust issue was recorded at the alleged area. The Contractor has reviewed and updated the dust control management plan to enhance water spraying to strengthen their dust suppression measure. All contractors were reminded to properly and adequately implement dust suppression measures especially in the current dry season to prevent air pollution on site. The case was considered closed.
			A complaint regarding illegal refuel delivery leading to water pollution at 3RS project area was received on 19 Nov 2020.	ET requested the relevant contractors to provide information related to the complaint. Regular site inspections and night-time ad-hoc inspections were also conducted by ET during which no occurrence regarding oil spillage onto sea surface was observed. ET also conducted a night-time inspection along the reclaimed land during which no oil spillage onto the sea surface from fuel transfer activities was observed. All contractors were reminded to continue with their current proper handling of oil and fuel on site and implementation on their spill response plans. The case was considered closed.
			A complaint regarding illegal cement discharge and domestic waste disposal from marine vessel was received on 19 Nov 2020.	ET requested the relevant contractor to provide information related to the complaint. ET conducted day-time and night-time inspections on the concerned vessel after receiving the complaint and checked the site inspection records of the vessel around the alleged period, and no adverse observation was made. The Contractor had followed their contract-specific Spill Response Plan and provided spill kits on the vessel. To follow up, the relevant contractor was reminded to

Yes	No	Details	Analysis / Recommendation / Remedial Actions
		A complaint regarding smoke and dust from a contractor was received on 27 Nov 2020.	strictly follow the standard operation procedures for cement refilling works and the contract-specific Spill Response Plan. The case was considered closed. ET requested the relevant contractors to provide information related to the complaint. During regular site inspections, dust generation from vehicular movements was observed in the alleged area on one occasion and was rectified by the Contractor afterwards. The Contractors implemented water spraying according to their dust control management plans. All contractors were reminded to properly and adequately implement dust suppression measures especially in the current dry season and to prevent air pollution on site. The case was considered closed.
Notification of any summons and status of prosecutions	√	No notification of summons or prosecution were received.	Nil
Changes that affect the EM&A	√	There was no change to the construction works that may affect the EM&A.	Nil

Remarks:

^Only triggering of Action or Limit Level found related to Project works is counted as Breach of Action or Limit Level.

1 Introduction

1.1 Background

On 7 November 2014, the Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-185/2014) for the “Expansion of Hong Kong International Airport into a Three-Runway System” (the Project) was approved and an Environmental Permit (EP) (Permit No.: EP-489/2014) was issued for the construction and operation of the Project.

Airport Authority Hong Kong (AAHK) commissioned Mott MacDonald Hong Kong Limited (MMHK) to undertake the role of Environmental Team (ET) for carrying out the Environmental Monitoring & Audit (EM&A) works during the construction phase of the Project in accordance with the Updated EM&A Manual (the Manual) submitted under EP Condition 3.1¹. AECOM Asia Company Limited (AECOM) was employed by AAHK as the Independent Environmental Checker (IEC) for the Project.

The Project covers the expansion of the existing airport into a three-runway system (3RS) with key project components comprising land formation of about 650 ha and all associated facilities and infrastructure including taxiways, aprons, aircraft stands, a passenger concourse, an expanded Terminal 2, all related airside and landside works and associated ancillary and supporting facilities. The submarine aviation fuel pipelines and submarine power cables also require diversion as part of the works.

Construction of the Project is to proceed in the general order of diversion of the submarine aviation fuel pipelines, diversion of the submarine power cables, land formation, and construction of infrastructure, followed by construction of superstructures.

The updated overall phasing programme of all construction works was presented in Appendix A of the Construction Phase Monthly EM&A Report No. 7 and the contract information was presented in Appendix A of the Construction Phase Monthly EM&A Report No. 58.

1.2 Scope of this Report

This is the 20th Construction Phase Quarterly EM&A Report for the Project which summarises the key findings of the EM&A programme during the reporting period from 1 October 2020 to 31 December 2020.

1.3 Project Organisation

The Project's organisation structure is provided in **Appendix A**. Contact details of the key personnel have been updated and provided in **Table 1.1**.

¹ The Manual is available on the Project's dedicated website (accessible at: <http://env.threerunwaysystem.com/en/index.html>)

Table 1.1: Contact Information of Key Personnel

Party	Position	Name	Telephone
Project Manager's Representative (Airport Authority Hong Kong)	Principal Manager, Environmental Compliance, Sustainability	Lawrence Tsui	2183 2734
Environmental Team (ET) (Mott MacDonald Hong Kong Limited)	Environmental Team Leader	Terence Kong	2828 5919
	Deputy Environmental Team Leader	Heidi Yu	2828 5704
	Deputy Environmental Team Leader	Daniel Sum	2585 8495
Independent Environmental Checker (IEC) (AECOM Asia Company Limited)	Independent Environmental Checker	Jackel Law	3922 9376
	Deputy Independent Environmental Checker	Roy Man	3922 9141

Reclamation Works:

Party	Position	Name	Telephone
Contract 3205 DCM (Package 5) (Bachy Soletanche - Sambo Joint Venture)	Deputy Project Director	Min Park	9683 0765
	Environmental Officer	Steven Chan	6288 0189
Contract 3206 Main Reclamation Works (ZHEC-CCCC-CDC Joint Venture)	Project Manager	Alan Mong	3763 1352
	Environmental Officer	Kwai Fung Wong	3763 1452

Airfield Works:

Party	Position	Name	Telephone
Contract 3301 North Runway Crossover Taxiway (FJT-CHEC-ZHEC Joint Venture)	Deputy Project Director	Kin Hang Chung	9800 0048
	Environmental Officer	Joe Wong	6182 0351
Contract 3302 Eastern Vehicular Tunnel Advance Works (China Road and Bridge Corporation)	Project Manager	Dickey Yau	5699 4503
	Environmental Officer	Dennis Ho	5645 0563
Contract 3303 Third Runway and Associated Works (SAPR Joint Venture)	Project Manager	Andrew Keung	6277 6628
	Environmental Officer	Max Chin	6447 5707
Contract 3307 Fire Training Facility (Paul Y. Construction Company Limited)	Project Manager	Steven Meredith	6109 1813
	Environmental Officer	Albert Chan	9700 1083

Third Runway Concourse:

Party	Position	Name	Telephone
Contract 3402 New Integrated Airport Centres Enabling Works (Wing Hing Construction Co., Ltd.)	Contract Manager	Michael Kan	9206 0550
	Environmental Officer	Lisa He	5374 3418
Contract 3403 New Integrated Airport Centres Building and Civil Works (Sun Fook Kong Construction Limited)	Project Manager	Alice Leung	9220 3162
	Environmental Officer	Alpha Chia	9626 1114
Contract 3405 Third Runway Concourse Foundation and Substructure Works (China Road and Bridge Corporation – Bachy Soletanche Group Limited – LT Sambo Co., Ltd. Joint Venture)	Project Manager	Francis Choi	9423 3469
	Environmental Officer	Jacky Lai	9028 8975

Terminal 2 (T2) Expansion:

Party	Position	Name	Telephone
Contract 3503 Terminal 2 Foundation and Substructure Works (Leighton – Chun Wo Joint Venture)	Project Manager	Eric Wu	3973 1718
	Environmental Officer	Gomez Yuen	9098 7807
Contract 3508 Terminal 2 Expansion Works (Gammon Engineering & Construction Company Limited)	Project Director	Richard Ellis	6201 5637
	Environmental Officer	Gena Tsang	9511 2283

Automated People Mover (APM) and Baggage Handling System (BHS):

Party	Position	Name	Telephone
Contract 3601 New Automated People Mover System (TRC Line) (CRRC Puzhen Bombardier Transportation Systems Limited and CRRC Nanjing Puzhen Co., Ltd. Joint Venture)	Project Manager	Hongdan Wei	158 6180 9450
	Environmental Officer	Jasmine Tso	5968 6926
Contract 3602 Existing APM System Modification Works (Niigata Transys Co., Ltd.)	Project Manager	Kunihiro Tatecho	9755 0351
	Environmental Officer	Yolanda Gao	5399 3509
Contract 3603 3RS Baggage Handling System (VISH Consortium)	Project Manager	K C Ho	9272 9626
	Environmental Officer	Eric Ha	9215 3432

Construction Support (Facilities):

Party	Position	Name	Telephone
Contract 3721 Construction Support Infrastructure Works (China State Construction Engineering (Hong Kong) Ltd.)	Site Agent	Thomas Lui	9011 5340
	Environmental Officer	Xavier Lam	9493 2944
Contract 3722 Western Support Area – Construction Support Facilities (Tapbo Construction Company Limited and Konwo Modular House Limited Joint Venture)	Deputy Project Director	Philip Kong	9049 3161
	Environmental Officer	Sampson Lo	9752 9118

Airport Support Infrastructure:

Party	Position	Name	Telephone
Contract 3801 APM and BHS Tunnels on Existing Airport Island (China State Construction Engineering (Hong Kong) Ltd.)	Project Manager	Tony Wong	9642 8672
	Environmental Officer	Federick Wong	9842 2703
Contract 3802 APM and BHS Tunnels and Related Works (Gammon Construction Limited)	Project Director	John Adams	6111 6989
	Environmental Officer	Andy Leung	9489 0035

Construction Support (Services / Licences):

Party	Position	Name	Telephone
Contract 3901A Concrete Batching Facility (K. Wah Concrete Company Limited)	Project Manager	Benedict Wong	9553 2806
	Environmental Officer	C P Fung	9874 2872
Contract 3901B Concrete Batching Facility (Gammon Construction Limited)	Senior Project Manager	Gabriel Chan	2435 3260
	Environmental Officer	Rex Wong	2695 6319

1.4 Contact information for the Project

The contact information for the Project is provided in **Table 1.2**. The public can contact us through the following channels if they have any queries and comments on the environmental monitoring data and project related information.

Table 1.2: Contact Information of the Project

Channels	Contact Information
Hotline	3908 0354
Email	env@3rsproject.com
Fax	3747 6050
Postal Address	Airport Authority Hong Kong HKIA Tower 1 Sky Plaza Road Hong Kong International Airport Lantau Hong Kong Attn: Environmental Team Leader Mr Terence Kong c/o Mr Lawrence Tsui (TRD)

1.5 Summary of Construction Works

The key activities of the Project carried out in the reporting period included reclamation works and land-based works. Works in the reclamation areas included DCM works, marine filling, seawall and facilities construction, together with runway and associated works such as bored piling for approach lights. Land-based works on existing airport island involved mainly airfield works, foundation and substructure work for Terminal 2 expansion, modification and tunnel work for APM and BHS systems, and preparation work for utilities, with activities include site establishment, site office construction, road and drainage works, cable ducting, demolition of existing facilities, piling, and excavation works.

The locations of the key construction activities are presented in **Figure 1.1**.

1.6 Summary of EM&A Programme Requirements

The status for all environmental aspects is presented in **Table 1.3**. The EM&A requirements remained unchanged during the reporting period.

Table 1.3: Summary of Status for All Environmental Aspects under the Updated EM&A Manual

Parameters	EM&A Requirements	Status
Air Quality		
Baseline Monitoring	At least 14 consecutive days before commencement of construction work	The baseline air quality monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under EP Condition 3.4.
Impact Monitoring	At least 3 times every 6 days	On-going
Noise		
Baseline Monitoring	Daily for a period of at least two weeks prior to the commencement of construction works	The baseline noise monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under EP Condition 3.4.
Impact Monitoring	Weekly	On-going
Water Quality		
General Baseline Water Quality Monitoring for reclamation, water jetting and field joint works	Three days per week, at mid-flood and mid-ebb tides, for at least four weeks prior to the commencement of marine works.	The baseline water quality monitoring result has been reported in Baseline Water Quality Monitoring Report and submitted to EPD under EP Condition 3.4.

Parameters	EM&A Requirements	Status
General Impact Water Quality Monitoring for reclamation, water jetting and field joint works	Three days per week, at mid-flood and mid-ebb tides.	On-going
Initial Intensive Deep Cement Mixing (DCM) Water Quality Monitoring	At least four weeks	The Initial Intensive DCM Monitoring Report was submitted and approved by EPD in accordance with the Detailed Plan on DCM.
Regular DCM Water Quality Monitoring	Three times per week until completion of DCM works.	On-going
Sewerage and Sewage Treatment		
Methodology for carrying out annual sewage flow monitoring for concerned gravity sewer	Methodology to be prepared and submitted to EPD at least one year before commencement of the operation of 3RS.	To be prepared and submitted to EPD
Details of the routine H ₂ S monitoring system for the sewerage system of 3RS	Details to be prepared and submitted to EPD at least one year before commencement of the operation of 3RS.	To be prepared and submitted to EPD
Waste Management		
Waste Monitoring	At least weekly	On-going
Land Contamination		
Supplementary Contamination Assessment Plan (CAP)	At least 3 months before commencement of any soil remediation works.	The Supplementary CAP was submitted and approved by EPD pursuant to EP condition 2.20.
Contamination Assessment Report (CAR)	CAR to be submitted for golf course	The CAR for Golf Course was submitted to EPD.
	CAR to be submitted for Terminal 2 Emergency Power Supply Systems	The CARs for Terminal 2 Emergency Power Supply System Nos.1 (Volumes 1 and 2), 2, 3, 4 and 5 were submitted to EPD.
Terrestrial Ecology		
Pre-construction Egretty Survey Plan	Once per month in the breeding season between April and July, prior to the commencement of HDD drilling works.	The Egretty Survey Plan was submitted and approved by EPD under EP Condition 2.14.
Ecological Monitoring	Monthly monitoring during the HDD construction works period from August to March.	The terrestrial ecological monitoring at Sheung Sha Chau was completed in January 2019.
Marine Ecology		
Pre-Construction Phase Coral Dive Survey	Prior to marine construction works	The Coral Translocation Plan was submitted and approved by EPD under EP Condition 2.12.
Coral Translocation	-	The coral translocation was completed on 5 January 2017.
Post-translocation Monitoring	As per an enhanced monitoring programme based on the Coral Translocation Plan	The post-translocation monitoring programme according to the Coral Translocation Plan was completed in April 2018.
Chinese White Dolphins (CWD)		
Baseline Monitoring	6 months of baseline surveys before the commencement of land formation related construction works.	Baseline CWD results were reported in the CWD Baseline Monitoring Report

Parameters	EM&A Requirements	Status
	Vessel line transect surveys: Two full surveys per month; Land-based theodolite tracking surveys: Two days per month at the Sha Chau station and two days per month at the Lung Kwu Chau station; and Passive Acoustic Monitoring (PAM): For the whole duration of baseline period.	and submitted to EPD in accordance with EP Condition 3.4.
Impact Monitoring	Vessel line transect surveys: Two full surveys per month; Land-based theodolite tracking surveys: One day per month at the Sha Chau station and one day per month at the Lung Kwu Chau station; and PAM: For the whole duration for land formation related construction works.	On-going
Landscape and Visual		
Landscape and Visual Plan	At least 3 months before the commencement of construction works on the formed land of the Project.	The Landscape & Visual Plan was submitted to EPD under EP Condition 2.18
Baseline Monitoring	One-off survey within the Project site boundary prior to commencement of any construction works	The baseline landscape & visual monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under EP Condition 3.4.
Impact Monitoring	Weekly	On-going
Environmental Auditing		
Regular site inspection	Weekly	On-going
Marine Mammal Watching Plan (MMWP) implementation measures	Monitor and check	On-going
Dolphin Exclusion Zone (DEZ) Plan implementation measures	Monitor and check	On-going
SkyPier High Speed Ferries (HSF) implementation measures	Monitor and check	On-going
Construction and Associated Vessels implementation measures	Monitor and check	On-going
Complaint Hotline and Email Channel	Construction phase	On-going
Environmental Log Book	Construction phase	On-going

Taking into account the construction works in the reporting period, impact monitoring of air quality, noise, water quality, waste management, landscape & visual, and CWD were carried out in the reporting period.

The EM&A programme also involved weekly site inspections and related auditing conducted by ET for the checking of implementation of required environmental mitigation measures recommended in the approved EIA Report. To promote the environmental awareness and enhance the environmental performance of the contractors, environmental trainings and regular environmental management meetings were conducted during the reporting period which are summarised as below:

- Four skipper trainings provided by ET;
- One dolphin observer training session provided by ET;
- Two environmental briefings on EP and EM&A requirements of the 3RS provided by ET; and
- Fifty-two environmental management meetings for EM&A review with works contracts.

The EM&A programme has been following the recommendations presented in the approved EIA Report and the Manual. A summary of implementation status of the environmental mitigation measures for the construction phase of the Project during the reporting period is provided in **Appendix B**.

2 Environmental Monitoring and Auditing

2.1 Air Quality Monitoring

Impact 1-hour Total Suspended Particulates (TSP) monitoring was conducted three times every six days at two representative monitoring stations during the reporting period. The locations of monitoring stations are described in **Table 2.1** and presented in **Figure 2.1**.

2.1.1 Action and Limit Levels

The Action and Limit Levels of the air quality monitoring stipulated in the EM&A programme for triggering the relevant investigation and follow-up procedures under the programme are provided in **Table 2.1** for reference.

Table 2.1: Impact Air Quality Monitoring Stations

Monitoring Station	Location	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AR1A	Man Tung Road Park	306	500
AR2	Village House at Tin Sum	298	

2.1.2 Summary of Monitoring Results

The air quality monitoring results in the reporting period are summarised in **Table 2.2** and the graphical plot is presented in **Appendix C**.

Table 2.2: Percentage of Air Quality Monitoring Results within Action and Limit Levels

	AR1A	AR2
Oct 2020	100%	100%
Nov 2020	100%	100%
Dec 2020	100%	100%
Overall	100%	100%

Note: The percentages are calculated by dividing the number of monitoring results within their corresponding Action and Limit Levels by the total number of monitoring results.

All monitoring results were within their corresponding Action and Limit Levels at all monitoring stations in the reporting period.

General meteorological conditions in the last month of the previous quarter and this reporting period were recorded and summarised in **Table 2.3**.

Table 2.3: General Meteorological Condition during Impact Air Quality Monitoring

	Weather	Dominant Wind Direction
Sep 2020	Sunny to Cloudy	Southwest
Oct 2020	Sunny to Cloudy	Northeast
Nov 2020	Cloudy	Northeast
Dec 2020	Sunny to Cloudy	Northeast

2.1.3 Conclusion

No dust emission source was observed at the monitoring stations during the monitoring sessions. As the sensitive receivers were far away from the construction activities, with the implementation of dust control measures, there was no adverse impact at the sensitive receivers attributable to the works of the Project.

2.2 Noise Monitoring

Impact noise monitoring was conducted at four representative monitoring stations once per week during 0700 and 1900 in the reporting period. The locations of monitoring stations are described in **Table 2.4** and presented in **Figure 2.1**.

2.2.1 Action and Limit Levels

The Action and Limit Levels of the noise monitoring stipulated in the EM&A programme for triggering the relevant investigation and follow-up procedures under the programme are provided in **Table 2.4** for reference.

Table 2.4: Impact Noise Monitoring Stations

Monitoring Station	Location	Action Level	Limit Level
NM1A	Man Tung Road Park	When one documented complaint is received from any one of the sensitive receivers	75 dB(A)
NM4	Ching Chung Hau Po Woon Primary School		65dB(A) / 70 dB(A) ⁽ⁱ⁾
NM5	Village House in Tin Sum		75 dB(A)
NM6	House No. 1, Sha Lo Wan		75 dB(A)

Note:

⁽ⁱ⁾ The Limit Level for NM4 is reduced to 70dB(A) for being an educational institution. During school examination period, the Limit Level is further reduced to 65dB(A).

2.2.2 Summary of Monitoring Results

The noise monitoring results in the reporting period are summarised in **Table 2.5** and the graphical plot is presented in **Appendix C**.

Table 2.5: Percentage of Noise Monitoring Results within Action and Limit Levels

	NM1A	NM4	NM5	NM6
Oct 2020	100%	100%	100%	100%
Nov 2020	100%	100%	100%	100%
Dec 2020	100%	100%	100%	100%
Overall	100%	100%	100%	100%

Note: The percentages are calculated by dividing the number of monitoring results within their corresponding Action and Limit Levels by the total number of monitoring results.

No complaints were received from any sensitive receiver that triggered the Action Level. All monitoring results were also within the corresponding Limit Levels at all monitoring stations in the reporting period.

General meteorological conditions in the last month of the previous quarter and this reporting period were recorded and summarised in **Table 2.6**.

Table 2.6: General Meteorological Condition during Impact Noise Monitoring

Weather	
Sep 2020	Sunny to Cloudy
Oct 2020	Sunny to Cloudy
Nov 2020	Cloudy
Dec 2020	Sunny to Cloudy

2.2.3 Conclusion

Major sources of noise dominating the monitoring stations observed during the construction noise impact monitoring were traffic noise near NM1A and aircraft noise near NM6. As the sensitive receivers were far away from the construction activities, with the implementation of noise control measures, there was no adverse impact at the sensitive receivers attributable to the works of the Project.

2.3 Water Quality Monitoring

During the reporting period, water quality monitoring was conducted three days per week, at mid-flood and mid-ebb tides, at a total of 23 water quality monitoring stations, comprising 12 impact (IM) stations, 8 sensitive receiver (SR) stations, and 3 control (C) stations in the vicinity of the water quality sensitive receivers around the existing airport island in accordance with the Manual. The purpose of water quality monitoring at the IM stations is to promptly capture any potential water quality impacts from the Project before the impacts could become apparent at sensitive receivers (represented by the SR stations). **Table 2.7** describes the details of the monitoring stations. **Figure 2.2** shows the locations of the monitoring stations.

Due to the completion of all marine-based DCM works within December 2020, regular DCM monitoring was proposed to be ceased at all monitoring stations starting within January 2021 and would be resumed if there are marine-based DCM works in the coming future.

Table 2.7: Monitoring Locations and Parameters for Impact Water Quality Monitoring

Monitoring Station	Description	Coordinates		Parameters
		Easting	Northing	
C1	Control Station	804247	815620	<u>General Parameters</u> DO, pH, Temperature, Salinity, Turbidity, SS
C2	Control Station	806945	825682	
C3 ⁽³⁾	Control Station	817803	822109	
IM1	Impact Station	807132	817949	
IM2	Impact Station	806166	818163	<u>DCM Parameters</u> Total Alkalinity, Heavy Metals ⁽²⁾
IM3	Impact Station	805594	818784	
IM4	Impact Station	804607	819725	
IM5	Impact Station	804867	820735	
IM6	Impact Station	805828	821060	
IM7	Impact Station	806835	821349	
IM8	Impact Station	808140	821830	
IM9	Impact Station	808811	822094	
IM10	Impact Station	809794	822385	
IM11	Impact Station	811460	822057	
IM12	Impact Station	812046	821459	
SR1A ⁽¹⁾	Hong Kong-Zhuhai-Macao Bridge Hong	812660	819977	<u>General Parameters</u>

Monitoring Station	Description	Coordinates		Parameters
		Easting	Northing	
	Kong Boundary Crossing Facilities (HKBCF) Seawater Intake for cooling			DO, pH, Temperature, Salinity, Turbidity, SS
SR2 ⁽³⁾	Planned marine park / hard corals at The Brothers / Tai Mo To	814166	821463	<u>General Parameters</u> DO, pH, Temperature, Salinity, Turbidity, SS <u>DCM Parameters</u> Total Alkalinity, Heavy Metals ⁽²⁾⁽⁴⁾
SR3	Sha Chau and Lung Kwu Chau Marine Park / fishing and spawning grounds in North Lantau	807571	822147	<u>General Parameters</u> DO, pH, Temperature, Salinity, Turbidity, SS
SR4A	Sha Lo Wan	807810	817189	
SR5A	San Tau Beach SSSI	810696	816593	
SR6A ⁽⁵⁾	Tai Ho Bay, Near Tai Ho Stream SSSI	814739	817963	
SR7	Ma Wan Fish Culture Zone (FCZ)	823742	823636	
SR8 ⁽⁶⁾	Seawater Intake for cooling at Hong Kong International Airport (East)	811623	820390	

Notes:

- (1) With the operation of HKBCF, water quality monitoring at SR1A station was commenced on 25 October 2018.
- (2) Details of selection criteria for the two heavy metals for regular DCM monitoring refer to the Detailed Plan on Deep Cement Mixing available on the dedicated 3RS website (<http://env.threerunwaysystem.com/en/ep-submissions.html>). DCM specific water quality monitoring parameters (total alkalinity and heavy metals) were only conducted at C1 to C3, SR2, and IM1 to IM12.
- (3) According to the Baseline Water Quality Monitoring Report, C3 station is not adequately representative as a control station of impact/ SR stations during the flood tide. The control reference has been changed from C3 to SR2 from 1 September 2016 onwards.
- (4) Total alkalinity and heavy metals results are collected at SR2 as a control station for regular DCM monitoring.
- (5) As the access to SR6 was obstructed by the construction activities and temporary structures for Tung Chung New Town Extension, the monitoring location has been relocated to SR6A starting from 8 August 2019.
- (6) The monitoring location for SR8 is subject to further changes due to silt curtain arrangements and the progressive relocation of this seawater intake.

2.3.1 Action and Limit Levels

The Action and Limit Levels for general water quality monitoring and regular DCM monitoring stipulated in the EM&A programme for triggering the relevant investigation and follow-up procedures under the programme are presented in **Table 2.8**. The control and IM stations during flood tide and ebb tide for general water quality monitoring and regular DCM monitoring are presented in **Table 2.9**.

Table 2.8: Action and Limit Levels for General Water Quality Monitoring and Regular DCM Monitoring

Parameters	Action Level	Limit Level
Action and Limit Levels for general water quality monitoring and regular DCM monitoring (excluding SR1A & SR8)		
DO in mg/l	Surface and Middle	Surface and Middle

Parameters	Action Level	Limit Level
(Surface, Middle & Bottom)	4.5 mg/l	4.1 mg/l 5 mg/l for Fish Culture Zone (SR7) only
	Bottom 3.4 mg/l	Bottom 2.7 mg/l
SS in mg/l	23	37
Turbidity in NTU	22.6	36.1
Total Alkalinity in ppm	95	99
Representative Heavy Metals for regular DCM monitoring (Chromium) ⁽⁶⁾	0.2	0.2
Representative Heavy Metals for regular DCM monitoring (Nickel) ⁽⁶⁾	3.2	3.6
Action and Limit Levels SR1A		
SS (mg/l)	33	42
Action and Limit Levels SR8		
SS (mg/l)	52	60

Notes:

1. For DO measurement, Action or Limit Level is triggered when monitoring result is lower than the limits.
2. For parameters other than DO, Action or Limit Level of water quality results is triggered when monitoring results is higher than the limits.
3. Depth-averaged results are used unless specified otherwise.
4. Details of selection criteria for the two heavy metals for regular DCM monitoring refer to the Detailed Plan on Deep Cement Mixing available on the dedicated 3RS website <http://env.threerunwaysystem.com/en/ep-submissions.html>
5. The Action and Limit Levels for the two representative heavy metals chosen will be the same as that for the intensive DCM monitoring.
6. Due to the completion of all marine-based DCM works within December 2020, regular DCM monitoring was proposed to be ceased at all monitoring stations starting within January 2021 and would be resumed if there are marine-based DCM works in the coming future.

Table 2.9: The Control and Impact Stations during Flood Tide and Ebb Tide for General Water Quality Monitoring and Regular DCM Monitoring

Control Station	Impact Stations
Flood Tide	
C1	IM1, IM2, IM3, IM4, IM5, IM6, IM7, IM8, SR3
SR2 ¹	IM7, IM8, IM9, IM10, IM11, IM12, SR1A, SR3, SR4A, SR5A, SR6A, SR8
Ebb Tide	
C1	SR4A, SR5A, SR6A
C2	IM1, IM2, IM3, IM4, IM5, IM6, IM7, IM8, IM9, IM10, IM11, IM12, SR1A, SR2, SR3, SR7, SR8

Note:

1. As per findings of Baseline Water Quality Monitoring Report, the control reference has been changed from C3 to SR2 from 1 Sep 2016 onwards.

2.3.2 Summary of Monitoring Results

The summary of results within their corresponding Action and Limit Levels in the reporting period are presented in **Table 2.10**. The weather and sea conditions in the last month of the previous quarter and this reporting period were recorded and summarised in **Table 2.11**.

Table 2.10 : Percentage of Water Quality Monitoring Results within Action and Limit Levels

No. of result triggering Action or Limit Level	0	1	1	0	2	1	0	0	1	2	2	2	0	0	0	0	0	0
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Table 2.14: Summary of Chromium Compliance Status (Mid-Ebb Tide)

	IM1	IM2	IM3	IM4	IM5	IM6	IM7	IM8	IM9	IM10	IM11	IM12
22/12/2020												
No. of result triggering Action or Limit Level	0	0	0	0	0	1	0	0	0	0	0	0

Note: The monitoring results compiled with their corresponding Action or Limit Levels are presented in **Appendix C**.

Legend:	
	Result within corresponding Action and Limit Levels
	Result triggered the Action Level at monitoring station located upstream of the Project based on dominant tidal flow
D	Result triggered the Action Level at monitoring station located downstream of the Project based on dominant tidal flow
D	Result triggered the Limit Level at monitoring station located downstream of the Project based on dominant tidal flow
	Upstream station with respect to the Project during the respective tide based on dominant tidal flow
	Downstream station with respect to the Project during the respective tide based on dominant tidal flow

2.3.3 Conclusion

In the reporting period, it is noted that most monitoring results were within their corresponding Action and Limit Levels, while only a minor number of results triggered their corresponding Action or Limit Level, and investigations were conducted accordingly. Based on the findings presented in Construction Phase Monthly EM&A Report Nos. 58 and 60, all cases that triggered the corresponding Action or Limit Level were not related to the Project. Hence, the Project did not introduce adverse impact to all water quality sensitive receivers. All required actions under the Event and Action Plan were followed.

Nevertheless, the non-project related triggers were attended to and initiated corresponding action and measures. As part of the EM&A programme, the construction methods and mitigation measures for water quality will continue to be monitored and opportunities for further enhancement will continue to be explored and implemented where possible, to strive for better protection of water quality and the marine environment.

In the meantime, the contractors were reminded to implement and maintain all mitigation measures during weekly site inspections and regular environmental management meetings. These include maintaining mitigation measures properly for reclamation works including DCM works, marine filling, seawall construction, and bored piling for approach lights as recommended in the Manual.

2.4 Waste Monitoring

In accordance with the Manual, waste generated from construction activities was audited once per week to determine if wastes were being managed in accordance with the Waste Management Plan (WMP) prepared for the Project, contract-specific WMP, and any statutory and contractual requirements. All aspects of waste management including waste generation, storage, transportation, and disposal were assessed during the audits.

2.4.1 Action and Limit Levels

The Action and Limit Levels of the construction waste are provided in **Table 2.15**.

Table 2.15: Action and Limit Levels for Construction Waste

Monitoring Stations	Action Level	Limit Level
Construction Area	When one valid documented complaint is received	Non-compliance of the WMP, contract-specific WMPs, any statutory and contractual requirements

2.4.2 Summary of Monitoring Results

Weekly monitoring of the Project construction works was carried out by the ET in the reporting period to check and monitor the implementation of proper waste management practices.

Recommendations made by the ET included provision and maintenance of proper chemical waste storage area, as well as handling, segregation, and regular disposal of general refuse. The contractors had taken actions to implement the recommended measures. Waste management audits were carried out by ET according to the requirement of the Waste Management Plan, Updated EM&A Manual and the implementation schedule of the waste management mitigation measures in **Appendix B**.

Based on updated contractors' information, summary of construction waste generated in the reporting period is presented in **Table 2.16**. Proactive measures have been undertaken during the re-configuration of T2 building. The contractor has established the recycling strategy for C&D materials with proper planning and design to maximize recycling and reuse. Dedicated recyclers were employed for different kinds of recyclable materials by the contractor, and ET and IEC have carried out site visits to recyclers' facilities to review recycling process. Recycling materials before leaving the site are weighted by a weight bridge and monitored by CCTV system. Dedicated areas for sorting of materials are established on site. Recyclable materials such as steel, reinforcement bar, structural steel, aluminium, copper, other metals and glass are sorted on-site and transported off-site for recycling. ET and IEC have carried out site audits regularly and reviewed the trip ticket system.

Table 2.16: Construction Waste Statistics

	C&D ⁽¹⁾ Material Stockpiled for Reuse or Recycle (m ³)	C&D Material Reused in the Project (m ³)	C&D Material Reused in other Projects (m ³)	C&D Material Transferred to Public Fill ⁽³⁾ (m ³)	Chemical Waste (kg)	Chemical Waste (l)	General Refuse (tonne)
Oct 2020 ⁽²⁾	7,679	121,985	1,724	10,267	60	1,800	2,242
Nov 2020 ⁽²⁾	7,611	100,368	31	30,995	1,297	3,600	1,545
Dec 2020 ⁽²⁾	20,497	52,073	4,879	4,027	240	5,980	2,223
Total	35,787	274,426	6,634	45,289	1,597	11,380	6,010

Notes:

1. C&D refers to Construction and Demolition.
2. Paper, metals and/or plastics were recycled in the reporting period.
3. C&D materials not suitable for reuse on-site, including asphalt waste and sediment slurry, were transferred to public fill during the reporting period.

There were no complaints, non-compliance of the WMP, contract-specific WMPs, statutory and contractual requirements that triggered Action and Limit Levels in the reporting period.

2.4.3 Marine Sediment Management

Marine sediment is managed according to the EIA Report, Updated EM&A Manual and Waste Management Plan of the Project. The sampling process, storage conditions of the excavated marine sediment, treatment process, final backfilling location as well as associated records were inspected and checked by ET and verified by IEC to ensure they were in compliance with the requirements as stipulated in the Waste Management Plan.

Sampling works for marine sediment generated from the reclaimed land area was on-going during the reporting period. The details of the marine sediment sampling, treatment and backfilling will be reported in the subsequent EM&A Reports upon completion.

2.5 Chinese White Dolphin Monitoring

CWD monitoring was conducted by vessel line transect survey at a frequency of two full surveys per month, supplemented by land-based theodolite tracking survey and PAM. The frequency of the land-based theodolite tracking survey during the construction phase was one day per month at both Sha Chau (SC) and Lung Kwu Chau (LKC) stations, as stipulated in the Manual. The vessel survey transects followed the transect lines proposed in the Manual and are consistent with those used in the Agriculture, Fisheries and Conservation Department (AFCD) long-term CWD monitoring programme. The transect locations of CWD monitoring by vessel line transect survey conducted from October to December 2020 are shown in **Figure 2.3**, whilst the land-based theodolite tracking survey stations are described in **Table 2.17** and depicted in **Figure 2.4**. The location of the PAM device is shown in **Figure 2.10**.

Table 2.17: Land-based Theodolite Tracking Survey Station Details

Stations	Location	Geographical Coordinates	Station Height (m)	Approximate Tracking Distance (km)
D	Sha Chau (SC)	22° 20' 43.5" N 113° 53' 24.66" E	45.66	2
E	Lung Kwu Chau (LKC)	22° 22' 44.83" N 113° 53' 0.2" E	70.40	3

2.5.1 Action and Limit Levels

The Action Level and Limit Level for CWD monitoring were formulated by an action response approach using the running quarterly dolphin encounter rates (STG and ANI) derived from baseline monitoring data, as presented in the CWD Baseline Monitoring Report. The derived values of Action and Limit Levels for CWD monitoring are shown in **Table 2.18**.

Table 2.18: Derived Values of Action Level and Limit Level for Chinese White Dolphin Monitoring

NEL, NWL, AW, WL and SWL as a Whole	
Action Level	Running quarterly STG < 1.86 & ANI < 9.35
Limit Level	Two consecutive running quarterly (3-month) STG < 1.86 & ANI < 9.35

2.5.2 Summary of Monitoring Results

2.5.2.1 Vessel Line Transect Survey

Survey Effort

During the October to December 2020 reporting period, a total of six sets of vessel line transect survey covering all transects in Northeast Lantau (NEL), Northwest Lantau (NWL), Airport West (AW), West Lantau (WL) and Southwest Lantau (SWL) survey areas were conducted at a frequency of twice per month, in each survey area.

A total of around 1,350 km of survey effort was collected from these surveys, with around 85.9% of the total survey effort being conducted under favourable weather condition (i.e. Beaufort Sea State 3 or below with favourable visibility). Details of the survey effort data are presented in **Appendix C**.

CWD Sighting

From October to December 2020, there were a total of 45 sightings of CWDs, with 137 dolphins sighted (**Table 2.19**). Amongst these sightings, 43 sightings with 135 dolphins were recorded during on-effort searches under favourable weather condition.

When breaking down the sightings by survey areas, 2 sightings with 2 dolphins were recorded in NWL, 2 sightings with 4 dolphins were recorded on AW transects, 27 sightings with 88 dolphins were recorded in WL, while 14 sightings with 43 dolphins were recorded in SWL during the current reporting period. No CWD was sighted in NEL survey area.

Compared with the last quarter (i.e. July to September 2020), the total number of CWD sightings slightly increased by a few, but the total number of dolphins dropped by 22%. The drop in terms of number of dolphins was mainly attributed by the decline of the number of dolphins in WL by 29% during the reporting period.

Compared with the same quarter of last year (i.e. October to December 2019), there is an increase in terms of both the total number of CWD sightings and the total number of dolphins by 18% and 25% respectively, contributed by the increase in sightings and dolphins in WL and SWL survey areas. However, there is a significant decline in both the number of sightings and the number of dolphins in NWL by 78% and 89% respectively.

Table 2.19 below shows the comparison of the numbers of sightings and dolphins amongst the current reporting period, last quarter, and the same quarter of last year.

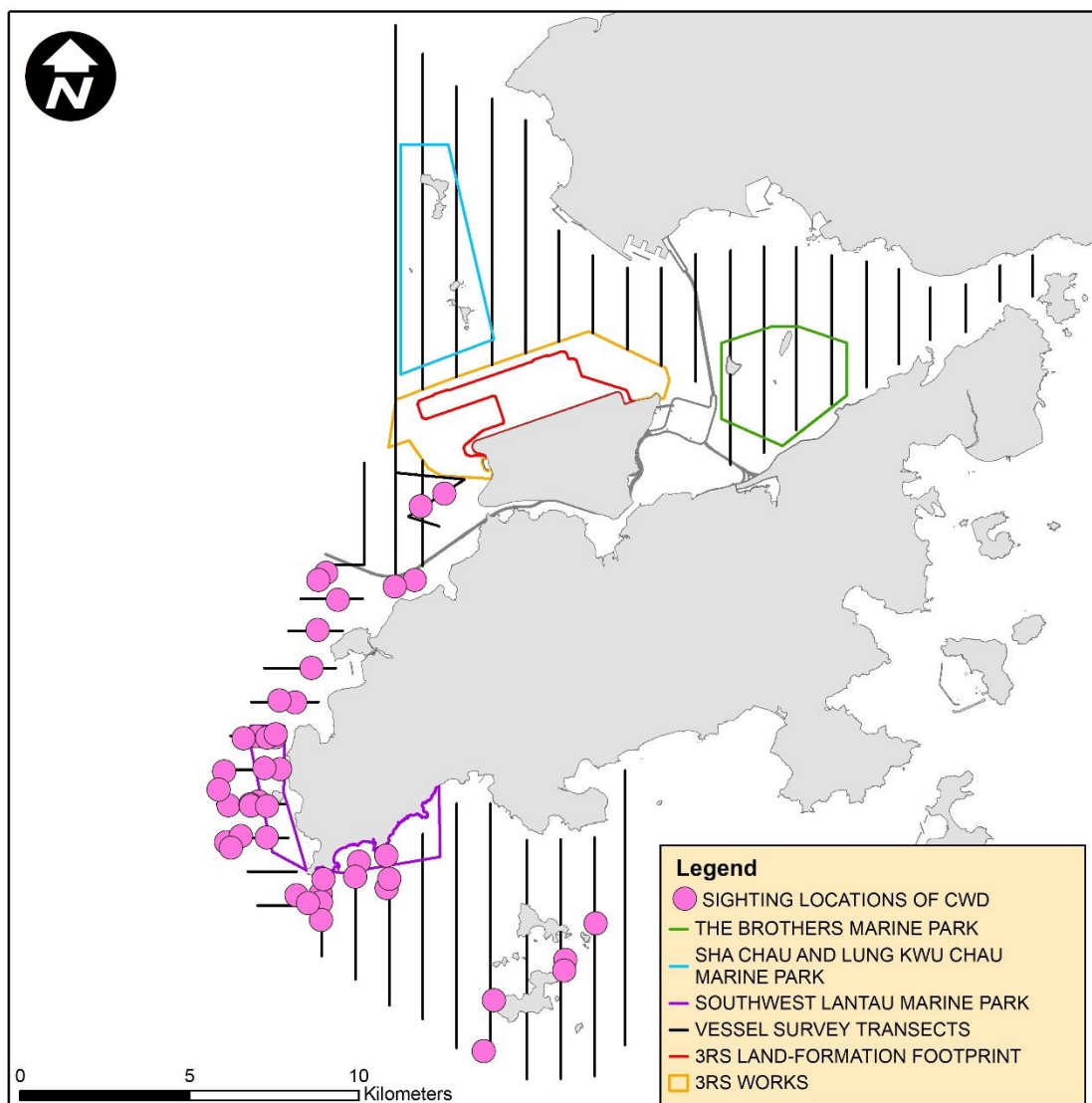
Table 2.19: Summary of Number of CWD Sightings and Number of Dolphins for the Same Quarter Last Year, Previous Quarter, and Current Reporting Period

	Same Quarter of Last Year	Previous Reporting Period	Current Reporting Period
	October to December 2019	July to September 2020	October to December 2020
NEL	0 (0)	0 (0)	0 (0)
NWL	9 (19)	1 (2)	2 (2)
AW	1 (7)	0 (0)	2 (4)
WL	21 (71)	24 (124)	27 (88)
SWL	7 (13)	17 (50)	14 (43)
Total	38 (110)	42 (176)	45 (137)

Note: Values in () represent number of dolphins

The distribution of CWD sightings recorded from October to December 2020 is illustrated in **Figure 2.5**. In NWL including AW transects, all the CWD sightings were recorded at the southwestern part of the survey area with two sightings located west to the existing Hong Kong International Airport, while another two sightings located between Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road and the north Lantau coast near Sham Wat Wan. In WL, CWD sightings scattered amongst the survey area with the majority clustered near Peaked Hill and Yi O. In SWL, most of the dolphin sightings were recorded in the waters around Fan Lau and some sightings were scattered around the Soko Islands. No CWD sightings were recorded in NEL survey area. Details of the sighting data are presented in **Appendix C**.

Figure 2.5: Sightings Distribution of Chinese White Dolphins from October to December 2020



Remarks: (1) Please note that there are 45 pink circles on the map indicating the sighting locations of CWD. Some of them were very close to each other and therefore appear overlapped on this sighting distribution map. (2) Marine park excludes land area and the landward boundary generally follows the high water mark along the coastline.

Encounter Rate

The dolphin encounter rates for the number of on-effort dolphin sightings per 100 km survey effort (STG) and for the total on-effort number of dolphins per 100 km survey effort (ANI) in the whole survey area (i.e. NEL, NWL, AW, WL and SWL) for October, November and December 2020 are summarised in Table 2.20.

In this reporting period, both the running quarterly STG and ANI increased from October to December 2020. No Action Level for CWD monitoring was triggered during the reporting period. For the monthly ANI, however, there was a significant drop from 17.80 in October to 7.19 in December 2020.

Compared with the previous reporting period (i.e. July to September 2020), the running quarterly STG remained relatively steady while the running quarterly ANI became lower. While comparing

with the same quarter of last year (i.e. October to December 2019), both the running quarterly STG and ANI increased, from 2.80 to 3.71 and from 8.18 to 11.64 respectively. Encounter rates for these periods are summarised in **Table 2.20** and graphical presentation is provided in **Appendix C**.

Table 2.20: Summary of Monthly and Running Quarterly STG and ANI of Chinese White Dolphin for the Same Quarter Last Year, Previous Quarter, and Current Reporting Period

	Same Quarter of Last Year			Previous Reporting Period			Current Reporting Period		
	Oct 19	Nov 19	Dec 19	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20
Monthly STG	3.33	2.50	2.56	6.84	1.90	1.18	3.89	3.30	3.99
Monthly ANI	12.00	5.46	6.98	28.62	7.59	4.48	17.80	10.37	7.19
Running Quarterly STG	3.91	3.42	2.80	4.88	4.81	3.23	2.24	2.73	3.71
Running Quarterly ANI	15.32	11.63	8.18	21.16	19.01	13.23	9.54	10.52	11.64

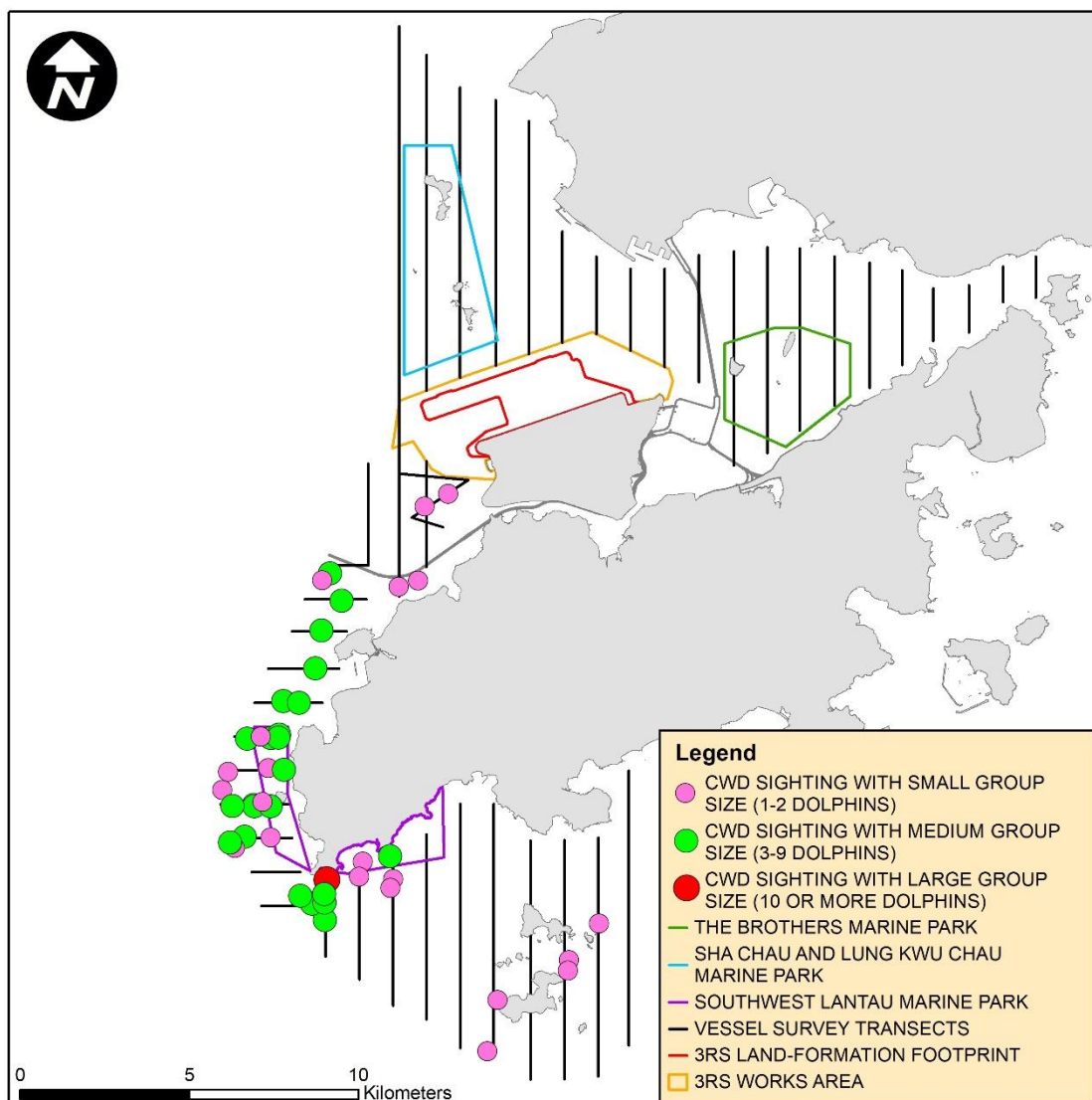
Note: For detailed calculations of encounter rates STG and ANI for the current reporting period, please refer to the Construction Phase Monthly EM&A Report Nos. 58, 59 and 60.

Group Size

Between October and December 2020, the group size of CWD sightings ranged from 1 to 15 dolphins. The average group size of CWDs was 3.0 dolphins per group, which is smaller than that of the last quarter (4.2 dolphins per group). The average group size of CWDs in this reporting quarter is slightly larger than that of the same quarter of last year (2.9 dolphins per group).

In this reporting quarter, the number of CWD sightings with medium group size (i.e. 3-9 dolphins) was slightly higher than that with small group size (i.e. 1-2 dolphins). There was only one CWD sighting with large group size (i.e. 10 or more dolphins) recorded in this reporting period.

The majority of the medium sized dolphin groups were recorded over the entire WL survey area and also in SWL near Fan Lau. All sightings recorded at the southwestern part of NWL survey area and also around the Soko Islands in SWL were small sized groups. The only CWD sighting with large group size was recorded at Fan Lau in SWL survey area. Sighting locations of CWD groups with different group sizes are depicted in **Figure 2.6**.

Figure 2.6: Sighting Locations of Chinese White Dolphins with Different Group Sizes

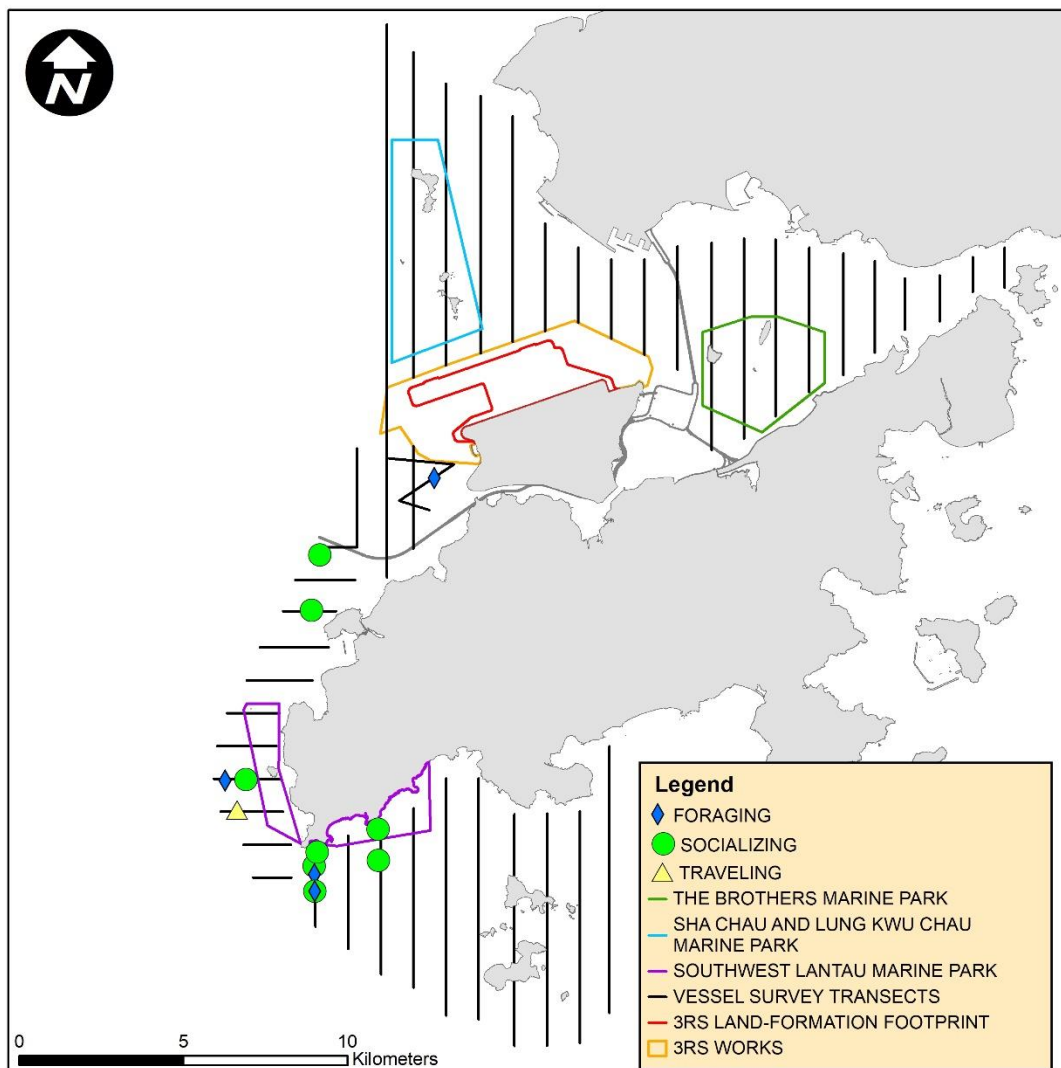
Remarks: (1) Please note that there are 45 circles on the map indicating the sighting locations of CWD. Some of them were very close to each other and therefore appear overlapped on this sighting distribution map. (2) Marine park excludes land area and the landward boundary generally follows the high water mark along the coastline.

Activities and Association with Fishing Boats

From October to December 2020, four sightings of CWDs were recorded with feeding activities. Amongst these sightings, one was observed in association with operating gillnetter in AW.

The number of sightings with feeding recorded in the current reporting period is lower than that in the previous reporting period (i.e. 10 sightings involved feeding activities between July and September 2020). The number of CWD sightings with feeding activities is the same as that in the same quarter of last year (i.e. 4 sightings between October and December 2019).

The sighting locations of CWDs engaged in different behaviour during the current reporting period are illustrated in **Figure 2.7**.

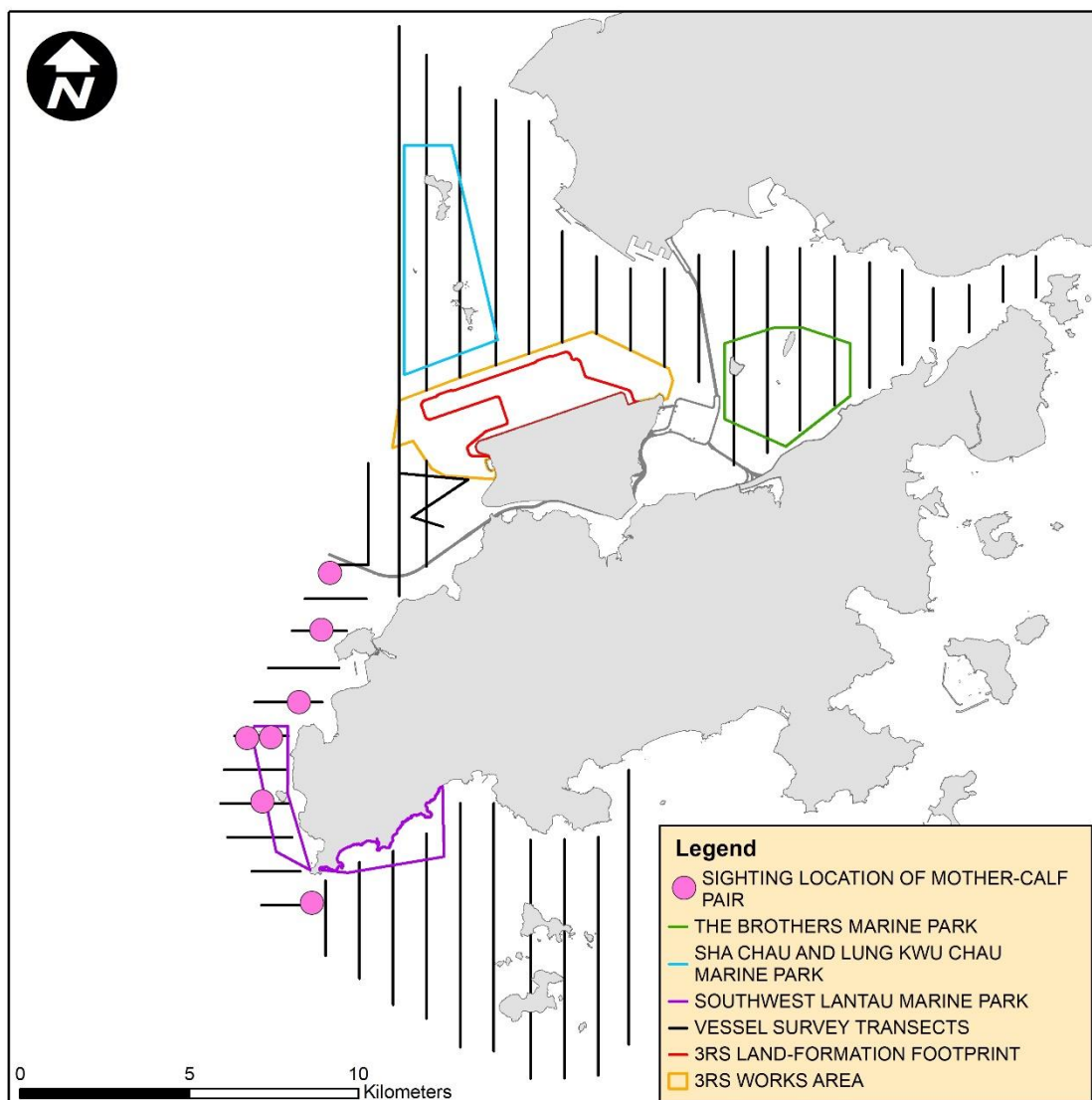
Figure 2.7: Sighting Locations of Chinese White Dolphins Engaged in Different Behaviours

Remarks: Marine park excludes land area and the landward boundary generally follows the high water mark along the coastline.

Mother-calf Pairs

From October to December 2020, seven sightings of CWDs were recorded with the presence of mother-and-unspotted calf or mother-and-unspotted juvenile pairs, which is fewer than that recorded in the previous reporting quarter (i.e. 11 sightings between July and September 2020). The number is higher than that recorded in the same quarter of last year (i.e. three sightings between October and December 2019). All these seven sightings were recorded in WL.

The locations of CWD sightings with the presence of mother-and-calf and/or mother-and-unspotted juvenile pairs are shown in **Figure 2.8**.

Figure 2.8: Sighting Locations of Mother-calf Pairs

Remarks: (1) Please note that there are seven circles on the map indicating the sighting locations of Mother-Calf pair. (2) Marine park excludes land area and the landward boundary generally follows the high water mark along the coastline.

Photo Identification

Between October and December 2020, a total number of 45 different CWD individuals were identified altogether for 81 times. Re-sighting information of CWD individuals provides an initial idea of their range use and apparent connection between different areas of Lantau waters. Amongst these 45 different CWD individuals, 21 animals (i.e. SLMM003, SLMM007, SLMM010, SLMM012, SLMM014, SLMM023, SLMM025, SLMM035, SLMM037, SLMM049, SLMM052, WLMM007, WLMM028, WLMM060, WLMM070, WLMM071, WLMM073, WLMM079, WLMM114, WLMM147 and WLMM150) were sighted for more than once.

Ten individuals including SLMM003, SLMM010, SLMM023, SLMM037, SLMM049, WLMM007, WLMM028, WLMM070, WLMM073 and WLMM114 were re-sighted in different survey areas during this reporting period. All cross-area movements were between WL and SWL survey areas except that by SLMM010, the most frequently re-sighted individual in this reporting quarter which

has been encountered in NWL, WL and SWL survey areas altogether for six times. The number of CWD individuals re-sighted more than once and the number of CWD individuals showing cross-area movement in the current reporting period are both lower than those of the previous reporting quarter from July to September 2020 (25 and 11 individuals respectively).

A summary of photo identification works is presented in **Table 2.21**. Representative photos of the 45 identified individuals and figures depicting the sighting locations of the aforementioned 21 re-sighted individuals recorded in this reporting period are presented **Appendix C**.

Table 2.21: Summary of Photo Identification

Individual ID	Date of sighting	Sighting Group No.	Area	Individual ID	Date of sighting	Sighting Group No.	Area
SLMM002	21-Oct-20	4	SWL	WLMM007	21-Oct-20	4	SWL
SLMM003	27-Oct-20	9	WL	WLMM007	27-Oct-20	6	WL
	06-Nov-20	3	WL		06-Nov-20	5	WL
	09-Dec-20	7	SWL			6	WL
	10-Dec-20	4	SWL	WLMM008	21-Oct-20	4	SWL
				WLMM018	21-Oct-20	3	SWL
SLMM007	27-Oct-20	6	WL	WLMM028	27-Oct-20	7	WL
	16-Nov-20	4	WL	WLMM028	10-Dec-20	7	SWL
SLMM010	21-Oct-20	4	SWL	WLMM029	10-Dec-20	7	SWL
	27-Oct-20	7	WL	WLMM056	27-Oct-20	6	WL
	06-Nov-20	6	WL	WLMM060	27-Oct-20	1	WL
	17-Nov-20	1	NWL			2	WL
	19-Nov-20	2	SWL	WLMM063	16-Dec-20	1	AW
	10-Dec-20	4	SWL	WLMM064	16-Dec-20	2	WL
SLMM012	21-Oct-20	4	SWL	WLMM065	19-Oct-20	1	WL
	19-Nov-20	2	SWL	WLMM070	21-Oct-20	4	SWL
SLMM014	21-Oct-20	4	SWL		27-Oct-20	1	WL
	10-Dec-20	5	SWL	WLMM071	27-Oct-20	1	WL
SLMM022	27-Oct-20	7	WL	WLMM071	27-Oct-20	2	WL
SLMM023	21-Oct-20	3	SWL			3	SWL
		4	SWL	WLMM073	21-Oct-20	4	SWL
	16-Nov-20	3	WL			5	WL
SLMM025	21-Oct-20	3	SWL	WLMM076	27-Oct-20	4	WL
		4	SWL	WLMM079	27-Oct-20	9	WL
SLMM031	21-Oct-20	2	SWL		06-Nov-20	3	WL
SLMM035	09-Dec-20	1	SWL		16-Nov-20	3	WL
		5	SWL	WLMM080	16-Nov-20	1	AW
SLMM037	16-Nov-20	6	WL	WLMM085	27-Oct-20	8	WL
	19-Nov-20	2	SWL	WLMM107	06-Nov-20	1	WL
	09-Dec-20	5	SWL	WLMM114	21-Oct-20	4	SWL
		7	SWL		06-Nov-20	3	WL
SLMM049	27-Oct-20	6	WL		16-Nov-20	6	WL
	19-Nov-20	2	SWL	WLMM131	27-Oct-20	4	WL
SLMM050	21-Oct-20	4	SWL	WLMM135	06-Nov-20	1	WL
SLMM052	27-Oct-20	6	WL	WLMM147	27-Oct-20	9	WL
	16-Nov-20	3	WL		06-Nov-20	3	WL
SLMM059	21-Oct-20	4	SWL		16-Nov-20	3	WL
SLMM064	06-Nov-20	1	WL	WLMM149	06-Nov-20	1	WL
SLMM073	16-Nov-20	4	WL	WLMM150	27-Oct-20	7	WL
					06-Nov-20	5	WL
				WLMM158	27-Oct-20	3	WL

Individual ID	Date of sighting	Sighting Group No.	Area	Individual ID	Date of sighting	Sighting Group No.	Area
				WLMM160	06-Nov-20	5	WL
				WLMM163	06-Nov-20	5	WL

2.5.2.2 Land-based Theodolite Tracking Survey

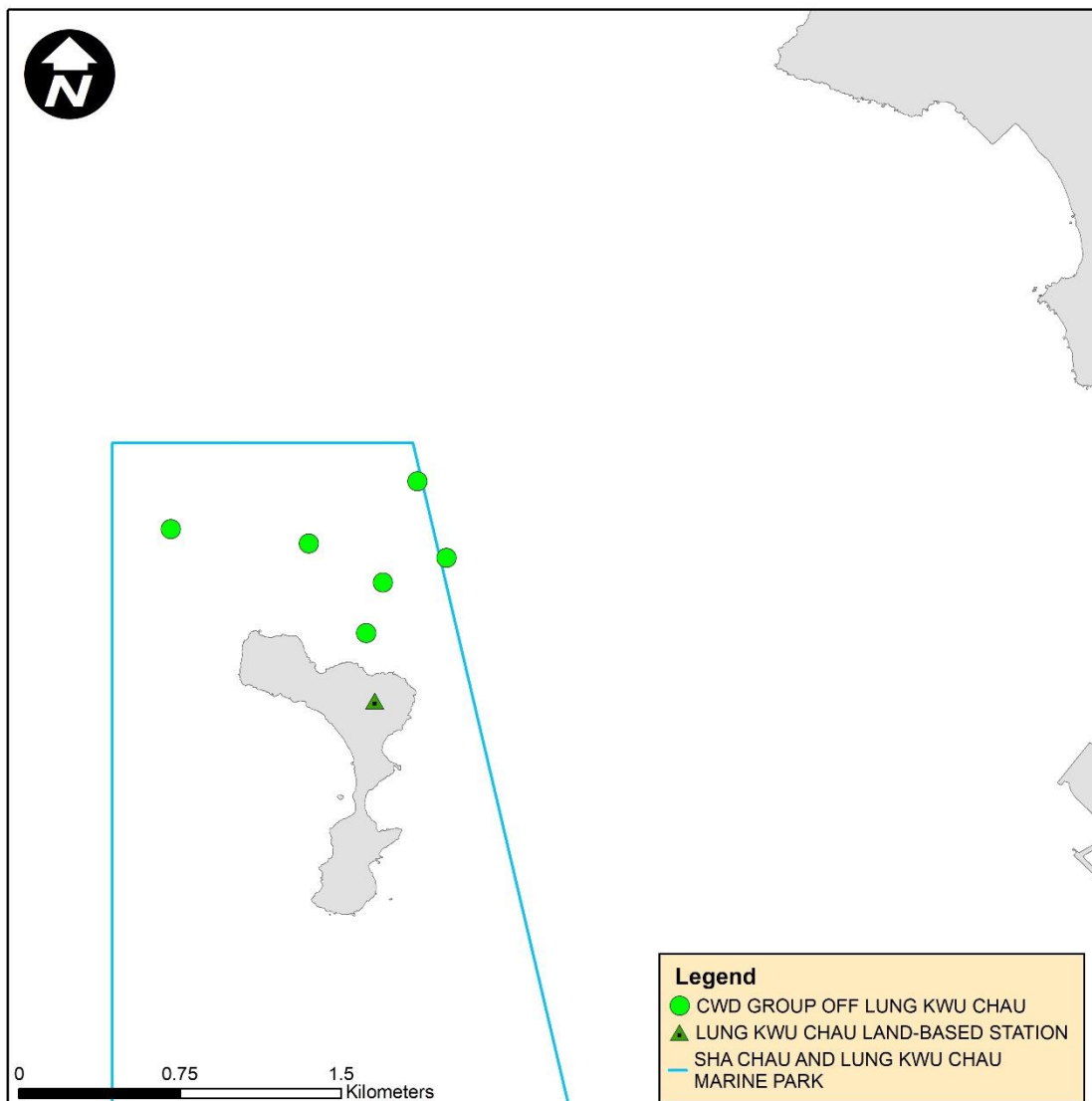
Survey Effort

Between October and December 2020, a total of six days of land-based theodolite tracking survey effort were completed, including three days on Lung Kwu Chau and three days on Sha Chau. In total, six CWD groups were tracked from the Lung Kwu Chau station while no CWD groups were tracked from the Sha Chau station, with an overall 0.17 CWD groups sighted per survey hour.

Information on survey effort and CWD groups sighted during land-based theodolite tracking surveys are presented in **Table 2.22**. Details on the survey effort and CWD groups tracked are presented in **Appendix C**. The first sighting locations of CWD groups tracked between October and December 2020 are shown in **Figure 2.9**.

Table 2.22: Summary of Survey Effort and CWD Group of Land-based Theodolite Tracking Survey

Land-based Station	# of Survey Sessions	Survey Effort (hh:mm)	# CWD Groups Sighted	CWD Group Sighting per Survey Hour
October 2020				
Lung Kwu Chau	1	06:00	1	0.17
Sha Chau	1	06:00	0	0
TOTAL	2	12:00	1	0.08
November 2020				
Lung Kwu Chau	1	06:00	2	0.33
Sha Chau	1	06:00	0	0
TOTAL	2	12:00	2	0.17
December 2020				
Lung Kwu Chau	1	06:00	3	0.5
Sha Chau	1	06:00	0	0
TOTAL	2	12:00	3	0.25
OVERALL	6	36:00	6	0.17

Figure 2.9: Plots of First Sightings of All CWD Groups from Land-based Stations

Remark: Marine park excludes land area and the landward boundary generally follows the high water mark along the coastline.

2.5.2.3 Progress Update on PAM

An Ecological Acoustic Recorder (EAR) has been deployed and positioned to the south of Sha Chau Island inside the SCLKCMP (**Figure 2.10**) with 20% duty cycle, while PAM data from the EAR intends to supplement the detection of CWD presence in the south Sha Chau area that are not recorded visually by the land-based theodolite tracking survey and to coincide the theodolite data when there is sighting from the land-based station at Sha Chau. In this reporting period, the EAR has been retrieved on 22 October and 3 December 2020 for data collection and subsequently redeployed. The EAR will be deployed for about 4 weeks and retrieved in early January 2021 for annual data analysis, and replaced by F-POD/C-POD for deployment at the same monitoring location with effective from January 2021. As the period of data collection and analysis takes more than four months, PAM results could not be reported in quarterly intervals but report for supplementing the annual CWD monitoring analysis.

2.5.2.4 Site Audit for CWD-related Mitigation Measures

During the reporting period, silt curtains were in place by the contractors for marine filling works (similar to the previous reporting period), in which dolphin observers were deployed by each contractor in accordance with the Marine Mammal Watching Plan (MMWP). Teams of at least two dolphin observers were deployed at 3 to 7 dolphin observation stations by the contractors for continuous monitoring of the DEZ by all contractors for DCM works, seawall construction and bored piling for approach lights in accordance with the DEZ Plan. Trainings for the proposed dolphin observers on the implementation of MMWP and DEZ monitoring were provided by the ET prior to the aforementioned works, with a cumulative total of 703 individuals being trained and the training records were kept by the ET. From the contractors' MMWP observation records and DEZ monitoring records, no dolphin or other marine mammals were observed within or around the silt curtains or the DEZ in this reporting period. The contractors' records were also audited by the ET during site inspection.

Audits of acoustic decoupling for construction vessels were carried out during weekly site inspection and summarised in **Section 2.6**. Summary of audits of SkyPier HSFs route diversion and speed control and construction vessel management are presented in **Section 2.7** and **Section 2.8** respectively.

2.6 Environmental Site Inspection

Site inspections of the construction works were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. Bi-weekly site inspections were also conducted by the IEC. Besides, *ad-hoc* site inspections were conducted by ET and IEC if environmental problems were identified, or subsequent to receipt of an environmental complaint, or as part of the investigation work. These site inspections provided a direct means to reinforce the specified environmental protection requirements and pollution control measures in construction sites.


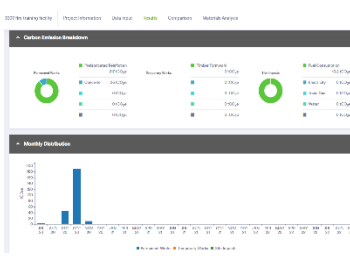

During site inspections, environmental situation, status of implementation of pollution control and mitigation measures were observed. Environmental documents and site records, including waste disposal record, maintenance record of environmental equipment, and relevant environmental permit and licences, were also checked on-site. Observations were recorded in the site inspection checklist and passed to the contractor together with the appropriate recommended mitigation measures where necessary in order to advise contractors on environmental improvement, awareness and on-site enhancement measures. The observations were made with reference to the following information during the site inspections:

- The EIA and EM&A requirements;
- Relevant environmental protection laws, guidelines, and practice notes;
- The EP conditions and other submissions under the EP;
- Monitoring results of EM&A programme;
- Works progress and programme;
- Proposal of individual works;
- Contract specifications on environmental protection; and
- Previous site inspection results.

Good site practices were implemented in the project to enhance environmental performance. Key examples are highlighted as below:

1. Replacing traditional diesel generators with an energy efficient battery system for tower crane operation to improve site safety, minimize carbon emissions and noise levels.

2. A carbon assessment tool established by Construction Industry Council (CIC) was deployed by a contractor to monitor carbon emissions of on-site construction process. Aided by this software application, contractor can measure the carbon footprint of their project and analyse their carbon emissions data in an effective manner.
3. A 3RS contractor obtained ISO 50001:2018 Energy Management System certification in December 2020 to improve the energy use and enhance the energy consumption performance during the construction operation.

		
Installation of Energy Efficient Battery System	Use of CIC carbon assessment tool to monitor carbon emissions of on-site construction process	Obtained certification of ISO 50001:2018 Energy Management System Standard

Besides, advice were given when necessary to ensure the construction workforce were familiar with relevant procedures, and to maintain good environmental performance on site. Regular toolbox talks on environmental issues were organised for the construction workforce by the contractors to ensure understanding and proper implementation of environmental protection and pollution control mitigation measures.

2.6.1 Landscape and Visual Mitigation Measures

Implementation of applicable landscape and visual mitigation measures (reference to the environmental protection measures CM1 – CM10 in **Appendix B**) is monitored regularly in accordance with the Manual. The implementation status of the environmental protection measures is summarised in **Table 2.23**. For trees which were managed under the Project during the reporting period, relevant measures have been implemented by Contracts 3302, 3503, 3602 and 3801. Contracts 3508 and 3802 would begin to undertake tree management measures subject to the handover of site area (Contract 3508: Q2 2021 (tentative); Contract 3802: to be confirmed). Those trees which were within the Project boundary yet to be taken care by existing 3RS Contractors during the reporting period were managed by AAHK. The total number of retained trees, transplanted trees and to-be-transplanted trees under the management of Project are summarized in **Table 2.24**.

The total number of retained trees of the Project as of December 2020 was 118. Compared to 147 retained trees reported in the previous reporting quarter, the change in number was due to the following reasons:

- 2 nos. of trees near Airport North Interchange and 1 no. of tree in Area 3801/13 were damaged due to adverse weather from typhoon Mangkhut in September 2018 and typhoon Higos in August 2020 respectively, and subsequently removed by the Contractor in Aug 2020 (-3 nos.);
- Some of the Contractor's initial tree survey areas which recently confirmed not to be works areas and therefore excluded from the Project. Trees located in those areas were removed from the retained tree list under the Project (-27 nos.); and

- ET and Contractor's recent on-site inspections confirmed that the status of 1 no. of tree near the Airport North Interchange should be retained tree (+1 no.).

Table 2.25 lists the affected tree ID together with the reasons for change of retained tree status of the Project.

A total of six trees under Contractor 3503 (i.e. T812, T814, T815, T829, T830 and T831) were transplanted during the reporting quarter. Therefore, the cumulative total number of transplanted trees of the Project has been increased from 8 from previous reporting quarter to 14. The summary of transplanted trees is shown in **Table 2.26**. Photos of the transplanted trees are presented in **Table 2.27** and the locations of newly transplanted trees during the reporting period are presented in **Figure 2.11**.

Table 2.23: Landscape and Visual – Construction Phase Audit Summary

Landscape and Visual Mitigation Measures during Construction Implementation Status	Implementation Status	Relevant Contract(s) in the Reporting Period
CM1- The construction area and contractor's temporary works areas shall be minimised to avoid impacts on adjacent landscape.	The implementation of mitigation measures were checked by ET during weekly site inspection and clarified by the Contractors during the monthly Environmental Management Meetings. Implementation of the measures CM5, CM6 and CM7 by Contractors was observed.	3RS Project contracts
CM2 – Reduction of construction period to practical minimum.		
CM3 – Phasing of the construction stage to reduce visual impacts during the construction phase.		
CM4 – Construction traffic (land and sea) including construction plants, construction vessels and barges shall be kept to a practical minimum.		
CM5 – Erection of decorative mesh screens or construction hoardings around works areas in visually unobtrusive colours.		
CM6 – Avoidance of excessive height and bulk of site buildings and structures		
CM7 – Control of night-time lighting by hooding all lights and through minimisation of night working periods		
CM8 – All existing trees shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas	Tree Protection Specifications have been provided in the relevant Contract Specifications respectively for implementation by the Contractors under the Project. The Contractors' performance on the implementation of the trees maintenance and protection measures were observed and checked by the ET weekly during construction period.	3302, 3503, 3602, 3801 3508, 3802 (To be implemented)
CM9 – Trees unavoidably affected by the works shall be transplanted where practical. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme	Tree Transplanting Specifications have been provided in the relevant Contract Specifications respectively for implementation by the Contractors under the Project where trees will unavoidably be affected by the construction works. The Contractors were required to submit Method Statements for tree transplanting prior to the transplanting works. Tree inspections were conducted by ET to check	3503, 3801 3508, 3802 (To be implemented)

Landscape and Visual Mitigation Measures during Construction Implementation Status	Implementation Status	Relevant Contract(s) in the Reporting Period
	the tree transplanting works implemented by the Contractors on site.	
	The Contractors' performance on the implementation of trees maintenance and protection measures on transplanted trees were observed and checked by the ET bi-monthly during the 12-month establishment period after the completion of each batch of transplanting works.	
	Long term management of the transplanted trees were currently monitored by ET annually.	
CM 10 – Land formation works shall be followed with advanced hydroseeding around taxiways and runways as soon as practical	To be implemented around taxiways and runways as soon as practicable.	To be implemented

Table 2.24: Summary of the Number of Retained, Transplanted and To-be-transplanted Trees in the Reporting Period

Existing				
Contract	Retain (nos.)	Transplanted (nos.)		To-be-transplanted (nos.)
		Establishment Period	Maintenance Period	
3302	9	0	0	0
3503	19	9	0	0
3602	2	0	0	0
3801	88	0	5	0
Sub-total	118	9	5	0
Provisional				
Contract	Retain (nos.)	Transplanted (nos.)		To-be-transplanted (nos.)
3508 ⁽¹⁾	155	0		22
Sub-total	155	0		22
Grand Total	273	14		22

Note:

(1) Actual tree number is subject to confirmation after initial tree survey is conducted by the Contractor.

Table 2.25: Summary of the Tree Status Updated in the Reporting Period

Tree ID(s)	Contract	Previous Status (Sep 2020)	Current Status (Dec 2020)	Remarks	Impact to Retain Tree Number
CT1889, CT1890, CT1892, CT1893, CT1894, CT1895, CT1897, CT1898, CT1899, CT1900, CT1901,	3801	Retain	Not within Project's contract works area	27 nos. of trees were confirmed not located within Project's contract works area.	– 27 nos.

Tree ID(s)	Contract	Previous Status (Sep 2020)	Current Status (Dec 2020)	Remarks	Impact to Retain Tree Number
CT1902, CT1904, CT1905, CT1906, CT1907, CT1908, CT1909, CT1910, CT1911, CT1912, CT1913, CT1914, CT1917, CT1933, CT1934, CT1935					
CT1400, CT1466	3801	Retain	Removed	2 nos. trees were uprooted by typhoon Mangkhut in Sep 2018. As the health conditions were deteriorated and would cause adverse impacts to the retained trees in close vicinity, they were removed in late 2020.	– 2 nos.
CT1863	3801	Retain	Removed	1 no. tree was removed due to damage by typhoon Higos in Aug 2020.	– 1 nos.
CT1407	3801	Fell	Retain	The status of one tree was updated to retain during site inspection in Dec 2020.	+ 1 nos.
					Total 118 nos. updated to Dec 2020








Table 2.26: Summary of the Transplanted Trees Updated in the Reporting Period



Tree ID	Transplant Date	Management Stage	Management Agency	Remarks
CT276	3 May 2018	<u>Establishment period</u> 4 May 2018 – May 2019	Contract 3801	NA
		<u>Maintenance period</u> Jun 2019 – May 2028	Southern Landside Petrol Filling Station	
CT1253	4 May 2018	<u>Establishment period</u> 5 May 2018 – May 2019	Contract 3801	
		<u>Maintenance period</u> Jun 2019 – May 2028	Southern Landside Petrol Filling Station	
T835	22 Jan 2020	<u>Establishment period</u> 23 Jan 2020 – Jan 2021	Contract 3503	NA
T836	13 Dec 2019	<u>Establishment period</u> 14 Dec 2020 – Jan 2021	Contract 3503	

Tree ID	Transplant Date	Management Stage	Management Agency	Remarks
T838	22 Jan 2020	<u>Establishment period</u> 23 Jan 2020 – Jan 2021	Contract 3503	
CT1194	4 May 2018	<u>Establishment period</u> 5 May 2018 – May 2019 <u>Maintenance period</u> Jun 2019 – May 2028	Contract 3801 Southern Landside Petrol Filling Station	NA Uprooted and collapsed due to Typhoon Higos on 18 August 2020. Tree removal was conducted as recommended by tree specialist of the contractor of Southern Landside Petrol Filling Station.
CT1794	3 May 2018	<u>Establishment period</u> 4 May 2018 – May 2019 <u>Maintenance period</u> Jun 2019 – May 2028	Contract 3801 AsiaWorld-Expo	NA The tree within the land parcel was acquired by the government for construction of emergency hospital to handle COVID19 pandemic at AsiaWorld-Expo. The tree was felled in late 2020.
CT1795	3 May 2018	<u>Establishment period</u> 4 May 2018 – May 2019 <u>Maintenance period</u> Jun 2019 – May 2028	Contract 3801 AsiaWorld-Expo	NA The tree within the land parcel was acquired by the government for construction of emergency hospital to handle COVID19 pandemic at AsiaWorld-Expo. The tree was felled in late 2020.
Newly Transplanted Trees during the Reporting Period				
T812	21 Dec 2020	<u>Establishment period</u> 22 Dec 2020 – Dec 2021	Contract 3503	Original Location: Airport South Interchange Recipient Site: Chun Wan Road Interchange (Scenic Road)
T814	20 Dec 2020	<u>Establishment period</u> 21 Dec 2020 – Dec 2021	Contract 3503	Original Location: Airport South Interchange Recipient Site: Chek Lap Kok South Road (Scenic Road) Interchange
T815	15 Dec 2020	<u>Establishment period</u> 16 Dec 2020 – Dec 2021	Contract 3503	Original Location: Airport South Interchange
T829	18 Dec 2020	<u>Establishment period</u> 19 Dec 2020 – Dec 2021	Contract 3503	Recipient Site: Chun Wan Road Interchange (Scenic Road)
T830	14 Dec 2020	<u>Establishment period</u> 15 Dec 2020 – Dec 2021	Contract 3503	Original Location: Airport South Interchange Recipient Site: Chun Yue Road Interchange
T831	19 Dec 2020	<u>Establishment period</u> 20 Dec 2020 – Dec 2021	Contract 3503	Original Location: Airport South Interchange Recipient Site:

Tree ID	Transplant Date	Management Stage	Management Agency	Remarks
				Chun Wan Road Interchange (Scenic Road)

Table 2.27: Photos of the Existing Transplanted Trees in the Reporting Period

Under 12-month Establishment Period:		
		
T835	T836	T838
Newly Transplanted Trees during the Reporting Period		
		
T812	T814	T815
		
T829	T830	T831

Under 10-year Long-term Management:	
	
CT276	CT1253

2.6.2 Land Contamination Assessment

The Supplementary CAP was submitted to EPD pursuant to EP Condition 2.20. The CARs for Golf Course and T2 Emergency Power Supply System Nos.1 (Volumes 1 and 2), 2, 3, and 5 and No. 4 were submitted to EPD in accordance with EP Condition 1.9 and the Supplementary CAP in which no land contamination issues were identified. EPD has issued no further comment for all the CARs and required ET to submit additional photos for sides and bottom of some of sampling points after the removal of pipelines to reaffirm no leakage from the pipelines concerned. Afterwards, the potential land contamination concern of two concerned systems will be closed.

A summary of implementation status of the environmental mitigation measures for the construction phase of the Project during the reporting period is provided in **Appendix B**.

2.7 Audit of SkyPier High Speed Ferries

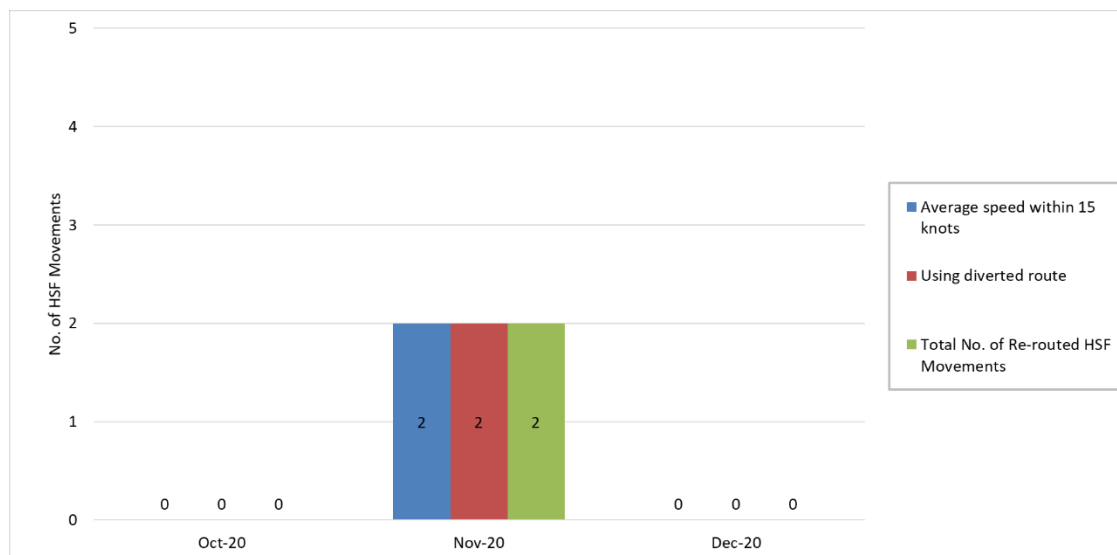
The Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier (the SkyPier Plan) was submitted to the Advisory Council on the Environment for comment and subsequently submitted to and approved by EPD in November 2015 under EP Condition 2.10. The approved SkyPier Plan is available on the dedicated website of the Project. In the SkyPier Plan, AAHK has committed to implement the mitigation measure of requiring HSFs of SkyPier travelling between HKIA and Zhuhai / Macau to start diverting the route with associated speed control across the area, i.e. Speed Control Zone (SCZ), with high CWD abundance. The route diversion and speed restriction at the SCZ have been implemented since 28 December 2015.

Due to the COVID-19 pandemic, all SkyPier HSF services have been suspended from 25 March 2020 until further notice. Two special ferry movements between HKIA SkyPier and Macau were arranged by the ferry operator and were audited in the reporting period. The summary of the SkyPier Plan monitoring result is presented in **Graph 1**. Besides, limited HSF services from other destination were also provided starting from 28 October 2020.

The daily movements of all SkyPier HSFs, including those not using the diverted route, in the reporting period ranged between 0 and 3, which fell within the maximum daily cap number of 125.

The average speeds of all HSFs travelling through the Speed Control Zone (SCZ) ranged from 10.8 to 11.0 knots. All HSFs travelled through the SCZ with average speed within 15 knots in compliance with the SkyPier Plan.

Graph 1: Summary of SkyPier High Speed Ferries Monitoring Results



In addition, the dolphin habitat index was reviewed based on AFCD latest marine mammals monitoring report findings and historical dolphin density records, and the grids for dolphin hotspot remain unchanged. AAHK will continue to implement the SkyPier HSF route diversion and speed restriction according to the approved SkyPier Plan.

2.8 Audit of Construction and Associated Vessels

On the implementation of the updated Marine Travel Routes and Management Plan for Construction and Associated Vessels (MTRMP-CAV), the Maritime Surveillance System (MSS) automatically recorded deviation cases such as speeding, entering no entry zone, and not traveling through the designated gates. ET conducted bi-weekly audit of relevant information including AIS data, vessel tracks and other relevant records to ensure sufficient information were provided by the system and the contractors complied with the requirements of the MTRMP-CAV. The contractors submitted 3-month rolling vessel plans for construction vessel activities to AAHK in order to help maintain the number of construction vessels to a practicable minimum. The IEC also performed audit on the compliance of the requirements as part of the EM&A programme.

During the reporting period, deviations including speeding within the works area, entry from non-designated gates, and entering no-entry zones were identified. After investigation by the contractor's Marine Traffic Control Centre (MTCC) representatives, all the concerned captains were reminded to comply with the requirements of the MTRMP-CAV.

A total of 4 skipper training workshops were held by ET during the reporting period and 16 concerned captains of construction vessels associated with the 3RS contracts were trained to familiarise them with the predefined routes, general education on local cetaceans, guidelines for avoiding adverse water quality impact, the required environmental practices / measures while operating construction and associated vessels under the Project, and guidelines for operating vessels safely in the presence of CWDs. Another 10 skipper training workshops were held with 18 captains by contractors' Environmental Officers and competency tests were conducted subsequently with the trained captains by ET.

2.9 Review of the Key Assumptions Adopted in the EIA Report

With reference to Appendix E of the Manual, it is noted that the key assumptions adopted in approved EIA report for the construction phase are still valid and no major changes are involved. The environmental mitigation measures recommended in the approved EIA Report remain applicable and shall be implemented in undertaking construction works for the Project.

3 Report on Non-compliance, Complaints, Notifications of Summons and Prosecutions

3.1 Compliance with Other Statutory Environmental Requirements

During the reporting period, environmental related licenses and permits required for the construction activities were checked. No non-compliance with environmental statutory requirements was recorded.

3.2 Analysis and Interpretation of Complaints, Notification of Summons and Status of Prosecutions

3.2.1 Complaints

Seven environmental complaints were received in the reporting period. All environmental complaints were attended to and investigation was conducted by the ET in accordance with the Manual and the Complaint Management Plan. The summary of the complaints and analysis is presented in **Table 3.1**.

Table 3.1: Summary of Environmental Complaints

Date of Complaint Received	Details	Analysis/ Remedial Actions	Status
6 Oct 2020	A complaint was received regarding solid waste and suspected open burning at the project area	Investigation was conducted by ET in accordance with the Manual and the Complaint Management Plan of the Project. The ET identified the potential related 3RS contractors and requested them for information regarding the complaint. Based on information provided by the contractors, no open burning was conducted within their respective construction sites. Besides, general waste was observed properly handled on site and toilets were cleaned by the workers regularly. Before formally receiving the complaint on 6 October 2020, IEC had conducted an ad-hoc site inspection in the alleged area on 30 September 2020. ET had also conducted an on-site investigation with IEC and contractor representatives on 5 October 2020. In both inspections, no opening burning, white smoke, or poor hygiene caused by storage of solid waste on site was observed. The security guards at the western pier and Environmental Officers from the potential related contractors all reported no white smoke was observed at the alleged area on 30 September 2020. Furthermore, the ET checked the construction vessels of all potential related contractors and confirmed no open burning or maintenance works were carried out on the construction vessels on 30 September 2020. Nevertheless, the ET reminded all contractors to continue with the proper handling of general waste produced from the construction site including collection and disposal. ET and IEC would continue to check contractors' records on the proper handling of waste collection and disposal.	Closed

Date of Complaint Received	Details	Analysis/ Remedial Actions	Status
15 Oct 2020	A complaint was received regarding oil spillage from barges at 3RS project area	Investigation was conducted by ET in accordance with the Manual and the Complaint Management Plan of the Project. ET investigated the related work contractors of 3RS Project on the reclaimed land. Based on information provided by the contractors, no oil spillage incident from bunkering barge was recorded in September and early October 2020. During regular site inspections and night-time ad-hoc inspections conducted by ET in September and early October, no occurrence regarding oil spillage onto sea surface was observed. It was also observed that oil and fuel containers were properly stored at designated storage area and drip trays were provided. Besides, it was noted that the water quality monitoring results of the Project from 1 September 2020 to 10 October 2020 were within the corresponding Action and Limit Levels at all monitoring stations. Nevertheless, the ET will continue to remind all contractors to continue with their current proper practice in handling of oil and fuel to prevent spillage.	Closed
20 Oct 2020	A complaint was received regarding illegal fuel delivery leading to water pollution, air pollution and impact to CWDs at 3RS project area	Investigation was conducted by ET in accordance with the Manual and the Complaint Management Plan of the Project. The complainant mentioned that a barge pumping high sulphur diesel to oil drum and fuel tanker on the reclaimed land of 3RS construction site, which may cause air pollution. The complainant also mentioned that fuel spillage onto the sea surface was observed, which may cause impact to CWD. No further details of the case including date, time, location and name of barge could be provided. ET investigated the related work contractors of the Project on the reclaimed land and requested them for information regarding the case. Based on information provided by the contractors, no fuel spillage incident from bunkering barge was recorded in September and early October 2020. During the regular site inspections and night-time ad-hoc inspections conducted by ET in September and early October, no occurrence regarding fuel spillage onto sea surface was observed. It was also observed that oil and fuel containers were properly stored at designated storage area and drip trays were provided on site. No environmental malpractice leading to fuel spillage was observed. It was noted that 3RS water quality monitoring results from 1 September 2020 to 10 October 2020 were within the corresponding Action and Limit Levels at all monitoring stations. Moreover, the ET conducted random check on the fuel purchasing records of the related work contracts and all of them had purchased Ultra Low Sulphur Diesel (ULSD) or equivalent like EURO V. Nevertheless, the ET will continue to remind all contractors to continue with their current proper practice in handling fuel and implementation on their respective contract-specific spill response plans, including conducting regular spill drills and trainings. ET and IEC would continue to monitor 3RS water quality, air quality including the checking of contractors' ULSD purchasing records and CWD monitoring results.	Closed
6 Nov 2020	A complaint was received regarding dust issue at 3RS construction site area	Investigation was conducted by ET in accordance with the Manual and the Complaint Management Plan of the Project. The ET identified the related 3RS contractor and requested the Contractor to provide more information regarding the complaint. According to the information provided by the Contractor, ground improvement works and filling material transferring activities were carried out at the alleged area. The watering of vehicular accesses following the circuits as set out in the contractor's dust control management plan had been arranged. Based on ET's regular site inspections, no dust issue was recorded at the alleged area. During the joint ad-hoc inspection of ET and IEC in the morning of 4 November 2020, dust emission from the vehicular movements was observed and the Contractor was advised to provide dust suppression mitigation measures to prevent fugitive dust generation. The Contractor also updated the dust control	Closed

Date of Complaint Received	Details	Analysis/ Remedial Actions	Status
		management plan to expand the water spray coverage at the alleged area. ET further conducted on-site investigations and observed that the exposed reclaimed land area and construction materials at the alleged area were in dry conditions. ET reminded the Contractor again to strictly follow the relevant requirements to prevent fugitive dust generation. The Contractor followed up to provide water spraying at the alleged area according to updated dust control management plan. It was noted that 3RS water quality monitoring results from 1 October 2020 to 8 November 2020 were within the corresponding Action and Limit Levels at all monitoring stations, except one case of SS triggered the corresponding Action Level at IM5 on 15 October 2020. Based on the investigation on the exceedance, the case was considered not due to the Project. Nevertheless, ET reminded the Contractor to strengthen their dust suppression measures and requested the Contractor to strengthen their dust suppression measures, proactively and timely review their management plan for dust control. ET will continue to remind all contractors to properly and adequately implement dust suppression measures especially in the current dry season and to prevent air pollution on site.	
19 Nov 2020	A complaint regarding illegal refuel delivery leading to water pollution at 3RS project area was received on 19 Nov 2020.	Investigation was conducted by ET in accordance with the Manual and the Complaint Management Plan of the Project. No detail of the case such as location and name of the barge was provided in the complaint. ET investigated the related work contractors of 3RS Project on the reclaimed land. Based on the information provided by the contractors, no oil spillage incident from fuel transfer activities was recorded in October and up to early November 2020. During regular environmental site inspections and night-time ad-hoc inspections conducted by ET in October and early November 2020, no occurrence regarding oil spillage onto sea surface was observed. In addition, a night-time inspection along the reclaimed land in particular the western pier and north eastern pier was conducted on 24 November 2020 during which no oil spillage onto the sea surface from fuel transfer activities was observed. Regarding the reporting of oil and/or fuel spillage incident for the period from October and up to early November 2020, the ET did not receive any such reporting from the related work contractors. It was noted that 3RS water quality monitoring results from 1 October 2020 to 6 November 2020 were within the corresponding Action and Limit Levels at all monitoring stations, except one case of SS triggered the corresponding Action Level at IM5 on 15 October 2020. Based on the investigation on the exceedance, the case was considered not due to the Project. Nevertheless, the ET will continue to remind all contractors to properly handle oil and fuel on site and implement their respective contract-specific spill response plan including the conducting of regular spill drills and trainings, and to provide sufficient spill kits on site. ET and IEC would continue to monitor 3RS water quality.	Closed
19 Nov 2020	A complaint was received regarding illegal cement discharge and domestic waste disposal from a marine vessel	Investigation was conducted by ET in accordance with the Manual and the Complaint Management Plan of the Project. The ET identified the related 3RS contractor and requested the Contractor to provide more information regarding the complaint. According to the information provided by the Contractor, the identified marine vessel was responsible for cement mixing works and providing cement slurry for land improvement work during the alleged period from 29 to 31 August 2020. Although the Contractor had stopped operations on-board the vessel, ET conducted a night-time inspection on 23 November 2020 and day-time inspection on 24 November 2020. During both inspections, it was observed that the tops of the cement silo tanks were covered and the cement pipes were closed with metal plates with no discharge of cement	Closed

Date of Complaint Received	Details	Analysis/ Remedial Actions	Status
		<p>effluent. Moreover, in ET's inspections on the vessel on 18 August 2020 and 8 September 2020, it was observed that the set up on the vessel was properly in place and there was no environmental malpractice relating to the silo tank maintenance work as well as the handling of domestic waste. It was also noted that the Contractor had followed their contract-specific Spill Response Plan and provided spill kits on the vessel. No spill incident was reported by the Contractor during the alleged period. The environmental monitoring results for water quality, air quality and CWD monitoring in August 2020 were checked, where all the results were within the corresponding Action and Limit Levels except six cases of DO exceedances on 15 and 22 August 2020. Based on the investigation on the exceedances, the cases were considered not due to the Project. Following up on the complaint case, ET and IEC checked and noted the Contractor had executed corrective actions including conducting maintenance checking and inspections of vessels, provision of additional training for frontline staff, conducting an environmental emergency drill, and reviewing the implementation of their standard operating procedures in handling cement wastewater during maintenance works. The Contractor was also advised to implement suitable measures on issues regarding cement refilling works, spill response procedures and spill incident handling, and regular operation and maintenance. The ET would continue to remind all contractors to strictly follow both the standard operation procedures for cement refilling works and the contract-specific Spill Response Plan. ET and IEC would also conduct on-board inspections to ensure all similar cement mixing barges are maintaining good housekeeping and continue to monitor the Project's water quality, air quality, and CWD monitoring results.</p>	
27 Nov 2020	<p>A complaint was received regarding smoke and dust issue at 3RS project area</p>	<p>Investigated was conducted by ET in accordance with the Manual and the Complaint Management Plan of the Project. The ET identified the related 3RS contractors and requested the Contractors to provide more information regarding the complaint. According to the information provided by the Contractors, marine filling works and unloading of construction materials at an aggregate mixing plant were carried out at the alleged area during the alleged period. Water spraying by water truck and water hose as set out in the Contractors' dust control management plan were implemented at nearby haul road and stockpiling area. Sprinklers were also installed and operated at the stockpiling area of the aggregate mixing plant as dust suppression measure to further prevent fugitive dust. Based on ET's regular site inspections, water spraying were implemented at the alleged area according to the Contractors' dust control management plans. Around the alleged period, ET conducted regular site inspections in the alleged area on 3 and 17 November 2020, where on 3 November 2020 no smoke and dust emissions were observed at the alleged area. Dust generation from the vehicular movements was observed during the regular site inspection on 17 November 2020 and the related contractor was advised to implement sufficient dust suppression measures to keep haul roads in a damp condition. The Contractor subsequently rectified the issue by implementing water spraying on the concerned haul road. To follow up, ET reminded the related Contractors to continue implementing and strengthening their environmental mitigation measures for dust suppression measures. ET also reminded all contractors to properly and adequately implement dust suppression measures especially in the current dry season and to prevent air pollution on site. ET and IEC would continue to monitor the related contractors' environmental mitigation measures for dust suppression during the environmental site inspections.</p>	Closed

3.2.2 Notifications of Summons or Status of Prosecution

No notification of summons nor prosecution was received during the reporting period.

3.3 Cumulative Statistics

Cumulative statistics on valid exceedance, non-compliance, complaints, notifications of summons and status of prosecutions are summarised in **Table 3.2** and **Table 3.3**.

Table 3.2: Statistics for Valid Exceedances for the Environmental Monitoring

		Total No. Recorded in the Reporting Period	Total No. Recorded since the Project Commenced
1-hr TSP	Action Level	0	0
	Limit Level	0	0
Noise	Action Level	0	0
	Limit Level	0	0
Waste	Action Level	0	0
	Limit Level	0	0
Water	Action Level	0	0
	Limit Level	0	0
CWD	Action Level	0	0
	Limit Level	0	0

Remark: Non-project related triggers of Action or Limit Level are not shown in this table.

Table 3.3: Statistics for Non-compliance, Complaints, Notifications of Summons and Prosecution

Reporting Period	Cumulative Statistics			
	Non-compliance	Complaints	Notifications of Summons	Prosecutions
This reporting period	0	7	0	0
From 28 December 2015 to end of the reporting period	0	27	1	1

4 Conclusion and Recommendation

In this quarterly period from 1 October 2020 to 31 December 2020, the EM&A programme has been implemented as planned, including 96 sets of air quality measurements, 52 sets of construction noise measurements, 39 sets of water quality measurements, 6 complete sets of vessel line transect surveys and 6 days of land-based theodolite tracking survey effort for CWD monitoring, as well as environmental site inspections and waste monitoring for the Project's construction works.

The key activities of the Project carried out in the reporting period included reclamation works and land-based works. Works in the reclamation areas included DCM works, marine filling, seawall and facilities construction, together with runway and associated works such as bored piling for approach lights. Land-based works on existing airport island involved mainly airfield works, foundation and substructure work for Terminal 2 expansion, modification and tunnel work for APM and BHS, and preparation work for utilities, with activities include site establishment, site office construction, road and drainage works, cable ducting, demolition, piling, and excavation works.

Monitoring results of construction dust, construction noise, construction waste, and CWD did not trigger the corresponding Action and Limit Levels in the reporting period. All site observations made by the ET were recorded in the site inspection checklists and passed to the contractor together with the recommended follow-up actions.

For water quality, the water quality monitoring results for all parameters, except SS and chromium, obtained during the reporting period were within the corresponding Action and Limit Levels stipulated in the EM&A programme. Relevant investigation and follow-up actions will be conducted according to the EM&A programme if the corresponding Action and Limit Levels are triggered. For SS and chromium, some testing results triggered the relevant Action or Limit Levels, and the corresponding investigations were conducted accordingly. The investigation findings concluded that the cases were not related to the Project. In summary, the construction activities in the reporting period did not introduce adverse impact to all water quality sensitive receivers.

In total, two ferry movements between HKIA SkyPier and Macau were audited in the reporting period. All HSFs travelled through the SCZ with average speed within 15 knots in compliance with the SkyPier Plan.

During the reporting period, ET conducted bi-weekly audit of the MSS to ensure the system recorded all deviation cases accurately and the contractors fully complied with the requirements of the MTRMP-CAV. 4 skipper training workshops were held by ET and 10 skipper training workshops were held by contractors' Environmental Officers during the reporting period and competency tests were conducted subsequently with the trained skippers by ET.

On the implementation of MMWP, dolphin observers were deployed by the contractors for laying of silt curtains for marine filling works in accordance with the plan. On the implementation of DEZ Plan, dolphin observers were deployed for continuous monitoring of the DEZ by the contractors for DCM works, seawall construction and bored piling for approach lights in accordance with the DEZ Plan. Trainings for the proposed dolphin observers were provided by the ET prior to the aforementioned works. From the contractors' MMWP observation records and DEZ monitoring records, no dolphin or other marine mammals were observed within or around the silt curtains or the DEZ in this reporting period. Audits of acoustic decoupling for construction vessels were also carried out by the ET.

The recommended environmental mitigation measures, as included in the EM&A programme, were effectively implemented during the reporting period. Also, the EM&A programme implemented by the ET has effectively monitored the construction activities and ensured the proper implementation of mitigation measures.

Figures

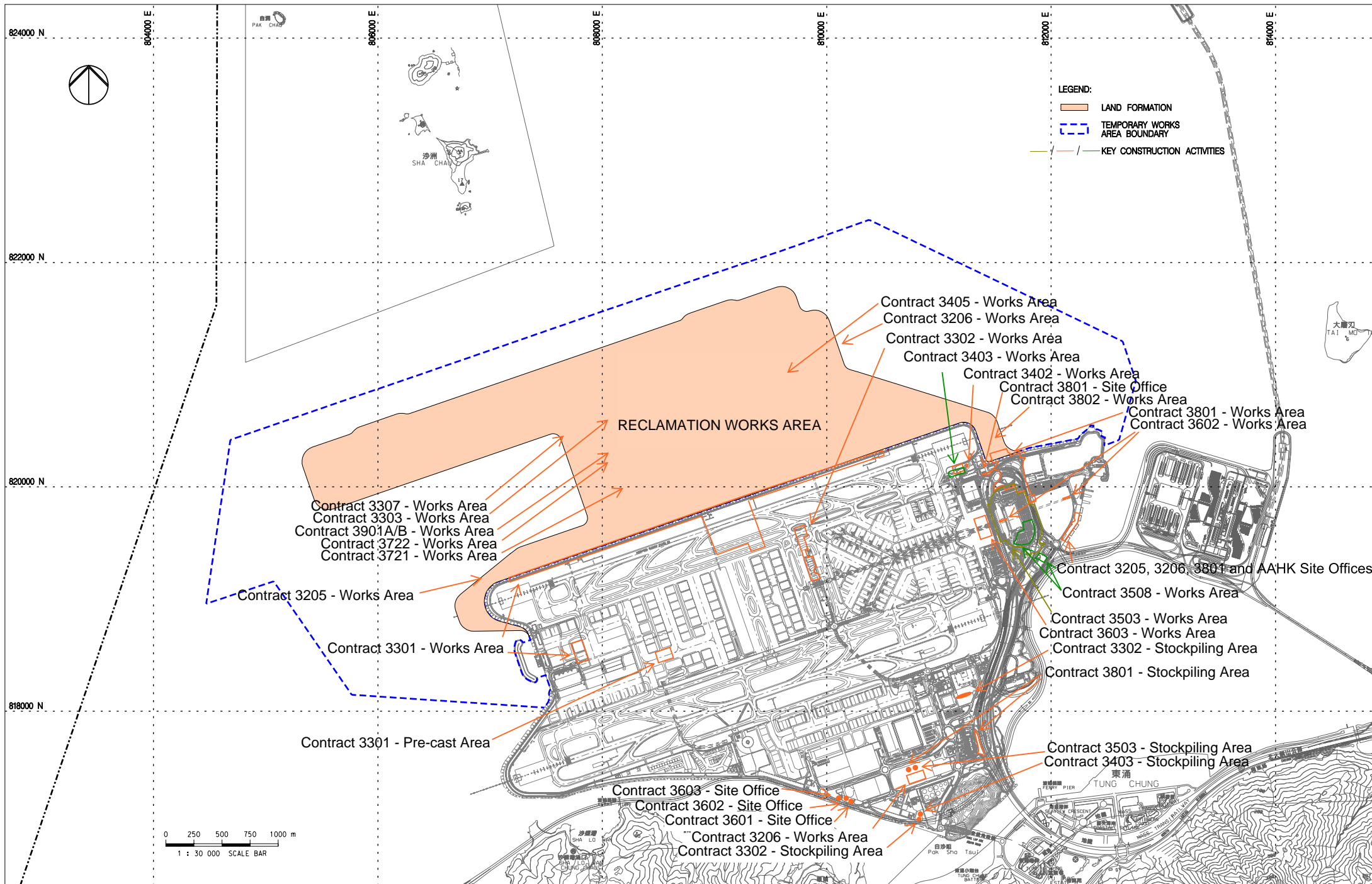
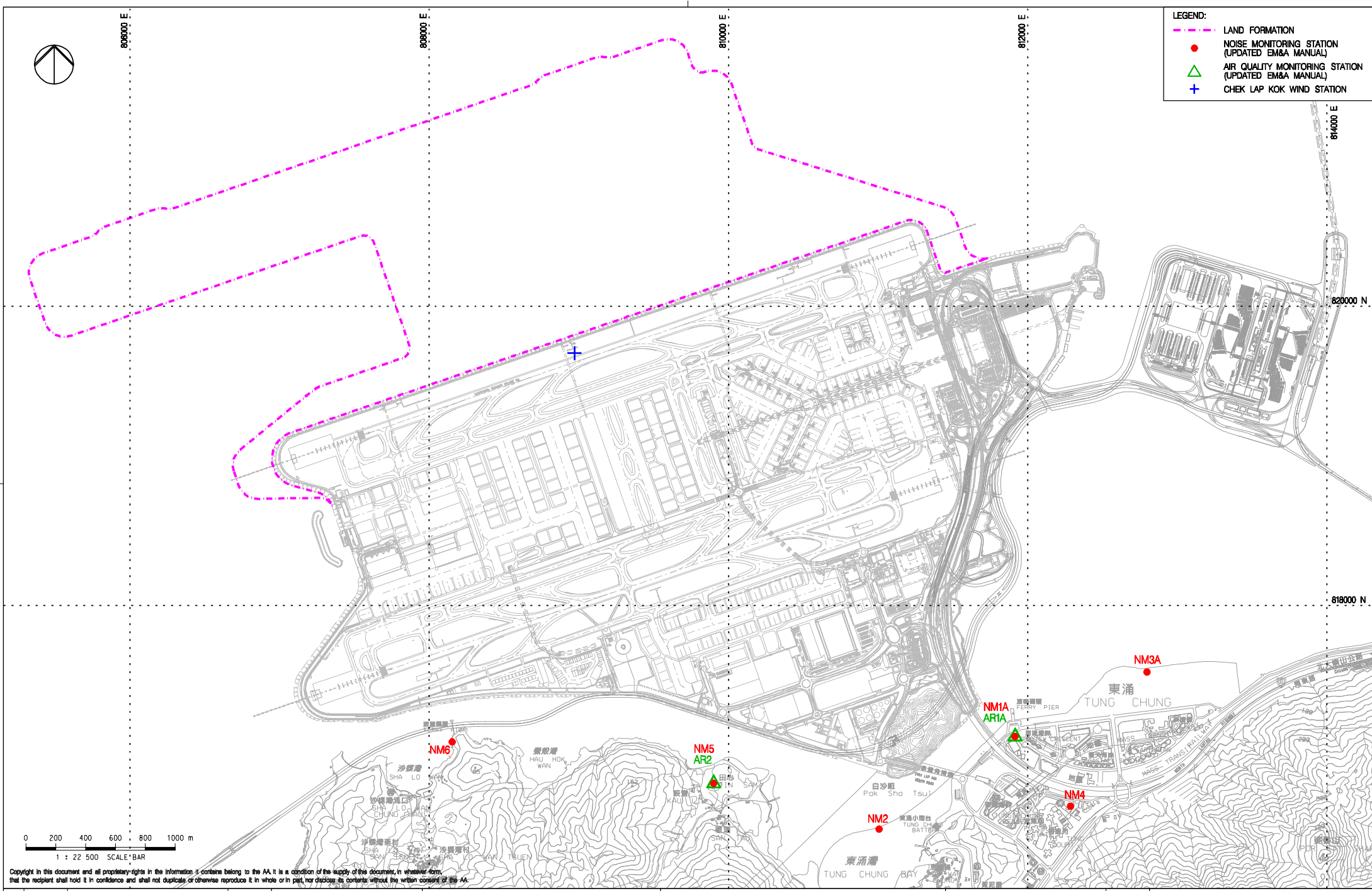


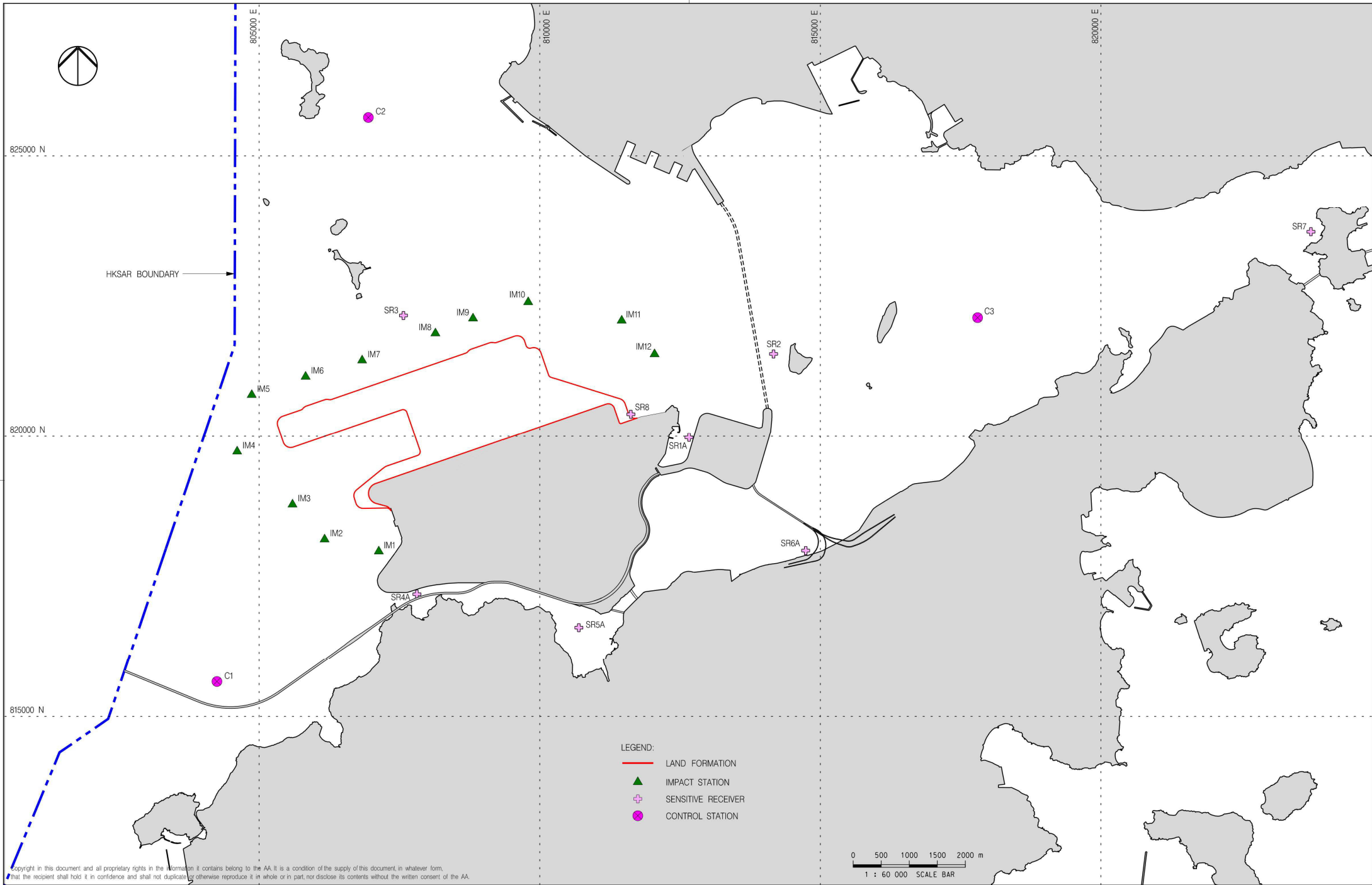


FIGURE 1.1 LOCATIONS OF KEY CONSTRUCTION ACTIVITIES

Note: The locations are for indicative purpose. The actual construction work locations are in accordance with the construction work programme.



Rev.	Date	Description	Checked	 HONG KONG INTERNATIONAL AIRPORT 香港國際機場		 MOTT MACDONALD		Title	Consultant's Signatures for Approval		Date	EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
A	06JAN16	FIRST ISSUE	RO					LOCATIONS OF AIR AND NOISE MONITORING STATIONS AND CHEK LAP KOK WIND STATION	Design	TK	29OCT18	Drawing No.	
B	29JAN16	GENERAL REVISION	RO						Checkers	TK	29OCT18	Scale at A3 1:22500	
C	11FEB16	GENERAL REVISION	RO						Approver	EC	29OCT18	FIGURE 2.1	
D	29OCT18	GENERAL REVISION	SH									Rev. D	
				Airport Authority 1900 Tsimi 1 Sky Plaza Road Hong Kong International Airport, Lantau, Hong Kong Tel: (852) 2400 770		Fax: (852) 2404 0107							



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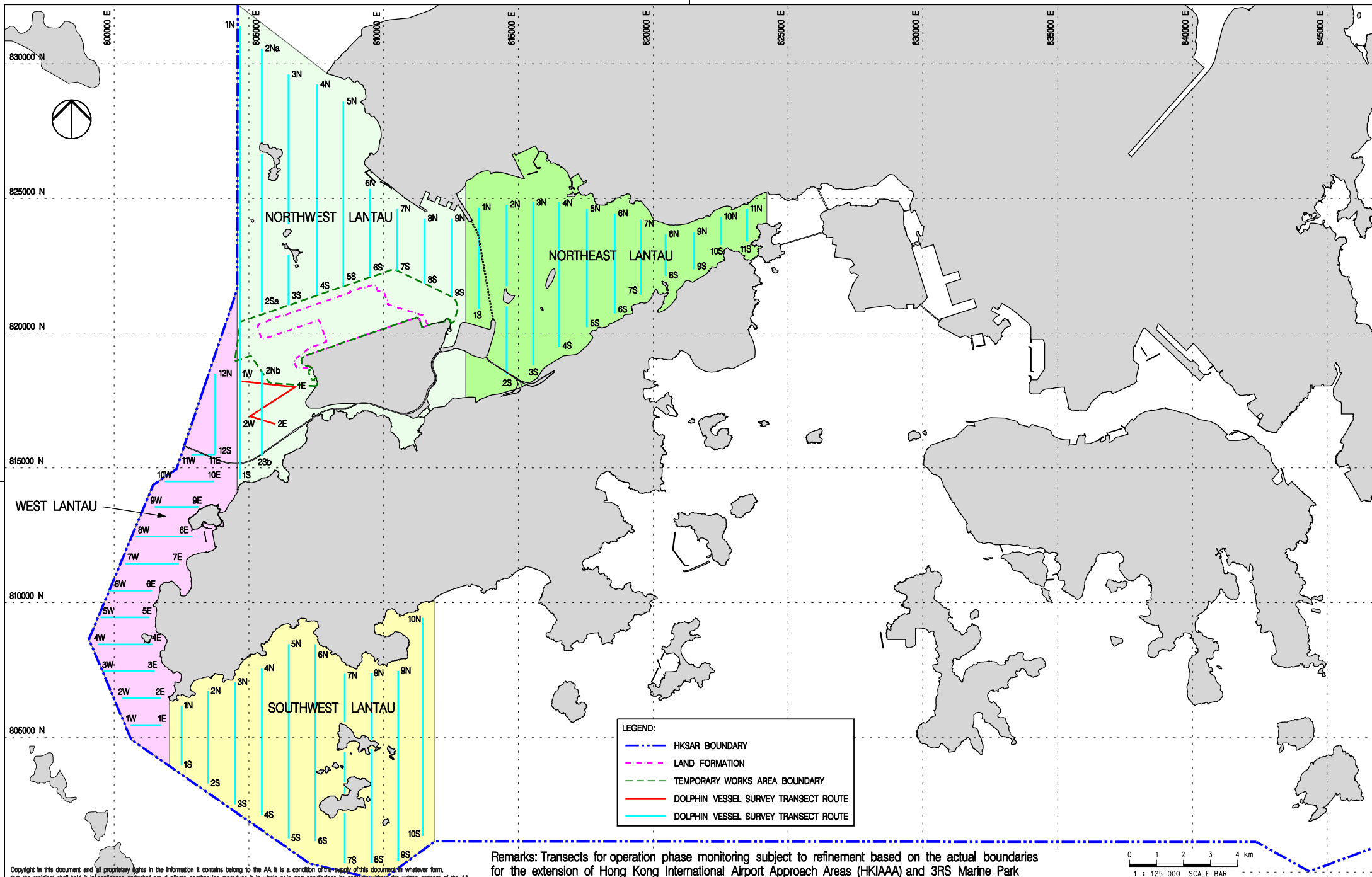
Rev.	Date	Description	Checked
A	21AUG19	FIRST ISSUE	VL



Title
WATER QUALITY MONITORING STATIONS

Consultant's Signatures for Approval		Date
Design	DC	21AUG19
Checkers	DC / TK	21AUG19
Approver	EC	21AUG19

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM		Scale at A3
Drawing No.		1 : 60000
FIGURE 2.2		Rev. A



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Remarks: Transects for operation phase monitoring subject to refinement based on the actual boundaries for the extension of Hong Kong International Airport Approach Areas (HKIAAA) and 3RS Marine Park

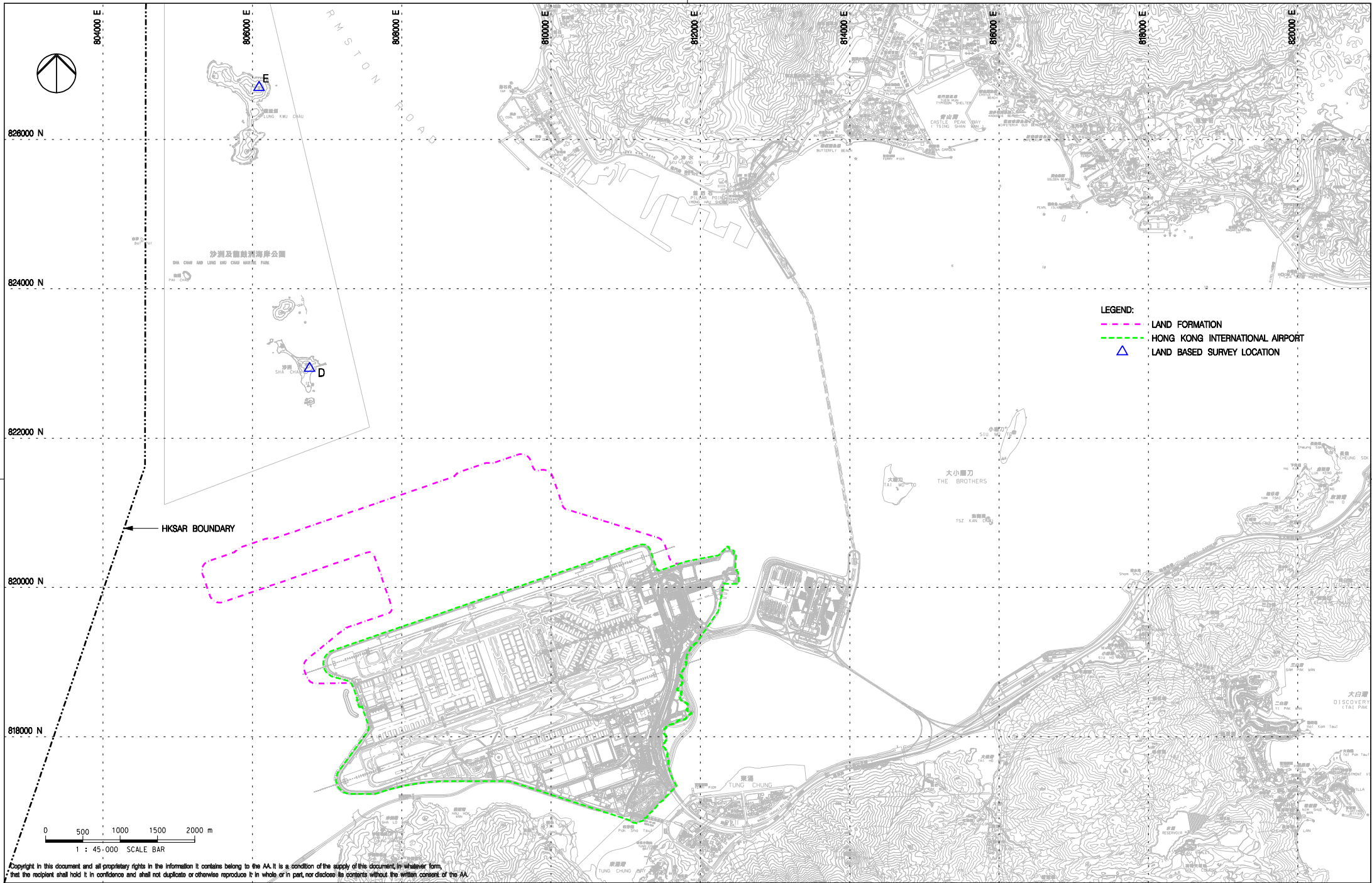
Rev.	Date	Description	Checked
B	27JUL16	GENERAL REVISION	JT
C	06FEB17	GENERAL REVISION	JT
D	01MAR17	GENERAL REVISION	JT
E	29OCT18	GENERAL REVISION	SH
F	04APR19	GENERAL REVISION	SH



Title
VESSEL BASED DOLPHIN MONITORING
TRANSECTS IN CONSTRUCTION,
POST-CONSTRUCTION AND OPERATION PHASES

Consultant's Signatures for Approval		Date
Design	JC	04APR19
Checkers	JC / TK	04APR19
Approver	EC	04APR19

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM		Scale at A3 1 : 125000
Drawing No.	FIGURE 2.3	Rev. F



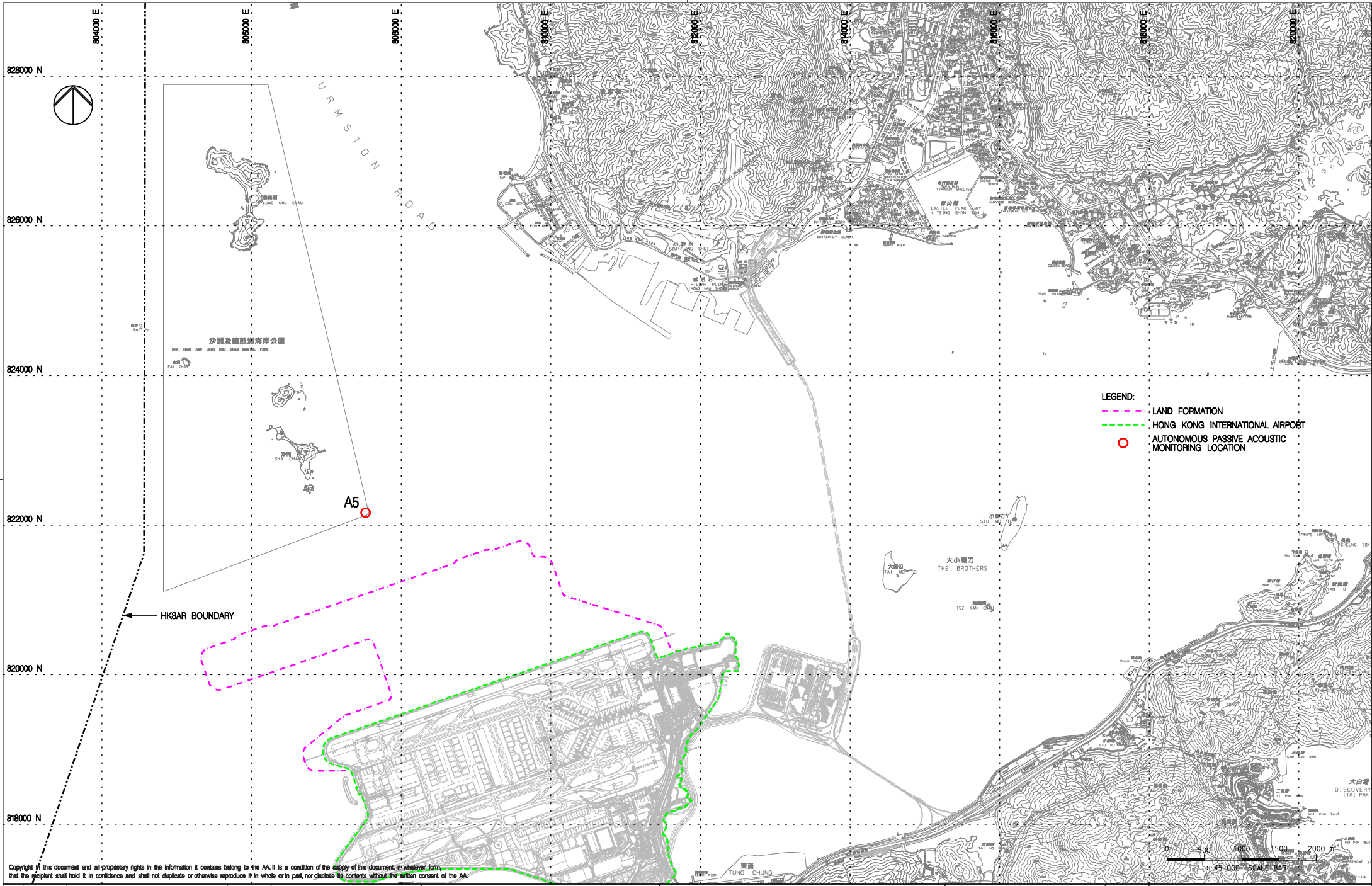
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A	02DEC15	FIRST ISSUE	JC
B	06FEB17	GENERAL REVISION	JC
C	29OCT18	GENERAL REVISION	SH



**LAND BASED DOLPHIN MONITORING
IN BASELINE AND CONSTRUCTION PHASES**

Consultant's Signatures for Approval		Date
Design	JC	29OCT18
Checkers	JC / TK	29OCT18
Approver	EC	29OCT18

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	Scale at A3 1 : 45000
FIGURE 2.4	
Rev.	C



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A	29AUG17	FIRST ISSUE	JT
B	10OCT17	GENERAL REVISION	PL
C	29OCT18	GENERAL REVISION	SH

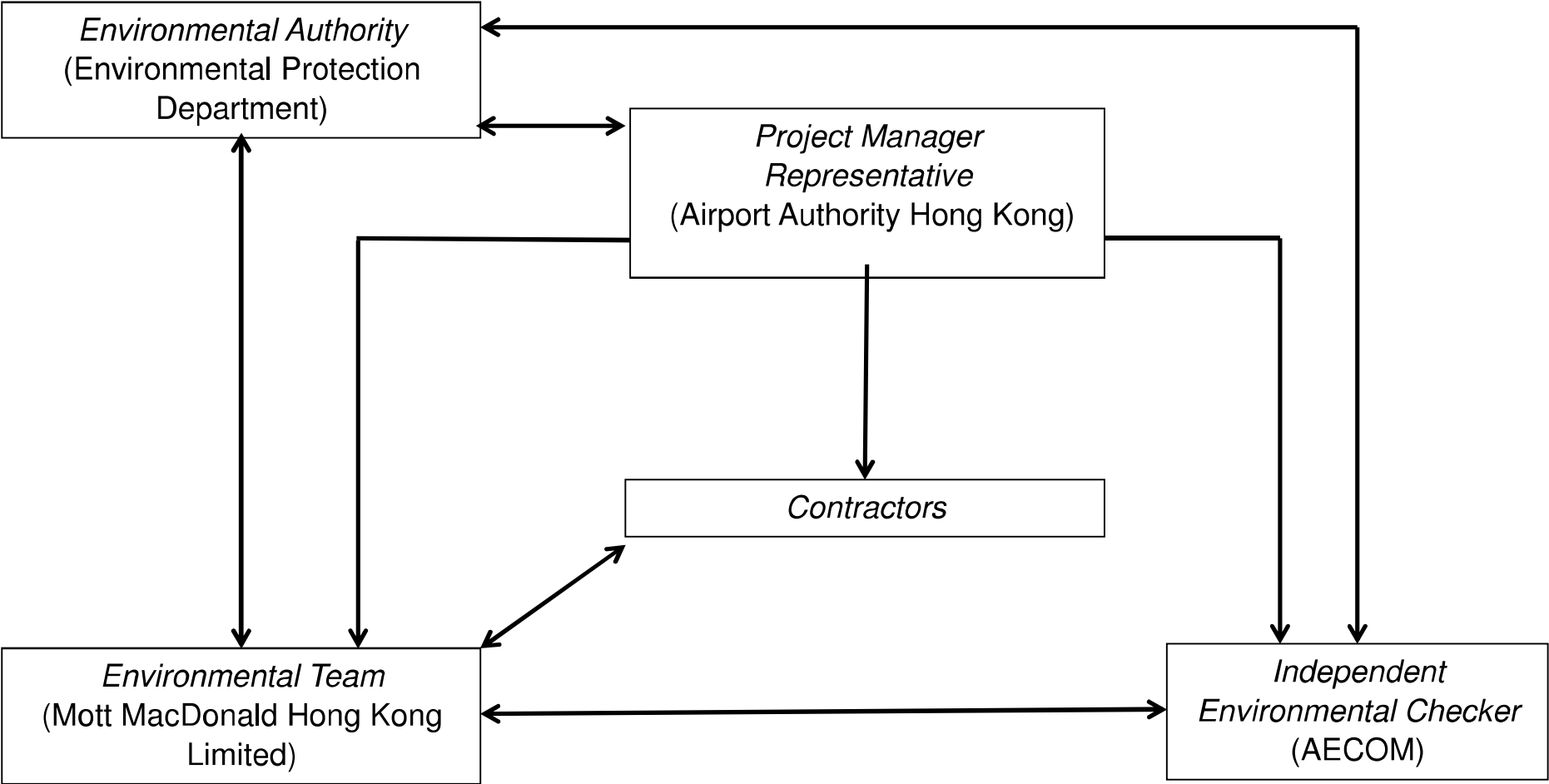


Title
 LOCATION FOR AUTONOMOUS PASSIVE ACOUSTIC MONITORING

Consultant's Signatures for Approval		Date
Design	JC	29OCT18
Checkers	JC / TK	29OCT18
Approver	EC	29OCT18

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM		Scale at A3 1: 45000
Drawing No.	FIGURE 2.10	Rev. C

Appendix A. Project Organization Chart



Appendix B. Environmental Mitigation Implementation Schedule (EMIS) for Construction Phase

Environmental Mitigation Implementation Schedule (EMIS) for Construction Phase

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
Air Quality Impact – Construction Phase					
5.2.6.2	2.1	-	Dust Control Measures <ul style="list-style-type: none"> Water spraying for 12 times a day or once every two hours for 24-hour working at all active works area. 	Within construction site / Duration of the construction phase	I
5.2.6.3	2.1	-	<ul style="list-style-type: none"> Covering of at least 80% of the stockpiling area by impervious sheets. Water spraying of all dusty materials immediately prior to any loading transfer operation so as to keep the dusty material wet during material handling. 	Within construction site / Duration of the construction phase	I
5.2.6.4	2.1	-	<p>Dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation should be adopted. These practices include:</p> <p>Good Site Management</p> <ul style="list-style-type: none"> Good site management is important to help reducing potential air quality impact down to an acceptable level. As a general guide, the Contractor should maintain high standard of housekeeping to prevent emission of fugitive dust. Loading, unloading, handling and storage of raw materials, wastes or by-products should be carried out in a manner so as to minimise the release of visible dust emission. Any piles of materials accumulated on or around the work areas should be cleaned up regularly. Cleaning, repair and maintenance of all plant facilities within the work areas should be carried out in a manner minimising generation of fugitive dust emissions. The material should be handled properly to prevent fugitive dust emission before cleaning. 	Within construction site / Duration of the construction phase	I
			<p>Disturbed Parts of the Roads</p> <ul style="list-style-type: none"> Each and every main temporary access should be paved with concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials; or Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet. 	Within construction site / Duration of the construction phase	I
			<p>Exposed Earth</p> <ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six months after the last construction activity on the site or part of the site where the exposed earth lies. 	Within construction site / Duration of the construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			Loading, Unloading or Transfer of Dusty Materials <ul style="list-style-type: none"> All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet. 	Within construction site / Duration of the construction phase	I
			Debris Handling <ul style="list-style-type: none"> Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides; and Before debris is dumped into a chute, water should be sprayed so that it remains wet when it is dumped. 	Within construction site / Duration of the construction phase	I
			Transport of Dusty Materials <ul style="list-style-type: none"> Vehicle used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards. 	Within construction site / Duration of the construction phase	I
			Wheel washing <ul style="list-style-type: none"> Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. 	Within construction site / Duration of the construction phase	I
			Use of vehicles <ul style="list-style-type: none"> The speed of the trucks within the site should be controlled to about 10km/hour in order to reduce adverse dust impacts and secure the safe movement around the site; Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels; and Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle. 	Within construction site / Duration of the construction phase	I
			Site hoarding <ul style="list-style-type: none"> Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit. 	Within construction site / Duration of the construction phase	I
5.2.6.5	2.1	-	Best Practices for Concrete Batching Plant The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2 as well as in the future Specified Process licence should be adopted. The best practices are recommended to be applied to both the land based and floating concrete batching plants. Best practices include: Cement and other dusty materials	Within Concrete Batching Plant / Duration of the construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> ▪ The loading, unloading, handling, transfer or storage of cement, pulverised fuel ash (PFA) and/or other equally dusty materials shall be carried in a totally enclosed system acceptable to EPD. All dust-laden air or waste gas generated by the process operations shall be properly extracted and vented to fabric filtering system to meet the required emission limit; ▪ Cement, PFA and/or other equally dusty materials shall be stored in storage silo fitted with audible high level alarms to warn of over-filling. The high-level alarm indicators shall be interlocked with the material filling line such that in the event of the silo approaching an overfilling condition, an audible alarm will operate, and after 1 minute or less the material filling line will be closed; ▪ Vents of all silos shall be fitted with fabric filtering system to meet the required emission limit; ▪ Vents of cement/PFA weighing scale shall be fitted with fabric filtering system to meet the required emission limit; and ▪ Seating of pressure relief valves of all silos shall be checked, and the valves re-seated if necessary, before each delivery. 		
			<p>Other raw materials</p> <ul style="list-style-type: none"> ▪ The loading, unloading, handling, transfer or storage of other raw materials which may generate airborne dust emissions such as crushed rock, sand, stone aggregate, shall be carried out in such a manner to prevent or minimize dust emissions; ▪ The materials shall be adequately wetted prior to and during the loading, unloading and handling operations. Manual or automatic water spraying system shall be provided at all unloading areas, stock piles and material discharge points; ▪ All receiving hoppers for unloading relevant materials shall be enclosed on three sides up to 3 m above the unloading point. In no case shall these hoppers be used as the material storage devices; ▪ The belt conveyor for handling materials shall be enclosed on top and two sides with a metal board at the bottom to eliminate any dust emission due to wind-whipping effect. Other type of enclosure will also be accepted by EPD if it can be demonstrated that the proposed enclosure can achieve same performance; ▪ All conveyor transfer points shall be totally enclosed. Openings for the passage of conveyors shall be fitted with adequate flexible seals; ▪ Scrapers shall be provided at the turning points of all conveyors to remove dust adhered to the belt surface; ▪ Conveyors discharged to stockpiles of relevant materials shall be arranged to minimize free fall as far as practicable. All free falling transfer points from conveyors to stockpiles shall be enclosed with chute(s) and water sprayed; ▪ Aggregates with a nominal size less than or equal to 5 mm should be stored in totally enclosed structure such as storage bin and should not be handled in open area. Where there is sufficient buffer area surrounding the concrete batching plant, ground stockpiling may be used; 	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> The stockpile shall be enclosed at least on top and three sides and with flexible curtain to cover the entrance side; Aggregates with a nominal size greater than 5 mm should preferably be stored in a totally enclosed structure. If open stockpiling is used, the stockpile shall be enclosed on three sides with the enclosure wall sufficiently higher than the top of the stockpile to prevent wind whipping; and The opening between the storage bin and weighing scale of the materials shall be fully enclosed. 		
			<p>Loading of materials for batching</p> <ul style="list-style-type: none"> Concrete truck shall be loaded in such a way as to minimise airborne dust emissions. The following control measures shall be implemented: <ol style="list-style-type: none"> Pre-mixing the materials in a totally enclosed concrete mixer before loading the materials into the concrete truck is recommended. All dust-laden air generated by the pre-mixing process as well as the loading process shall be totally vented to fabric filtering system to meet the required emission limit; and If truck mixing batching or other types of batching method is used, effective dust control measures acceptable to EPD shall be adopted. The dust control measures must have been demonstrated to EPD that they are capable to collect and vent all dust-laden air generated by the material loading/mixing to dust arrestment plant to meet the required emission limit. The loading bay shall be totally enclosed during the loading process. 	Within Concrete Batching Plant / Duration of the construction phase	I
			<p>Vehicles</p> <ul style="list-style-type: none"> All practicable measures shall be taken to prevent or minimize the dust emission caused by vehicle movement; and All access and route roads within the premises shall be paved and adequately wetted. 	Within Concrete Batching Plant / Duration of the construction phase	I
			<p>Housekeeping</p> <ul style="list-style-type: none"> A high standard of housekeeping shall be maintained. All spillages or deposits of materials on ground, support structures or roofs shall be cleaned up promptly by a cleaning method acceptable to EPD. Any dumping of materials at open area shall be prohibited. 	Within Concrete Batching Plant / Duration of the construction phase	I
5.2.6.6	2.1	-	<p>Best Practices for Asphaltic Concrete Plant</p> <p>The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Tar and Bitumen Works (Asphaltic Concrete Plant) BPM 15 (94) as well as in the future Specified Process licence should be adopted. These include:</p> <p>Design of Chimney</p> <ul style="list-style-type: none"> The chimney shall not be less than 3 metres plus the building height or 8 metres above ground level, whichever is the greater; The efflux velocity of gases from the main chimney shall not be less than 12 m/s at full load condition; 	Within Concrete Batching Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> The flue gas exit temperature shall not be less than the acid dew point; and Release of the chimney shall be directed vertically upwards and not be restricted or deflected. 		
			<p>Cold feed side</p> <ul style="list-style-type: none"> The aggregates with a nominal size less than or equal to 5 mm shall be stored in totally enclosed structure such as storage bin and shall not be handled in open area; Where there is sufficient buffer area surrounding the plant, ground stockpiling may be used. The stockpile shall be enclosed at least on top and three sides and with flexible curtain to cover the entrance side. If these aggregates are stored above the feeding hopper, they shall be enclosed at least on top and three sides and be wetted on the surface to prevent wind-whipping; The aggregates with a nominal size greater than 5 mm should preferably be stored in totally enclosed structure. Aggregates stockpile that is above the feeding hopper shall be enclosed at least on top and three sides. If open stockpiling is used, the stockpiles shall be enclosed on three sides with the enclosure wall sufficiently higher than the top of the stockpile to prevent wind whipping; Belt conveyors shall be enclosed on top and two sides and provided with a metal board at the bottom to eliminate any dust emission due to the wind-whipping effect. Other type of enclosure will also be accepted by EPD if it can be demonstrated that the proposed enclosure can be achieve the same performance; Scrapers shall be provided at the turning points of all belt conveyors inside the chute of the transfer points to remove dust adhered to the belt surface; All conveyor transfer points shall be totally enclosed. Openings for the passages of conveyors shall be fitted with adequate flexible seals; and All materials returned from dust collection system shall be transferred in enclosed system and shall be stored inside bins or enclosures. 	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Hot feed side</p> <ul style="list-style-type: none"> The inlet and outlet of the rotary dryer shall be enclosed and ducted to a dust extraction and collection system such as a fabric filter. The particulate and gaseous concentration at the exhaust outlet of the dust collector shall not exceed the required limiting values; The bucket elevator shall be totally enclosed and the air be extracted and ducted to a dust collection system to meet the required particulates limiting value; All vibratory screens shall be totally enclosed and dust tight with close-fitted access inspection opening. Gaskets shall be installed to seal off any cracks and edges of any inspection openings; Chutes for carrying hot material shall be rigid and preferably fitted with abrasion resistant plate inside. They shall be inspected daily for leakages; 	Within Concrete Batching Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> All hot bins shall be totally enclosed and dust tight with close-fitted access inspection opening. Gaskets shall be installed to seal off any cracks and edges of any inspection openings. The air shall be extracted and ducted to a dust collection system to meet the required particulates limiting value; and Appropriate control measures shall be adopted in order to meet the required bitumen emission limit as well as the ambient odour level (2 odour units). 		
			<p>Material transportation</p> <ul style="list-style-type: none"> The loading, unloading, handling, transfer or storage of other raw materials which may generate airborne dust emissions such as crushed rocks, sands, stone aggregates, reject fines, shall be carried out in such a manner as to minimize dust emissions; Roadways from the entrance of the plant to the product loading points and/or any other working areas where there are regular movements of vehicles shall be paved or hard surfaced; and Haul roads inside the Works shall be adequately wetted with water and/or chemical suppressants by water trucks or water sprayers. 	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Control of emissions from bitumen decanting</p> <ul style="list-style-type: none"> The heating temperature of the particular bitumen type and grade shall not exceed the corresponding temperature limit of the same type listed in Appendix 1 of the Guidance Note; Tamper-free high temperature cut-off device shall be provided to shut off the fuel supply or electricity in case the upper limit for bitumen temperature is reached; Proper chimney for the discharge of bitumen fumes shall be provided at high level; The emission of bitumen fumes shall not exceed the required emission limit; and <p>The air-to-fuel ratio shall be properly controlled to allow complete combustion of the fuel. The fuel burners, if any, shall be maintained properly and free from carbon deposits in the burner nozzles.</p>	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Liquid fuel</p> <ul style="list-style-type: none"> The receipt, handling and storage of liquid fuel shall be carried out so as to prevent the release of emissions of organic vapours and/or other noxious and offensive emissions to the air. 	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Housekeeping</p> <ul style="list-style-type: none"> A high standard of housekeeping shall be maintained. Waste material, spillage and scattered piles gathered beneath belt conveyors, inside and around enclosures shall be cleared frequently. The minimum clearing frequency is on a weekly basis. 	Within Concrete Batching Plant / Duration of the construction phase	N/A
5.2.6.7	2.1	-	<p>Best Practices for Rock Crushing Plants</p> <p>The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Mineral Works (Stone Crushing Plant) BPM 11/1 (95) as well as in the future Specified Process licence should be adopted. These include:</p>	Within Concrete Batching Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p>Crushers</p> <ul style="list-style-type: none"> ▪ The outlet of all primary crushers, and both inlet and outlet of all secondary and tertiary crushers, if not installed inside a reasonably dust tight housing, shall be enclosed and ducted to a dust extraction and collection system such as a fabric filter; ▪ The inlet hopper of the primary crushers shall be enclosed on top and 3 sides to contain the emissions during dumping of rocks from trucks. The rock while still on the trucks shall be wetted before dumping; ▪ Water sprayers shall be installed and operated in strategic locations at the feeding inlet of crushers; and ▪ Crusher enclosures shall be rigid and be fitted with self-closing doors and close-fitting entrances and exits. Where conveyors pass through the crusher enclosures, flexible covers shall be installed at entries and exits of the conveyors to the enclosure. 		
			<p>Vibratory screens and grizzlies</p> <ul style="list-style-type: none"> ▪ All vibratory screens shall be totally enclosed in a housing. Screenhouses shall be rigid and reasonably dust tight with self-closing doors or close-fitted entrances and exits for access. Where conveyors pass through the screenhouse, flexible covers shall be installed at entries and exits of the conveyors to the housing. Where containment of dust within the screenhouse structure is not successful then a dust extraction and collection system shall be provided; and ▪ All grizzlies shall be enclosed on top and 3 sides and sufficient water sprayers shall be installed at their feeding and outlet areas. 	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Belt conveyors</p> <ul style="list-style-type: none"> ▪ Except for those conveyors which are placed within a totally enclosed structure such as a screenhouse or those erected at the ground level, all conveyors shall be totally enclosed with windshield on top and 2 sides; ▪ Effective belt scraper such as the pre-cleaner blades made by hard wearing materials and provided with pneumatic tensioner, or equivalent device, shall be installed at the head pulley of designated conveyor as required to dislodge fine dust particles that may adhere to the belt surface and to reduce carry-back of fine materials on the return belt. Bottom plates shall also be provided for the conveyor unless it has been demonstrated that the corresponding belt scraper is effective and well maintained to prevent falling material from the return belt; and ▪ Except for those transfer points which are placed within a totally enclosed structure such as a screenhouse, all transfer points to and from conveyors shall be enclosed. Where containment of dust within the enclosure is not successful, then water sprayers shall be provided. Openings for any enclosed structure for the passage of conveyors shall be fitted with flexible seals. 	Within Concrete Batching Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			Storage piles and bins <ul style="list-style-type: none"> Where practicable, free falling transfer points from conveyors to stockpiles shall be fitted with flexible curtains or be enclosed with chutes designed to minimize the drop height. Water sprays shall also be used where required. The surface of all surge piles and stockpiles of blasted rocks or aggregates shall be kept sufficiently wet by water spraying wherever practicable; All open stockpiles for aggregates of size in excess of 5 mm shall be kept sufficiently wet by water spraying where practicable; or The stockpiles of aggregates 5 mm in size or less shall be enclosed on 3 sides or suitably located to minimize wind-whipping. Save for fluctuations in stock or production, the average stockpile shall stay within the enclosure walls and in no case the height of the stockpile shall exceed twice the height of the enclosure walls. Scattered piles gathered beneath belt conveyors, inside and around enclosures shall be cleared regularly. 	Within Concrete Batching Plant / Duration of the construction phase	N/A
			Rock drilling equipment <ul style="list-style-type: none"> Appropriate dust control equipment such as a dust extraction and collection system shall be used during rock drilling activities. 	Within Concrete Batching Plant / Duration of the construction phase	N/A
Hazard to Human Life – Construction Phase					
Table 6.40	3.2	-	<ul style="list-style-type: none"> Precautionary measures should be established to request barges to move away during typhoons. 	Construction Site / Construction Period	I
Table 6.40	3.2	-	<ul style="list-style-type: none"> An appropriate marine traffic management system should be established to minimize risk of ship collision. 	Construction Site / Construction Period	I
Table 6.40	3.2	-	<ul style="list-style-type: none"> Location of all existing hydrant networks should be clearly identified prior to any construction works. 	Construction Site / Construction Period	I
Noise Impact – Construction Phase					
7.5.6	4.3	-	Good Site Practice Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. The following package of measures should be followed during each phase of construction: <ul style="list-style-type: none"> only well-maintained plant to be operated on-site and plant should be serviced regularly during the construction works; machines and plant that may be in intermittent use to be shut down between work periods or should be throttled down to a minimum; 	Within the Project site / During construction phase / Prior to commencement of operation	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> ▪ plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from the NSRs; ▪ mobile plant should be sited as far away from NSRs as possible; and ▪ material stockpiles and other structures to be effectively utilised, where practicable, to screen noise from on-site construction activities. 		
7.5.6	4.3	-	Adoption of QPME <ul style="list-style-type: none"> ▪ QPME should be adopted as far as applicable. 	Within the Project site / During construction phase / Prior to commencement of operation	I
7.5.6	4.3	-	Use of Movable Noise Barriers <ul style="list-style-type: none"> ▪ Movable noise barriers should be placed along the active works area and mobile plants to block the direct line of sight between PME and the NSRs. 	Within the Project site / During construction phase / Prior to commencement of operation	I
7.5.6	4.3	-	Use of Noise Enclosure/ Acoustic Shed <ul style="list-style-type: none"> ▪ Noise enclosure or acoustic shed should be used to cover stationary PME such as air compressor and generator. 	Within the Project site / During construction phase / Prior to commencement of operation	I
Water Quality Impact – Construction Phase					

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
8.8.1.2 and 8.8.1.3	5.1	2.26	Marine Construction Activities <u>General Measures to be Applied to All Works Areas</u> <ul style="list-style-type: none"> ▪ Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation; ▪ Use of Lean Material Overboard (LMOB) systems shall be prohibited; ▪ Excess materials shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessels are moved; ▪ Plants should not be operated with leaking pipes and any pipe leakages shall be repaired quickly; ▪ Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; ▪ All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; ▪ The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site; and ▪ For ground improvement activities including DCM, the wash water from cleaning of the drilling shaft should be appropriately treated before discharge. The Contractor should ensure the waste water meets the WPCO/TM requirements before discharge. No direct discharge of contaminated water is permitted. 	Within construction site / Duration of the construction phase	I
			<u>Specific Measures to be Applied to All Works Areas</u> <ul style="list-style-type: none"> ▪ The daily maximum production rates shall not exceed those assumed in the water quality assessment in the EIA report; ▪ A maximum of 10 % fines content to be adopted for sand blanket and 20 % fines content for marine filling below +2.5 mPD prior to substantial completion of seawall (until end of Year 2017) shall be specified in the works contract document; 	Within construction site / Duration of the construction phase	I
			<ul style="list-style-type: none"> ▪ An advance seawall of at least 200m to be constructed (comprising either rows of contiguous permanent steel cells completed above high tide mark or partially completed seawalls with rock core to high tide mark and filter layer on the inner side) prior to commencement of marine filling activities; 		I
			<ul style="list-style-type: none"> ▪ Closed grab dredger shall be used to excavate marine sediment; ▪ Silt curtains surrounding the closed grab dredger shall be deployed in accordance with the Silt Curtain Deployment Plan; and 		N/A *(The arrangement of silt curtain has been modified. The details can be referred to Silt Curtain Deployment Plan)
			<ul style="list-style-type: none"> ▪ The Silt Curtain Deployment Plan shall be implemented. 		I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<u>Specific Measures to be Applied to Land Formation Activities prior to Commencement of Marine Filling Works</u> <ul style="list-style-type: none"> Double layer 'Type III' silt curtains to be applied around the active eastern works areas prior to commencement of sand blanket laying activities. The silt curtains shall be configured to minimise SS release during ebb tides. A silt curtain efficiency test shall be conducted to validate the performance of the silt curtains; 	Within construction site / Duration of the construction phase	N/A *(The arrangement of silt curtain has been modified. The details can be referred to Silt Curtain Deployment Plan)
			<ul style="list-style-type: none"> Double layer silt curtains to enclose WSRs C7a and silt screens installed at the intake points for both WSR C7a and C8 prior to commencement of construction; and 		For C7a, I For C8, I *(The requirement of silt curtain / screen has been modified. The details can be referred to Silt Curtain Deployment Plan)
			<ul style="list-style-type: none"> The silt curtains and silt screens should be regularly checked and maintained. 		I
			<u>Specific Measures to be Applied to Land Formation Activities during Marine Filling Works</u> <ul style="list-style-type: none"> Double layer 'Type II' or 'Type III' silt curtains to be applied around the eastern openings between partially completed seawalls prior to commencement of marine filling activities. The silt curtains shall be configured to minimise SS release during ebb tides; 	Within construction site / Duration of the construction phase	I *(The arrangement of silt curtain has been modified. The details can be referred to Silt Curtain Deployment Plan)
			<ul style="list-style-type: none"> Double layer silt curtains to be applied at the south-western opening prior to commencement of marine filling activities; 		N/A *(The arrangement of silt curtain has been modified. The details can be referred to Silt Curtain Deployment Plan)
			<ul style="list-style-type: none"> Double layer silt curtain to enclose WSR C7a and silt screens installed at the intake points for both WSR C7a and C8 prior to commencement of marine filling activities; and 		N/A *(The requirement of silt curtain / screen has been modified. The details can be referred to Silt Curtain Deployment Plan)
			<ul style="list-style-type: none"> The silt curtains and silt screens should be regularly checked and maintained. 		I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<u>Specific Measures to be Applied to the Field Joint Excavation Works for the Submarine Cable Diversion</u> <ul style="list-style-type: none"> Only closed grabs designed and maintained to avoid spillage shall be used and should seal tightly when operated. Excavated materials shall be disposed at designated marine disposal area in accordance with the Dumping at Sea Ordinance (DASO) permit conditions; and Silt curtains surrounding the closed grab dredger to be deployed as a precautionary measure. 	Within construction site / Duration of the construction phase	N/A
8.8.1.4	5.1	-	Modification of the Existing Seawall <ul style="list-style-type: none"> Silt curtains shall be deployed around the seawall modification activities to completely enclose the active works areas, and care should be taken to avoid splashing of rockfill / rock armour into the surrounding marine environment. For the connecting sections with the existing outfalls, works for these connection areas should be undertaken during the dry season in order that individual drainage culvert cells may be isolated for interconnection works. 	At the existing northern seawall / Duration of the construction phase	N/A
8.8.1.5	5.1	-	Construction of New Stormwater Outfalls and Modifications to Existing Outfalls <ul style="list-style-type: none"> During operation of the temporary drainage channel, runoff control measures such as bunding or silt fence shall be provided on both sides of the channel to prevent accumulation and release of SS via the temporary channel. Measures should also be taken to minimise the ingress of site drainage into the culvert excavations. 	Within construction site / Duration of the construction phase	N/A
8.8.1.6 8.8.1.7	5.1	2.27	Piling Activities for Construction of New Runway Approach Lights and HKIAAA Marker Beacons <p>Silt curtains shall be deployed around the piling activities to completely enclose the piling works and care should be taken to avoid spillage of excavated materials into the surrounding marine environment.</p> <p><u>For construction of the eastern approach lights at the CMPs</u></p> <ul style="list-style-type: none"> Ground improvement via DCM using a close-spaced layout shall be completed prior to commencement of piling works; Steel casings shall be installed to enclose the excavation area prior to commencement of excavation; The excavated materials shall be removed using a closed grab within the steel casings; No discharge of the cement mixed materials into the marine environment will be allowed; and Excavated materials shall be treated and reused on-site. 	Within construction site / Duration of the construction phase	I
8.8.1.8	5.1	-	Construction of Site Runoff and Drainage <p>The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. The following measures are recommended:</p> <ul style="list-style-type: none"> Install perimeter cut-off drains to direct off-site water around the site and implement internal drainage, erosion and sedimentation control facilities. Channels, earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on-site 	Within construction site / Duration of the construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p>drainage system should be undertaken by the Contractors prior to the commencement of construction (for works areas located on the existing Airport island) or as soon as the new land is completed (for works areas located on the new landform);</p> <hr/> <ul style="list-style-type: none"> Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM-DSS standards under the WPCO. The design of efficient silt removal facilities should make reference to the guidelines in Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the flow rate. The detailed design of the sand/silt traps should be undertaken by the Contractors prior to the commencement of construction; <hr/> <ul style="list-style-type: none"> All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly; <hr/> <ul style="list-style-type: none"> Measures should be taken to minimize the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from foundation excavations should be discharged into storm drains via silt removal facilities; <hr/> <ul style="list-style-type: none"> In the event that contaminated groundwater is identified at excavation areas, this should be treated on-site using a suitable wastewater treatment process. The effluent should be treated according to the requirements of the TM-DSS standards under the WPCO prior to discharge to foul sewers or collected for proper disposal off-site. No direct discharge of contaminated groundwater is permitted; and <hr/> <ul style="list-style-type: none"> All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at construction site exits. Wash-water should have sand and silt settled out and removed regularly to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. All washwater should be treated according to the requirements of the TM-DSS standards under the WPCO prior to discharge. 		I
8.8.1.9	5.1	-	Sewage Effluent from Construction Workforce <ul style="list-style-type: none"> Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	Within construction site / During construction phase	I
8.8.1.10 8.8.1.11	5.1		General Construction Activities <ul style="list-style-type: none"> Construction solid waste, debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby storm water drain. Stockpiles of cement and other construction materials should be kept covered when not being used; and 	Within construction site / During construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
8.8.1.12 8.8.1.13	5.1	2.28	<ul style="list-style-type: none"> ▪ Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drain, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event. <p>Drilling Activities for the Submarine Aviation Fuel Pipelines</p> <p>To prevent potential water quality impacts at Sha Chau, the following measures shall be applied:</p> <ul style="list-style-type: none"> ▪ A 'zero-discharge' policy shall be applied for all activities to be conducted at Sha Chau; ▪ No bulk storage of chemicals shall be permitted; and ▪ A containment pit shall be constructed around the drill holes. This containment pit shall be lined with impermeable lining and bunded on the outside to prevent inflow from off-site areas. <p>At the airport island side of the drilling works, the following measures shall be applied for treatment of wastewater:</p> <ul style="list-style-type: none"> ▪ During pipe cleaning, appropriate desilting or sedimentation device should be provided on site for treatment before discharge. The Contractor should ensure discharge water from the sedimentation tank meet the WPCO/TM requirements before discharge; and ▪ Drilling fluid used in drilling activities should be reconditioned and reused as far as possible. Temporary enclosed storage locations should be provided on-site for any unused chemicals that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 	Within construction site / During construction phase	I
Waste Management Implication – Construction Phase					
10.5.1.1	7.1	-	<p>Opportunities to minimise waste generation and maximise the reuse of waste materials generated by the project have been incorporated where possible into the planning, design and construction stages, and the following measures have been recommended:</p> <ul style="list-style-type: none"> ▪ The relevant construction methods (particularly for the tunnel works) and construction programme have been carefully planned and developed to minimise the extent of excavation and to maximise the on-site reuse of inert C&D materials generated by the project as far as practicable. Temporary stockpiling areas will also be provided to facilitate on-site reuse of inert C&D materials; ▪ Priority should be given to collect and reuse suitable inert C&D materials generated from other concurrent projects and the Government's PFRF as fill materials for the proposed land formation works; ▪ Only non-dredged ground improvement methods should be adopted in order to completely avoid the need for dredging and disposal of marine sediment for the proposed land formation work; ▪ Excavation work for constructing the APM tunnels, BHS tunnels and airside tunnels will not be down to the CMPs beneath the fill materials in order to avoid excavating any sediments; and 	Project Site Area / During design and construction phase	I
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					I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> For the marine sediments expected to be excavated from the piling works of TRC, APM & BHS tunnels, airside tunnels and other facilities on the proposed land formation area, piling work of marine sections of the approach lights and HKIAAA beacons, basement works for some of T2 expansion area and excavation works for the proposed APM depot should be treated and reused on-site as backfilling materials, although required treatment level / detail and the specific re-use mode are under development. 		I
10.5.1.1	7.1	-	<p>The following good site practices should be performed during the construction activities include:</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; Training of site personnel in proper waste management and chemical waste handling procedures; Provision of sufficient waste disposal points and regular collection for disposal; Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks by tarpaulin/ similar material or by transporting wastes in enclosed containers. The cover should be extended over the edges of the sides and tailboards; Stockpiles of C&D materials should be kept wet or covered by impervious sheets to avoid wind-blown dust; All dusty materials including C&D materials should be sprayed with water immediately prior to any loading transfer operation so as to keep the dusty material wet during material handling at the barging points/ stockpile areas; C&D materials to be delivered to and from the project site by barges or by trucks should be kept wet or covered to avoid wind-blown dust; The speed of the trucks including dump trucks carrying C&D or waste materials within the site should be controlled to about 10 km/hour in order to reduce the adverse dust impact and secure the safe movement around the site; and To avoid or minimise dust emission during transport of C&D or waste materials within the site, each and every main temporary access should be paved with concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials. Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet. 	Project Site Area / Construction Phase	I
10.5.1.3	7.1	-	<p>The following practices should be performed to achieve waste reduction include:</p> <ul style="list-style-type: none"> Use of steel or aluminium formworks and falseworks for temporary works as far as practicable; Adoption of repetitive design to allow reuse of formworks as far as practicable; Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; 	Project Site Area / Construction Phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force; Any unused chemicals or those with remaining functional capacity should be collected for reused as far as practicable; Proper storage and site practices to minimise the potential for damage or contamination of construction materials; and Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 		
10.5.1.5	7.1		<ul style="list-style-type: none"> Inert and non-inert C&D materials should be handled and stored separately to avoid mixing the two types of materials. 	Project Site Area / Construction Phase	I
10.5.1.5	7.1	-	<ul style="list-style-type: none"> Any recyclable materials should be segregated from the non-inert C&D materials for collection by reputable licensed recyclers whereas the non-recyclable waste materials should be disposed of at the designated landfill site by a reputable licensed waste collector. 	Project Site Area / Construction Phase	I
10.5.1.6	7.1	-	<ul style="list-style-type: none"> A trip-ticket system promulgated shall be developed in order to monitor the off-site delivery of surplus inert C&D materials that could not be reused on-site for the proposed land formation work at the PFRF and to control fly tipping. 	Project Site Area / Construction Phase	I
10.5.1.6	7.1	2.32	<ul style="list-style-type: none"> The Contractor should prepare and implement a Waste Management Plan detailing various waste arising and waste management practices. 	Construction Phase	I
10.5.1.16	7.1	-	<p>The following mitigation measures are recommended during excavation and treatment of the sediments:</p> <ul style="list-style-type: none"> On-site remediation should be carried out in an enclosed area in order to minimise odour/dust emissions; 	Project Site Area / Construction Phase	I
			<ul style="list-style-type: none"> The loading, unloading, handling, transfer or storage of treated and untreated sediment should be carried out in such a manner to prevent or minimise dust emissions; 		I
			<ul style="list-style-type: none"> All practical measures, including but not limited to speed control for vehicles, should be taken to minimise dust emission; 		I
			<ul style="list-style-type: none"> Good housekeeping should be maintained at all times at the sediment treatment facility and storage area; 		I
			<ul style="list-style-type: none"> Treated and untreated sediment should be clearly separated and stored separately; and 		I
			<ul style="list-style-type: none"> Surface runoff from the enclosed area should be properly collected and stored separately, and then properly treated to levels in compliance with the relevant effluent standards as required by the Water Pollution Control Ordinance before final discharge. 		I
10.5.1.18	7.1	-	<p>The marine sediments to be removed from the cable field joint area would be disposed of at the designated disposal sites to be allocated by the MFC. The following mitigation measures should be strictly</p>	Project Site Area / Construction Phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p>followed to minimise potential impacts on water quality during transportation of the sediments requiring Type 1 disposal:</p> <ul style="list-style-type: none"> Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material; Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by EPD; and Barges or hopper barges shall not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation. 		
10.5.1.19	7.1	-	<p>Contractor should register with the EPD as a chemical waste producer and to follow the relevant guidelines. The following measures should be implemented:</p> <ul style="list-style-type: none"> Good quality containers compatible with the chemical wastes should be used; Incompatible chemicals should be stored separately; Appropriate labels must be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc.; and The contractor will use a licensed collector to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. 	Project Site Area / Construction Phase	I
10.5.1.20	7.1	-	<ul style="list-style-type: none"> General refuse should be stored in enclosed bins or compaction units separated from inert C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site for disposal at designated landfill sites. An enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material. 	Project Site Area / Construction Phase	I
10.5.1.21	7.1	-	<ul style="list-style-type: none"> The construction contractors will be required to regularly check and clean any refuse trapped or accumulated along the newly constructed seawall. Such refuse will then be stored and disposed of together with the general refuse. 	Project Site Area / Construction Phase	I
Land Contamination – Construction Phase					
11.10.1.2 to 11.10.1.3	8.1	2.32	<p>For areas inaccessible during site reconnaissance survey</p> <ul style="list-style-type: none"> Further site reconnaissance would be conducted once the areas are accessible in order to identify any land contamination concern for the areas. 	Project Site Area inaccessible during site reconnaissance / Prior to Construction Phase	I
			<ul style="list-style-type: none"> Subject to further site reconnaissance findings, a supplementary Contamination Assessment Plan (CAP) for additional site investigation (SI) (if necessary) may be prepared and submitted to EPD for endorsement prior to the commencement of SI at these areas. 		I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> After completion of SI, the Contamination Assessment Report (CAR) will be prepared and submitted to EPD for approval prior to start of the proposed construction works at the golf course, the underground and above-ground fuel storage tank areas, emergency power generation units, airside petrol filling station and fuel tank room. 		I *(CAR for golf course and Terminal 2 Emergency Power Supply System Nos.1, 2, 3, 4 and 5)
			<ul style="list-style-type: none"> Should remediation be required, Remediation Action Plan (RAP) and Remediation Report (RR) will be prepared for EPD's approval prior to commencement of the proposed remediation and any construction works respectively. 		N/A
11.8.1.2	8.1	-	<p>If contaminated soil is identified, the following mitigation measures are for the excavation and transportation of contaminated materials (if any):</p> <ul style="list-style-type: none"> To minimize the incidents of construction workers coming in contact with any contaminated materials, bulk earth-moving excavation equipment should be employed; Contact with contaminated materials can be minimised by wearing appropriate clothing and personal protective equipment such as gloves and masks (especially when working directly with contaminated material), provision of washing facilities and prohibition of smoking and eating on site; Stockpiling of contaminated excavated materials on site should be avoided as far as possible; The use of any contaminated soil for landscaping purpose should be avoided unless pre-treatment was carried out; Vehicles containing any excavated materials should be suitably covered to reduce dust emissions and/or release of contaminated wastewater; Truck bodies and tailgates should be sealed to prevent any discharge; Only licensed waste haulers should be used to collect and transport contaminated material to treatment/disposal site and should be equipped with tracking system to avoid fly tipping; Speed control for trucks carrying contaminated materials should be exercised. 8km/h is the recommended speed limit; Strictly observe all relevant regulations in relation to waste handling, such as Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) and obtain all necessary permits where required; and Maintain records of waste generation and disposal quantities and disposal arrangements. 	Project Site Area / Construction Phase	N/A
Terrestrial Ecological – Construction Phase					
12.10.1.1	9.2	2.14	<p>Pre-construction Egretty Survey</p> <ul style="list-style-type: none"> Conduct ecological survey for Sha Chau egretty to update the latest boundary of the egretty. 	Breeding season (April - July) prior to commencement of	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
				HDD drilling works at HKIA	
12.7.2.3 and 12.7.2.6	9.1	2.30	Avoidance and Minimisation of Direct Impact to Egret <ul style="list-style-type: none"> The daylighting location will avoid direct encroachment to the Sheung Sha Chau egret. The daylighting location and mooring of flat top barge, if required, will be kept away from the egret; In any event, controls such as demarcation of construction site boundary and confining the lighting within the site will be practised to minimise disturbance to off-site habitat at Sheung Sha Chau Island; and The containment pit at the daylighting location shall be covered or camouflaged. 	During construction phase at Sheung Sha Chau Island	I
12.7.2.5	9.1	2.30	Preservation of Nesting Vegetation <ul style="list-style-type: none"> The proposed daylighting location and the arrangement of connecting pipeline will avoid the need of tree cutting, therefore the trees that are used by ardeids for nesting will be preserved. 	During construction phase at Sheung Sha Chau Island	I
12.7.2.4 and 12.7.2.6	9.1	2.30	Timing the Pipe Connection Works outside Ardeid's Breeding Season <ul style="list-style-type: none"> All HDD and related construction works on Sheung Sha Chau Island will be scheduled outside the ardeids' breeding season (between April and July). No night-time construction work will be allowed on Sheung Sha Chau Island during all seasons. 	During construction phase at Sheung Sha Chau Island	I
12.10.1.1	9.3	-	Ecological Monitoring <ul style="list-style-type: none"> During the HDD construction works period from August to March, ecological monitoring will be undertaken monthly at the HDD daylighting location on Sheung Sha Chau Island to identify and evaluate any impacts with appropriate actions taken as required to address and minimise any adverse impact found. 	at Sheung Sha Chau Island	I
Marine Ecological Impact – Pre-construction Phase					
13.11.4.1	10.2.2	-	<ul style="list-style-type: none"> Pre-construction phase Coral Dive Survey. 	HKIAA artificial seawall	I
Marine Ecological Impact – Construction Phase					
13.11.1.3 to 13.11.1.6	-	-	Minimisation of Land Formation Area <ul style="list-style-type: none"> Minimise the overall size of the land formation needed for the additional facilities to minimise the overall loss of habitat for marine resources, especially the CWD population. 	Land formation footprint / during detailed design phase to completion of construction	I
13.11.1.7 to 13.11.1.10	-	2.31	Use of Construction Methods with Minimal Risk/Disturbance <ul style="list-style-type: none"> Use of non-dredge method for the main land formation and ancillary works including the diversion of the aviation fuel pipeline to the AFRF; 	During construction phase at marine works area	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> Use of Deep Cement Mixing (DCM) method instead of conventional seabed dredging for the land formation works to reduce the risk of negative impacts through the elevation of suspended solids and contaminants on CWDs, fisheries and the marine environment; 		I
			<ul style="list-style-type: none"> Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; 		I
			<ul style="list-style-type: none"> Avoid bored piling during CWD peak calving season (Mar to Jun); 		I
			<ul style="list-style-type: none"> Prohibition of underwater percussive piling; and 		I
			<ul style="list-style-type: none"> Use of horizontal directional drilling (HDD) method and water jetting methods for placement of submarine cables and pipelines to minimise the disturbance to the CWDs and other marine ecological resources. 		I
13.11.2.1 to 13.11.2.7	-	-	Mitigation for Indirect Disturbance due to Deterioration of Water Quality <ul style="list-style-type: none"> Water quality mitigation measures during construction phases include consideration of alternative construction methods, deployment of silt curtain and good site practices; 	All works area during the construction phase	I
			<ul style="list-style-type: none"> Alternative construction methods including use of non-dredge methods for ground improvement (e.g. Deep Cement Mixing (DCM), prefabricated vertical drains (PVD), sand compaction piles, steel cells, stone columns and vertical sand drains); 		I
			<ul style="list-style-type: none"> Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and 		I
			Use of horizontal directional drilling (HDD) method and water jetting methods for placement of undersea cables and pipelines to minimise the disturbance to the CWDs and other marine ecological resources.		I
13.11.1.12	-	-	Strict Enforcement of No-Dumping Policy <ul style="list-style-type: none"> A policy prohibiting dumping of wastes, chemicals, oil, trash, plastic, or any other substance that would potentially be harmful to dolphins and/or their habitat in the work area; Mandatory educational programme of the no-dumping policy be made available to all construction site personnel for all project-related works; Fines for infractions should be implemented; and Unscheduled, on-site audits shall be implemented. 	All works area during the construction phase	I
13.11.1.13	-	-	Good Construction Site Practices <ul style="list-style-type: none"> Regular inspection of the integrity and effectiveness of all silt curtains and monitoring of effluents to ensure that any discharge meets effluent discharge guidelines; Keep the number of working or stationary vessels present on-site to the minimum anytime; and Unscheduled, on-site audits for all good site practice restrictions should be conducted, and fines or penalties sufficient to be an effective deterrent need to be levied against violators. 	All works area during the construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
13.11.1.3 to 13.11.1.6	-	-	Minimisation of Land Formation Area <ul style="list-style-type: none"> Minimise the overall size of the land formation needed for the additional facilities to minimise the overall loss of habitat for marine resources, especially the CWD population. 	Land formation footprint / during detailed design phase to completion of construction	I
13.11.5.4 to 13.11.5.13	10.3.1	-	SkyPier High Speed Ferries' Speed Restrictions and Route Diversions <ul style="list-style-type: none"> SkyPier HSFs operating to / from Zhuhai and Macau would divert north of SCLKC Marine Park with a 15 knot speed limit to apply for the part-journeys that cross high CWD abundance grid squares as indicatively shown in Drawing No. MCL/P132/EIA/13-023 of the EIA Report. Both the alignment of the northerly route and the portion of routings to be subject to the speed limit of 15 knots shall be finalised prior to commencement of construction based on the future review of up-to-date CWD abundance and EM&A data and taking reference to changes in total SkyPier HSF numbers; and A maximum of 10 knots will be enforced through the designated SCLKC Marine Park area at all times. 	Area between the footprint and SCLKC Marine Park during construction phase	I
			Other mitigation measures <ul style="list-style-type: none"> The ET will audit various parameters including actual daily numbers of HSFs, compliance with the 15-knot speed limit in the speed control zone and diversion compliance for SkyPier HSFs operating to / from Zhuhai and Macau; and The effectiveness of the CWD mitigation measures after implementation of initial six month SkyPier HSF diversion and speed restriction will be reviewed. 	Area between the footprint and SCLKC Marine Park during construction phase	I
13.11.5.14 to 13.11.5.18	10.3.1	2.31	Dolphin Exclusion Zone <ul style="list-style-type: none"> Establishment of a 24 hr Dolphin Exclusion Zone (DEZ) with a 250 m radius around the land formation works areas; 	Marine waters around land formation works area during construction phase	I
			<ul style="list-style-type: none"> A DEZ would also be implemented during ground improvement works (e.g. DCM), water jetting works for submarine cables diversion, open trench dredging at the field joint locations and seawall construction; and 		I
			<ul style="list-style-type: none"> A DEZ would also be implemented during bored piling work but as a precautionary measure only. 		I
13.11.5.19	10.4	2.31	Acoustic Decoupling of Construction Equipment <ul style="list-style-type: none"> Air compressors and other noisy equipment that must be mounted on steel barges should be acoustically-decoupled to the greatest extent feasible, for instance by using rubber or air-filled tyres; and Specific acoustic decoupling measures shall be specified during the detailed design of the project for use during the land formation works. 	Around coastal works area during construction phase	I
13.11.5.20	10.6.1	2.29	Spill Response Plan	Construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> An oil and hazardous chemical spill response plan is proposed to be established during the construction phase as a precautionary measure so that appropriate actions to prevent or reduce risks to CWDs can be undertaken in the event of an accidental spillage. 		
13.11.5.21 to 13.11.5.23	10.6.1	-	Construction Vessel Speed Limits and Skipper Training <ul style="list-style-type: none"> A speed limit of 10 knots should be strictly observed for construction vessels at areas with the highest CWD densities; and Vessels traversing through the work areas should be required to use predefined and regular routes (which would presumably become known to resident dolphins) to reduce disturbance to cetaceans due to vessel movements. Specific marine routes shall be specified by the Contractor prior to construction commencing. 	All areas north and west of Lantau Island during construction phase	I
Fisheries Impact – Construction Phase					
14.9.1.2 to 14.9.1.5	-		Minimisation of Land Formation Area <ul style="list-style-type: none"> Minimise the overall size of the land formation needed for the additional facilities to minimise the overall loss of habitat for fisheries resources. 	Land formation footprint / during detailed design phase to completion of construction	I
14.9.1.6	-	-	Use of Construction Methods with Minimal Risk/Disturbance <ul style="list-style-type: none"> Use of non-dredge method for the main land formation and ancillary works including the diversion of the aviation fuel pipeline to the AFRF; 	During construction phase at marine works area	I
			<ul style="list-style-type: none"> Use of Deep Cement Mixing (DCM) method instead of conventional seabed dredging for the land formation works to reduce the risk of negative impacts through the elevation of suspended solids and contaminants on fisheries and the marine environment; 		I
			<ul style="list-style-type: none"> Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and 		I
			<ul style="list-style-type: none"> Use of horizontal directional drilling (HDD) method and water jetting methods for placement of undersea cables and pipelines to minimise the disturbance to fisheries resources. 		I
14.9.1.11	-		Strict Enforcement of No-Dumping Policy <ul style="list-style-type: none"> A policy prohibiting dumping of wastes, chemicals, oil, trash, plastic, or any other substance that would potentially be harmful to dolphins and/or their habitat in the work area; Mandatory educational programme of the no-dumping policy be made available to all construction site personnel for all project-related works; Fines for infractions should be implemented; and Unscheduled, on-site audits shall be implemented. 	All works area during the construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
14.9.1.12	-		Good Construction Site Practices <ul style="list-style-type: none"> Regular inspection of the integrity and effectiveness of all silt curtains and monitoring of effluents to ensure that any discharge meets effluent discharge guidelines; Keep the number of working or stationary vessels present on-site to the minimum anytime; and Unscheduled, on-site audits for all good site practice restrictions should be conducted, and fines or penalties sufficient to be an effective deterrent need to be levied against violators. 	All works area during the construction phase	I
14.9.1.13 to 14.9.1.18	-		Mitigation for Indirect Disturbance due to Deterioration of Water Quality <ul style="list-style-type: none"> Water quality mitigation measures during construction phases include consideration of alternative construction methods, deployment of silt curtain and good site practices; 	All works area during the construction phase	I
			<ul style="list-style-type: none"> Alternative construction methods including use of non-dredge methods for ground improvement (e.g. Deep Cement Mixing (DCM), prefabricated vertical drains (PVD), sand compaction piles, steel cells, stone columns and vertical sand drains); 		I
			<ul style="list-style-type: none"> Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and 		I
			<ul style="list-style-type: none"> Use of horizontal directional drilling (HDD) method and water jetting methods for placement of undersea cables and pipelines to minimise the disturbance to fisheries resources. 		I
Landscape and Visual Impact – Construction Phase					
Table 15.6	12.3	-	CM1 - The construction area and contractor's temporary works areas should be minimised to avoid impacts on adjacent landscape.	All works areas for duration of works; Upon handover and completion of works.	I
Table 15.6	12.3	-	CM2 - Reduction of construction period to practical minimum.	All works areas for duration of works; Upon handover and completion of works.	I
Table 15.6	12.3	-	CM3 - Phasing of the construction stage to reduce visual impacts during the construction phase.	All works areas for duration of works; Upon handover and completion of works.	I
Table 15.6	12.3	-	CM4 - Construction traffic (land and sea) including construction plants, construction vessels and barges should be kept to a practical minimum.	All works areas for duration of works; Upon handover and completion of works.	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
Table 15.6	12.3	-	CM5 - Erection of decorative mesh screens or construction hoardings around works areas in visually unobtrusive colours.	All works areas for duration of works; Upon handover and completion of works. – may be disassembled in phases	I
Table 15.6	12.3	-	CM6 - Avoidance of excessive height and bulk of site buildings and structures.	New passenger concourse, terminal 2 expansion and other proposed airport related buildings and structures under the project; Upon handover and completion of works.	I
Table 15.6	12.3	-	CM7 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	All works areas for duration of works; Upon handover and completion of works. – may be disassembled in phases	I
Table 15.6	12.3	-	CM8 - All existing trees shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas.	All existing trees to be retained; Upon handover and completion of works.	I
Table 15.6	12.3	-	CM9 - Trees unavoidably affected by the works shall be transplanted where practical. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme.	All existing trees to be affected by the works; Upon handover and completion of works.	I
Table 15.6	12.3	-	CM10 - Land formation works shall be followed with advanced hydroseeding around taxiways and runways as soon as practical.	All affected existing grass areas around runways and verges/Duration of works;	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
				Upon handover and completion of works.	
			Cultural Heritage Impact – Construction Phase		
			Not applicable.		
			Health Impact – Aircraft Emissions		
			Not applicable.		
			Health Impact – Aircraft Noise		
			Not applicable.		

Notes:

“ - ” For items denoted as “ - ” provided under the columns of EM&A Ref. or EP Condition, environmental protection measures should be referred to the relevant paragraph(s) / table(s) in the approved EIA Report.

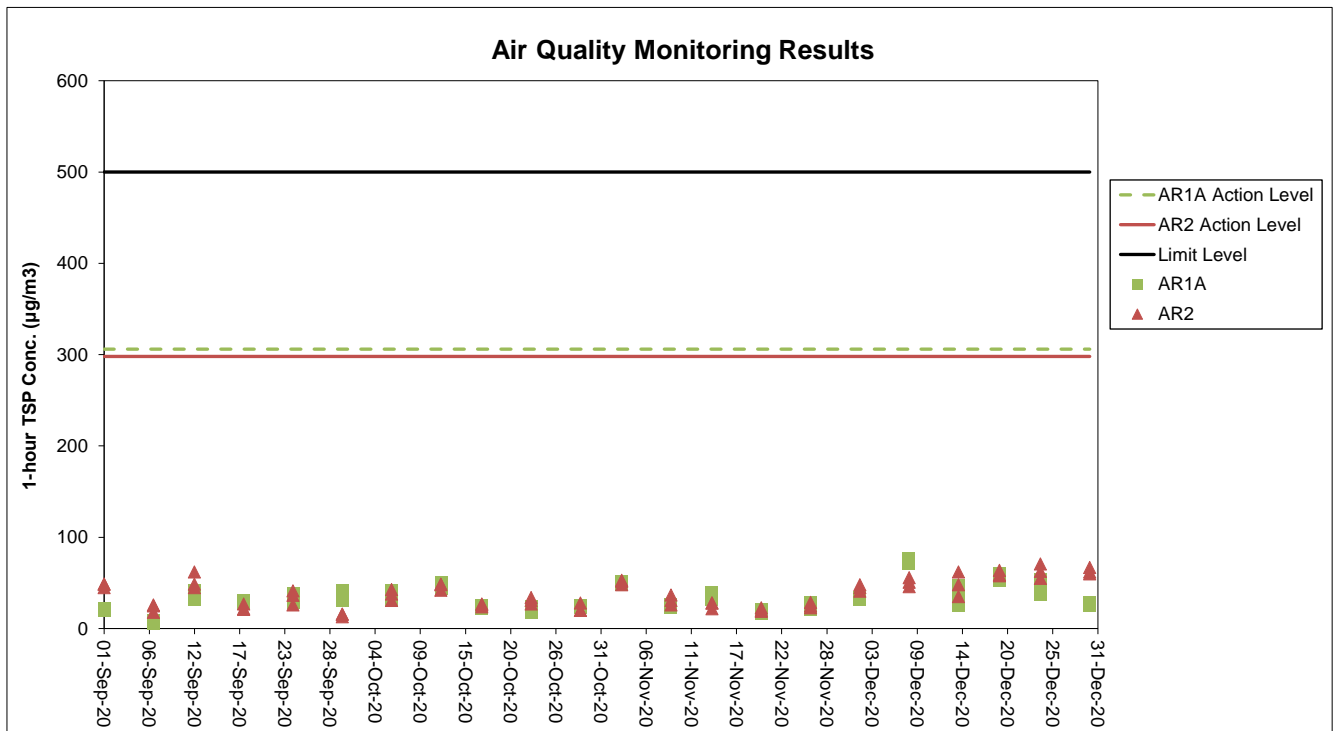
“ I ” Implemented where applicable.

“ N/A ” Not applicable to the construction works implemented during the reporting month.

“ ^ ” Checked by ET through site inspection and record provided by the Contractor.

Appendix C. Monitoring Results

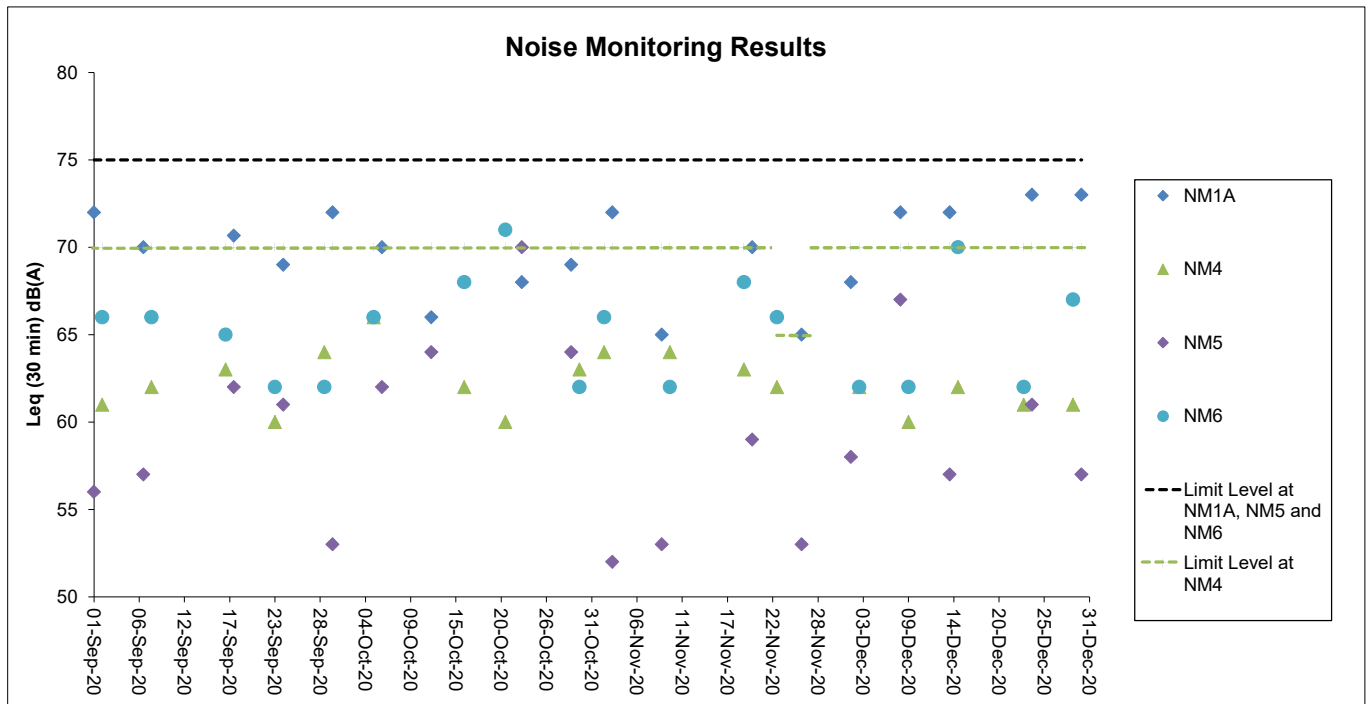
Air Quality Monitoring Results



Notes:

1. The key activities of the Project carried out in the reporting period included reclamation works and land-based works. Works in the reclamation areas included DCM works, marine filling, seawall and facilities construction, together with runway and associated works. Land-based works on existing airport island involved mainly airfield works, foundation and substructure work for Terminal 2 expansion, modification and tunnel work for APM and BHS systems, and preparation work for utilities, with activities include site establishment, site office construction, road and drainage works, cable ducting, demolition of existing facilities, piling, and excavation works.
2. General weather condition during monitoring ranged from sunny to cloudy. Detailed meteorological conditions can be referred to Table 2.3 of this Report and corresponding Monthly EM&A Reports.
3. QA/ QC requirements as stipulated in the EM&A Manual were carried out during measurement.

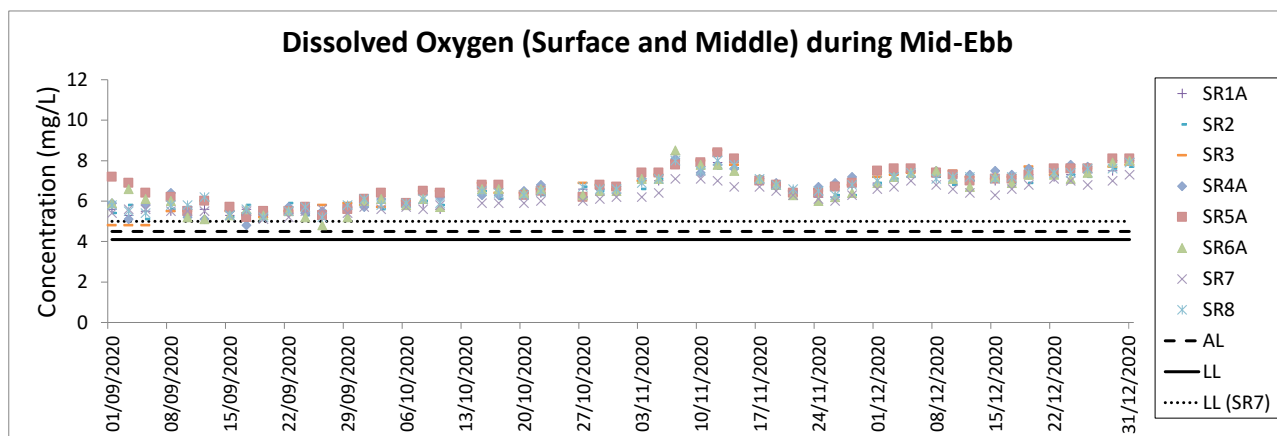
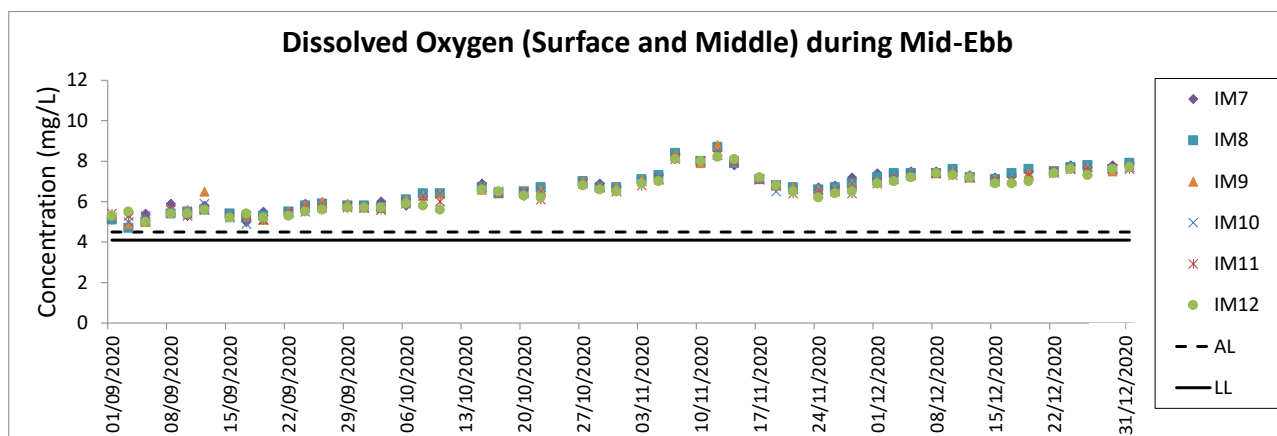
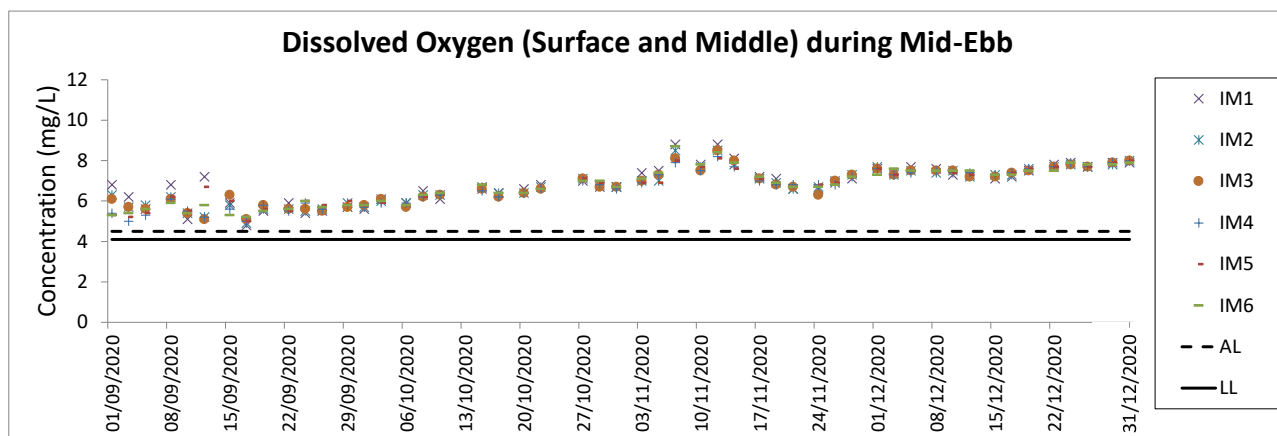
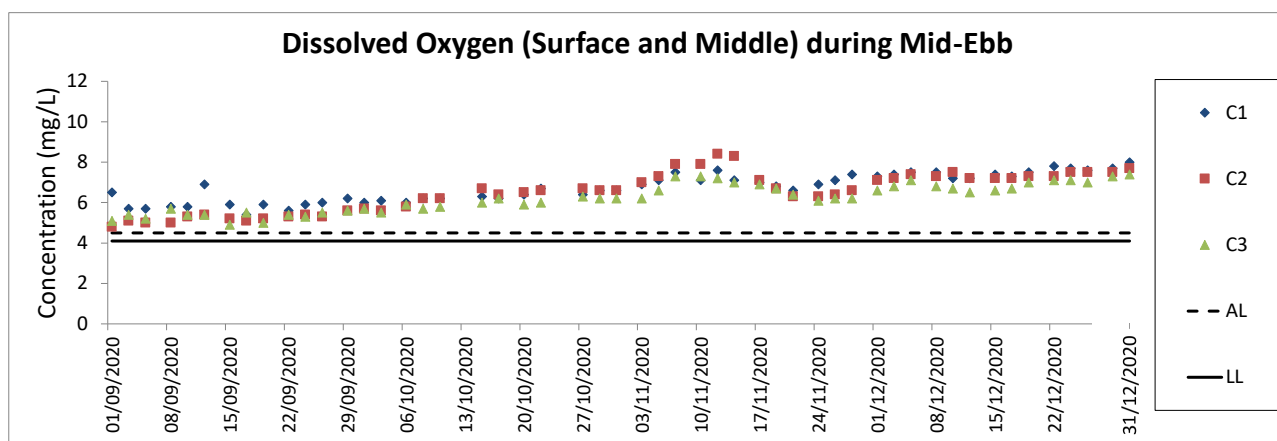
Noise Monitoring Results



Notes:

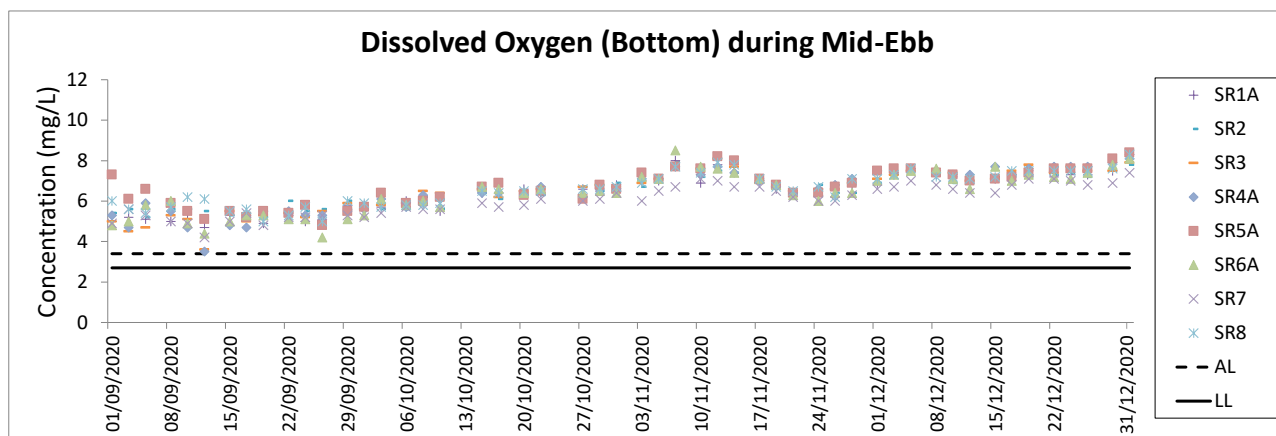
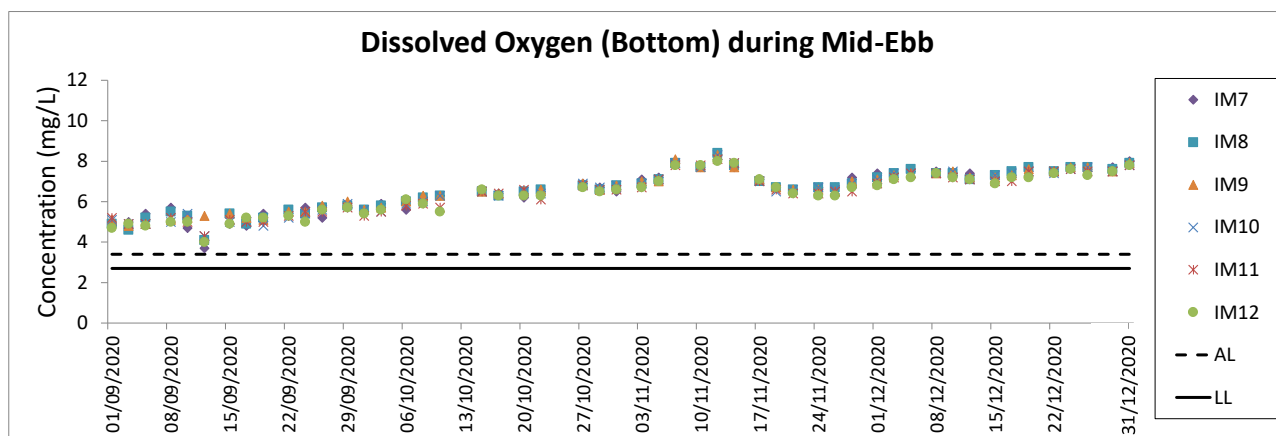
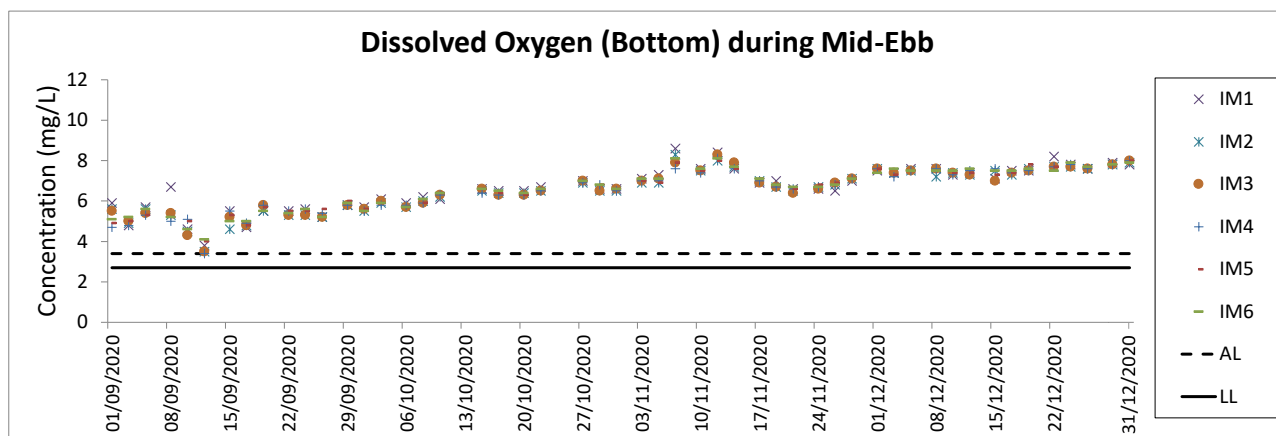
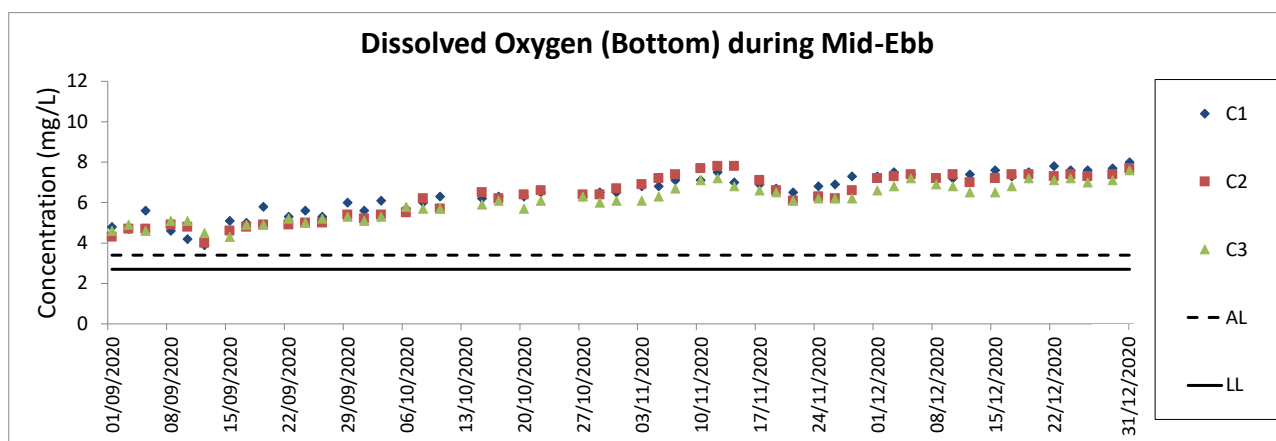
1. The Limit Level is reduced to 70dB(A) for school and 65dB(A) during school examination period at NM4. School examination took place from 23 to 27 November during this reporting period.
2. The key activities of the Project carried out in the reporting period included reclamation works and land-based works. Works in the reclamation areas included DCM works, marine filling, seawall and facilities construction, together with runway and associated works. Land-based works on existing airport island involved mainly airfield works, foundation and substructure work for Terminal 2 expansion, modification and tunnel work for APM and BHS systems, and preparation work for utilities, with activities include site establishment, site office construction, road and drainage works, cable ducting, demolition of existing facilities, piling, and excavation works.
3. General weather condition during monitoring ranged from sunny to cloudy. Detailed meteorological conditions can be referred to Table 2.6 of this Report and corresponding Monthly EM&A Reports.
4. QA/ QC requirements as stipulated in the EM&A Manual were carried out during measurement.

Water Quality Monitoring Results



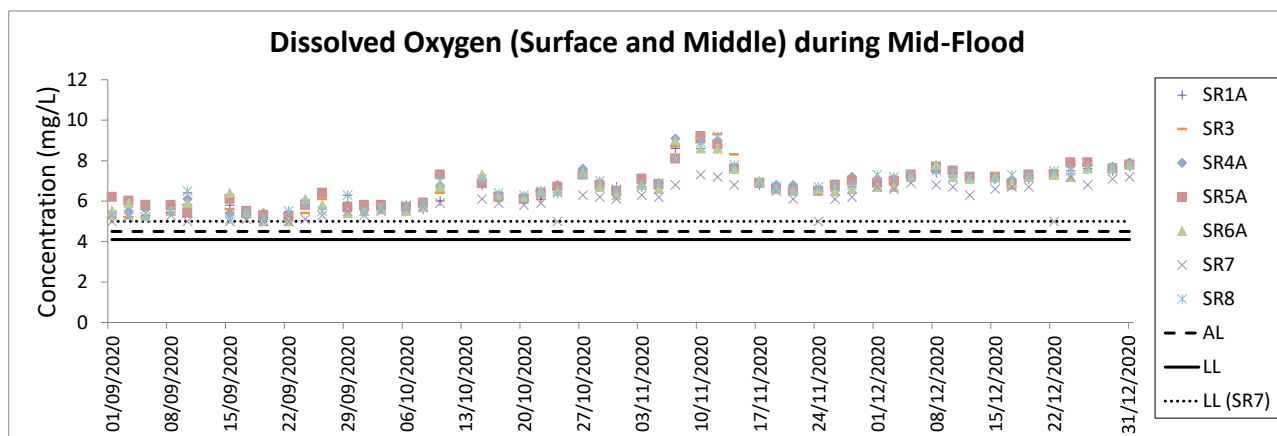
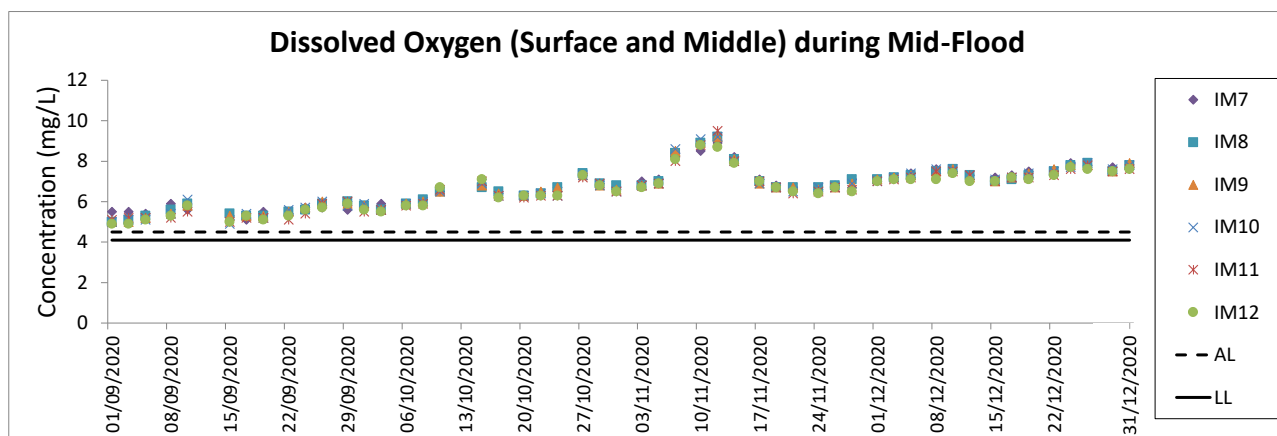
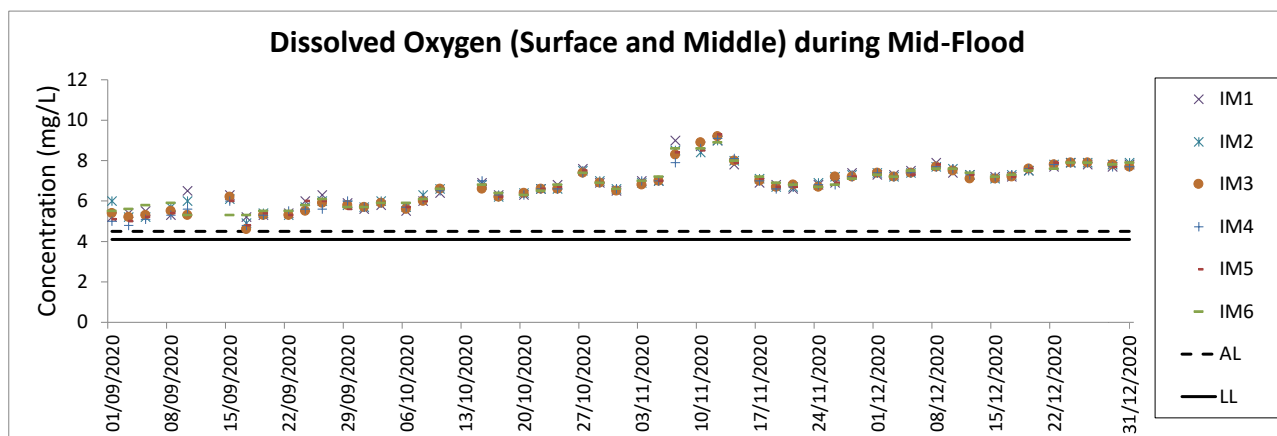
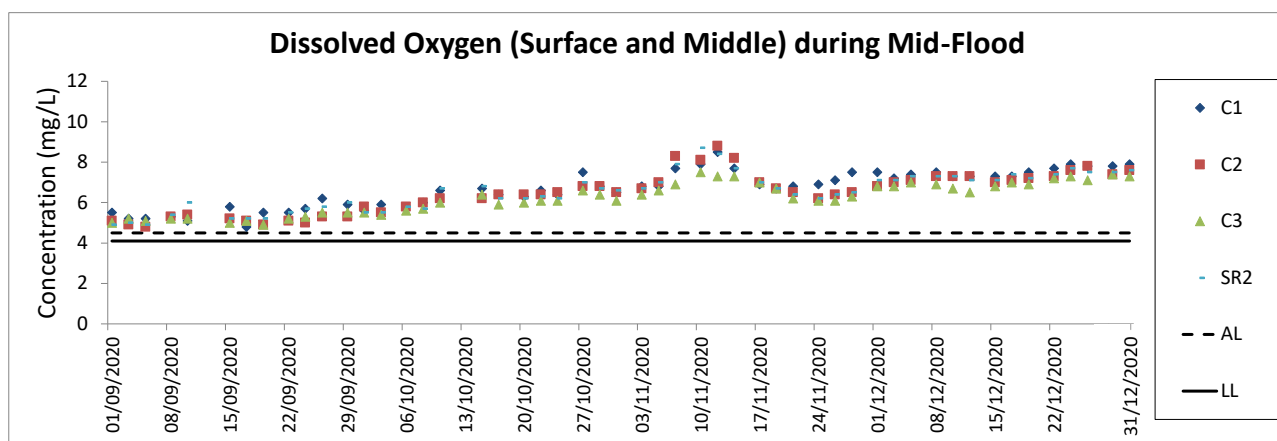
Notes:

1. The key marine works activities of the Project during monitoring included deep cement mixing (DCM) works, marine filling, seawall and facilities construction, together with runway and associated works.
2. General weather condition during monitoring ranged from sunny to rainy, with sea condition ranged from calm to rough. Detailed meteorological conditions can be referred to Table 2.11 of this Report and corresponding Monthly EM&A Reports.
3. QA/ QC requirements as stipulated in the EM&A Manual were carried out during measurement.

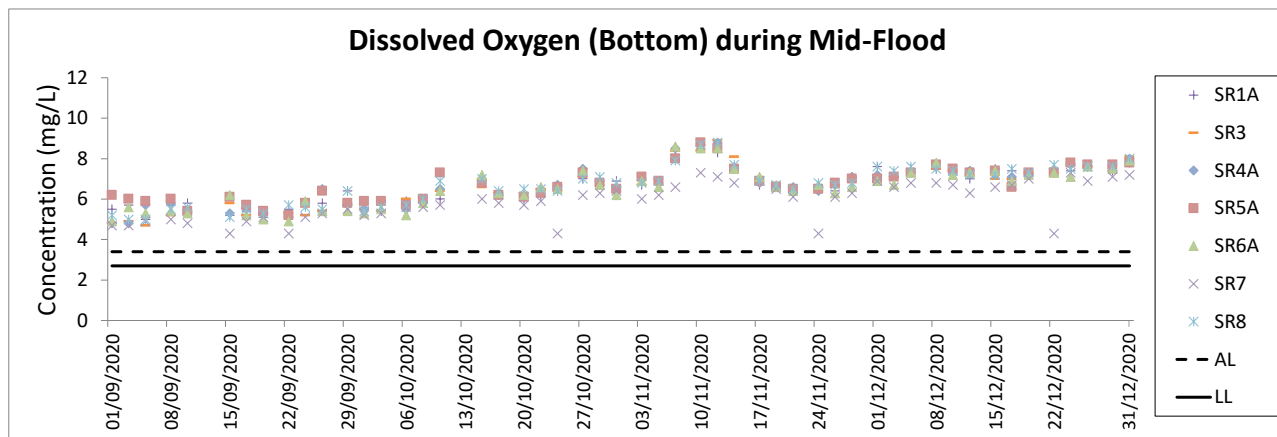
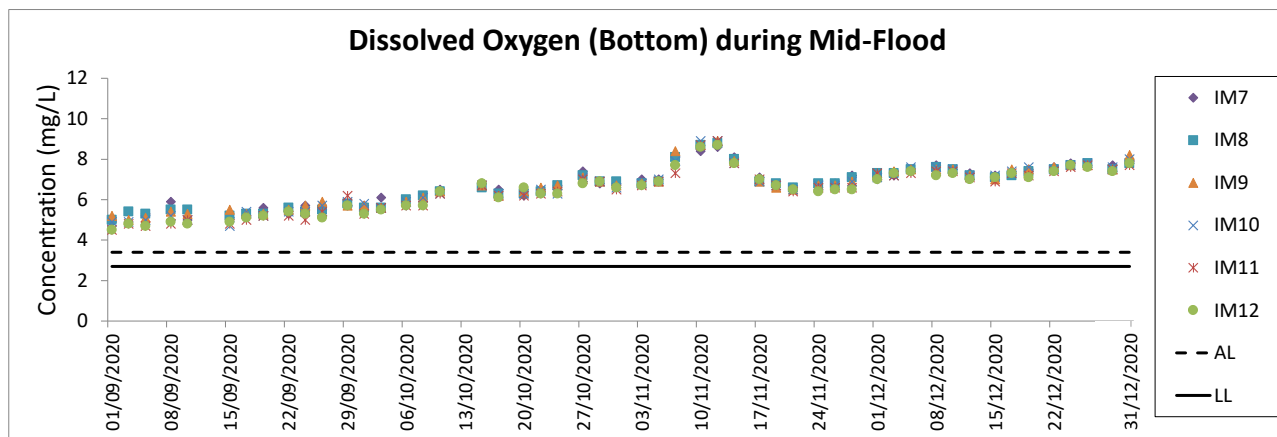
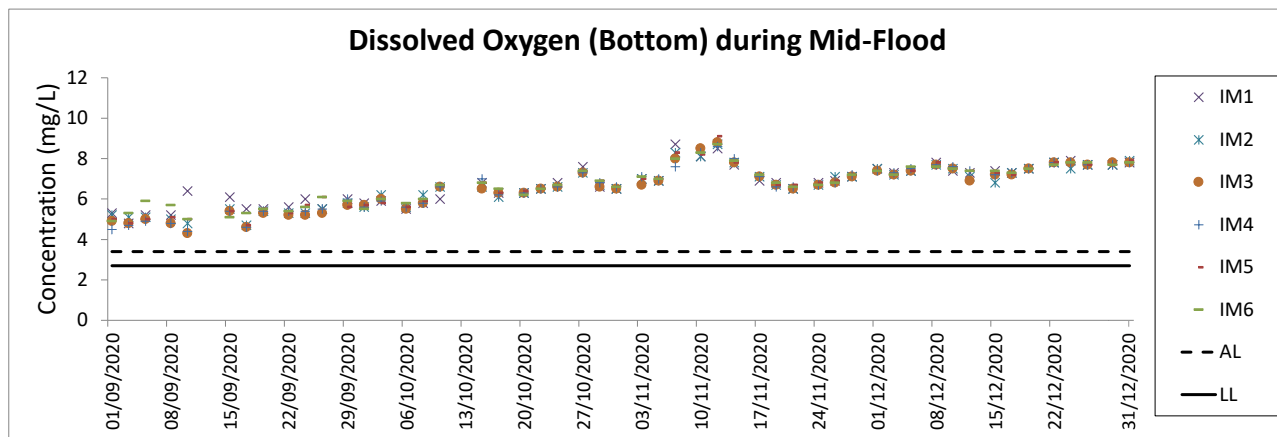
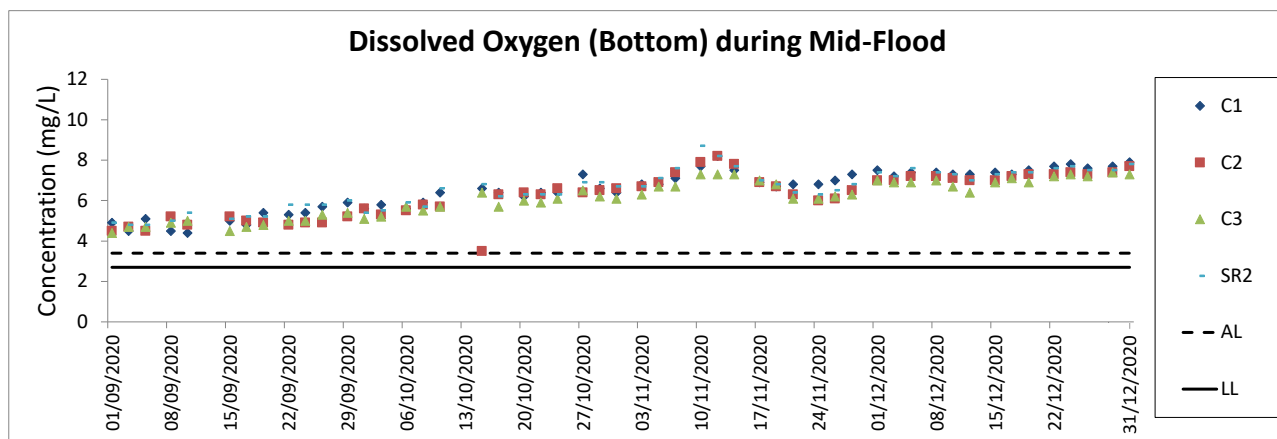


Notes:

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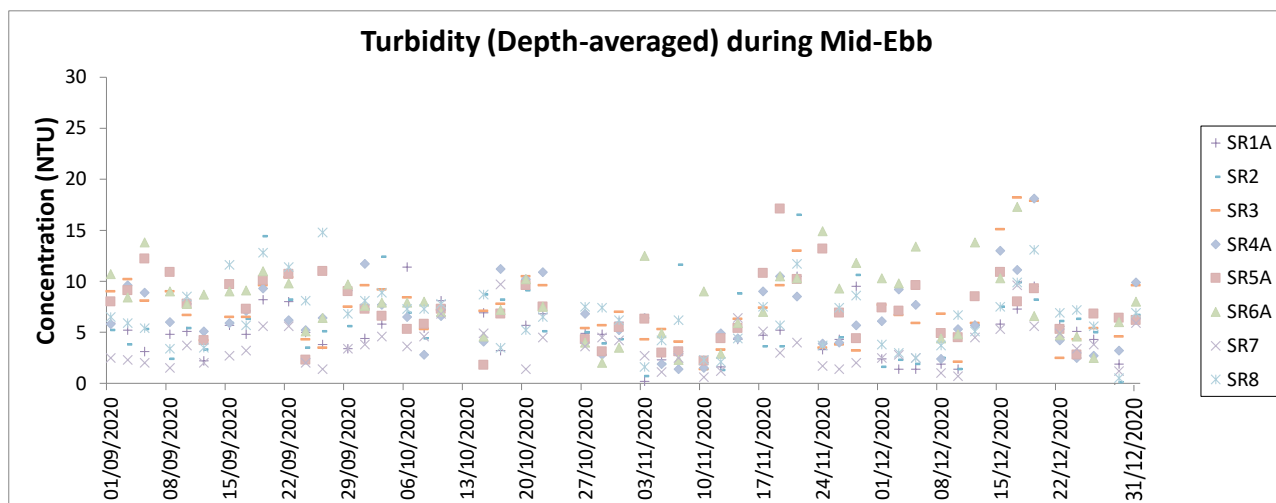
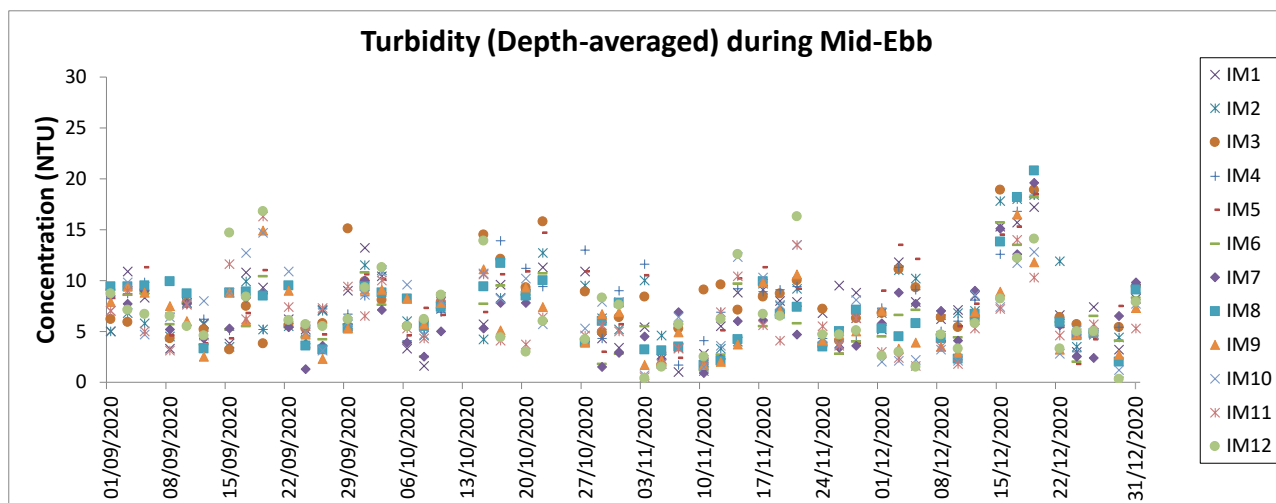
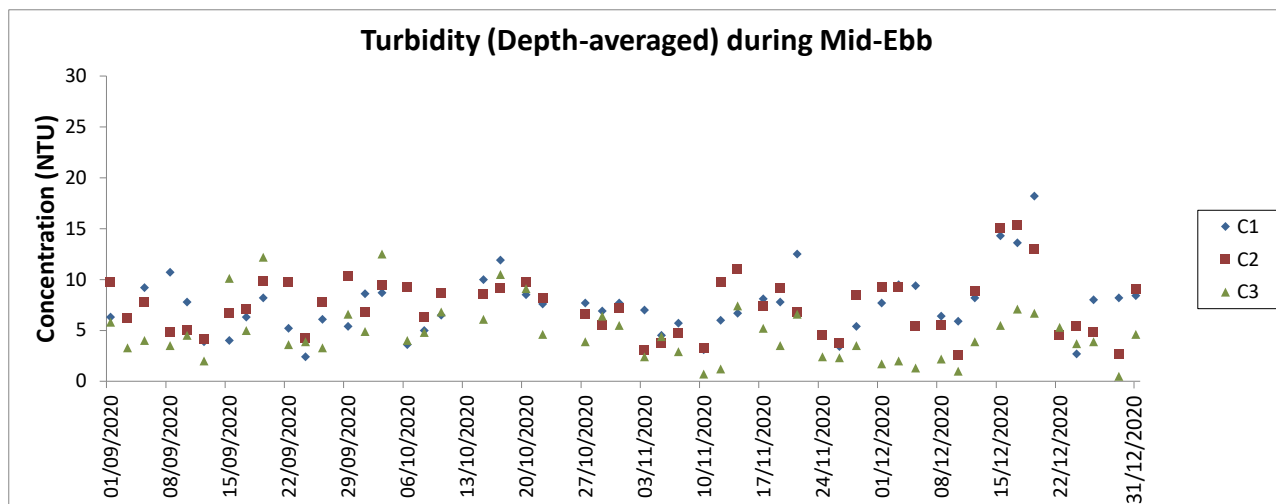


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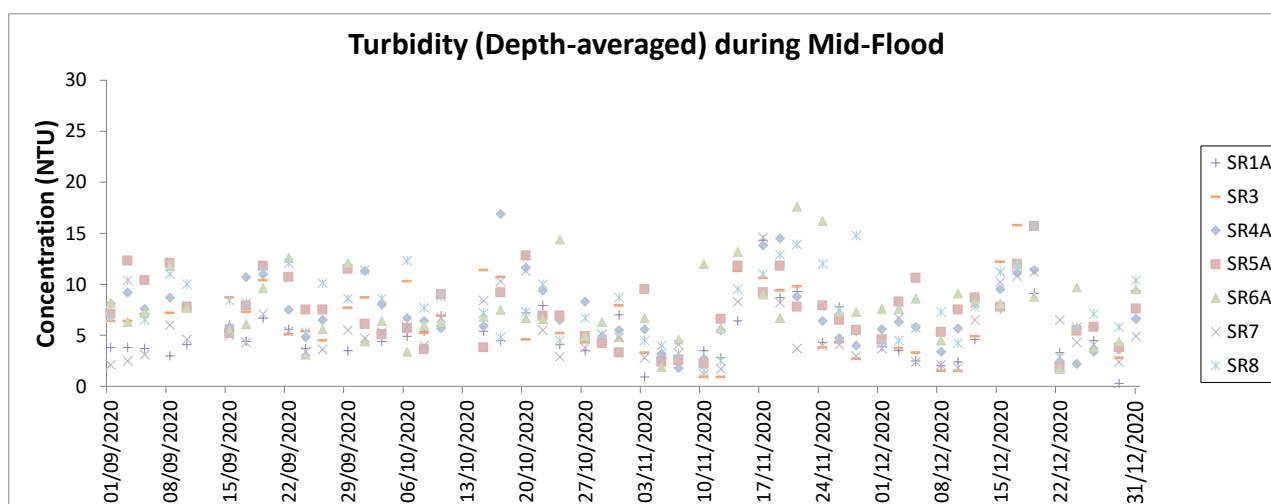
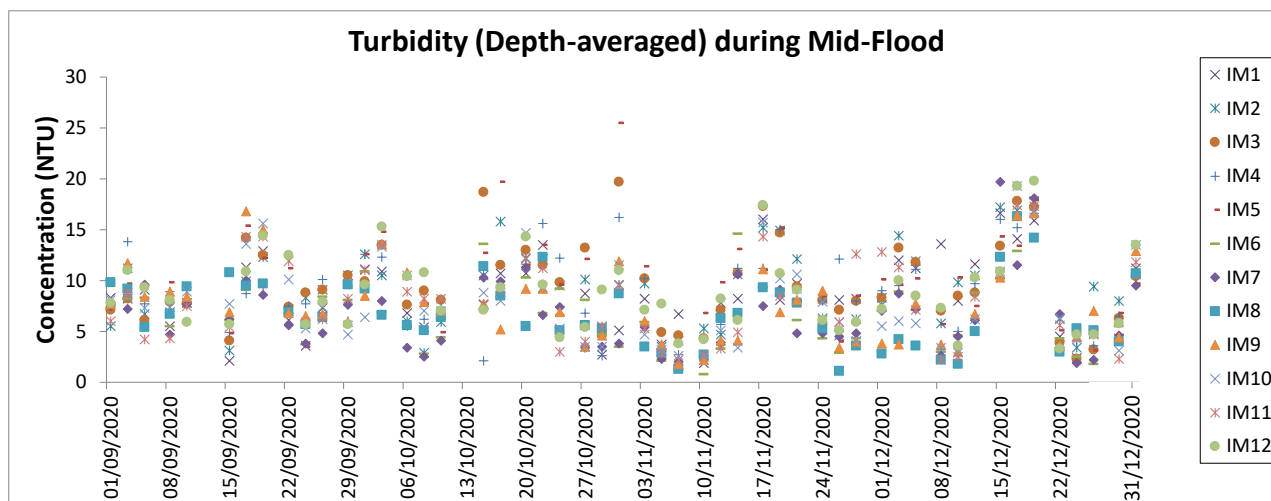
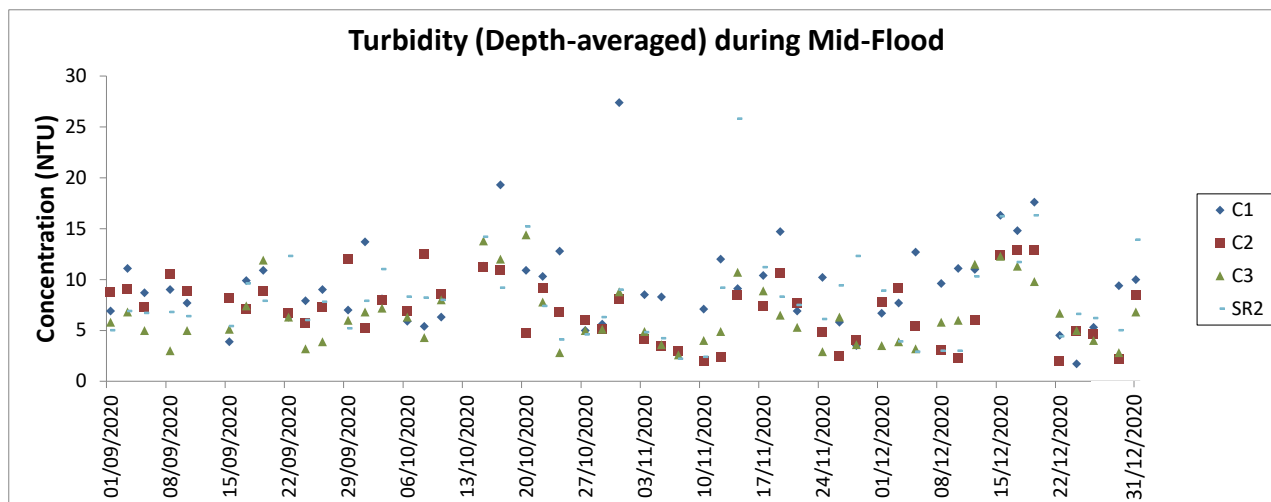
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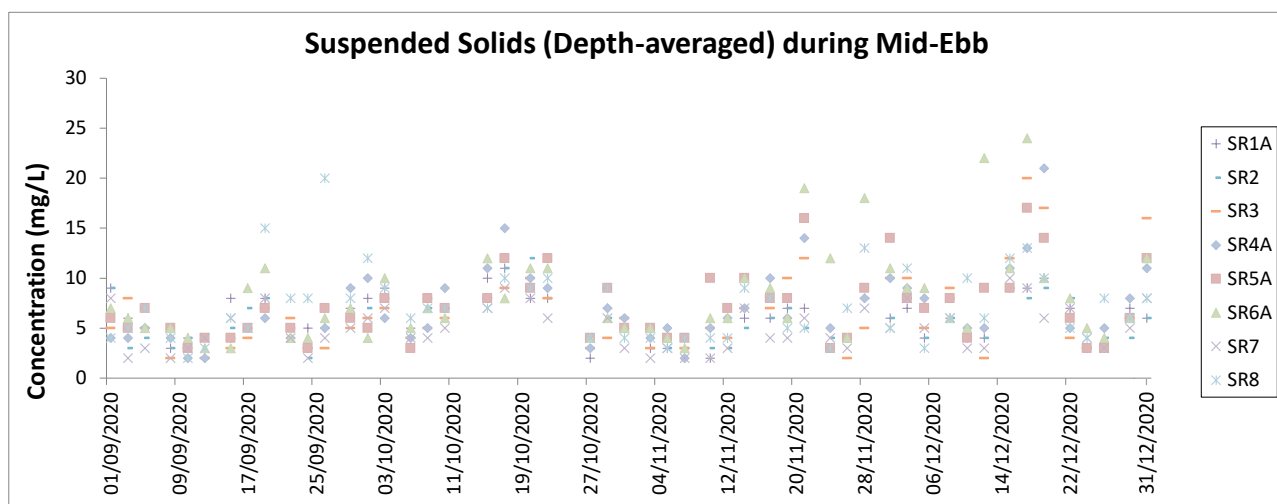
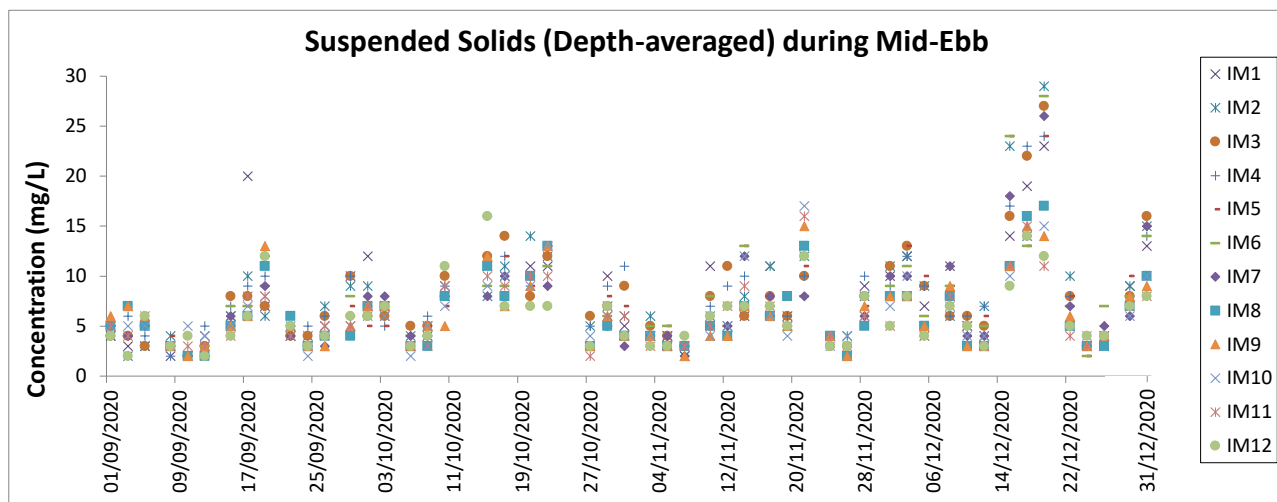
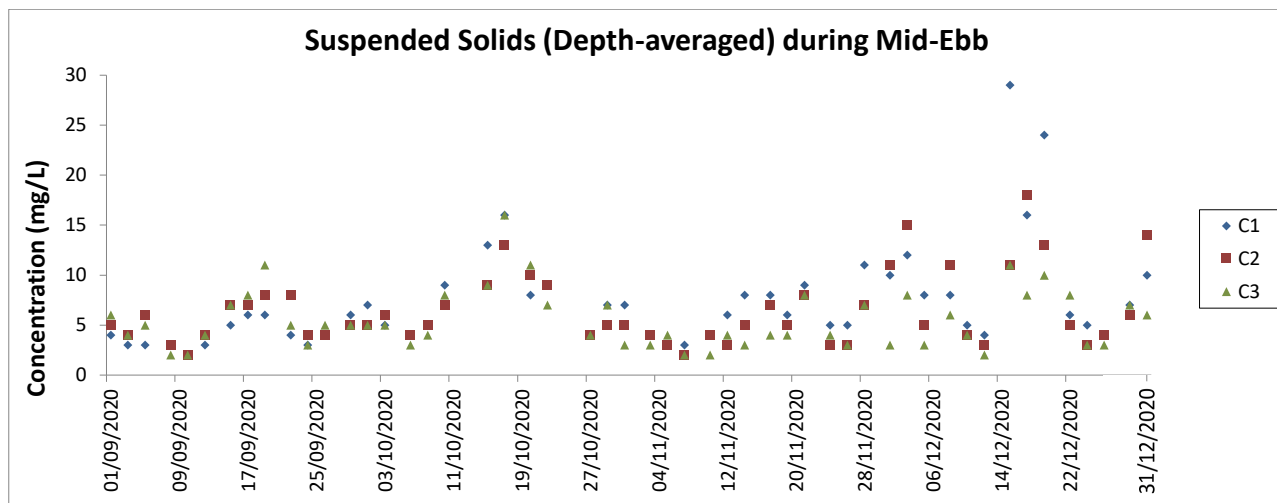
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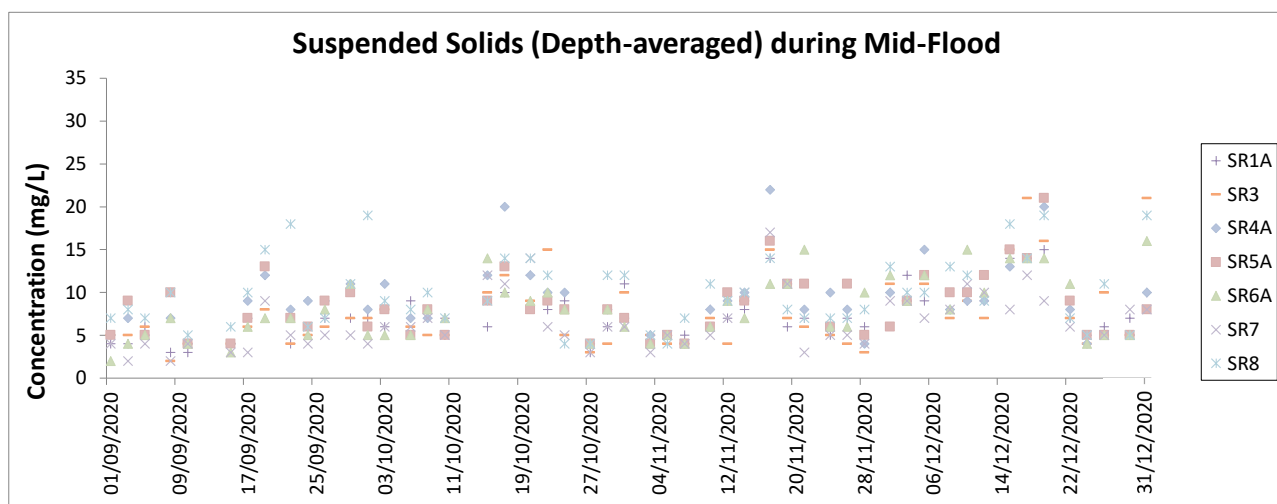
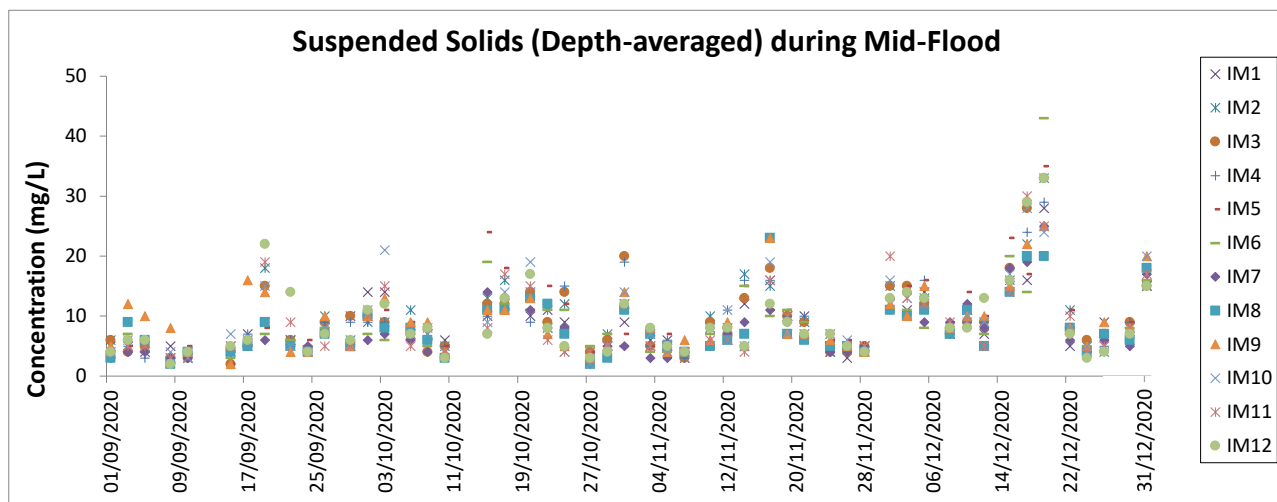
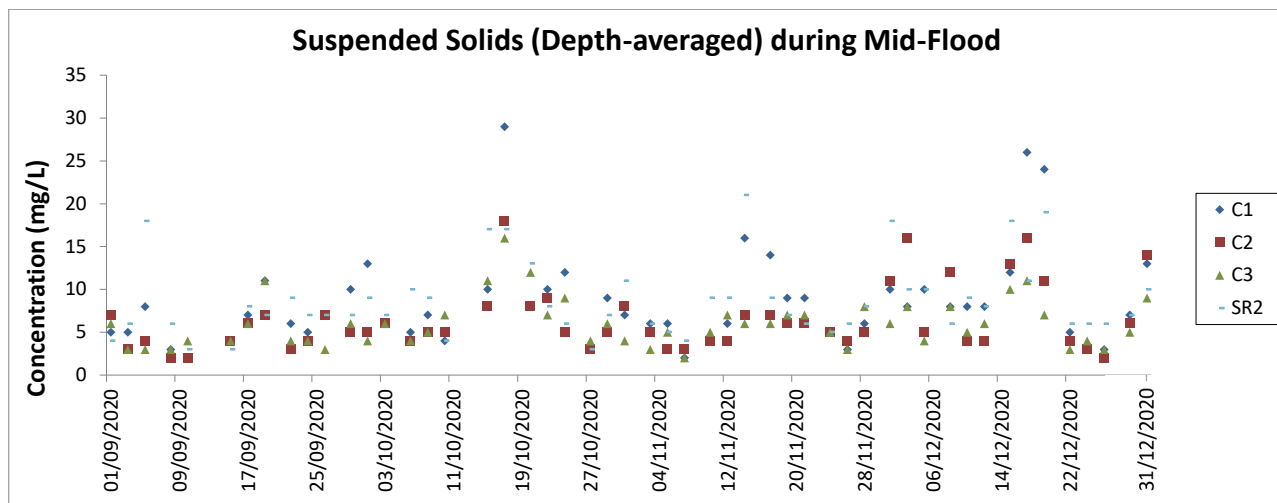
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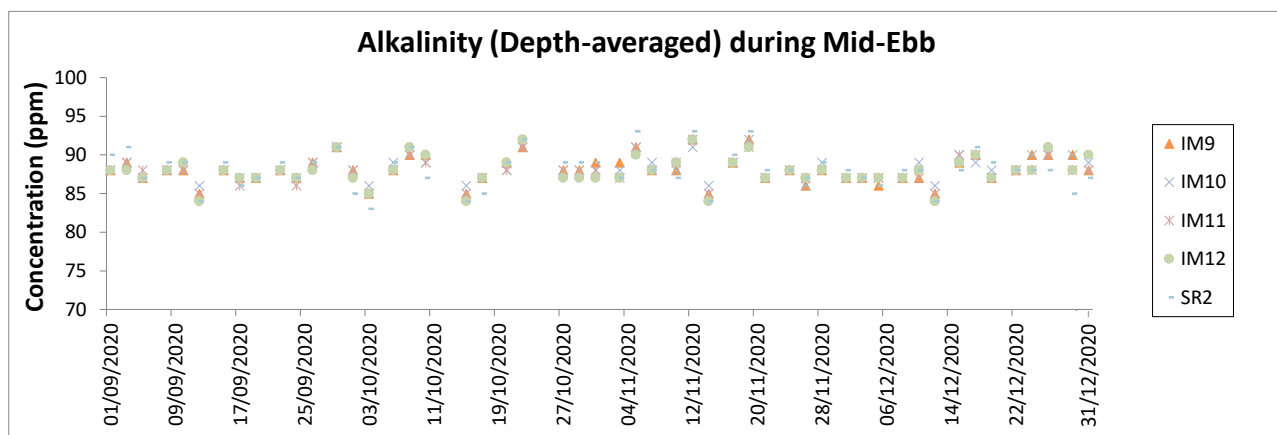
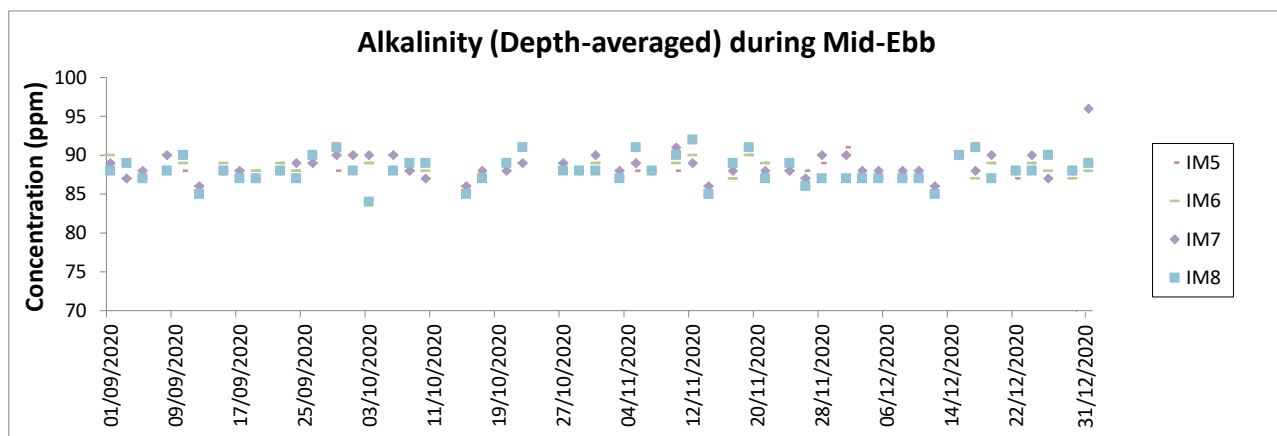
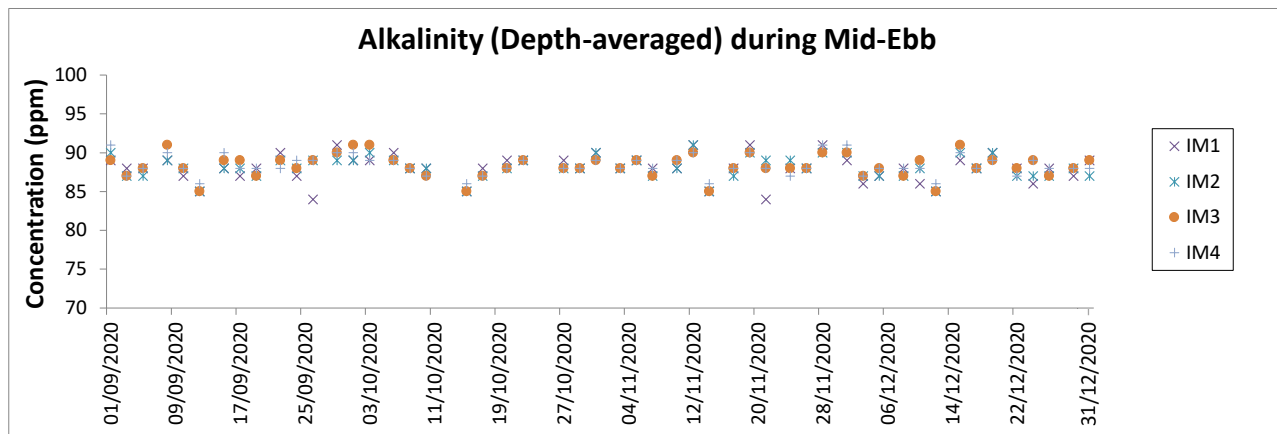
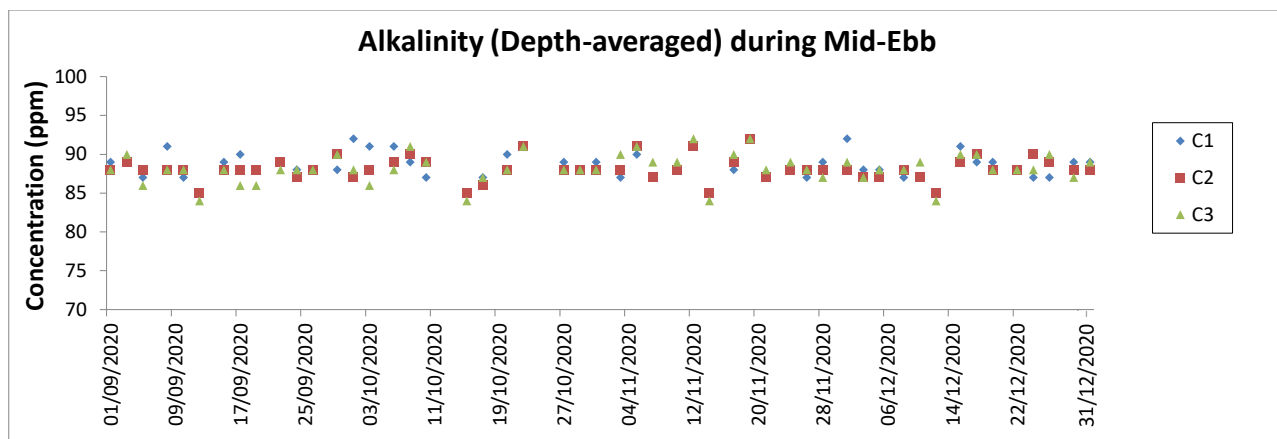
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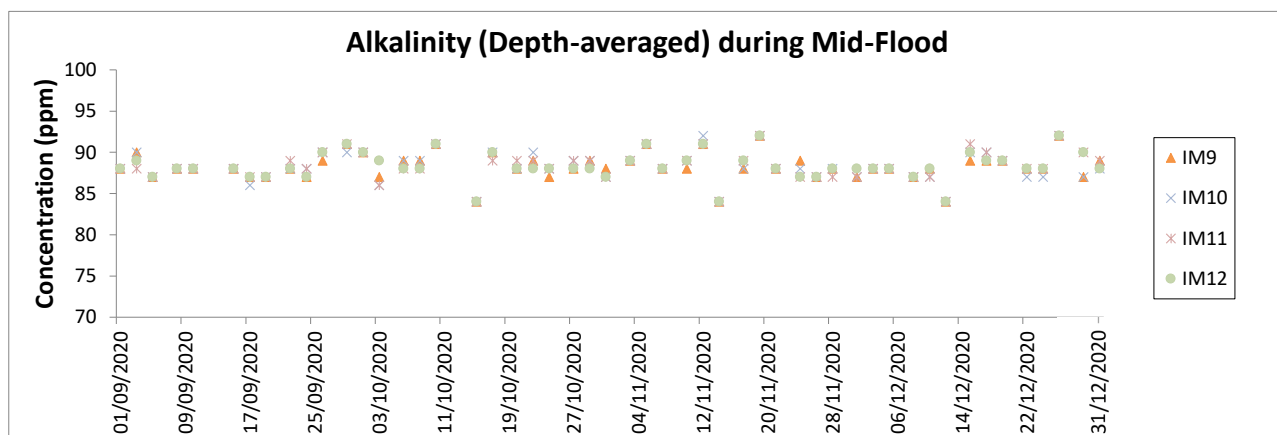
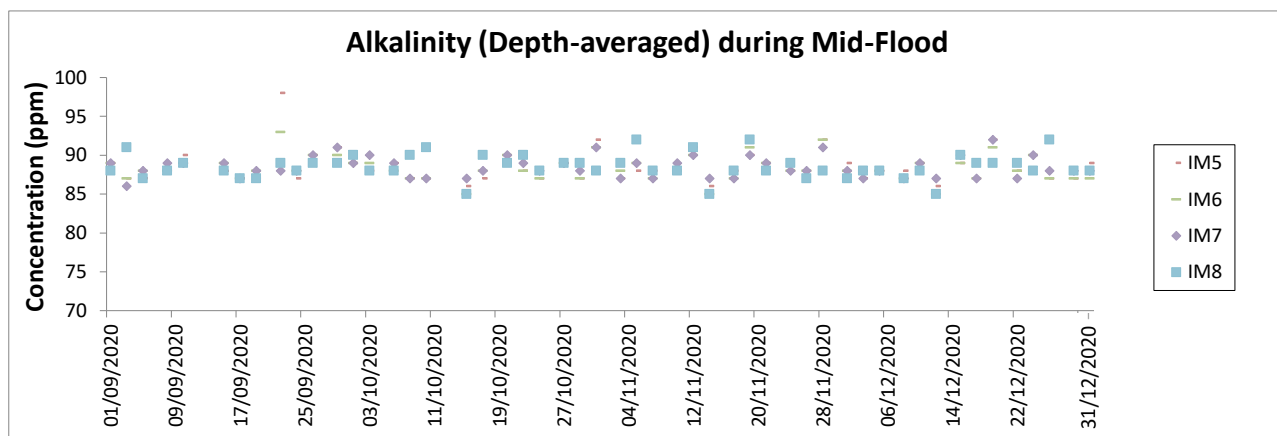
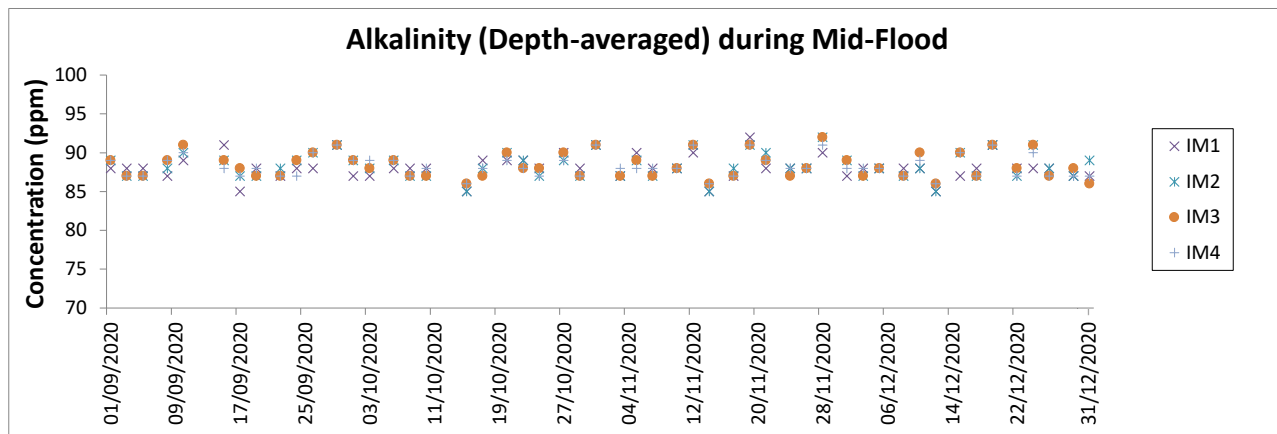
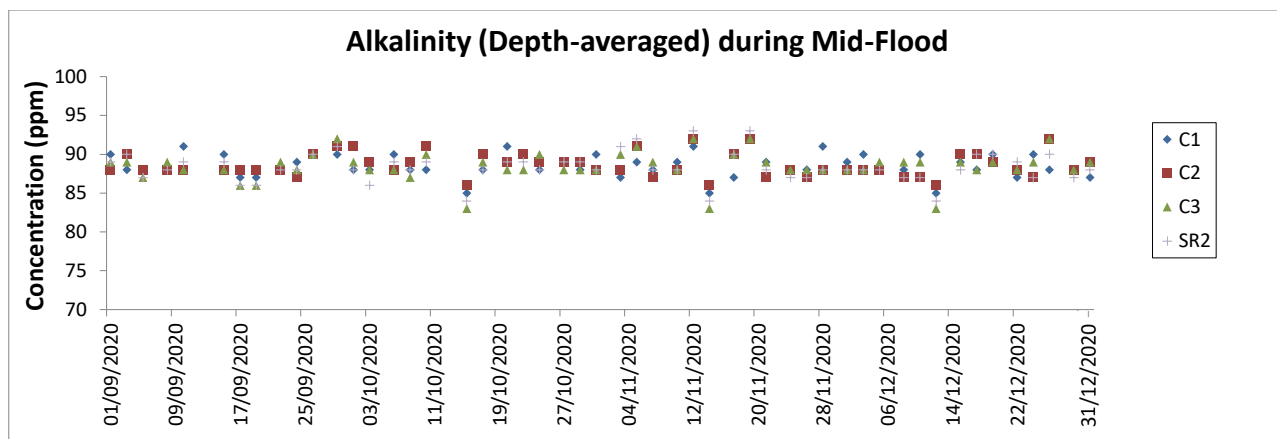
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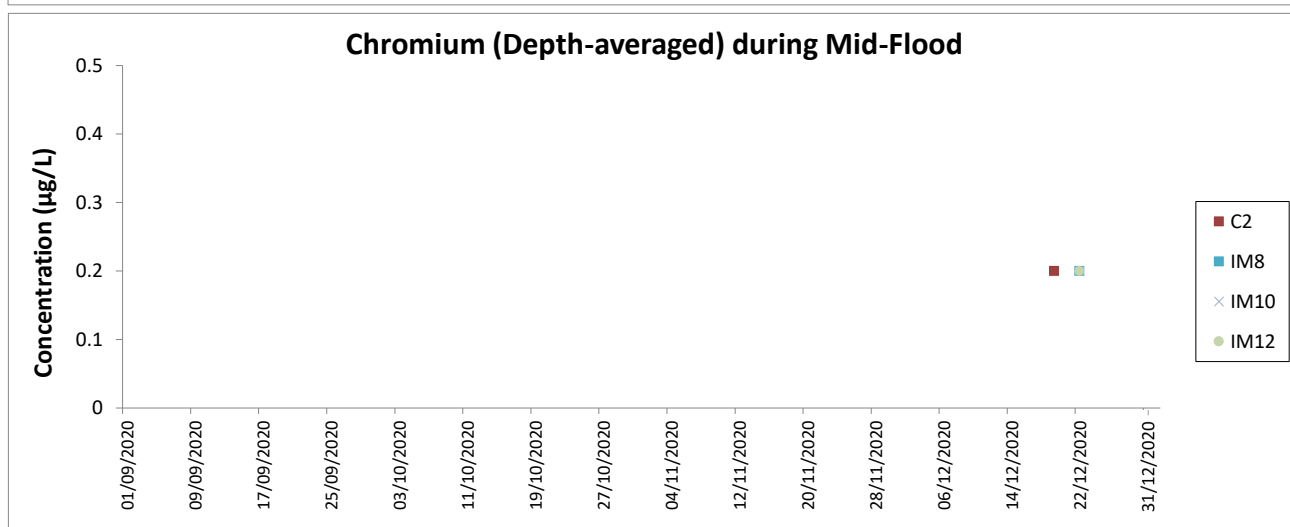
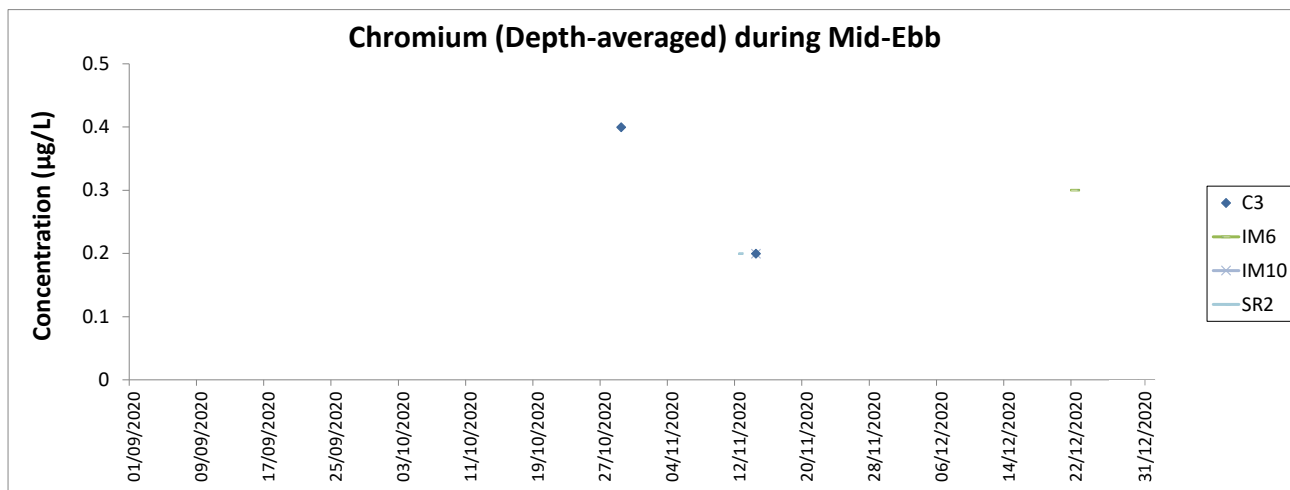
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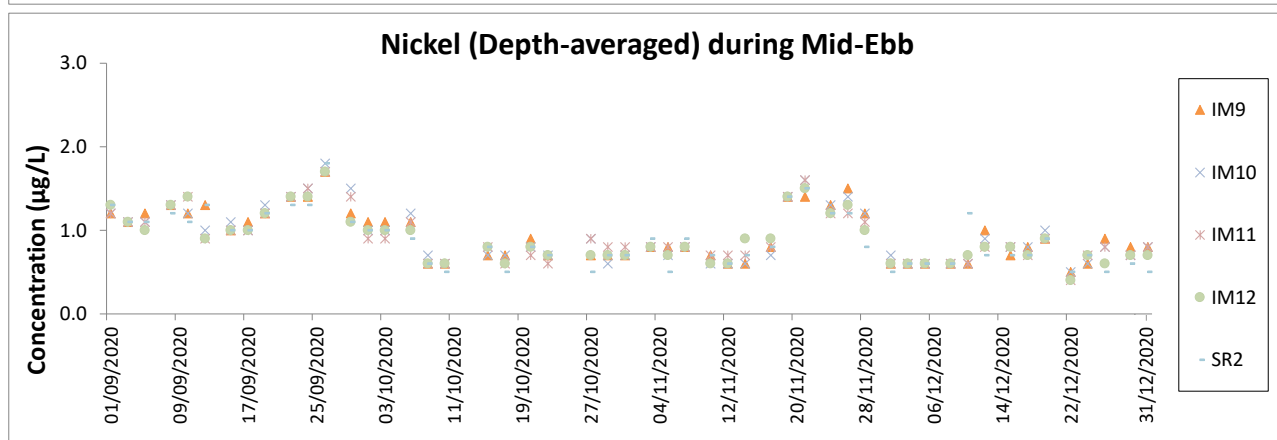
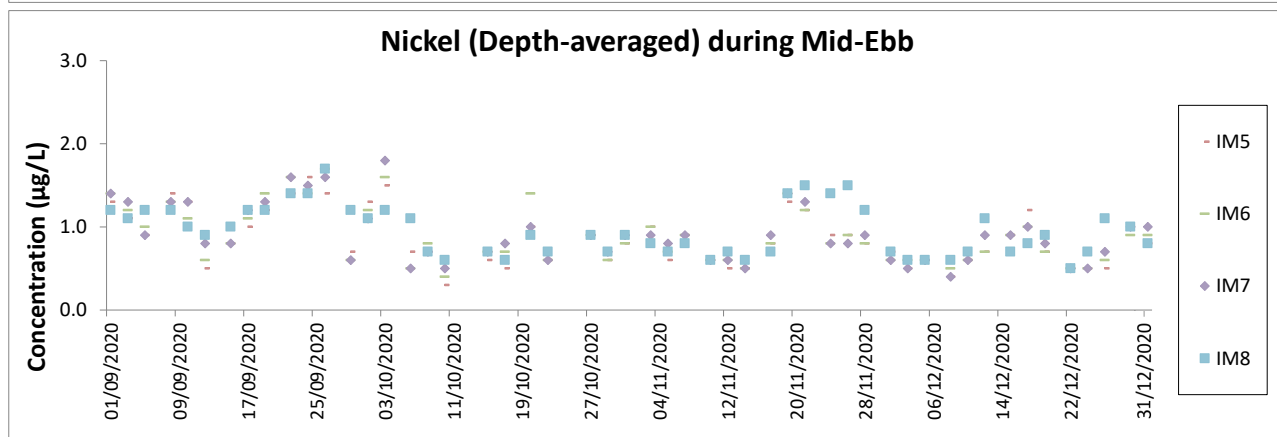
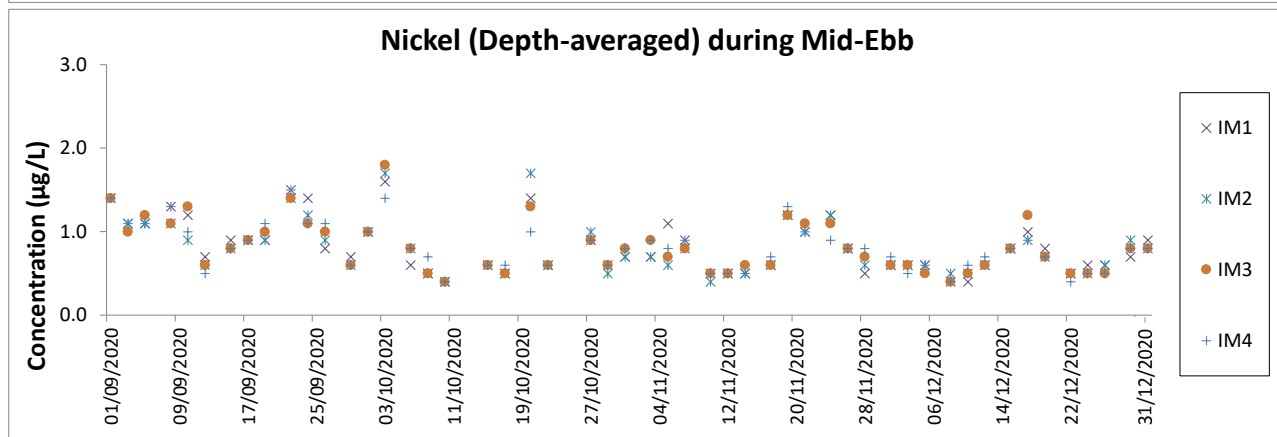
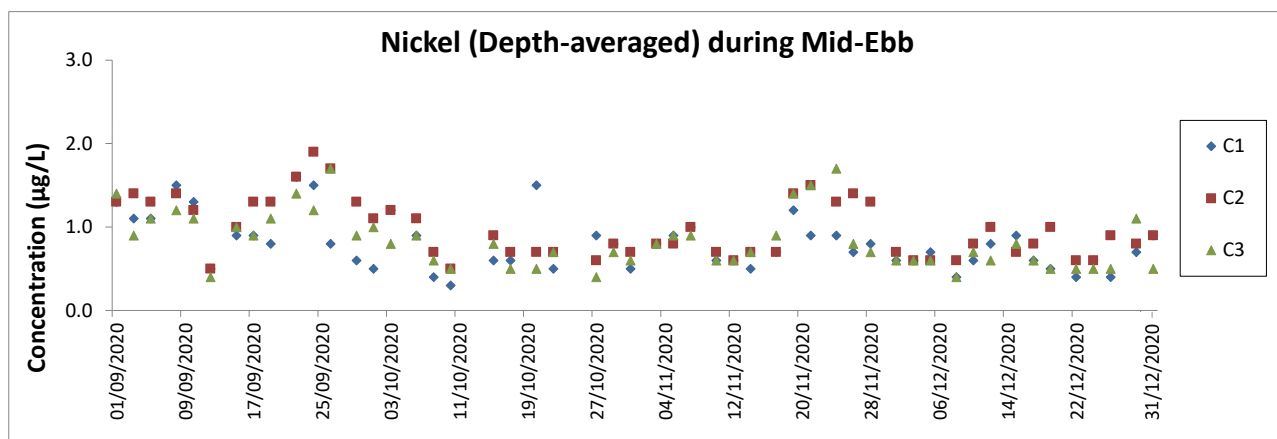
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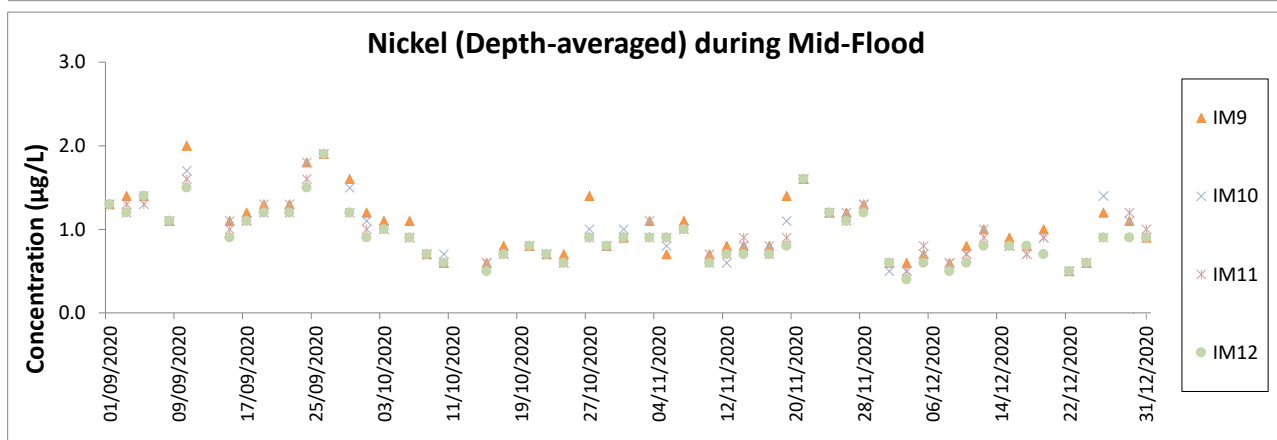
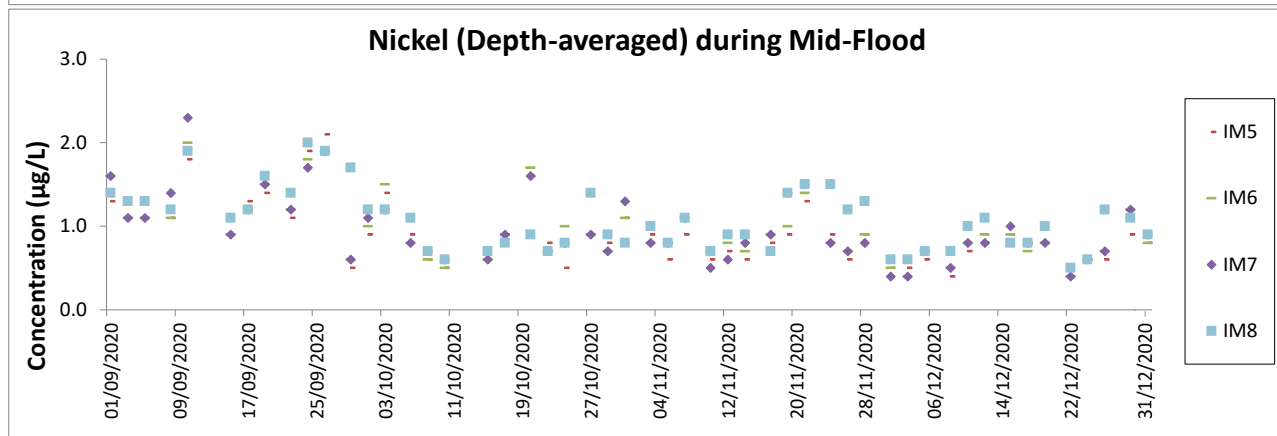
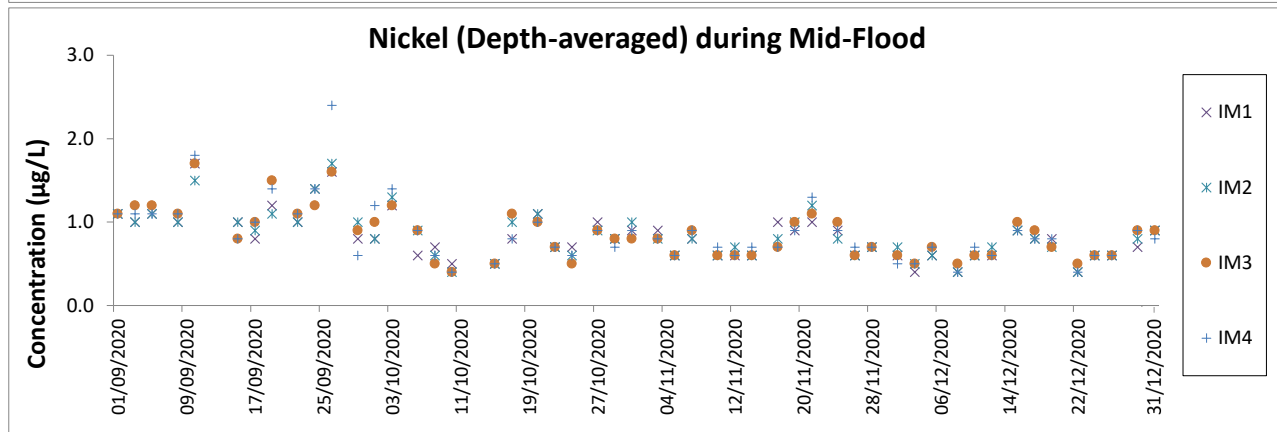
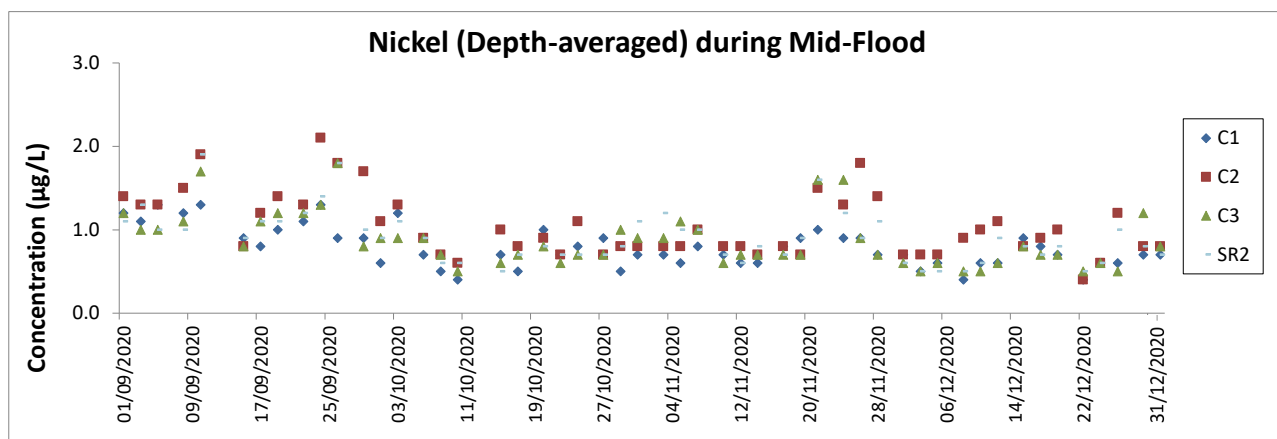
Notes:

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2. The monitoring results of chromium not presented above were below the reporting limit of 0.2 µg/L.
3. The key marine works activities of the Project during monitoring included deep cement mixing (DCM) works, marine filling, seawall and facilities construction, together with runway and associated works.
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Chinese White Dolphin Monitoring Results

CWD Small Vessel Line-transect Survey

Survey Effort Data

DATE	AREA	BEAU	KM SEARCHED	SEASON	VESSEL	TYPE	P/S
12-Oct-20	NEL	2	25.180	AUTUMN	32166	3RS ET	P
12-Oct-20	NEL	3	11.540	AUTUMN	32166	3RS ET	P
12-Oct-20	NEL	2	7.680	AUTUMN	32166	3RS ET	S
12-Oct-20	NEL	3	3.000	AUTUMN	32166	3RS ET	S
14-Oct-20	NEL	2	1.400	AUTUMN	32166	3RS ET	P
14-Oct-20	NEL	3	8.600	AUTUMN	32166	3RS ET	P
14-Oct-20	NEL	4	20.650	AUTUMN	32166	3RS ET	P
14-Oct-20	NEL	5	6.550	AUTUMN	32166	3RS ET	P
14-Oct-20	NEL	3	4.100	AUTUMN	32166	3RS ET	S
14-Oct-20	NEL	4	6.000	AUTUMN	32166	3RS ET	S
16-Oct-20	NWL	2	9.200	AUTUMN	32166	3RS ET	P
16-Oct-20	NWL	3	47.000	AUTUMN	32166	3RS ET	P
16-Oct-20	NWL	4	6.800	AUTUMN	32166	3RS ET	P
16-Oct-20	NWL	2	3.100	AUTUMN	32166	3RS ET	S
16-Oct-20	NWL	3	9.200	AUTUMN	32166	3RS ET	S
19-Oct-20	AW	3	1.970	AUTUMN	32166	3RS ET	P
19-Oct-20	AW	4	3.000	AUTUMN	32166	3RS ET	P
19-Oct-20	WL	3	19.136	AUTUMN	32166	3RS ET	P
19-Oct-20	WL	4	0.760	AUTUMN	32166	3RS ET	P
19-Oct-20	WL	2	1.200	AUTUMN	32166	3RS ET	S
19-Oct-20	WL	3	9.374	AUTUMN	32166	3RS ET	S
21-Oct-20	SWL	3	21.246	AUTUMN	32166	3RS ET	P
21-Oct-20	SWL	4	14.620	AUTUMN	32166	3RS ET	P
21-Oct-20	SWL	5	16.990	AUTUMN	32166	3RS ET	P
21-Oct-20	SWL	3	4.817	AUTUMN	32166	3RS ET	S
21-Oct-20	SWL	4	10.860	AUTUMN	32166	3RS ET	S
21-Oct-20	SWL	5	1.000	AUTUMN	32166	3RS ET	S
27-Oct-20	AW	2	4.820	AUTUMN	32166	3RS ET	P
27-Oct-20	WL	2	5.659	AUTUMN	32166	3RS ET	P
27-Oct-20	WL	3	12.127	AUTUMN	32166	3RS ET	P
27-Oct-20	WL	2	2.431	AUTUMN	32166	3RS ET	S
27-Oct-20	WL	3	7.380	AUTUMN	32166	3RS ET	S
28-Oct-20	SWL	2	0.500	AUTUMN	32166	3RS ET	P
28-Oct-20	SWL	3	49.653	AUTUMN	32166	3RS ET	P
28-Oct-20	SWL	4	3.790	AUTUMN	32166	3RS ET	P
28-Oct-20	SWL	2	0.800	AUTUMN	32166	3RS ET	S
28-Oct-20	SWL	3	13.537	AUTUMN	32166	3RS ET	S
28-Oct-20	SWL	4	2.220	AUTUMN	32166	3RS ET	S
29-Oct-20	NWL	2	17.120	AUTUMN	32166	3RS ET	P
29-Oct-20	NWL	3	46.080	AUTUMN	32166	3RS ET	P
29-Oct-20	NWL	2	1.200	AUTUMN	32166	3RS ET	S
29-Oct-20	NWL	3	10.600	AUTUMN	32166	3RS ET	S
5-Nov-20	NWL	2	6.540	AUTUMN	32166	3RS ET	P
5-Nov-20	NWL	3	53.550	AUTUMN	32166	3RS ET	P
5-Nov-20	NWL	4	3.300	AUTUMN	32166	3RS ET	P

DATE	AREA	BEAU	KM SEARCHED	SEASON	VESSEL	TYPE	P/S
5-Nov-20	NWL	2	3.910	AUTUMN	32166	3RS ET	S
5-Nov-20	NWL	3	7.300	AUTUMN	32166	3RS ET	S
6-Nov-20	AW	2	4.960	AUTUMN	32166	3RS ET	P
6-Nov-20	WL	2	9.750	AUTUMN	32166	3RS ET	P
6-Nov-20	WL	3	7.819	AUTUMN	32166	3RS ET	P
6-Nov-20	WL	2	3.905	AUTUMN	32166	3RS ET	S
6-Nov-20	WL	3	3.314	AUTUMN	32166	3RS ET	S
9-Nov-20	NEL	2	34.800	AUTUMN	32166	3RS ET	P
9-Nov-20	NEL	3	1.900	AUTUMN	32166	3RS ET	P
9-Nov-20	NEL	2	9.700	AUTUMN	32166	3RS ET	S
9-Nov-20	NEL	3	0.900	AUTUMN	32166	3RS ET	S
10-Nov-20	NEL	2	36.140	AUTUMN	32166	3RS ET	P
10-Nov-20	NEL	2	11.160	AUTUMN	32166	3RS ET	S
16-Nov-20	AW	2	2.550	AUTUMN	32166	3RS ET	P
16-Nov-20	AW	3	1.170	AUTUMN	32166	3RS ET	P
16-Nov-20	WL	2	5.427	AUTUMN	32166	3RS ET	P
16-Nov-20	WL	3	13.386	AUTUMN	32166	3RS ET	P
16-Nov-20	WL	2	3.583	AUTUMN	32166	3RS ET	S
16-Nov-20	WL	3	5.244	AUTUMN	32166	3RS ET	S
17-Nov-20	NWL	2	2.430	AUTUMN	32166	3RS ET	P
17-Nov-20	NWL	3	45.790	AUTUMN	32166	3RS ET	P
17-Nov-20	NWL	4	12.370	AUTUMN	32166	3RS ET	P
17-Nov-20	NWL	5	2.900	AUTUMN	32166	3RS ET	P
17-Nov-20	NWL	3	8.480	AUTUMN	32166	3RS ET	S
17-Nov-20	NWL	4	3.130	AUTUMN	32166	3RS ET	S
18-Nov-20	SWL	2	19.300	AUTUMN	32166	3RS ET	P
18-Nov-20	SWL	3	35.530	AUTUMN	32166	3RS ET	P
18-Nov-20	SWL	2	6.800	AUTUMN	32166	3RS ET	S
18-Nov-20	SWL	3	9.070	AUTUMN	32166	3RS ET	S
19-Nov-20	SWL	1	1.480	AUTUMN	32166	3RS ET	P
19-Nov-20	SWL	2	52.830	AUTUMN	32166	3RS ET	P
19-Nov-20	SWL	2	15.390	AUTUMN	32166	3RS ET	S
4-Dec-20	NEL	2	1.000	WINTER	32166	3RS ET	P
4-Dec-20	NEL	3	30.450	WINTER	32166	3RS ET	P
4-Dec-20	NEL	4	6.100	WINTER	32166	3RS ET	P
4-Dec-20	NEL	2	1.000	WINTER	32166	3RS ET	S
4-Dec-20	NEL	3	8.450	WINTER	32166	3RS ET	S
9-Dec-20	SWL	2	22.072	WINTER	32166	3RS ET	P
9-Dec-20	SWL	3	32.643	WINTER	32166	3RS ET	P
9-Dec-20	SWL	2	8.280	WINTER	32166	3RS ET	S
9-Dec-20	SWL	3	6.717	WINTER	32166	3RS ET	S
10-Dec-20	SWL	2	40.788	WINTER	32166	3RS ET	P
10-Dec-20	SWL	3	11.922	WINTER	32166	3RS ET	P
10-Dec-20	SWL	2	13.112	WINTER	32166	3RS ET	S
10-Dec-20	SWL	3	2.693	WINTER	32166	3RS ET	S
11-Dec-20	AW	1	4.850	WINTER	32166	3RS ET	P
11-Dec-20	WL	1	4.680	WINTER	32166	3RS ET	P

DATE	AREA	BEAU	KM SEARCHED	SEASON	VESSEL	TYPE	P/S
11-Dec-20	WL	2	10.655	WINTER	32166	3RS ET	P
11-Dec-20	WL	3	4.566	WINTER	32166	3RS ET	P
11-Dec-20	WL	1	1.310	WINTER	32166	3RS ET	S
11-Dec-20	WL	2	6.879	WINTER	32166	3RS ET	S
11-Dec-20	WL	3	2.210	WINTER	32166	3RS ET	S
15-Dec-20	NEL	2	8.700	WINTER	32166	3RS ET	P
15-Dec-20	NEL	3	28.460	WINTER	32166	3RS ET	P
15-Dec-20	NEL	2	3.900	WINTER	32166	3RS ET	S
15-Dec-20	NEL	3	5.940	WINTER	32166	3RS ET	S
16-Dec-20	AW	3	4.550	WINTER	32166	3RS ET	P
16-Dec-20	WL	3	13.920	WINTER	32166	3RS ET	P
16-Dec-20	WL	4	2.060	WINTER	32166	3RS ET	P
16-Dec-20	WL	5	0.400	WINTER	32166	3RS ET	P
16-Dec-20	WL	3	11.710	WINTER	32166	3RS ET	S
16-Dec-20	WL	4	1.180	WINTER	32166	3RS ET	S
18-Dec-20	NWL	2	3.100	WINTER	32166	3RS ET	P
18-Dec-20	NWL	3	39.720	WINTER	32166	3RS ET	P
18-Dec-20	NWL	4	19.680	WINTER	32166	3RS ET	P
18-Dec-20	NWL	2	0.200	WINTER	32166	3RS ET	S
18-Dec-20	NWL	3	10.900	WINTER	32166	3RS ET	S
18-Dec-20	NWL	4	1.600	WINTER	32166	3RS ET	S
21-Dec-20	NWL	3	23.100	WINTER	32166	3RS ET	P
21-Dec-20	NWL	4	40.400	WINTER	32166	3RS ET	P
21-Dec-20	NWL	2	1.000	WINTER	32166	3RS ET	S
21-Dec-20	NWL	3	6.200	WINTER	32166	3RS ET	S
21-Dec-20	NWL	4	4.300	WINTER	32166	3RS ET	S

CWD Small Vessel Line-transect Survey

Sighting Data

DATE	STG #	TIME	CWD/FP	GP SZ	AREA	BEAU	PSD	EFFORT	TYPE	DEC LAT	DEC LON	SEASON	BOAT ASSOC.	P/S
19-Oct-20	1	1103	CWD	3	WL	3	22	ON	3RS ET	22.2419	113.8371	AUTUMN	NONE	P
19-Oct-20	2	1133	CWD	1	WL	3	10	ON	3RS ET	22.2239	113.8328	AUTUMN	NONE	P
19-Oct-20	3	1148	CWD	1	WL	3	226	ON	3RS ET	22.2181	113.8197	AUTUMN	NONE	S
21-Oct-20	1	1116	FP	1	SWL	3	404	ON	3RS ET	22.1478	113.9271	AUTUMN	NONE	P
21-Oct-20	2	1447	CWD	1	SWL	4	270	ON	3RS ET	22.1945	113.8687	AUTUMN	NONE	P
21-Oct-20	3	1527	CWD	6	SWL	3	60	ON	3RS ET	22.1836	113.8492	AUTUMN	NONE	P
21-Oct-20	4	1547	CWD	15	SWL	3	1340	ON	3RS ET	22.1944	113.8498	AUTUMN	NONE	P
27-Oct-20	1	1123	CWD	6	WL	3	104	ON	3RS ET	22.2318	113.8268	AUTUMN	NONE	P
27-Oct-20	2	1138	CWD	4	WL	3	378	ON	3RS ET	22.2320	113.8336	AUTUMN	NONE	P
27-Oct-20	3	1149	CWD	3	WL	3	92	ON	3RS ET	22.2329	113.8360	AUTUMN	NONE	P
27-Oct-20	4	1213	CWD	3	WL	3	337	ON	3RS ET	22.2142	113.8288	AUTUMN	NONE	P
27-Oct-20	5	1228	CWD	3	WL	3	387	ON	3RS ET	22.2138	113.8289	AUTUMN	NONE	P
27-Oct-20	6	1232	CWD	8	WL	3	624	ON	3RS ET	22.2138	113.8336	AUTUMN	NONE	P
27-Oct-20	7	1302	CWD	7	WL	3	147	ON	3RS ET	22.2058	113.8261	AUTUMN	NONE	P
27-Oct-20	8	1320	CWD	1	WL	3	838	ON	3RS ET	22.2027	113.8233	AUTUMN	NONE	S
27-Oct-20	9	1341	CWD	3	WL	2	693	ON	3RS ET	22.1880	113.8454	AUTUMN	NONE	S
28-Oct-20	1	1306	FP	2	SWL	3	35	ON	3RS ET	22.1577	113.8977	AUTUMN	NONE	P
5-Nov-20	1	1044	CWD	1	NWL	3	112	ON	3RS ET	22.2740	113.8757	AUTUMN	NONE	S
6-Nov-20	1	1018	CWD	5	WL	2	821	ON	3RS ET	22.2759	113.8504	AUTUMN	NONE	S
6-Nov-20	2	1341	CWD	3	WL	3	206	ON	3RS ET	22.2506	113.8463	AUTUMN	NONE	P
6-Nov-20	3	1400	CWD	4	WL	2	236	ON	3RS ET	22.2414	113.8416	AUTUMN	NONE	P
6-Nov-20	4	1429	CWD	4	WL	3	246	ON	3RS ET	22.2321	113.8358	AUTUMN	NONE	P
6-Nov-20	5	1443	CWD	5	WL	2	216	ON	3RS ET	22.2236	113.8373	AUTUMN	NONE	S
6-Nov-20	6	1513	CWD	4	WL	2	500	ON	3RS ET	22.2042	113.8219	AUTUMN	NONE	S
16-Nov-20	1	0940	CWD	2	AW	2	475	ON	3RS ET	22.2971	113.8842	AUTUMN	GILLNETTER	P
16-Nov-20	2	1040	CWD	1	WL	3	800	ON	3RS ET	22.2740	113.8482	AUTUMN	NONE	S
16-Nov-20	3	1059	CWD	4	WL	3	14	ON	3RS ET	22.2607	113.8480	AUTUMN	NONE	P
16-Nov-20	4	1210	CWD	3	WL	3	232	ON	3RS ET	22.2139	113.8226	AUTUMN	NONE	P
16-Nov-20	5	1249	CWD	1	WL	2	285	ON	3RS ET	22.2055	113.8336	AUTUMN	NONE	P
16-Nov-20	6	1317	CWD	3	WL	2	608	ON	3RS ET	22.1901	113.8421	AUTUMN	NONE	S
17-Nov-20	1	1034	CWD	1	NWL	4	24	ON	3RS ET	22.2723	113.8701	AUTUMN	NONE	P

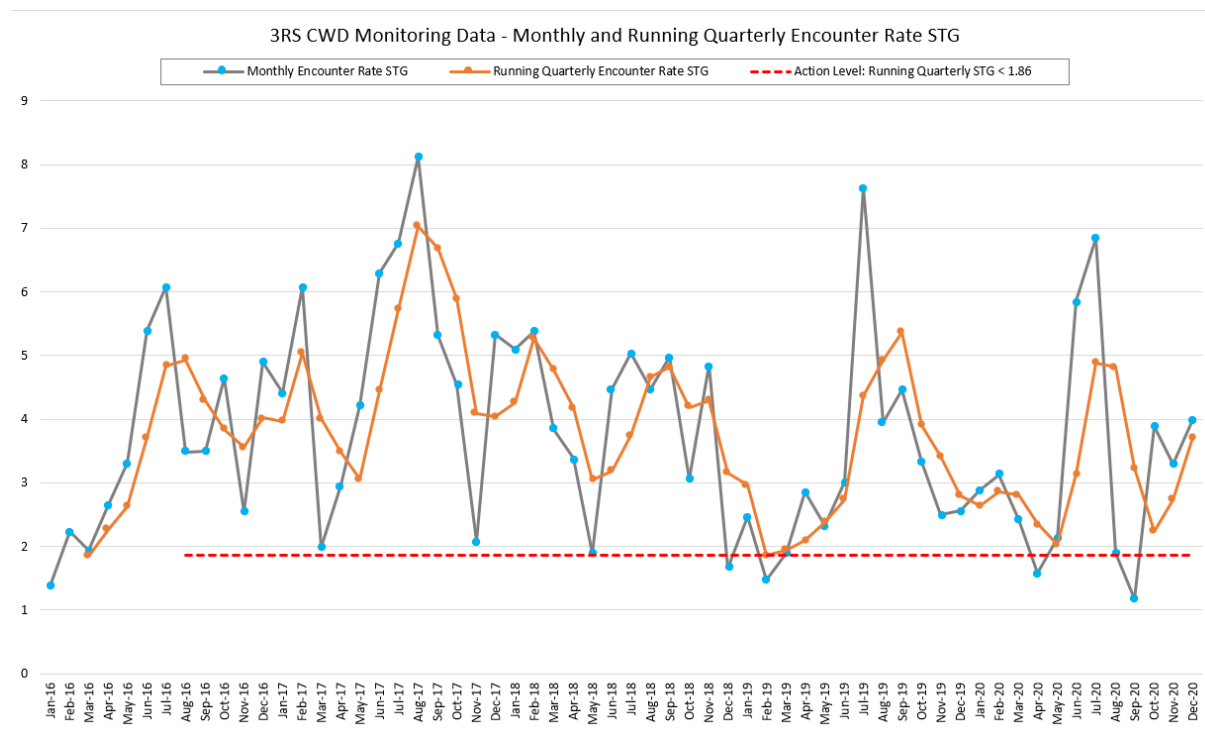
DATE	STG #	TIME	CWD/FP	GP SZ	AREA	BEAU	PSD	EFFORT	TYPE	DEC LAT	DEC LON	SEASON	BOAT ASSOC.	P/S
19-Nov-20	1	1202	FP	2	SWL	2	62	ON	3RS ET	22.1621	113.9184	AUTUMN	NONE	P
19-Nov-20	2	1514	CWD	4	SWL	2	71	ON	3RS ET	22.1883	113.8491	AUTUMN	NONE	P
9-Dec-20	1	1117	CWD	1	SWL	2	111	ON	3RS ET	22.1828	113.9277	WINTER	NONE	P
9-Dec-20	2	1159	CWD	1	SWL	2	59	ON	3RS ET	22.1730	113.9191	WINTER	NONE	P
9-Dec-20	3	1211	CWD	1	SWL	2	21	ON	3RS ET	22.1702	113.9188	WINTER	NONE	P
9-Dec-20	4	1224	FP	2	SWL	3	22	ON	3RS ET	22.1562	113.9183	WINTER	NONE	P
9-Dec-20	5	1247	CWD	2	SWL	2	148	ON	3RS ET	22.1623	113.8987	WINTER	NONE	S
9-Dec-20	6	1351	CWD	1	SWL	3	7	ON	3RS ET	22.1487	113.8958	WINTER	NONE	S
9-Dec-20	7	1516	CWD	3	SWL	3	389	ON	3RS ET	22.2007	113.8678	WINTER	NONE	P
10-Dec-20	1	1107	FP	1	SWL	2	3	ON	3RS ET	22.1645	113.9276	WINTER	NONE	P
10-Dec-20	2	1156	FP	1	SWL	2	54	ON	3RS ET	22.1473	113.9180	WINTER	NONE	P
10-Dec-20	3	1307	FP	1	SWL	2	51	ON	3RS ET	22.1548	113.8975	WINTER	NONE	P
10-Dec-20	4	1430	CWD	2	SWL	3	53	ON	3RS ET	22.1921	113.8679	WINTER	NONE	P
10-Dec-20	5	1448	CWD	1	SWL	3	122	ON	3RS ET	22.1991	113.8600	WINTER	NONE	S
10-Dec-20	6	1459	CWD	1	SWL	3	449	ON	3RS ET	22.1951	113.8589	WINTER	NONE	P
10-Dec-20	7	1535	CWD	4	SWL	3	805	ON	3RS ET	22.1905	113.8490	WINTER	NONE	P
11-Dec-20	1	1129	CWD	1	WL	2	109	ON	3RS ET	22.2229	113.8213	WINTER	NONE	P
11-Dec-20	2	1146	CWD	2	WL	2	133	ON	3RS ET	22.2149	113.8312	WINTER	NONE	P
16-Dec-20	1	0940	CWD	2	AW	3	19	ON	3RS ET	22.2937	113.8775	WINTER	NONE	P
16-Dec-20	2	1039	CWD	4	WL	3	493	ON	3RS ET	22.2687	113.8538	WINTER	NONE	P
16-Dec-20	3	1139	CWD	1	WL	3	8	ON	3RS ET	22.2323	113.8307	WINTER	NONE	P

Abbreviations: STG# = Sighting Number; GP SZ = Group Size; BEAU = Beaufort Sea State; PSD = Perpendicular Distance (in metres); N/A = Not Applicable; DEC LAT = Latitude (WGS84 in Decimal), DEC LON = Longitude (WGS84 in Decimal); BOAT ASSOC. = Fishing Boat Association

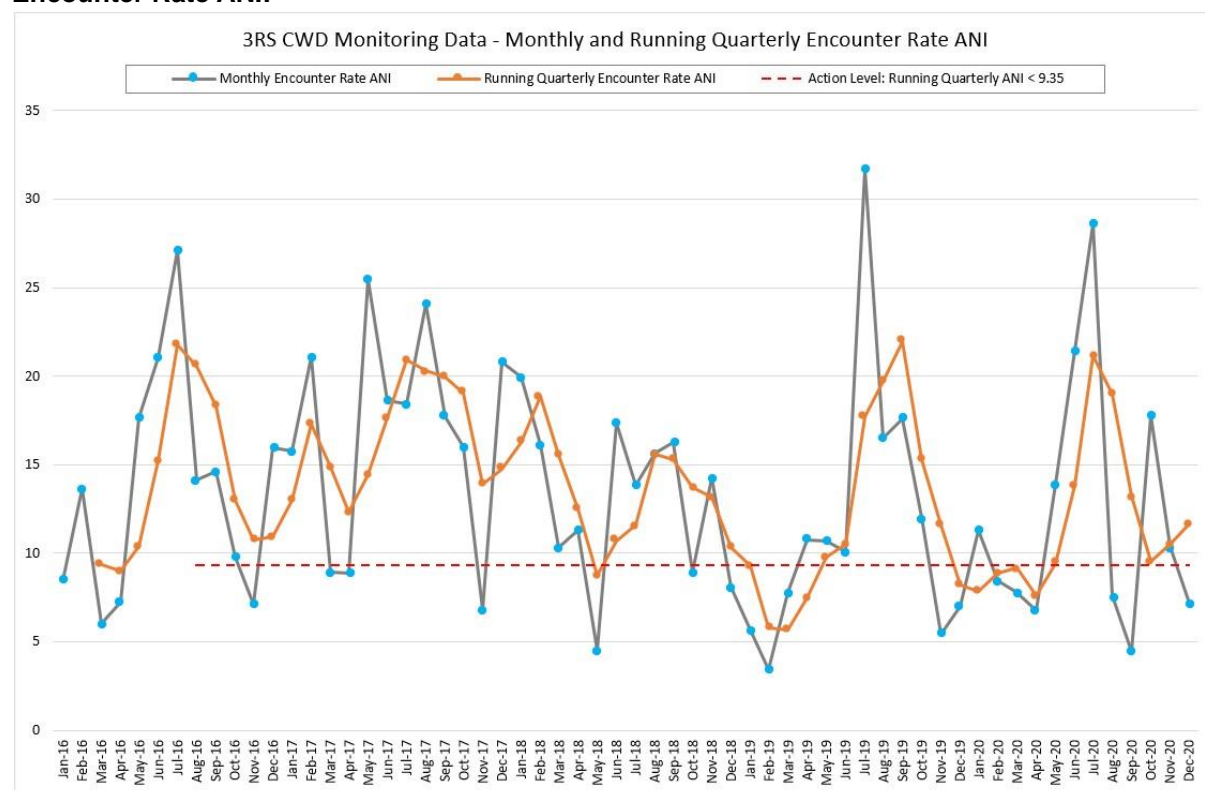
Sighting data of finless porpoise (FP) are presented for reference only. No relevant figure or text will be mentioned in the quarterly EM&A report. All FP sightings are excluded in calculation.

Graphical Presentation of Monthly and Running Quarterly Encounter Rates for the entire monitoring period

Encounter Rate STG:











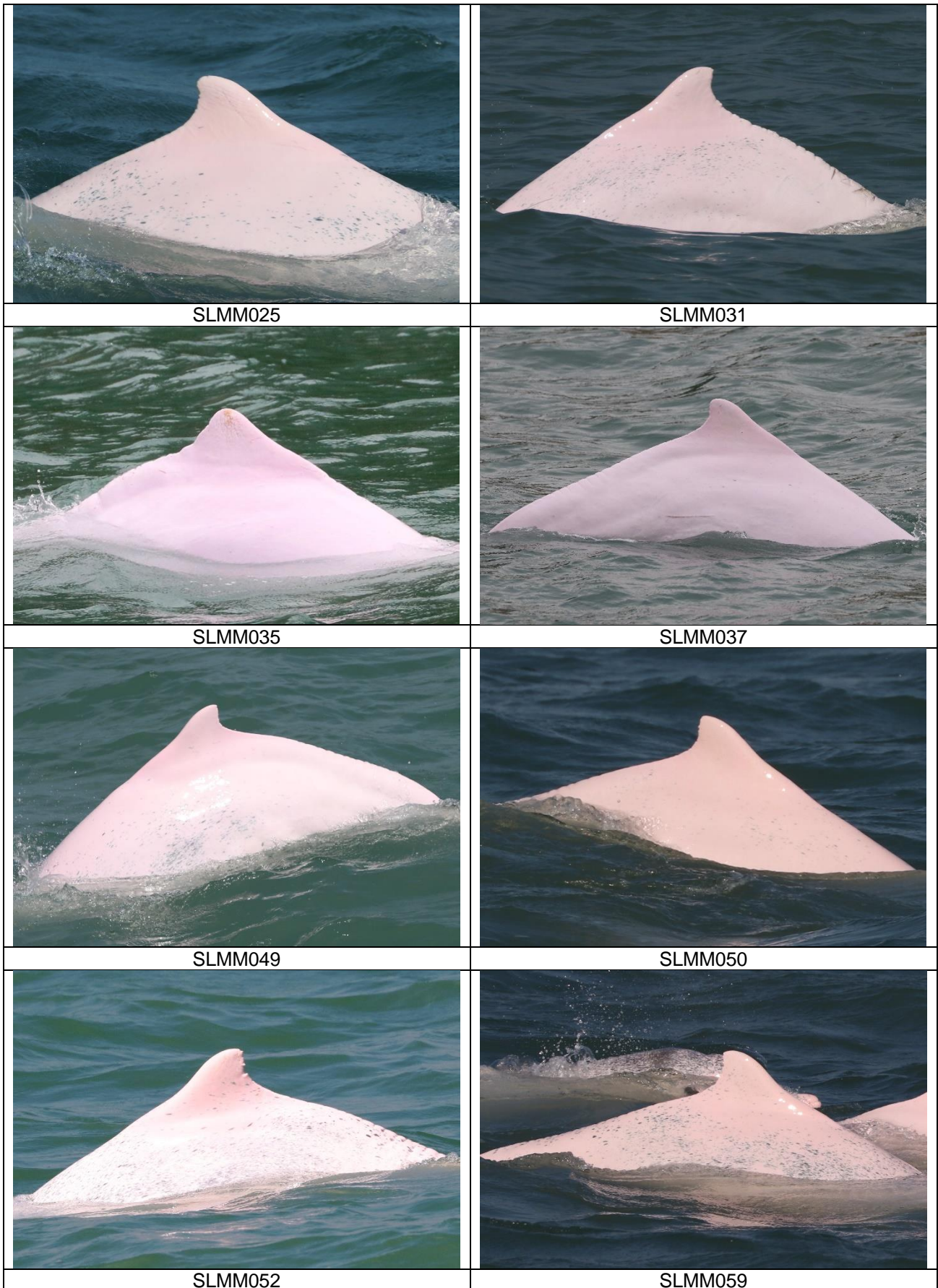
Encounter Rate ANI:











CWD Small Vessel Line-transect Survey

Photo Identification

	
SLMM002	SLMM003
	
SLMM007	SLMM010
	
SLMM012	SLMM014
	
SLMM022	SLMM023



	
<p>SLMM064</p>	<p>SLMM073 (Upper)</p>
	
<p>WLMM007</p>	<p>WLMM008</p>
	
<p>WLMM018</p>	<p>WLMM028</p>
	
<p>WLMM029</p>	<p>WLMM056</p>



WLMM060



WLMM063



WLMM064



WLMM065



WLMM070






WLMM071



WLMM073



WLMM076

	
WLMM079	WLMM080
	
WLMM085	WLMM107
	
WLMM114	WLMM131
	
WLMM135	WLMM147






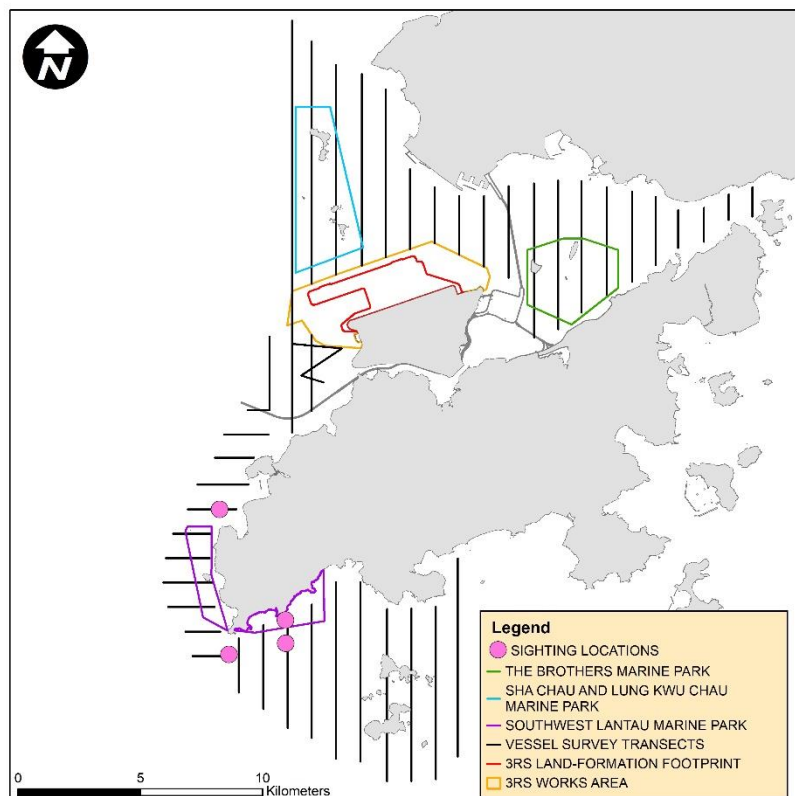
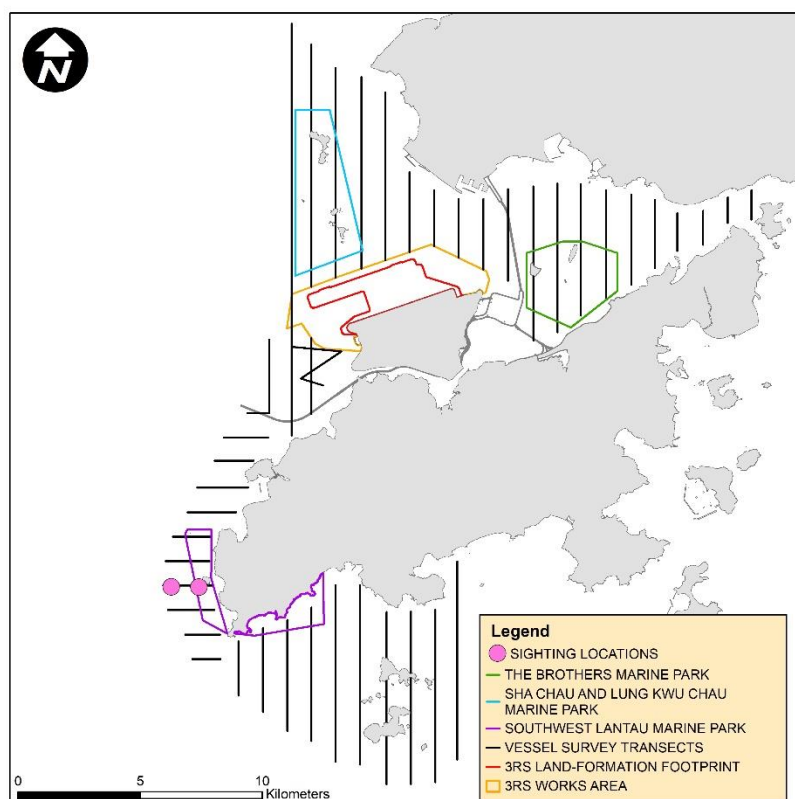
	
<p>WLMM149 (Lower)</p>	<p>WLMM150</p>
	
<p>WLMM158 (Lower)</p>	<p>WLMM160</p>
	
<p>WLMM163</p>	

Photo Identification – Re-sighting Locations

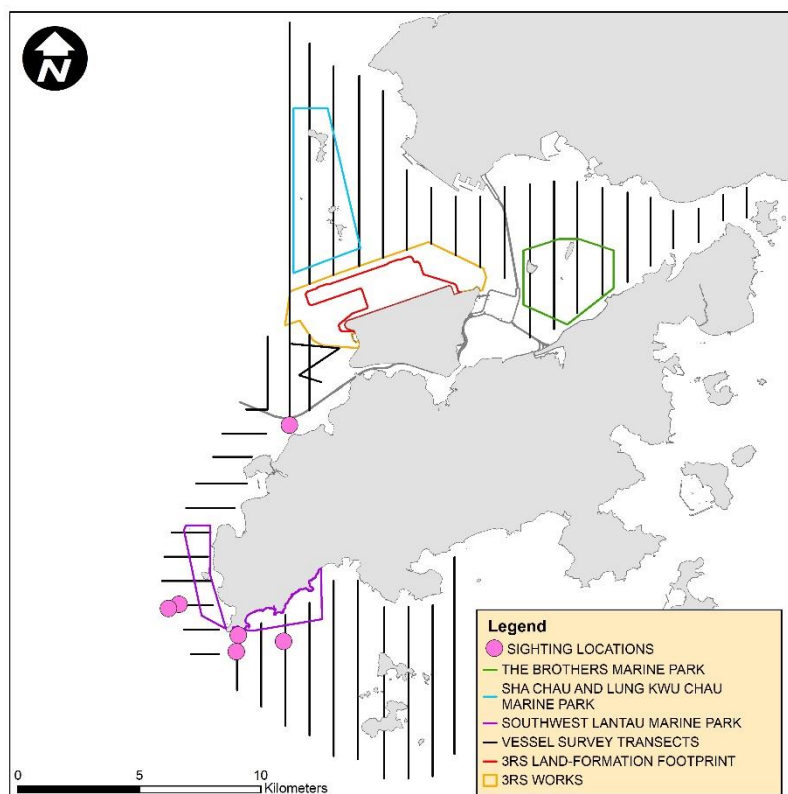
SLMM003



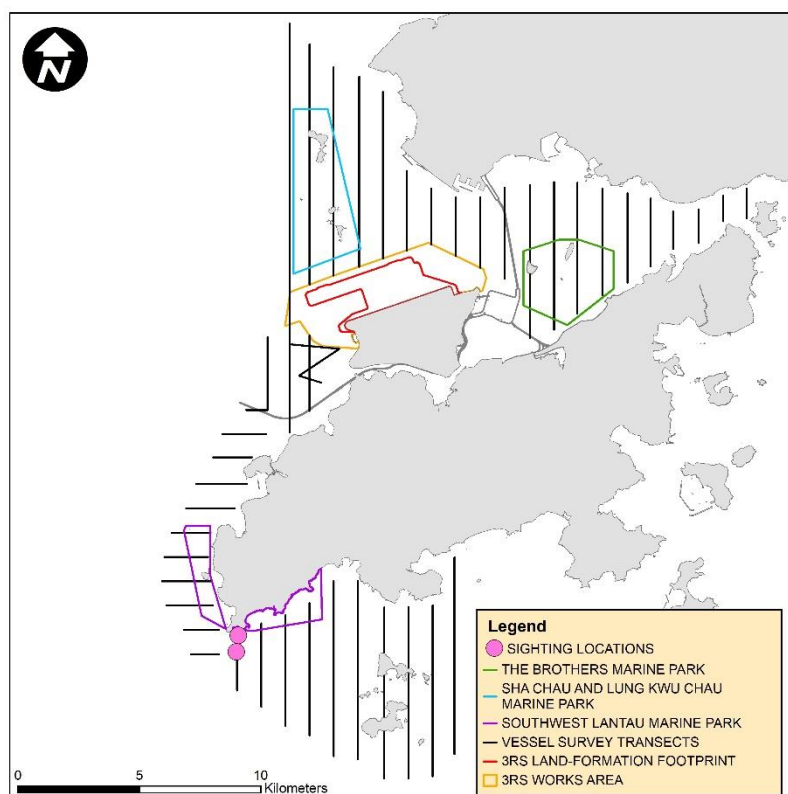
SLMM007



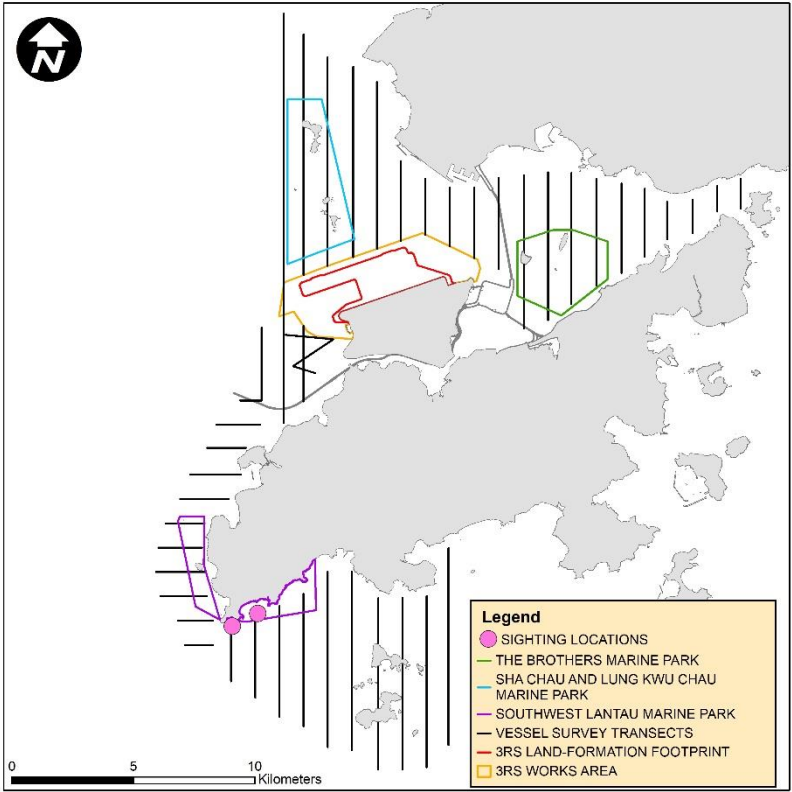
SLMM010



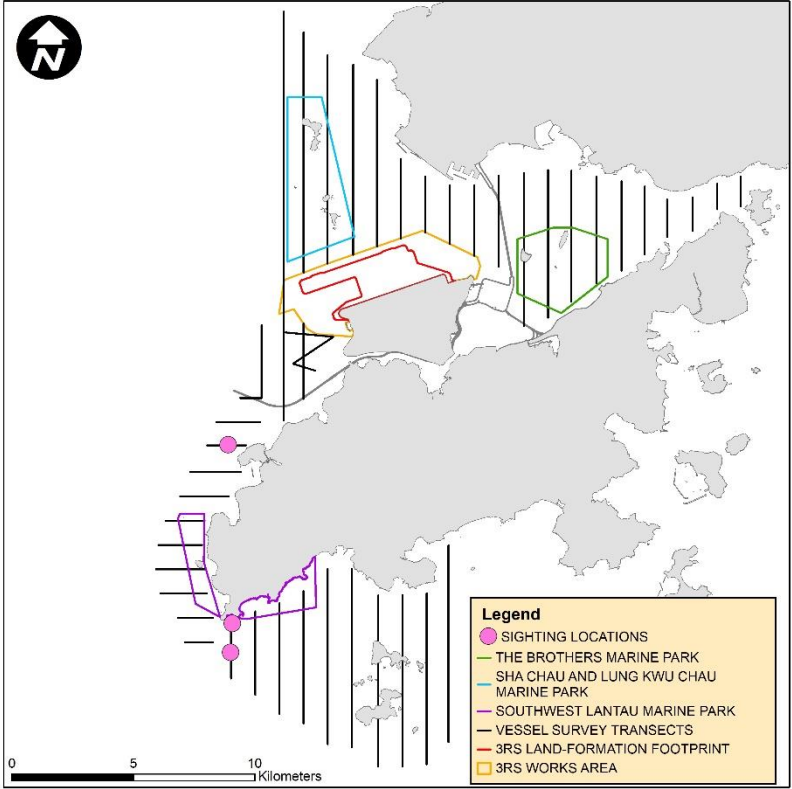
SLMM012



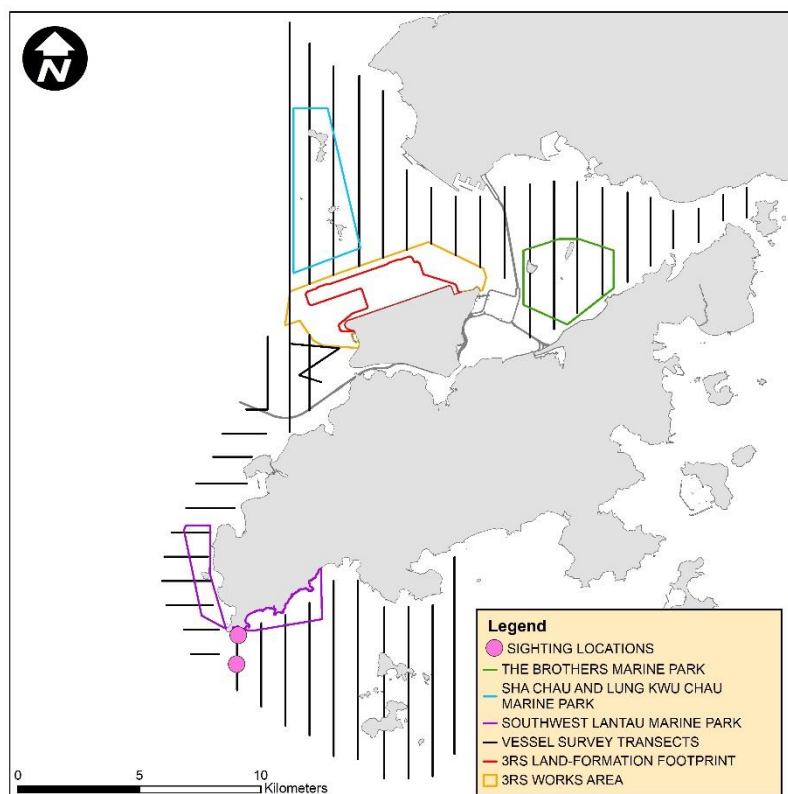
SLMM014



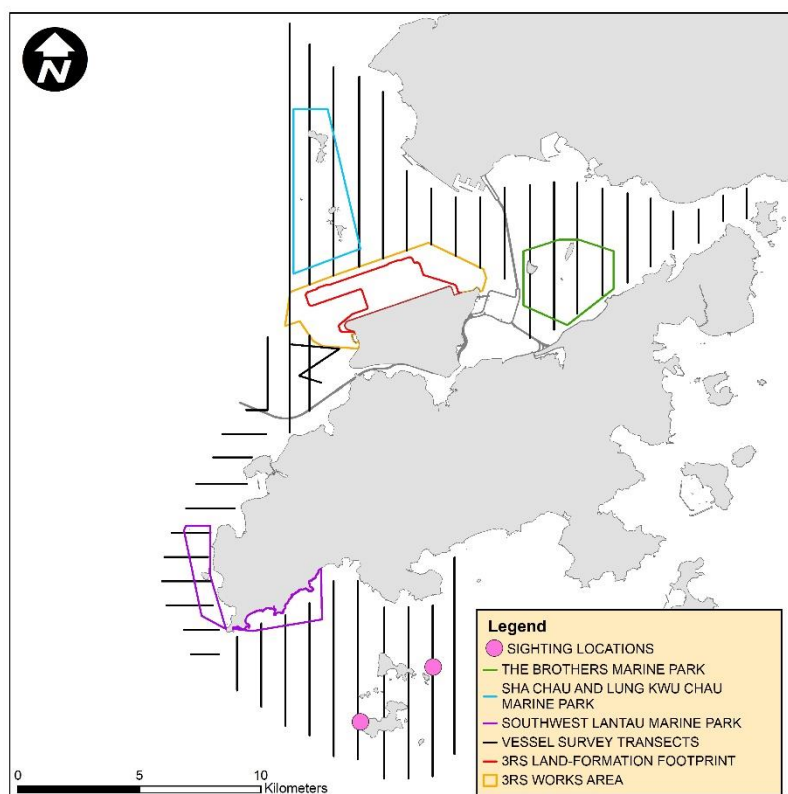
SLMM023



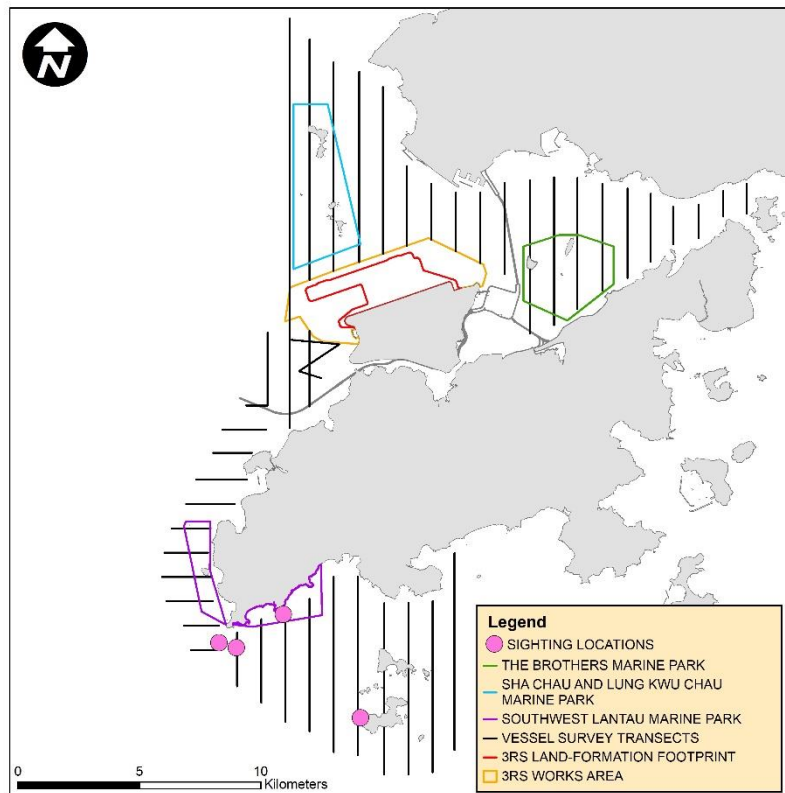
SLMM025



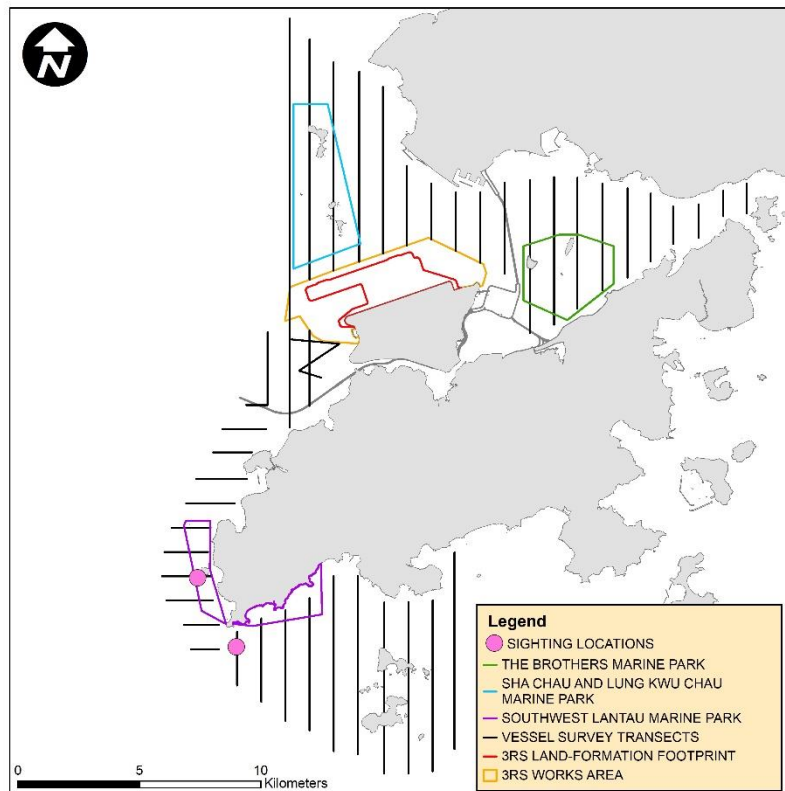
SLMM035



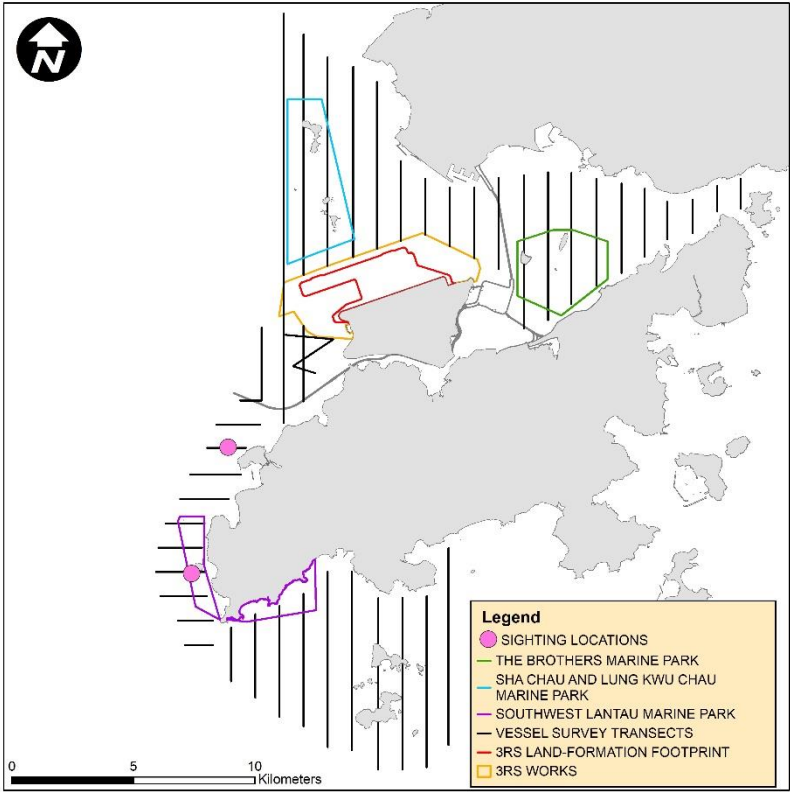
SLMM037



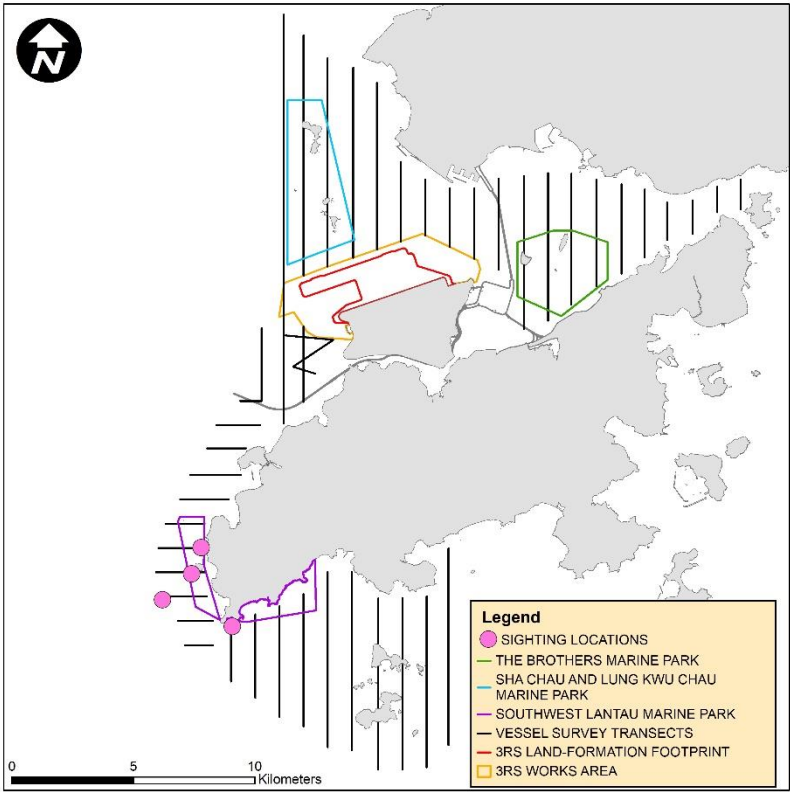
SLMM049



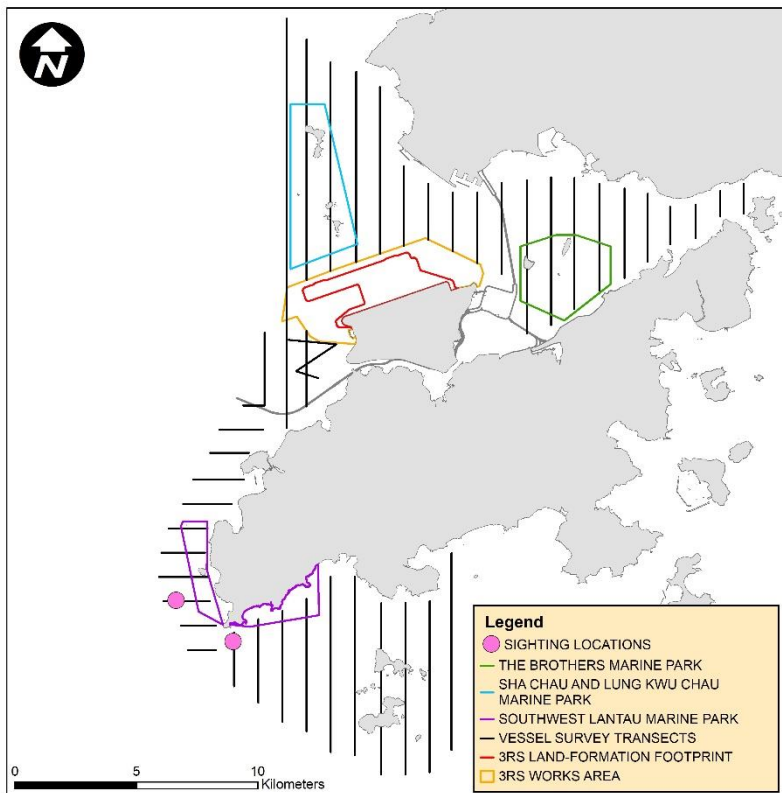
SLMM052



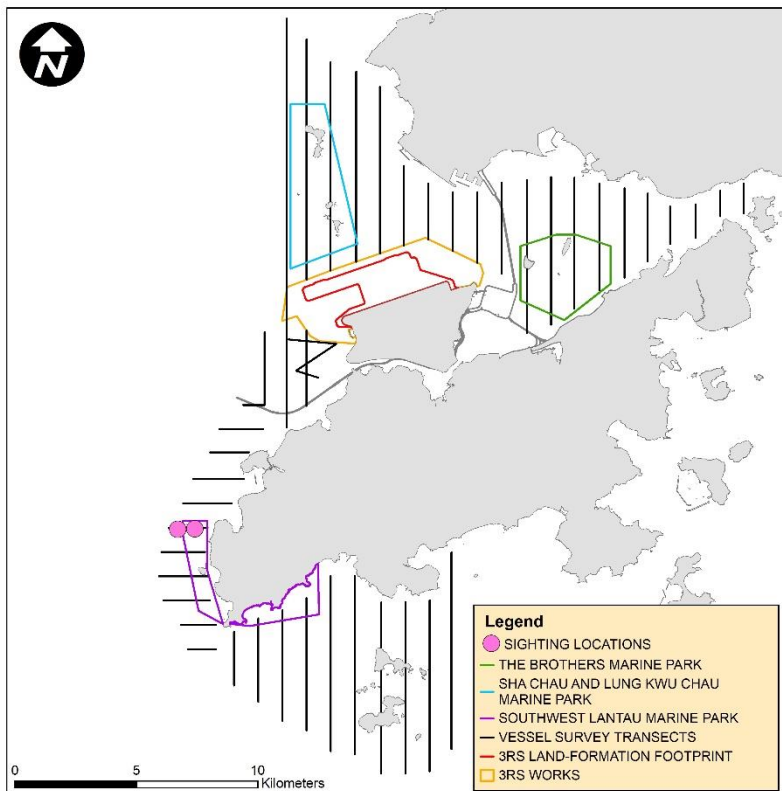
WLMM007



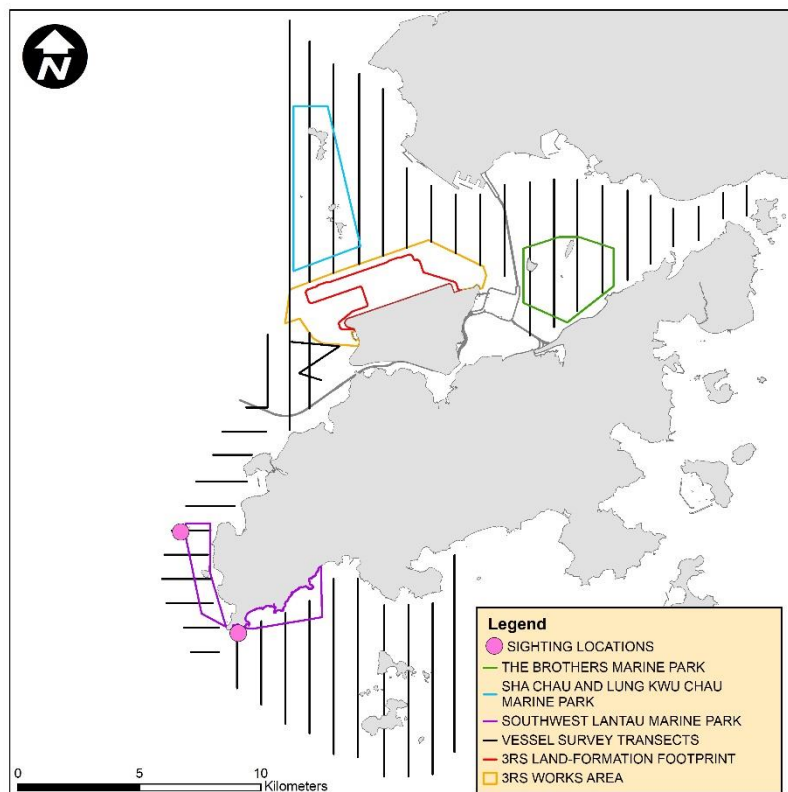
WLMM028



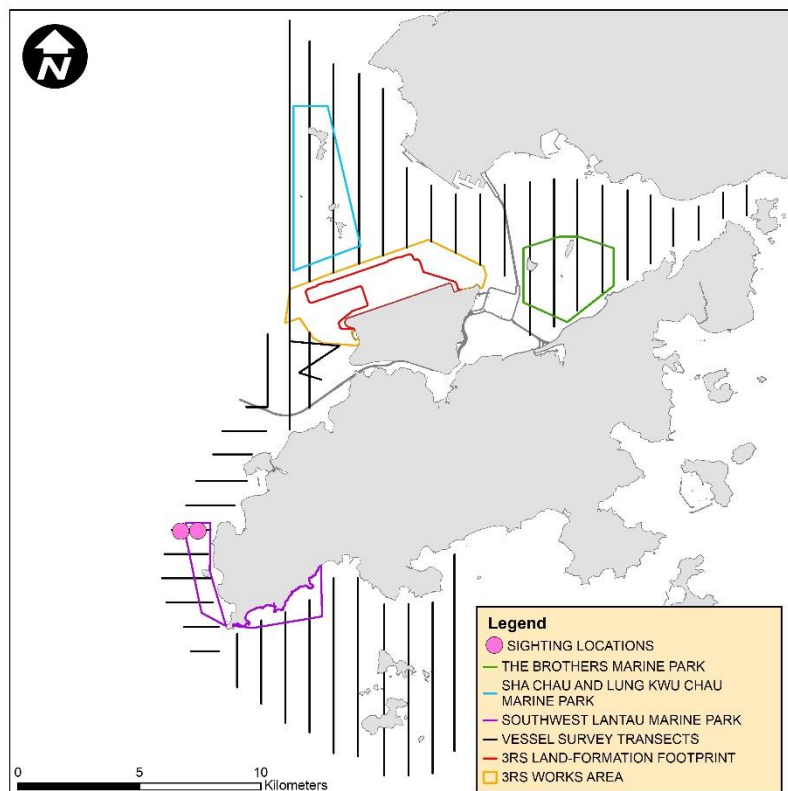
WLMM060



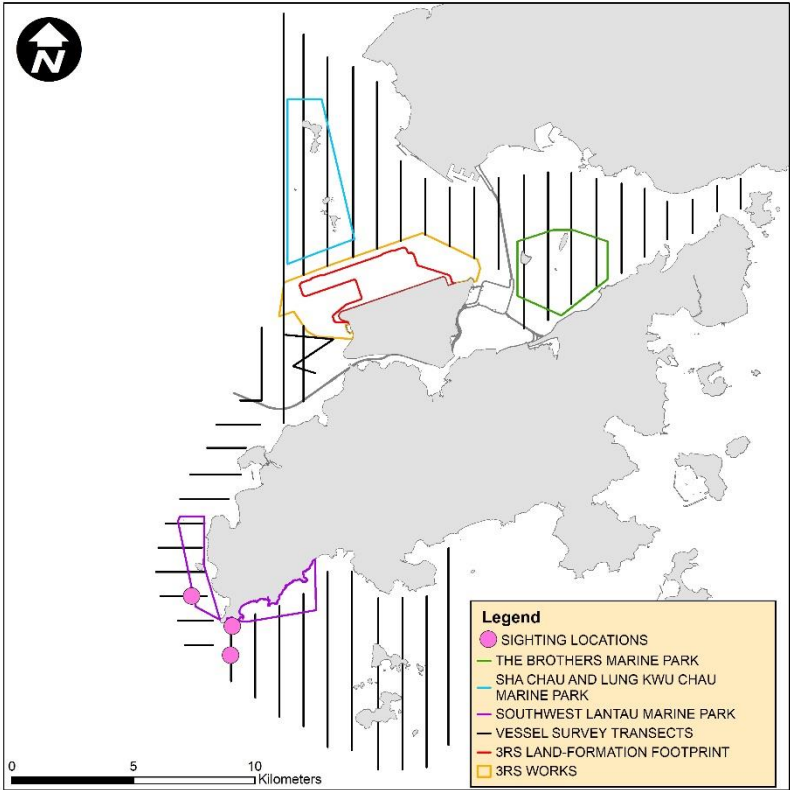
WLMM070



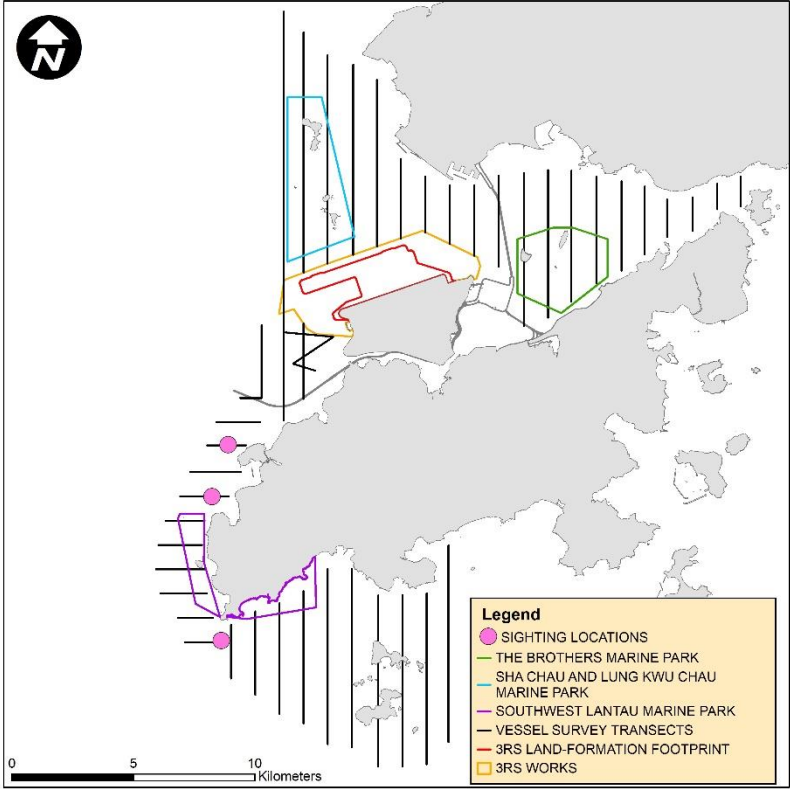
WLMM071



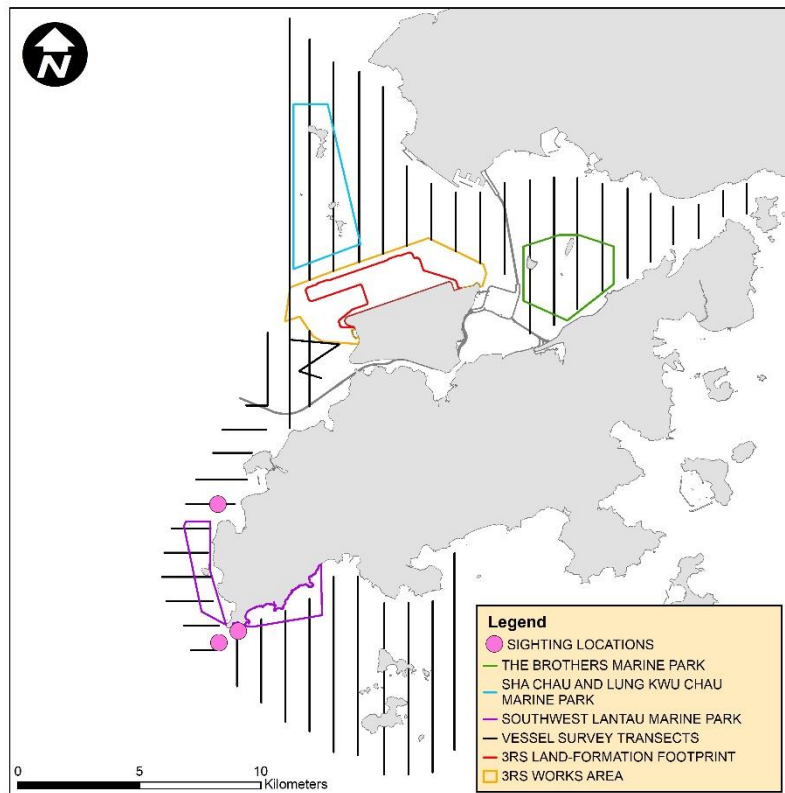
WLMM073



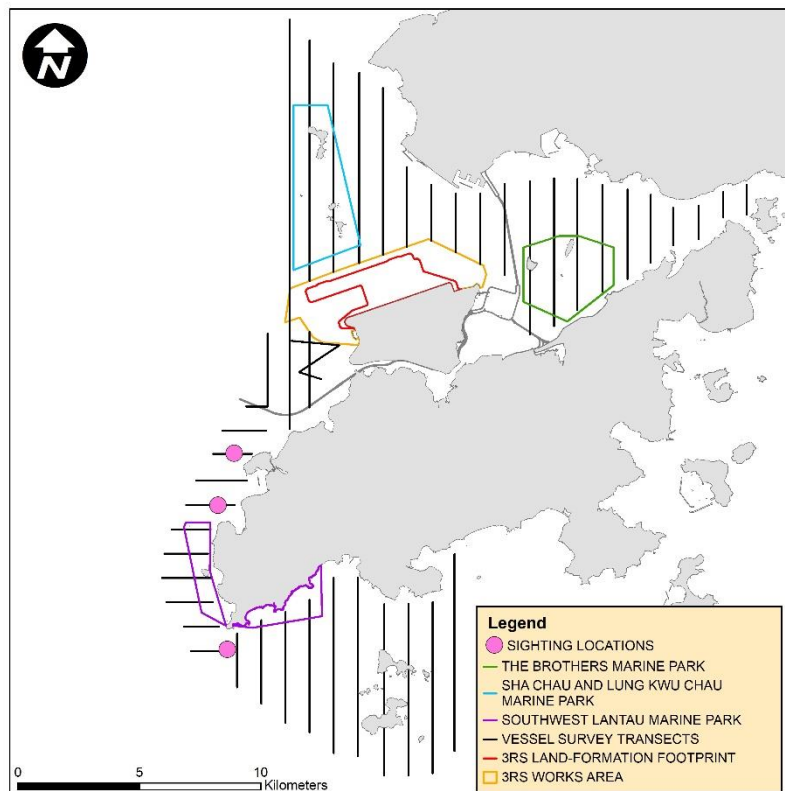
WLMM079



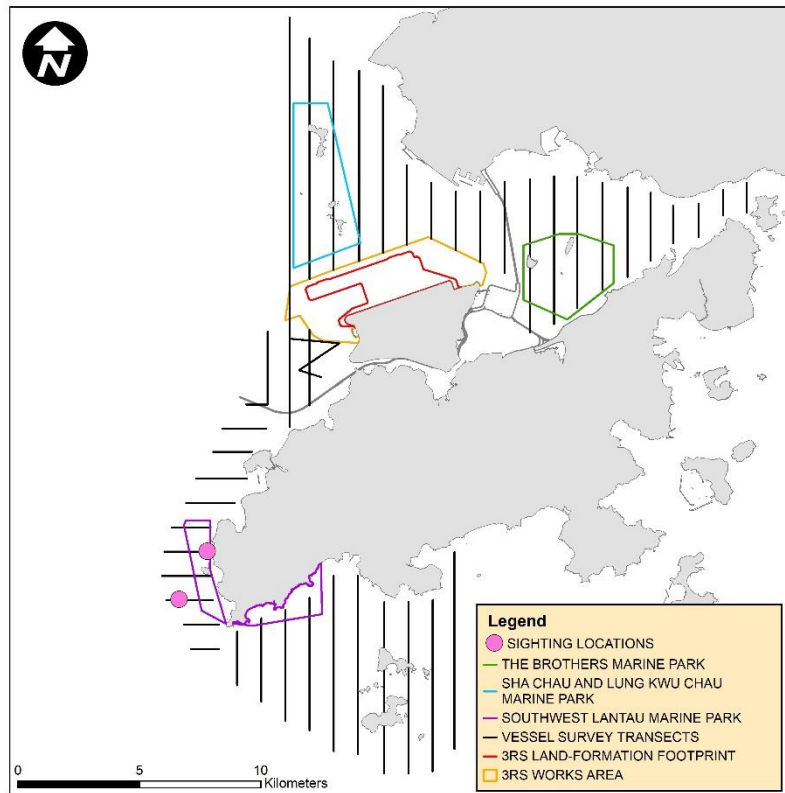
WLMM114



WLMM147



WLMM150



CWD Land-based Theodolite Tracking**CWD Groups by Survey Date**

Date	Station	Start	End	Duration	Beaufort	Visibility	No. of Focal Follow	Dolphin Group Size
19/Oct/20	Lung Kwu Chau	9:03	15:03	6:00	2-3	3	1	1
27/Oct/20	Sha Chau	10:52	16:52	6:00	2	2-3	0	-
4/Nov/20	Sha Chau	10:55	16:55	6:00	2-3	3	0	-
16/Nov/20	Lung Kwu Chau	8:57	14:57	6:00	2-3	3	2	2-3
10/Dec/20	Sha Chau	10:52	16:52	6:00	2	3	0	-
28/Dec/20	Lung Kwu Chau	8:59	14:59	6:00	2-3	2	3	2-4

Visibility: 1=Excellent, 2=Good, 3=Fair, 4=Poor