



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

Construction Phase Monthly EM&A Report No.12
(For December 2016)

January 2017

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This Monthly EM&A Report No. 12 has been reviewed and certified by

the Environmental Team Leader (ETL) in accordance with

Condition 3.5 of Environmental Permit No. EP-489/2014.

Certified by:

A handwritten signature in black ink, appearing to read 'Terence Kong', written in a cursive style.

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

Date

13 January 2017

Our Ref : 60440482/C/JCHL170113

By Email

Airport Authority Hong Kong
HKIA Tower, 1 Sky Plaza Road
Hong Kong International Airport
Lantau, Hong Kong

Attn: Mr. Lawrence Tsui, Senior Manager

13 January 2017

Dear Sir,

Contract No. 3102
3RS Independent Environmental Checker Consultancy Services

Submission of Monthly EM&A Report No.12 (December 2016)

Reference is made to the Environmental Team's submission of the Monthly EM&A Report No.12 under Condition 3.5 of the Environmental Permit No. EP-489/2014 certified by the ET Leader on 13 January 2017.

We would like to inform you that we have no adverse comment on the captioned submission. Therefore we write to verify the captioned submission in accordance with the requirement stipulated in Condition 3.5 of EP-489/2014.

Should you have any query, please feel free to contact our Roy Man at 3922 9365 or the undersigned at 3922 9376.

Yours faithfully,
AECOM Asia Co. Ltd.



Jackel Law
Independent Environmental Checker

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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.

This is the 12th Construction Phase Monthly EM&A Report for the Project which summarizes the monitoring results and audit findings of the EM&A programme during the reporting period from 1 December 2016 to 31 December 2016.

Key Activities in the Reporting Period

The key activities of the Project carried out in the reporting month included five in-progress deep cement mixing (DCM) contracts, an advanced works contract, and a CLP cable diversion enabling work contract. The five in-progress DCM contracts involved DCM trials, laying of geotextile and sand blanket; the advanced works contract involved Horizontal Directional Drilling (HDD) works including pilot hole drilling at the launching site and Sheung Sha Chau, casing installation and pipeline supporting works; and the CLP cable diversion enabling work contract involved construction of drawpit, installation of cable trough, backfilling, and reinstatement at the western part of the airport.

EM&A Activities Conducted in the Reporting Period

The monthly EM&A programme was undertaken in accordance with the Updated EM&A Manual of the Project. During the reporting period, the ET conducted 33 sets of construction dust measurements, 21 sets of construction noise measurements, 14 events of water quality measurements, one round of terrestrial ecology monitoring on Sheung Sha Chau Island, two complete sets of small vessel line-transect surveys and five days of land-based theodolite tracking survey effort for Chinese White Dolphin (CWD) monitoring as well as landscape & visual and waste monitoring.

Weekly site inspections of the construction works were carried out by the ET to audit the implementation of proper environmental pollution control and mitigation measures for the Project. Bi-weekly site inspections were also conducted by the Independent Environmental Checker (IEC). Observations have been recorded in the site inspection checklists and provided to the contractors together with the appropriate follow-up actions where necessary.

On the implementation of Marine Mammal Watching Plan, silt curtains were in place by the contractor of CLP cable diversion enabling works as well as the DCM contractors for sand blanket laying works and dolphin observers were deployed in accordance with the Plan. On the implementation of Dolphin Exclusion Zone (DEZ) Plan, DCM trials were in place and dolphin observers were deployed for continuous monitoring of the DEZ for DCM works in accordance with the DEZ Plan. Trainings for the dolphin observers were provided by the ET prior to the

aforementioned works, with the training records kept by the ET. From the contractors' daily observation records and DEZ monitoring log records, no dolphin or other marine mammals were observed within or around the DEZ and silt curtains in this reporting month. These contractors' records were also audited by the ET during site inspection. Audits of acoustic decoupling for construction vessels were also carried out by the ET.

On the implementation of the Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier (the SkyPier Plan), the daily movements of all SkyPier High Speed Ferries (HSFs) in 1-31 December 2016 were in the range of 87 to 93 daily movements, which are within the maximum daily cap of 125 daily movements. A total of 867 HSF movements under the SkyPier Plan were recorded in the reporting period. All HSFs had travelled through the SCZ with average speeds under 15 knots (7.3 to 14.3 knots), which were in compliance with the SkyPier Plan. One ferry movement with minor deviation from the diverted route is under investigation by ET. The investigation result will be presented in the next monthly EM&A report. In summary, the ET and IEC have audited the HSF movements against the SkyPier Plan and conducted follow up investigation or actions accordingly.

On the implementation of the Marine Travel Routes and Management Plan for Construction and Associated Vessel (MTRMP-CAV), ET had conducted weekly audit of relevant information, including AIS data, vessel tracks and other relevant records to ensure the contractors complied with the requirements of the MTRMP-CAV. Training has been provided for the concerned skippers to facilitate them in familiarising with the requirements of the MTRMP-CAV. 3-month rolling programmes for construction vessel activities were also received from contractors.

Results of Impact Monitoring

All the monitoring works for construction dust, construction noise, water quality, construction waste, terrestrial ecology and CWD were conducted during the reporting period in accordance with the Updated EM&A Manual.

No exceedance of the Action or Limit Levels in relation to the construction dust, construction noise, construction waste and CWD monitoring was recorded in the reporting month.

The water quality monitoring results for dissolved oxygen (DO), turbidity, total alkalinity, nickel and chromium obtained during the reporting period were in compliance with their corresponding Action and Limit Levels. For suspended solids (SS), some of the testing results had exceeded the relevant Action Levels, but not exceeded the Limit Levels during the reporting period. Investigations were carried out immediately for each of the exceedance cases, and the investigation findings concluded that all the exceedances were not due to the Project.

The monthly terrestrial ecology monitoring on Sheung Sha Chau observed that installation of casing was conducted on the Island and there was no encroachment upon the egret area nor any significant disturbance to the egrets foraging at Sheung Sha Chau by the works.

Summary of Upcoming Key Issues

Key activities anticipated in the next reporting period for the Project will include the following contract works:

Advanced Works Contract:

Contract P560 (R) Aviation Fuel Pipeline Diversion Works

- HDD pilot hole drilling; and
- Stockpiling of excavated materials from HDD operation.

Reclamation Contracts:

Contract 3201 to 3205 DCM Works

- Laying of geotextile and sand blanket;
- Erection of site office; and
- DCM trial works.

Contract 3206 Main Reclamation Works

- Erection of site office; and
- Laying of sand blanket.

Other Contracts:

Contract 3213 CLP Cable Diversion Enabling Works

- Delivery of temporary power supply system

Other site investigation works will continue. The key environmental issues will be associated with construction dust, construction noise, water quality, construction waste management, CWD and terrestrial ecology on Sheung Sha Chau. The implementation of required mitigation measures by the contractor will be monitored by the ET.



Summary Table

The following table summarizes the key findings of the EM&A programme during the reporting period from 1 to 31 December 2016:

	Yes	No	Details	Analysis / Recommendation / Remedial Actions
Exceedance of Limit Level [^]		✓	No exceedance of project-related limit level was recorded.	Nil
Exceedance of Action Level [^]		✓	No exceedance of project-related action level was recorded.	Nil
Complaints Received	✓		A complaint on night time work at Sheung Sha Chau was received on 29 Dec 2016.	The case is currently under investigation in accordance with the Complaint Management Plan
Notification of any summons and status of prosecutions		✓	Neither notifications of summons nor prosecution were received.	Nil
Changes that affect the EM&A		✓	There were no changes to the construction works that may affect the EM&A	Nil

Remarks: [^] only exceedance of action/ limit level related to Project works will be highlighted.

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 3.1. The Manual is available on the Project’s dedicated website (accessible at: <http://env.threerunwaysystem.com/en/index.html>). 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 existing 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.10.

1.2 Scope of this Report

This is the 12th Construction Phase Monthly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 to 31 December 2016.

1.3 Project Organisation

The Project’s organization structure remained unchanged during the reporting month. The Project’s organization structure can be referred to Appendix B of the Construction Phase Monthly EM&A Report No.1. Contact details of the key personnel have been updated and is presented in **Table 1.1**.

Table 1.1: Contact Information of Key Personnel

Party	Position	Name	Telephone
Project Manager’s Representative (Airport Authority Hong Kong)	Senior Manager, Environment	Lawrence Tsui	2183 2734

Party	Position	Name	Telephone
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	Keith Chau	2972 1721
Independent Environmental Checker (IEC) (AECOM Asia Company Limited)	Independent Environmental Checker	Jackel Law	3922 9376
	Deputy Independent Environmental Checker	Joanne Tsoi	3922 9423
Advanced Works Contract:			
Contract P560(R) Aviation Fuel Pipeline Diversion Works (Langfang Huayuan Mechanical and Electrical Engineering Co., Ltd.)	Project Manager	Shih Wei	2117 0566
	Environmental Officer	Lyn Lau	5172 6543
DCM Works Contracts:			
Contract 3201 DCM (Package 1) (Penta-Ocean-China State-Dong-Ah Joint Venture)	Project Director	Mr. Tsugunari SUZUKI	9178 9689
	Environmental Officer	Mr. Kanny CHO	9019 1962
Contract 3202 DCM (Package 2) (Samsung-BuildKing Joint Venture)	Project Manager	Mr. Ilkwon Nam	9643 3117
	Environmental Officer	Mr. Dickson Mak	9525 8408
Contract 3203 DCM (Package 3) (Sambo E&C Co.,Ltd)	Project Manager	Mr. Park Seong Jae	9683 8693
	Environmental Officer	Mr. Leung Min Pong	9203 5820
Contract 3204 DCM (Package 4) (CRBC-SAMBO Joint Venture)	Project Manager	Mr. Yoo Kyung-Sik	9683 8697
	Environmental Officer	Mr. David Man	6421 3238
Contract 3205 DCM (Package 5) (Bachy Soletanche- Sambo Joint Venture)	Project Manager	Mr. Park, Jong Heon	9139 6377
	Environmental Officer	Margaret Chung	9130 3696
Reclamation Contract:			
Contract 3206	Project Manager	Lim Kim Chuan	3693 2288

Party	Position	Name	Telephone
(ZHEC-CCCC-CDC Joint Venture)	Environmental Officer	Louie Chan	9270 1390
Other Works Contract:			
Contract 3213 CLP Cable Diversion Enabling Works (Wing Hing Construction Company)	Project Manager	Mr. Kan Yun Tai, Michael	9206 0550
	Environmental Officer	Ms Ivy Tam	2151 2090

1.4 Summary of Construction Works

The key activities of the Project carried out in the reporting month included five in-progress DCM contracts, an advanced works contract, and a CLP cable diversion enabling work contract. The five in-progress DCM contracts involved DCM trials, laying of geotextile and sand blanket; the advanced works contract involved HDD works including pilot hole drilling at the launching site and Sheung Sha Chau, casing installation and pipeline supporting works; and the CLP cable diversion enabling work contract involved construction of drawpit, installation of cable trough, backfilling, and reinstatement at the western part of the airport.

The active construction site is around 3 km and 900m away from the nearest air and noise sensitive receivers in Tung Chung and the villages in North Lantau. The locations of the works areas are presented in **Figure 1.1** to **Figure 1.2**. Some site investigation works were carried out during the reporting period.

1.5 Summary of EM&A Programme Requirements

The status for all environmental aspects is presented **Table 1.2**. The EM&A requirements remained unchanged during the reporting period and details can be referred to Table 1.2 of the Construction Phase Monthly EM&A Report No. 1.

Table 1.2: Summary of status for all environmental aspects under the Updated EM&A Manual

Parameters	Status
Air Quality	
Baseline Monitoring	The baseline air quality monitoring result has been reported in Baseline Monitoring Report (Version 1) and submitted to EPD under EP Condition 3.4.
Impact Monitoring	On-going
Noise	
Baseline Monitoring	The baseline noise monitoring result has been reported in Baseline Monitoring Report (Version 1) and submitted to EPD under EP Condition 3.4.
Impact Monitoring	On-going
Water Quality	
General Baseline Water Quality Monitoring for reclamation, water jetting and field joint 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.
General Impact Water Quality Monitoring for reclamation, water jetting and field joint works	On-going
Initial Intensive Deep Cement Mixing (DCM) Water Quality Monitoring	To be commenced according to the detailed plan on DCM
Early/ Regular DCM Water Quality Monitoring	On-going

Parameters	Status
Waste Management	
Waste Monitoring	On-going
Land Contamination	
Supplementary Contamination Assessment Plan (CAP)	To be submitted with the relevant construction works
Contamination Assessment Report (CAR) for Golf Course	The CAR for Golf Course was submitted to EPD.
Terrestrial Ecology	
Pre-construction Egret Survey Plan	The revised Egret Survey Plan was submitted and approved by EPD under EP Condition 2.14.
Ecological Monitoring	On-going
Marine Ecology	
Pre-Construction Phase Coral Dive Survey	The Coral Translocation Plan was submitted and approved by EPD under EP Condition 2.12.
Coral Translocation	On-going
Chinese White Dolphins (CWD)	
Vessel Survey, Land-based Theodolite Track and Passive Acoustic Monitoring (PAM)	
Baseline Monitoring	Baseline CWD results were reported in the CWD Baseline Monitoring Report and submitted to EPD in accordance with EP Condition 3.4.
Impact Monitoring	On-going
Landscape & Visual	
Baseline Monitoring	The baseline landscape & visual monitoring result has been reported in Baseline Monitoring Report (Version 1) and submitted to EPD under EP Condition 3.4.
Impact Monitoring	On-going
Environmental Auditing	
Regular site inspection	On-going
Marine Mammal Watching Plan (MMWP) implementation measures	On-going
Dolphin Exclusion Zone Plan (DEZP) implementation measures	On-going
SkyPier High Speed Ferries (HSF) implementation measures	On-going
Construction and Associated Vessels Implementation measures	On-going
Complaint Hotline and Email channel	On-going
Environmental Log Book	On-going

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

The EM&A programme also involved weekly site inspections and related audits conducted by the ET for checking the implementation of the required environmental mitigation measures recommended in the approved EIA Report. In order to enhance environmental awareness and closely monitor the environmental performance of the contractors, environmental briefings and regular environmental management meetings were conducted.

The EM&A programme has been following the recommendations presented in the approved EIA Report and the Updated EM&A 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 A**.

2 Air Quality Monitoring

2.1 Monitoring Stations

Air quality monitoring was conducted at two representative monitoring stations in the vicinity of air sensitive receivers in Tung Chung and villages in North Lantau in accordance with the Updated EM&A Manual. **Table 2.1** describes the details of the monitoring stations. **Figure 2.1** shows the locations of the monitoring stations.

Table 2.1: Locations of Impact Air Quality Monitoring Stations

Monitoring Station	Location
AR1A	Man Tung Road Park
AR2	Village House at Tin Sum

2.2 Monitoring Requirements and Schedule

In accordance with the Updated EM&A Manual, baseline 1-hour total suspended particulate (TSP) levels at the two air quality monitoring stations were established as presented in the Baseline Monitoring Report. Impact 1-hour TSP monitoring was conducted for three times every 6 days. The Action and Limit Levels of the air quality monitoring are provided in **Table 2.2**.

The air quality monitoring schedule involved in the reporting period is provided in **Appendix B**.

Table 2.2: Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AR1A	306	500
AR2	298	

2.3 Monitoring Equipment

Portable direct reading dust meter was used to carry out the 1-hour TSP monitoring. Details of equipment are given in **Table 2.3**.

Table 2.3: Air Quality Monitoring Equipment

Equipment	Brand and Model	Last Calibration Date
Portable direct reading dust meter (Laser dust monitor)	SIBATA LD-3B-002 (Serial No. 974350)	26 Oct 2016

2.4 Monitoring Methodology

2.4.1 Measuring Procedure

The measurement procedures involved in the impact 1-hr TSP monitoring can be summarised as follows:

- a. The portable direct reading dust meter was mounted on a tripod at a height of 1.2 m above the ground.

- b. Prior to the measurement, the equipment was set up for 1 minute span check and 6 second background check.
- c. The one hour dust measurement was started. Site conditions and dust sources at the nearby area were recorded on a record sheet.
- d. When the measurement completed, the "Count" reading per hour was recorded for result calculation.

2.4.2 Maintenance and Calibration

The portable direct reading dust meter is calibrated every year against high volume sampler (HVS) to check the validity and accuracy of the results measured by direct reading method. The calibration certificates of the portable direct reading dust meter and calibration record of the HVS provided in Appendix B of the Construction Phase Monthly EM&A Report No.11 are still valid. Any updates of calibration certificates will be reported in the Monthly EM&A report if necessary.

2.5 Analysis and Interpretation of Monitoring Results

The monitoring results for 1-hour TSP are summarized in **Table 2.4**. Detailed impact monitoring results are presented in **Appendix C**.

Table 2.4: Summary of 1-hour TSP Monitoring Results

Monitoring Station	1-hr TSP Concentration Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AR1A	32 - 95	306	500
AR2	37 - 155	298	

No exceedance of the Action / Limit Level was recorded at all monitoring stations in the reporting period.

General meteorological conditions throughout the impact monitoring period were recorded. Wind data for each monitoring day including wind speed and wind direction was collected from the Chek Lap Kok Wind Station.

3 Noise Monitoring

3.1 Monitoring Stations

Noise monitoring was conducted at five representative monitoring stations in the vicinity of noise sensitive receivers in Tung Chung and villages in North Lantau in accordance with the Updated EM&A Manual. **Figure 2.1** shows the locations of the monitoring stations and these are described in **Table 3.1** below. As described in Section 4.3.3 of the Updated EM&A Manual, monitoring at NM2 will commence when the future residential buildings in Tung Chung West Development become occupied.

Table 3.1: Locations of Impact Noise Monitoring Stations

Monitoring Station	Location	Type of measurement
NM1A	Man Tung Road Park	Free field
NM2 ⁽¹⁾	Tung Chung West Development	To be determined
NM3A	Site Office	Facade
NM4	Ching Chung Hau Po Woon Primary School	Free field
NM5	Village House in Tin Sum	Free field
NM6	House No. 1, Sha Lo Wan	Free field

Note: (1) As described in Section 4.3.3 of the Updated EM&A Manual, noise monitoring at NM2 will only commence after occupation of the future Tung Chung West Development.

3.2 Monitoring Requirements and Schedule

In accordance with the Updated EM&A Manual, baseline noise levels at the noise monitoring stations were established as presented in the Baseline Monitoring Report (Version 1 dated December 2015). Impact noise monitoring was conducted once per week in the form of 30-minute measurements of L_{eq} , L_{10} and L_{90} levels recorded at each monitoring station between 0700 and 1900 on normal weekdays. The Action and Limit levels of the noise monitoring are provided in **Table 3.2**. The construction noise monitoring schedule involved in the reporting period is provided in **Appendix B**.

Table 3.2: Action and Limit Levels for Construction Noise

Monitoring Stations	Time Period	Action Level	Limit Level, $L_{eq(30mins)}$ dB(A)
NM1A, NM2, NM3A, NM4, NM5 and NM6	0700-1900 hours on normal weekdays	When one documented complaint is received from any one of the sensitive receivers	75 dB(A) ⁽ⁱ⁾

Note: ⁽ⁱ⁾ reduce to 70dB(A) for school and 65dB(A) during school examination periods.

3.3 Monitoring Equipment

Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was used to check the sound level meters by a known sound pressure level for field measurement. Details of equipment are given in **Table 3.3**.

Table 3.3: Noise Monitoring Equipment

Equipment	Brand and Model	Last Calibration Date
Integrated Sound Level Meter	B&K 2238 (Serial No. 2800932)	19 Jul 2016
	B&K 2238 (Serial No. 2381580)	8 Sep 2016
Acoustic Calibrator	B&K 4231 (Serial No. 3003246)	16 May 2016
	B&K 4231 (Serial No. 3004068)	19 Jul 2016

3.4 Monitoring Methodology

3.4.1 Monitoring Procedure

The monitoring procedures involved in the noise impact monitoring can be summarised as follows:

- a. The sound level meter was set on a tripod at least a height of 1.2 m above the ground for free-field measurements at monitoring stations NM1A, NM4, NM5 and NM6. A correction of +3 dB(A) was applied to the free field measurements.
- b. Façade measurements were made at the monitoring station NM3A.
- c. Parameters such as frequency weighting, time weighting and measurement time were set.
- d. Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- e. During the monitoring period, L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a record sheet.
- f. Noise measurement results were corrected with reference to the baseline monitoring levels.
- g. Observations were recorded when high intrusive noise (e.g. dog barking, helicopter noise) was observed during the monitoring.

3.4.2 Maintenance and Calibration

The maintenance and calibration procedures are summarised below:

- a. The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- b. The meter and calibrator were sent to the supplier or laboratory accredited under Hong Kong Laboratory Accreditation Scheme (HOKLAS) to check and calibrate at yearly intervals.

Calibration certificates of the sound level meters and acoustic calibrators used in the noise monitoring provided in Appendix B of the Construction Phase Monthly EM&A Report No.8& 9 are still valid. Any updates of calibration certificates will be reported in the Monthly EM&A report if necessary.

3.5 Analysis and Interpretation of Monitoring Results

The construction noise monitoring results are summarized in **Table 3.4** and the detailed monitoring data are provided in **Appendix C**.

Table 3.4: Summary of Construction Noise Monitoring Results

Monitoring Station	Noise Level Range, dB(A)	Limit Level, dB(A)
	<i>L_{eq}</i> (30 mins)	<i>L_{eq}</i> (30 mins)
NM1A ⁽ⁱ⁾	71 - 72	75
NM3A	61 - 63	75
NM4 ⁽ⁱ⁾	60 - 68	70 ⁽ⁱⁱ⁾
NM5 ⁽ⁱ⁾	59 - 62	75
NM6 ⁽ⁱ⁾	62 - 74	75

Note: (i) +3 dB(A) Façade correction included;
(ii) Reduced to 65 dB(A) during school examination periods.

As the construction activities were far away from the monitoring stations, major sources of noise dominating the monitoring stations observed during the construction noise impact monitoring were aircraft noise at NM3A and NM5, aircraft noise and helicopter noise at NM6, road traffic noise at NM1A and school activities at NM4 in this reporting month.

No exceedance of the Action/ Limit Level was recorded at all monitoring stations in the reporting period.

4 Water Quality Monitoring

4.1 Monitoring Stations

Water quality monitoring was conducted at a total of 22 water quality monitoring stations, comprising 12 impact stations, seven sensitive receiver stations and three control stations in the vicinity of water quality sensitive receivers around the airport island in accordance with the Updated EM&A Manual. **Table 4.1** describes the details of the monitoring stations. **Figure 3.1** shows the locations of the monitoring stations.

Table 4.1: Monitoring Locations and Parameters for Impact Water Quality Monitoring

Monitoring Stations	Description	Coordinates		Parameters
		Easting	Northing	
C1	Control	804247	815620	DO, pH, Temperature, Salinity, Turbidity, SS, Total Alkalinity, Heavy Metals ⁽²⁾
C2	Control	806945	825682	
C3 ⁽³⁾	Control	817803	822109	
IM1	Impact	806458	818351	
IM2	Impact	806193	818852	
IM3	Impact	806019	819411	
IM4	Impact	805039	819570	
IM5	Impact	804924	820564	
IM6	Impact	805828	821060	
IM7	Impact	806835	821349	
IM8	Impact	807838	821695	
IM9	Impact	808811	822094	
IM10	Impact	809838	822240	
IM11	Impact	810545	821501	
IM12	Impact	811519	821162	
SR1 ⁽¹⁾	Future Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) Seawater Intake for cooling	812586	820069	DO, pH, Temperature, Salinity, Turbidity, SS
SR2 ⁽³⁾	Planned marine park / hard corals at The Brothers / Tai Mo To	814166	821463	
SR3	Sha Chau and Lung Kwu Chau Marine Park / fishing and spawning grounds in North Lantau	807571	822147	
SR4A	Sha Lo Wan	807810	817189	
SR5A	San Tau Beach SSSI	810696	816593	
SR6	Tai Ho Bay, Near Tai Ho Stream SSSI	814663	817899	
SR7	Ma Wan Fish Culture Zone (FCZ)	823742	823636	
SR8	Seawater Intake for cooling at Hong Kong International Airport (East)	811593	820417	

Notes:

⁽¹⁾ The seawater intakes of SR1 for the future HKBCF is not yet in operation. The future permanent location for SR1 during impact monitoring is subject to finalisation after the HKBCF seawater is commissioned.

⁽²⁾ Details of selection criteria for the two heavy metals for early 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.

4.2 Monitoring Requirements and Schedule

In accordance with the Updated EM&A Manual, baseline water quality levels at the abovementioned representative water quality monitoring stations were established as presented in the Baseline Water Quality Monitoring Report.

General water quality monitoring and early regular DCM water quality monitoring were conducted three days per week, at mid-flood and mid-ebb tides, at the 22 water quality monitoring stations during the reporting period. The sea conditions varied from clam to rough, and the weather conditions varied from fine to rainy during the monitoring period.

The water quality monitoring schedule for the reporting period is provided in **Appendix B**.

4.2.1 Action and Limit Levels for Water Quality Monitoring

The Action and Limit Levels for general water quality monitoring and regular DCM monitoring are presented in **Table 4.2**. The control and impact stations during flood tide and ebb tide for general water quality monitoring and regular DCM monitoring are presented in **Table 4.3**.

Table 4.2: Action and Limit Levels for General Water Quality Monitoring and Regular DCM Monitoring

Parameters	Action Level (AL)		Limit Level (LL)	
Action and Limit Levels for general water quality monitoring and regular DCM monitoring (excluding SR1& SR8)				
DO in mg/L (Surface, Middle & Bottom)	Surface and Middle 4.5 mg/L		Surface and Middle 4.1 mg/L 5 mg/L for Fish Culture Zone (SR7) only	
	Bottom 3.4 mg/L		Bottom 2.7 mg/L	
Suspended Solids (SS) in mg/L	23	or 120% of upstream control station at the same tide of the same day, whichever is higher	37	or 130% of upstream control station at the same tide of the same day, whichever is higher
Turbidity in NTU	22.6		36.1	
Total Alkalinity in ppm	95		99	
Representative Heavy Metals for early regular DCM monitoring (Chromium)	0.2		0.2	
Representative Heavy Metals for early regular DCM monitoring (Nickel)	3.2		3.6	
Action and Limit Levels SR1				
SS (mg/l)	To be determined prior to its commissioning		To be determined prior to its commissioning	
Action and Limit Levels SR8				
SS (mg/l)	52		60	

Notes:

⁽¹⁾ For DO measurement, non-compliance occurs when monitoring result is lower than the limits.

⁽²⁾ For parameters other than DO, non-compliance of water quality results 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 early 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.

Table 4.3: 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, SR6, SR8
Ebb Tide	
C1	SR4A, SR5A, SR6
C2	IM1, IM2, IM3, IM4, IM5, IM6, IM7, IM8, IM9, IM10, IM11, IM12, SR1A, SR2, SR3, SR7, SR8

^{^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.

4.3 Monitoring Equipment

Table 4.4 summarises the equipment used in the impact water quality monitoring programme.

Table 4.4: Water Quality Monitoring Equipment

Equipment	Brand and Model	Last Calibration Date
Water Sampler	Van Dorn Water Sampler	
Positioning Device (measurement of GPS)	Garmin eTrex Vista HCx	
Current Meter (measurement of current speed and direction, and water depth)	Sontek HydroSurveyor	
Equipment	Brand and Model	Last Calibration Date
Multifunctional Meter (measurement of DO, pH, temperature, salinity and turbidity)	YSI 6920 V2 (serial no. 11F100014)	5 Oct 2016
	YSI 6920 V2 (serial no. 16G104518)	5 Oct 2016
	YSI ProDSS (serial no. 15M100005)	5 Oct 2016
	YSI 6920 (serial no. 000109DF)	5 Oct 2016
Digital Titrator (measurement of total alkalinity)	Titrette Digital Burette 50ml Class A (serial no.10N64701)	11 Oct 2016
	Titrette Digital Burette 50ml Class A (serial no. 10N65665)	11 Oct 2016

4.4 Monitoring Methodology

4.4.1 Measuring Procedure

Water quality monitoring samples were taken at three depths (at 1m below surface, at mid-depth, and at 1m above bottom) for locations with water depth >6m. For locations with water depth between 3m and 6m, water samples were taken at two depths (surface and bottom). For locations with water depth <3m, only the mid-depth was taken. Duplicate water samples were taken and analysed.

The water samples for all monitoring parameters were collected, stored, preserved and analysed according to the Standard Methods, APHA 22nd ed. and/or other methods as agreed by the EPD.

In-situ measurements at monitoring locations including temperature, pH, DO, turbidity, salinity and water depth were collected by equipment listed in **Table 4.4**. Water samples for heavy metals and SS analysis were stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4 °C without being frozen), delivered to the laboratory within 24 hours of collection.

4.4.2 Maintenance and Calibration

Calibration of In-situ Instruments

All in-situ monitoring instrument were checked, calibrated and certified by a laboratory accredited under HOKLAS before use. Responses of sensors and electrodes were checked with certified standard solutions before each use.

Wet bulb calibration for a DO meter was carried out before commencement of monitoring and after completion of all measurements each day. Calibration was not conducted at each monitoring location as daily calibration is adequate for the type of DO meter employed. A zero check in distilled water was performed with the turbidity probe at least once per monitoring day. The probe should then be calibrated with a solution of known NTU. In addition, the turbidity probe was calibrated at least twice per month to establish the relationship between turbidity readings (in NTU) and levels of suspended solids (in mg/L). Accuracy check of the digital titrator was performed at least once per monitoring day.

Calibration certificates of the monitoring equipment used in the monitoring provided in Appendix C of the Construction Phase Monthly EM&A Report No.10 are still valid. Any updates of calibration certificates will be reported in the Monthly EM&A report if necessary.

4.4.3 Laboratory Measurement / Analysis

Analysis of SS and heavy metals have been carried out by a HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066). Sufficient water samples were collected at all the monitoring stations for carrying out the laboratory SS and heavy metals determination. The SS and heavy metals determination works were started within 24 hours after collection of the water samples. The analysis of SS and heavy metals have followed the standard methods summarised in **Table 4.5**. The QA/QC procedures for laboratory measurement/ analysis of SS and heavy metals was presented in Appendix F of the Construction Phase Monthly EM&A Report No.8.

Table 4.5: Laboratory Measurement/ Analysis of SS and Heavy Metals

Parameters	Instrumentation	Analytical Method	Reporting Limit
Suspended Solid (SS)	Analytical Balance	APHA 2540D	2 mg/L
Heavy Metals			
Chromium (Cr)	ICP-MS	USEPA 6020A	0.2 µg/L
Nickel (Ni)	ICP-MS	USEPA 6020A	0.2 µg/L

4.5 Analysis and Interpretation of Monitoring Results

4.5.1 Summary of Monitoring Results

The water quality monitoring results for DO, turbidity, total alkalinity, chromium, and nickel obtained during the reporting period were in compliance with their corresponding Action and Limit Levels. For SS, some of the testing results had exceeded the relevant Action Levels, but not exceeded the Limit Levels during the reporting period. Details of the exceedances are presented in **Section 4.5.2**.

All the water quality monitoring results and graphical presentations are provided in **Appendix C**.

4.5.2 Summary of Findings for Investigation of Exceedances

During the reporting month, water quality monitoring was conducted at 12 impact stations (IM), seven sensitive receiver (SR) stations and three control stations in the vicinity of water quality sensitive receivers around the airport island in accordance with the Updated EM&A 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).

During the monitoring period in December 2016, SS testing results exceeding the corresponding Action Levels were recorded at five monitoring days. Details of these exceedance cases are presented below.

Findings for SS Exceedances (Mid-Ebb Tide)

Table 4.6 presents a summary of the SS compliance status at IM and SR stations during mid-ebb tide for the reporting month.

Table 4.6: Summary of SS Compliance Status at IM and SR Stations (Mid-Ebb Tide)

Date	IM1	IM2	IM3	IM4	IM5	IM6	IM7	IM8	IM9	IM10	IM11	IM12	SR2	SR3	SR4A	SR5A	SR6	SR7	SR8
01/12/2016	Green	Blue	Green	Green	Blue-hatched	Green	Green	Green	Green	Green	Green	Green	Green	Grey	Green	Green	Green	Green	Green
03/12/2016	Green	Green	Green	Blue	Green	Blue-hatched	Blue-hatched	Green	Green	Green	Green	Green	Green	Blue-hatched	Green	Green	Green	Green	Green
06/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
08/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
10/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
13/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
15/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
17/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
20/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
22/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
24/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
27/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
29/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
31/12/2016	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
No. of SS Exceedances	0	1	0	1	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0

Note: Detailed results are presented in **Appendix C**.

Legend:

-  No exceedance of Action Level and Limit Level
-  Exceedance of Action Level recorded at monitoring station located downstream of the 3RS Project based on dominant tidal flow
-  Exceedance of Action Level recorded at monitoring station located upstream of the 3RS Project based on dominant tidal flow
-  Upstream station with respect to 3RS Project during the respective tide based on dominant tidal flow

IM Stations

As shown in **Table 4.6**, exceedances of Action Levels at IM stations were observed on two monitoring days. However, some of the exceedances occur at monitoring stations which are located upstream of the 3RS Project during ebb tide. As such upstream stations would unlikely be affected by the Project, the investigation focused on those exceedances at IM stations located downstream of the Project and hence might be affected by the Project’s construction activities.

As part of the investigation on the downstream exceedance events, details of the Project's marine construction activities on these monitoring days were collected, as well as any observations during the monitoring. The findings are summarised in **Table 4.7**.

Table 4.7: Summary of Findings from Investigations of SS Exceedance during Mid-Ebb Tide

Date	Marine construction works nearby	Approximate distance from marine construction works*	Status of silt curtains (if applicable)	Construction vessels in the vicinity	Silt plume observed	Exceedance due to Project
01/12/2016	Sand blanket laying Geotextile laying	Around 2.5km	Deployed and maintained properly	No	No	No
03/12/2016	Sand blanket laying Geotextile laying	Around 800m	Deployed and maintained properly	No	No	No

Note: *This refers to the approximate distance between the marine construction works and the nearest monitoring stations with exceedance

In addition to the investigation summary presented in **Table 4.7**, it is also noted from **Table 4.6** that all exceedances at downstream IM stations appeared to be isolated cases with neither temporal nor spatial trend to indicate SS release due to Project activities. Furthermore, on all monitoring days with exceedances at downstream IM stations, similar exceedances were also observed at some upstream IM stations on the same day, which suggested that there might be other sources of SS that were not related to the Project. Based on the findings of the exceedance investigation, these exceedances were considered not due to the Project.

SR Stations

At SR stations, exceedance was also observed at SR3 during mid-ebb tide for the reporting month. SR3 is located upstream of the project during ebb tide, hence the exceedance at SR3 is unlikely to be due to the Project. In addition, it is noted that similarly high SS levels were observed at the SR station during baseline monitoring, which suggested that such SS elevation is not uncommon under ambient conditions due to natural fluctuation. Given these findings, the exceedances at the SR station was considered not due to the Project.

Findings for SS Exceedances (Mid-Flood Tide)

Table 4.8 presents a summary of the SS compliance status at IM and SR stations during mid-flood tide for the reporting month.

Table 4.8: Summary of SS Compliance Status at IM and SR Stations (Mid-Flood Tide)

Date	IM1	IM2	IM3	IM4	IM5	IM6	IM7	IM8	IM9	IM10	IM11	IM12	SR2	SR3	SR4A	SR5A	SR6	SR7	SR8
01/12/2016																			
03/12/2016																			
06/12/2016																			
08/12/2016																			
10/12/2016																			
13/12/2016																			
15/12/2016																			
17/12/2016																			
20/12/2016																			
22/12/2016																			
24/12/2016																			
27/12/2016																			
29/12/2016																			
31/12/2016																			
No. of SS Exceedances	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0

Note: Detailed results are presented in **Appendix C**.

Legend:

-  No exceedance of Action Level and Limit Level
-  Exceedance of Action Level recorded at monitoring station located downstream of the 3RS Project based on dominant tidal flow
-  Exceedance of Action Level recorded at monitoring station located upstream of the 3RS Project based on dominant tidal flow
-  Upstream station with respect to 3RS Project during the respective tide based on dominant tidal flow

IM Stations

As shown in **Table 4.8**, exceedances of Action Level at IM stations were observed on three monitoring days. However, all exceedances occurred at monitoring stations which are located upstream of the 3RS Project during flood tide. Such upstream stations are unlikely to be affected by the Project. Nevertheless as a prudent measure, the Project’s activities on these monitoring days were investigated and it was confirmed that silt curtains were deployed and maintained properly and no silt plumes were observed.

Based on these findings and given that exceedances were only observed at monitoring stations located upstream of the Project, these exceedances were considered not due to the Project.

SR Stations

There was no SS exceedance at any SR station during mid-flood tide in the reporting period.

Conclusions

Based on the findings of the exceedance investigations, it is concluded that the exceedances were not due to the Project. Hence no SR stations were adversely affected by the Project. All required actions under the Event and Action Plan has been followed. Exceedances appear to be due to natural fluctuation (such as naturally higher baseline SS levels at individual SR stations) or other sources not related to the Project.

Nevertheless, recognising that the IM stations represent a ‘first line of defense’, the non-project related exceedances identified at IM stations have been attended to as a precautionary measure. In the reporting month, there were site trials for DCM works and sand blanket laying activities, whereby custom-designed methods and silt curtain systems were still being further refined taking

into account their environmental performance under actual marine conditions within the Project area. The ET and the contractors will keep exploring the opportunities for further enhancement on silt curtain systems. 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 inspection. These include maintaining the silt curtain for sand blanket laying properly as recommended in the EM&A manual.

5 Waste Management

5.1 Monitoring Requirements

In accordance with the Updated EM&A Manual, the waste generated from construction activities was audited once per week to determine if wastes are 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. The Action and Limit levels of the construction waste are provided in **Table 5.1**.

Table 5.1: 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

5.2 Waste Management Status

Weekly monitoring on all works contracts were carried out by the ET to check and monitor the implementation of proper waste management practices during the construction phase.

Recommendations were provided during monitoring including provision of drip trays for chemical containers, provision of proper label for chemical containers as well as proper collection, sorting and disposal of C&D materials and sewage effluent from construction workforce. In addition, the relevant contractors were reminded to provide spill kit and chemical storage area, and to handle the chemical waste properly. The contractors had taken actions to implement the recommended measures.

Based on the Contractor's information, about 200m³ of excavated materials were produced from the HDD launching site and Sheung Sha Chau under P560(R) in December 2016. The generated excavated materials were temporarily stored at storage and stockpiling area. The excavated material will be reused in the Project.

Around 6 tonnes of general refuse was disposed of to the West New Territories (WENT) Landfill by advanced works contract and DCM contract in December 2016. No Construction and Demolition (C&D) material and chemical waste were disposed off-site during the reporting month.

No exceedances of the Action or Limit Levels were recorded in the reporting period.

6 Chinese White Dolphin Monitoring

6.1 CWD Monitoring Requirements

In accordance with the Updated EM&A Manual, Chinese White Dolphin (CWD) monitoring by small vessel line-transect survey supplemented by land-based theodolite tracking should be conducted during construction phase.

The small vessel line-transect survey as proposed in the Updated EM&A Manual should be conducted at a frequency of two full survey per month while land-based theodolite tracking should be conducted at a frequency of one day per month per station during the construction phase. In addition to the land-based theodolite tracking required for impact monitoring as stipulated in the Updated EM&A Manual, supplemental theodolite tracking have also been conducted during the initial implementation period for the SkyPier HSF diversion and speed control in order to assist in monitoring the effectiveness of these measures, i.e. in total twice per month at the Sha Chau station and three times per month at the Lung Kwu Chau station.

The Action Level (AL) and Limit Level (LL) for CWD monitoring were formulated by the action response approach using the running quarterly dolphin encounter rates STG and ANI derived from the baseline monitoring data, as presented in the CWD Baseline Monitoring Report. The derived values of AL and LL for CWD monitoring were summarized in **Table 6.1**.

Table 6.1: Derived Values of Action Level (AL) and Limit Level (LL) 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

[Notes for Table 6.1 (referring to the baseline monitoring report):

*Action Level – running quarterly STG & ANI will be calculated from the three preceding survey months. For CWD monitoring for December 2016, data from 1 October to 31 December 2016 will be used to calculate the running quarterly encounter rates STG & ANI;

^Limit Level – two consecutive running quarters mean both the running quarterly encounter rates of the preceding month November 2016 (calculated by data from September to November 2016) and the running quarterly encounter rates of this month (calculated by data from October to December 2016).

AL and/or LL will be exceeded if both STG and ANI fall below the criteria.]

6.2 CWD Monitoring Transects and Stations

6.2.1 Small Vessel Line-transect Survey

Small vessel line-transect surveys were conducted along the transects covering Northeast Lantau (NEL), Northwest Lantau (NWL), Airport West (AW), West Lantau (WL) and Southwest Lantau (SWL) areas as proposed in the Updated EM&A Manual, which are consistent with the Agriculture, Fisheries and Conservation Department (AFCD) long-term monitoring programme (except AW). The AW transect has not been previously surveyed in the AFCD programme due to the restrictions of HKIA Exclusion Zone, nevertheless, this transect was established during the EIA of the 3RS Project and refined in the Updated EM&A Manual with the aim to collect project specific baseline information within the HKIA Approach Area to fill the data gap that was not covered by the AFCD programme. This provided a larger sample size for estimating the densities and patterns of movements in the broader study area of the project.

For the NWL area, there was no significant physical demarcation of the 3RS works area during CWD monitoring survey in the reporting period, therefore most of the works area of the 3RS project was still accessible and the transect lines followed the waypoints and lengths conducted for baseline monitoring. The planned vessel survey transect lines are depicted in **Figure 6.1** with the waypoint coordinates of all transect lines given in **Table 6.2**, which are subject to on-site refinement based on the actual survey conditions and constraints.

Table 6.2: Coordinates of Transect Lines in NEL, NWL, AW, WL and SWL Survey Areas

Waypoint	Easting	Northing	Waypoint	Easting	Northing
NEL					
1S	813525	820900	6N	818568	824433
1N	813525	824657	7S	819532	821420
2S	814556	818449	7N	819532	824209
2N	814559	824768	8S	820451	822125
3S	815542	818807	8N	820451	823671
3N	815542	824882	9S	821504	822371
4S	816506	819480	9N	821504	823761
4N	816506	824859	10S	822513	823268
5S	817537	820220	10N	822513	824321
5N	817537	824613	11S	823477	823402
6S	818568	820735	11N	823477	824613
NWL					
1S	804671	814577	5N	808504	828602
1N	804671	831404	6S	809490	820590
2S	805475	815457	6N	809490	825352
2N	805476	830562	7S	810499	820950
3S	806464	819550	7N	810499	824613
3N	806464	829598	8S	811508	821250
4S	807518	819900	8N	811508	824254
4N	807518	829230	9S	812516	821250
5S	808504	820250	9N	812516	824254
AW					
1W	804733	818205	2W	805045	816912
1E	806708	818017	2E	805960	816633
WL					
1W	800600	805450	7W	800400	811450
1E	801760	805450	7E	802400	811450
2W	800300	806450	8W	800800	812450
2E	801750	806450	8E	802900	812450
3W	799600	807450	9W	801500	813550
3E	801500	807450	9E	803120	813550
4W	799400	808450	10W	801880	814500
4E	801430	808450	10E	803700	814500
5W	799500	809450	11W	802860	815500
5E	801300	809450	12S/11E	803750	815500
6W	799800	810450	12N	803750	818500
6E	801400	810450			
SWL					
1S	802494	803961	6S	807467	801137
1N	802494	806174	6N	807467	808458

Waypoint	Easting	Northing	Waypoint	Easting	Northing
2S	803489	803280	7S	808553	800329
2N	803489	806720	7N	808553	807377
3S	804484	802509	8S	809547	800338
3N	804484	807048	8N	809547	807396
4S	805478	802105	9S	810542	800423
4N	805478	807556	9N	810542	807462
5S	806473	801250	10S	811446	801335
5N	806473	808458	10N	811446	809436

6.2.2 Land-based Theodolite Tracking

Land-based theodolite tracking stations were set up at two locations, one facing east/south/west on the southern slopes of Sha Chau (SC), and the other facing north/northeast/northwest at Lung Kwu Chau (LKC). The stations (D and E) are depicted in **Figure 6.2** and shown in **Table 6.3** with position coordinates, height of station and approximate distance of consistent theodolite tracking capabilities for CWD.

Table 6.3: Land-based 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

6.3 CWD Monitoring Methodology

6.3.1 Small Vessel Line-transect Survey

Small vessel line-transect surveys provided data for density and abundance estimation and other assessments using distance-sampling methodologies, specifically, line-transect methods.

The surveys involved small vessel line-transect data collection and have been designed to be similar to, and consistent with, previous surveys for the AFCD for their long-term monitoring of small cetaceans in Hong Kong. The survey was designed to provide systematic, quantitative measurements of density, abundance and habitat use.

As mentioned in Section 6.2.1, the transects covered Northeast Lantau (NEL), Northwest Lantau (NWL) covering the Airport West (AW), West Lantau (WL) and Southwest Lantau (SWL) areas as proposed in the Updated EM&A Manual and are consistent with the AFCD long-term monitoring programme (except AW). There are two types of transect lines:

- Primary transect lines: the parallel and zigzag transect lines as shown in **Figure 6.1**; and
- Secondary transect lines: transect lines connecting between the primary transect lines and crossing islands.

All on-effort data collected under conditions of Beaufort 0-3 and visibility of approximately 1200 m or beyond, on both primary and secondary transect lines, were used for analysis.

A 15-20 m vessel with a flying bridge observation platform about 4 to 5 m above water level and unobstructed forward view, and a team of three to four observers were deployed to undertake the

surveys. Two observers were on search effort at all times when following the transect lines with a constant speed of 7 to 8 knots (i.e. 13 to 15 km per hour), one using 7X handheld binoculars and the other using unaided eyes and recording data.

During on-effort survey periods, the survey team recorded effort data including time, position (waypoints), weather conditions (Beaufort sea state and visibility) and distance travelled in each series with assistance of a handheld GPS device. The GPS device also continuously and automatically logged data including time, position (Latitude and longitude) and vessel speed throughout the entire survey.

When CWDs were seen, the survey team was taken off-effort, the dolphins were approached and photographed for photo-ID information (using a Canon 7D [or similar] camera and long 300 mm+ telephoto lens), then followed until they left the study area or were lost. At that point, the boat returned (off effort) to the next survey line and began to survey on effort again.

Focal follows of dolphins were conducted where practicable (i.e. when individual dolphins or small stable groups of dolphins with at least one member that could be readily identifiable with unaided eyes during observations and weather conditions are favourable). These involved the boat following (at an appropriate distance to minimize disturbance) an identifiable individual dolphin for an extended period of time, and collecting detailed data on its location, behaviour, response to vessels, and associates.

6.3.2 Photo Identification

CWDs can be identified by their unique features like presence of scratches, nick marks, cuts, wounds, deformities of their dorsal fin and distinguished colouration and spotting patterns.

When CWDs were observed, the survey team was taken off-effort, the dolphins were approached and photographed for photo-ID information (using a Canon 7D [or similar] camera and long 300 mm+ telephoto lens). The survey team attempted to photo both sides of every single dolphin in the group as the colouration and spotting pattern on both sides may not be identical. The photos were taken at the highest available resolution and stored on Compact Flash memory cards for transferring into a computer.

All photos taken were initially examined to sort out those containing potentially identifiable individuals. These sorted-out images would then be examined in detail and compared to the CWD photo-identification catalogue established for 3RS during the baseline monitoring stage.

6.3.3 Land-based Theodolite Tracking

Land-based monitoring obtains fine-scale information on the time of day and movement patterns of the CWDs. A digital theodolite (Sokkia/Sokkisha Model DT5 or similar equipment) with 30-power magnification and 5-s precision was used to obtain the vertical and horizontal angle of each dolphin and vessel position. Angles were converted to geographic coordinates (latitude and longitude) and data were recorded using *Pythagoras* software, Version 1.2. This method delivers precise positions of multiple spatially distant targets in a short period of time. The technique is fully non-invasive, and allows for time and cost-effective descriptions of dolphin habitat use patterns at all times of daylight.

Three surveyors (one theodolite operator, one computer operator, and one observer) were involved in each survey. Observers searched for dolphins using unaided eyes and handheld binoculars (7X50). Theodolite tracking sessions were initiated whenever an individual CWD or group of CWDs was located. Where possible, a distinguishable individual was selected, based on colouration, within the group. The focal individual was then continuously tracked via the

theodolite, with a position recorded each time the dolphin surfaced. In case an individual could not be positively distinguished from other members, the group was tracked by recording positions based on a central point within the group whenever the CWD surfaced. Tracking continued until animals were lost from view; moved beyond the range of reliable visibility (>1-3 km, depending on station height); or environmental conditions obstructed visibility (e.g., intense haze, Beaufort sea state >4, or sunset), at which time the research effort was terminated. In addition to the tracking of CWD, all vessels that moved within 2-3 km of the station were tracked, with effort made to obtain at least two positions for each vessel.

Theodolite tracking included focal follows of CWD groups and vessels. Priority was given to tracking individual or groups of CWD. The survey team also attempted to track all vessels moving within 1 km of the focal CWD.

6.4 Monitoring Results and Observations

6.4.1 Small Vessel Line-transect Survey

Survey Effort

Within this reporting month, two complete sets of small vessel line-transect surveys were conducted on the 2nd, 5th, 13th, 14th, 19th, 20th, 22nd and 23rd December 2016, covering all transects in NEL, NWL, AW, WL and SWL survey areas for twice.

A total of 462.18 km of survey effort was collected from these surveys, with around 84.05% 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 are given in **Appendix C**.

Sighting Distribution

In December 2016, 20 groups of CWDs with 63 individuals were sighted. Amongst the sightings of CWD, 19 groups with 62 individuals were made during on-effort search under favourable weather conditions (i.e. Beaufort Sea State 3 or below with favourable visibility). Details of cetacean sightings are presented in **Appendix C**.

Distribution of CWD sightings recorded in December 2016 is illustrated in **Figure 6.3**. In NWL, the majority of the sightings was clustered around Lung Kwu Chau. CWD sightings in WL scattered along the coast from area near Sham Wat to Fan Lau Sai Wan. In SWL, CWD sightings were recorded along the coast from Fan Lau Tung Wan to Tai Long Wan and also scattered at the western side of Soko Islands. No sightings of CWDs were recorded in the vicinity of or within the 3RS land-formation footprint.

Figure 6.3: Sightings Distribution of Chinese White Dolphins

[Pink circle: Sighting locations of CWD, White line: Vessel survey transects, Blue polygon: Sha Chau and Lung Kwu Chau Marine Park (SCLKCMP), Red polygon: 3RS land-formation footprint]



Note: Only on-effort sightings under Beaufort 3 or below were presented in the figure.

Encounter Rate

Two types of dolphin encounter rates were calculated based on the data from December 2016. They included the number of dolphin sightings per 100km survey effort (STG) and total number of dolphins per 100km survey effort (ANI) in the whole survey area (i.e. NEL, NWL, AW, WL and SWL). In the calculation of dolphin encounter rates, only survey data collected under favourable weather condition (i.e. Beaufort Sea State 3 or below with favourable visibility) were used. The formulae used for calculation of the encounter rates are shown below:

Encounter Rate by Number of Dolphin Sightings (STG)

$$STG = \frac{\text{Total No. of On - effort Sightings}}{\text{Total Amount of Survey Effort (km)}} \times 100$$

Encounter Rate by Number of Dolphins (ANI)

$$ANI = \frac{\text{Total No. of Dolphins from On - effort Sightings}}{\text{Total Amount of Survey Effort (km)}} \times 100$$

(Notes: Only data collected under Beaufort 3 or below condition was used)

In December 2016, a total of 388.47 km of survey effort were conducted under Beaufort Sea State 3 or below with favourable visibility, whilst a total number of 19 on-effort sightings and a total number of 62 dolphins from on-effort sightings were obtained under such condition. Calculation of the encounter rates in December 2016 are shown as follows:

Encounter Rate by Number of Dolphin Sightings (STG) in December 2016

$$STG = \frac{19}{388.47} \times 100 = 4.89$$

Encounter Rate by Number of Dolphins (ANI) in December 2016

$$ANI = \frac{62}{388.47} \times 100 = 15.96$$

For the running quarter of the reporting month (i.e., from October to December 2016), a total of 1169.39 km of survey effort were conducted under Beaufort Sea State 3 or below with favourable visibility, whilst a total number of 47 on-effort sightings and a total number of 128 dolphins from on-effort sightings were obtained under such condition. Calculation of the running quarterly encounter rates are shown as follows:

Running Quarterly Encounter Rate of Number of Dolphin Sightings (STG)

$$STG = \frac{47}{1169.39} \times 100 = 4.02$$

Running Quarterly Encounter Rate of Number of Dolphins (ANI)

$$ANI = \frac{128}{1169.39} \times 100 = 10.95$$

The STG and ANI of CWD in the whole survey area (i.e. NEL, NWL, AW, WL and SWL) during the month of December 2016 and during the running quarter are presented in **Table 6.4** below and compared with the Action Level. The running quarterly encounter rates STG and ANI did not trigger the Action Level (i.e., remained above the Action Level).

Table 6.4: Comparison of CWD Encounter Rates of the Whole Survey Area with Action Levels

	Encounter Rate (STG)	Encounter Rate (ANI)
December 2016	4.89	15.96
Running Quarter from October to December 2016*	4.02	10.95
Action Level	1.86	9.35

*Running quarterly encounter rates STG & ANI were calculated from data collected in the reporting month and the two preceding survey months, i.e. the data from October to December 2016, containing six sets of transect surveys for all monitoring areas.

Group Size

In December 2016, the average group size of CWDs was 3.26 individuals per group. The majority of the sightings were of small group size (i.e. 1-2 individuals). A large CWD group with 11 individuals was sighted in December 2016 in WL.

Activities and Association with Fishing Boats

Three sightings of CWDs were recorded in association with operating fishing boats in December 2016. Two of these sightings were associated with operating purse seine in SWL and NWL respectively, while the remaining one was associated with operating pair trawler at southwestern corner of Soko Islands close to the boundary of Hong Kong waters.

Mother-calf Pair

One mother-and-spotted juvenile pair (i.e. NLMM006 and NLMM013) was sighted twice in NWL in December 2016.

6.4.2 Photo Identification

In December 2016, a total number of 26 different CWD individuals were identified for totally 31 times. A summary of photo identification works is presented in **Table 6.5**. Representative photos of these individuals are given in **Appendix C**.

Table 6.5: Summary of Photo Identification

Individual ID	Date of sighting (dd/mm/yyyy)	Sighting Group No.	Area	Individual ID	Date of sighting (dd/mm/yyyy)	Sighting Group No.	Area
NLMM002	19/12/2016	7	NWL	SLMM007	05/12/2016	3	WL
NLMM004	19/12/2016	6	NWL	SLMM010	05/12/2016	5	WL
NLMM006	19/12/2016	3	NWL		13/12/2016	8	SWL
		7	NWL	SLMM012	05/12/2016	5	WL
NLMM010	19/12/2016	5	NWL	SLMM014	13/12/2016	4	SWL
		7	NWL	SLMM019	05/12/2016	1	WL
NLMM013	19/12/2016	3	NWL	SLMM022	05/12/2016	5	WL
		7	NWL	SLMM029	05/12/2016	5	WL
NLMM045	02/12/2016	1	NWL	SLMM031	13/12/2016	7	SWL
NLMM046	19/12/2016	2	NWL	SLMM037	05/12/2016	5	WL
		6	NWL	SLMM049	05/12/2016	5	WL
NLMM047	19/12/2016	6	NWL	SLMM053	13/12/2016	9	SWL
NLMM048	19/12/2016	7	NWL	WLMM007	05/12/2016	3	WL
NLMM049	19/12/2016	7	NWL	WLMM030	19/12/2016	4	NWL
SLMM002	05/12/2016	5	WL	WLMM063	05/12/2016	4	WL
SLMM003	05/12/2016	5	WL				

6.4.3 Land-based Theodolite Tracking

Survey Effort

Land-based theodolite tracking surveys at LKC were conducted on 7th, 8th and 12th December 2016 and at SC on 9th and 16th December 2016, with a total of 5 days of land-based theodolite tracking survey effort accomplished in this reporting month. In total, 7 CWD groups were tracked during the surveys. Information of survey effort and CWD groups sighted during these land-based theodolite tracking surveys are presented in **Table 6.6**. Details of the survey effort and CWD groups tracked are presented in **Appendix C**. The first sighting locations of CWD groups tracked at LKC station during land-based theodolite tracking surveys in December 2016 were depicted in **Figure 6.4**. No CWD group was sighted from SC station in this reporting month.

Table 6.6: Summary of Survey Effort and CWD Group of Land-based Theodolite Tracking

Land-based Station	No. of Survey Sessions	Survey Effort (hh:mm)	No. of CWD Groups Sighted	CWD Group Sighting per Survey Hour
Lung Kwu Chau	3	18:00	7	0.39
Sha Chau	2	12:00	0	0
TOTAL	5	30:00	7	0.23

Figure 6.4: Plots of First Sightings of All CWD Groups obtained from Land-based Stations

[Green triangle: LKC station; Green square: CWD group off LKC; Blue line: SCLKCMP boundary]



6.5 Progress Update on Passive Acoustic Monitoring

Underwater acoustic monitoring using Passive Acoustic Monitoring (PAM) should be undertaken during land formation related construction works. In this reporting month, the Ecological Acoustic Recorder (EAR) has been retrieved on end December 2016 and planned for re-deployment in early January 2017 and positioned at south of Sha Chau Island with 20% duty cycle (**Figure 6.5**). The EAR deployment is generally for 4-6 weeks prior to data retrieval for analysis. Acoustic data is reviewed to give an indication of CWDs occurrence patterns and to obtain anthropogenic noise information simultaneously. Analysis (by a specialized team of acousticians) involved manually browsing through every acoustic recording and logging the occurrence of dolphin signals. All data will be re-played by computer as well as listened to by human ears for accurate assessment of dolphin group presence. As the period of data collection and analysis takes more than two months, PAM results could not be reported in monthly intervals.

6.6 Site Audit for CWD-related Mitigation Measures

During the reporting period, silt curtains were in place by the contractor of CLP cable diversion enabling works as well as the DCM contractors for sand blanket laying works and at least two dolphin observers were deployed by each contractor in accordance with the Marine Mammal Watching Plan. DCM trials were also in place and teams of at least two dolphin observers were deployed for continuous monitoring of the Dolphin Exclusion Zone (DEZ) for DCM works in

accordance with the DEZ Plan. Trainings for the dolphin observers were provided by the ET prior to the aforementioned works, with a cumulative total of 137 individuals being trained and the training records kept by the ET. From the contractors' daily observation records and DEZ monitoring log records, no dolphin or other marine mammals were observed within or around the DEZ and silt curtains in this reporting month. These 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 the observations are summarised in **Section 7.1**. Audits of SkyPier High Speed Ferries route diversion and speed control and construction vessel management are presented in **Section 7.2** and **Section 7.3** respectively.

6.7 Timing of Reporting CWD Monitoring Results

Detailed analysis of CWD monitoring results collected by small vessel line-transect survey will be provided in future quarterly reports. Detailed analysis of CWD monitoring results collected by land-based theodolite tracking and PAM will be provided in future yearly reports after a larger sample size of data has been collected.

6.8 Summary of CWD Monitoring

CWD monitoring was conducted as scheduled. The running quarterly encounter rates STG and ANI in the reporting month did not trigger the Action Level (i.e., remained above the Action Level). No adverse impact from the Project was observed.

7 Environmental Site Inspection and Audit

7.1 Environmental Site Inspection

Weekly site inspections of the construction works for the advanced works contract, CLP cable diversion enabling works and DCM contracts were carried out by the ET to audit the implementation of proper environmental pollution control and mitigation measures for the Project. The weekly site inspection schedule of the construction works is provided in **Appendix B**. Bi-weekly site inspections were also conducted by the IEC. Observations have been recorded in the site inspection checklists and provided to the contractors together with the appropriate follow-up actions where necessary.

The key observations from site inspection and associated recommendations were related to the provision of drip trays, provision of proper label for chemical containers; improvement of dust control and spill prevention measures; display of noise emission labels for air compressors and Non-road mobile machinery (NRMM) labels for generators; sewage effluent from construction workforce as well as proper collection, sorting and disposal of C&D materials. In addition, recommendations were provided during site inspection on barges, including provision of spill kit and chemical waste storage area for the chemical waste, display of Environmental Permit and provision of acoustic decoupling for noisy equipment.

The daily visual inspection checklists for silt curtains and bi-weekly diver inspection records which were implemented by the contractors in accordance with the Silt Curtain Deployment Plan had been checked during site inspection and reviewed at the end of the reporting month, summarizing that the silt curtains were maintained in the correct positions and intact without obvious defects or damage.

In addition, the contractors were reminded to implement careful placement of sand within the silt curtain protected area and proper maintenance to ensure the effectiveness of silt curtains for silt blanket laying. The contractors had taken actions to implement the recommended measures.

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 A**.

7.2 Audit of Route Diversion and Speed Control of the SkyPier High Speed Ferries

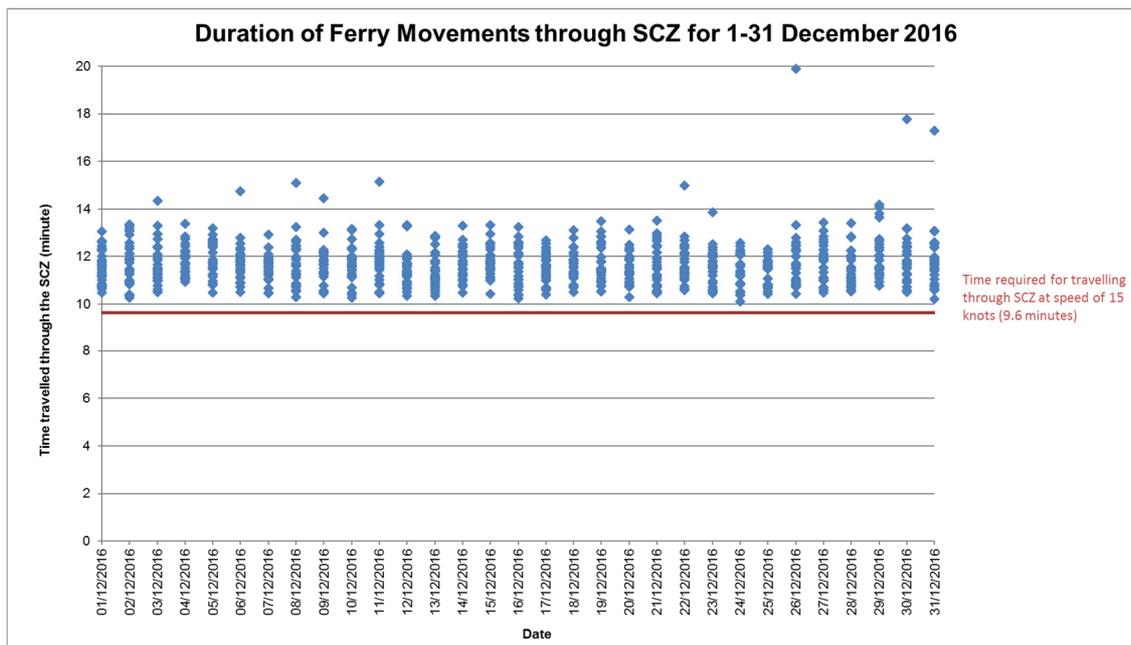
The Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier (the SkyPier Plan) has been submitted to the Advisory Council on the Environment (ACE) for comment and subsequently submitted to and approved by EPD in November 2015 under EP Condition 2.10. The approved SkyPier Plan is available on the dedicated website of the Project. In the SkyPier Plan, AAHK has committed to implementing the mitigation measure of requiring high speed ferries (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.

Key audit findings for the SkyPier HSFs travelling to/from Zhuhai and Macau against the requirements of the SkyPier Plan during the reporting period are summarized in **Table 7.1**. The daily movements of all SkyPier HSFs in December 2016 (i.e., 87 to 93 daily movements) were

within the maximum daily cap of 125 daily movements. Status of compliance with the annual daily average of 99 movements will be further reviewed in the annual EM&A Report.

In total, 867 ferry movements between HKIA SkyPier and Zhuhai / Macau were recorded in 1-31 December 2016 and the data are presented in **Appendix F**. The time spent by the SkyPier HSFs travelling through the SCZ in December 2016 were presented in **Figure 7-1**. It will take 9.6 minutes to travel through the SCZ when the SkyPier HSFs adopt the maximum allowable speed of 15 knots within the SCZ. **Figure 7-1** shows that all the SkyPier HSFs spent more than 9.6 minutes to travel through the SCZ.

Figure 7-1 Duration of the SkyPier HSFs travelling through the SCZ for 1 – 31 December 2016



Note: Data above the red line indicated that the time spent by the SkyPier HSFs travelling through the SCZ is more than 9.6 minutes, which is in compliance with the SkyPier Plan.

One ferry was recorded with minor deviation from the diverted route on 18 December 2016. Notice was accordingly sent to the ferry operator and the cases are under investigation by ET. The investigation result will be presented in the next monthly EM&A report.

The case recorded on 12 November 2016 of a HSF travelling with average speed higher than 15 knots within the SCZ with minor route deviation and the three cases of minor route deviations on 14, 17 and 22 November 2016 as recorded in the previous Monthly EM&A Report have been investigated and followed-up by ET. For the HSF travelled with higher than 15 knots average speed with minor route deviation on 12 November 2016, investigation found that the vessel captain had to give way to an approaching vessel to ensure safety. After that, the HSF had reduced the speed to below 15 knots and returned to the normal route following the SkyPier Plan. The three cases of minor route deviations on 14, 17 and 22 November 2016 were due to public safety considerations, i.e., strong tidal wave and current or giving way to other vessels, and the HSFs had returned to the normal route following the SkyPier Plan as soon as practicable. Another ferry that did not travel through the diverted route on 22 November 2016 is still under investigation. Further information has been requested from the concerned FO for the investigation, the result of which will be presented in the next monthly EM&A report.

Table 7.1: Summary of Key Audit Findings against the SkyPier Plan

Requirements in the SkyPier Plan	1 December to 31 December 2016
Total number of ferry movements recorded and audited	867
Use diverted route and enter / leave SCZ through Gate Access Points	1 deviation, which is under investigation
Speed control in speed control zone	The average speeds taken within the SCZ of all HSFs were within 15 knots (7.3 knots to 14.3 knots), which complied with the SkyPier Plan. The time used by HSFs to travel through SCZ is presented in Figure 7-1 .
Daily Cap (including all SkyPier HSFs)	87 to 93 daily movements (within the maximum daily cap - 125 daily movements).

7.3 Audit of Construction and Associated Vessels

The updated Marine Travel Routes and Management Plan for Construction and Associated Vessel (MTRMP-CAV) has been submitted and approved in November 2016 by EPD under EP Condition 2.9. The approved Plan is available on the dedicated website of the Project.

ET had carried out the following actions during the reporting period:

- 5 skipper trainings had been held for contractors' concerned skippers of relevant construction vessels to familiarize 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. The list of all trained skippers was properly recorded and maintained by ET.
- 12 skipper trainings had been held by contractor's Environmental Officer. Competency test had subsequently been conducted with the trained skippers by ET.
- 107 skippers have been trained by ET / contractor's Environmental Officer in December. In total, 382 skippers have been trained during August to December 2016.
- ET had conducted weekly audit of construction and associated vessel records as provided by the contractors. AIS data, vessel tracks, vessel speed and other relevant records had also been audited by ET to ensure the contractors complied with the requirements of the MTRMP-CAV and submitted sufficient records to the Marine Traffic Control Centre (MTCC) for records.
- From the weekly audit, deviations such as speeding in the works area, entry from non-designated gates and entering no-entry zones were identified. All the concerned contractors were reminded to comply with the requirements of the MTRMP-CAV during the weekly MTCC audit and such deviations were also reviewed during the Environmental Management Meeting in order to help the contractors prevent such deviations from happening again in future.
- 3-month rolling programmes (one month record and two months forecast) for construction vessel activities were received from the contractors in order to help maintain the number of construction and associated vessels on site to a practicable minimal level.
- As the Brothers Marine Park was designated on 30 December 2016, ET had reminded contractors that all vessels shall avoid entering the Brothers Marine Park according to the MTRMP-CAV.

The IEC of the Project had also performed audit on the compliance of the requirements as part of the EM&A programme.

7.4 Ecological Monitoring

In accordance with the Updated EM&A Manual, ecological monitoring shall 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. During the reporting month, the monthly ecological monitoring on Sheung Sha Chau observed that installation of casing was conducted under the Contract P560(R) on the Island and there was no encroachment upon the egret area nor any significant disturbance to the egrets foraging at Sheung Sha Chau by the works. The site photos and location map regarding the monthly ecological monitoring for the egret area on Sheung Sha Chau and the HDD works are provided in **Appendix C** for reference.

7.5 Status of Submissions under Environmental Permits

The current status of submissions under the EP up to the reporting period is presented in **Table 7.2**.

Table 7.2: Status of Submissions under Environmental Permit

EP Condition	Submission	Status
2.1	Complaint Management Plan	
2.4	Management Organizations	
2.5	Construction Works Schedule and Location Plans	
2.7	Marine Park Proposal	
2.8	Marine Ecology Conservation Plan	
2.9	Marine Travel Routes and Management Plan for Construction and Associated Vessels	
2.10	Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier	
2.11	Marine Mammal Watching Plan	Accepted / approved by EPD
2.12	Coral Translocation Plan	
2.13	Fisheries Management Plan	
2.14	Egret Survey Plan	
2.15	Silt Curtain Deployment Plan	
2.17	Detailed Plan on Deep Cement Mixing	
2.16	Spill Response Plan	
2.19	Waste Management Plan	
3.1	Updated EM&A Manual	
3.4	Baseline Monitoring Reports	

7.6 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. The environmental licenses and permits which are valid in the reporting month are presented in **Appendix D**.

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

7.7.1 Complaints

During the reporting period, a complaint was received on 29 December 2016 regarding night time work at Sheung Sha Chau. The case is currently under investigation in accordance with the Complaint Management Plan.

7.7.2 Notifications of Summons or Status of Prosecution

During the reporting period, neither notifications of summons nor prosecution were received.

7.7.3 Cumulative Statistics

Cumulative statistics on complaints, notifications of summons and status of prosecutions are summarized in **Appendix E**.

8 Future Key Issues and Other EIA & EM&A Issues

8.1 Construction Programme for the Coming Reporting Period

Key activities anticipated in the next reporting period for the Project will include the following contract works:

Advanced Works Contract:

Contract P560 (R) Aviation Fuel Pipeline Diversion Works

- HDD pilot hole drilling; and
- Stockpiling of excavated materials from HDD operation.

Reclamation Contracts:

Contract 3201 to 3205 Deep Cement Mixing Works

- Laying of geotextile and sand blanket;
- Erection of site office; and
- DCM trial works.

Contract 3206 Main Reclamation Works

- Erection of site office; and
- Laying of sand blanket.

Other Contracts:

Contract 3213 CLP Cable Diversion Enabling Works

- Delivery of temporary power supply system.

8.2 Key Environmental Issues for the Coming Reporting Period

The key environmental issues for the Project in the coming reporting period expected to be associated with the construction activities include:

- Generation of dust from construction works and stockpiles;
- Noise from operating equipment and machinery on-site;
- Generation of site surface runoffs and wastewater from activities on-site;
- Water quality from laying of sand blankets and DCM trial works;
- Sorting, recycling, storage and disposal of general refuse and construction waste;
- Management of chemicals and avoidance of oil spillage on-site; and
- Acoustic decoupling measures for equipment on marine vessels.

The implementation of required mitigation measures by the contractors will be monitored by the ET.

8.3 Monitoring Schedule for the Coming Reporting Period

A tentative schedule of the planned environmental monitoring work in the next reporting period is provided in **Appendix B**.

9 Conclusion and Recommendation

The key activities of the Project carried out in the reporting month included five in-progress DCM contracts, an advanced works contract, and a CLP cable diversion enabling work contract. The five in-progress DCM contracts involved DCM trials, laying of geotextile and sand blanket; the advanced works contract involved HDD works including pilot hole drilling at the launching site and Sheung Sha Chau, casing installation and pipeline supporting works; and the CLP cable diversion enabling work contract involved construction of drawpit, installation of cable trough, backfilling, and reinstatement at the western part of the airport.

All the monitoring works for construction dust, construction noise, water quality, construction waste, terrestrial ecology and CWD were conducted during the reporting period in accordance with the Updated EM&A Manual.

No exceedance of the Action or Limit Levels in relation to the construction dust, construction noise, construction waste and CWD monitoring was recorded in the reporting month.

The water quality monitoring results for DO, turbidity, total alkalinity, nickel and chromium obtained during the reporting period were in compliance with their corresponding Action and Limit Levels. For SS, some of the testing results had exceeded the relevant Action Levels during the reporting period. Investigations were carried out immediately for each of the exceedance cases, and the investigation findings concluded that all the exceedances were not due to the Project.

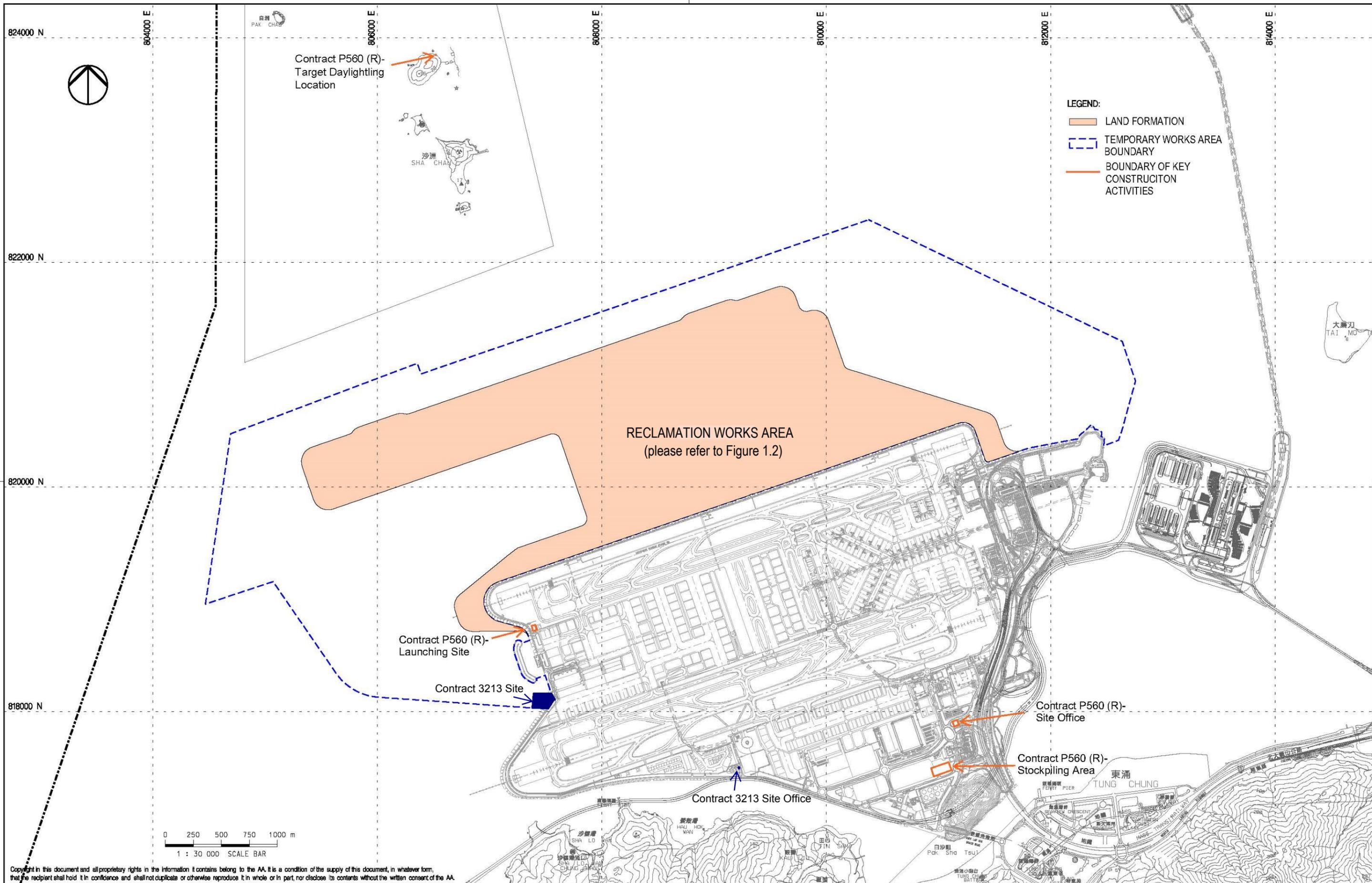
The monthly terrestrial ecology monitoring on Sheung Sha Chau Island observed that installation of casing was conducted on the Island and there was no encroachment upon the egret area nor any significant disturbance to the egrets at Sheung Sha Chau by the works.

Weekly site inspections of the construction works were carried out by the ET to audit the implementation of proper environmental pollution control and mitigation measures for the Project. Bi-weekly site inspections were also conducted by the IEC. Observations have been recorded in the site inspection checklists and recommendations were provided to the contractors together with the appropriate follow-up actions where necessary.

On the implementation of the MTRMP-CAV, ET had conducted weekly audit of relevant information, including AIS data, vessel tracks and other relevant records to ensure the contractors complied with the requirements of the MTRMP-CAV. Training has been provided for the concerned skippers to facilitate them in familiarising with the requirements of the MTRMP-CAV. 3-month rolling programmes for construction vessel activities were also received from contractors.

On the implementation of the Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier (the SkyPier Plan), the daily movements of all SkyPier High Speed Ferries (HSFs) in 1-31 December 2016 were in the range of 87 to 93 daily movements, which are within the maximum daily cap of 125 daily movements. A total of 867 HSF movements under the SkyPier Plan were recorded in the reporting period. All HSFs had travelled through the SCZ with average speeds under 15 knots (9.3 to 14.3 knots), which were in compliance with the SkyPier Plan. One ferry movement with minor deviation from the diverted route is under investigation by ET. The investigation result will be presented in the next monthly EM&A report. In summary, the ET and IEC have audited the HSF movements against the SkyPier Plan and conducted follow up investigation or actions accordingly.

Figures



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Rev.	Date	Description	Checked
A	31AUG15	FIRST ISSUE	DC



LOCATIONS OF KEY CONSTRUCTION ACTIVITIES IN THIS REPORTING PERIOD

Consultant's Signatures for Approval		Date
Design	DC	31AUG15
Checkers	DC	31AUG15
Design Supervisor	EC	31AUG15
Authorised Representative	JFP	31AUG15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	FIGURE 1.1
Scale at A3	1 : 30000
Rev.	A

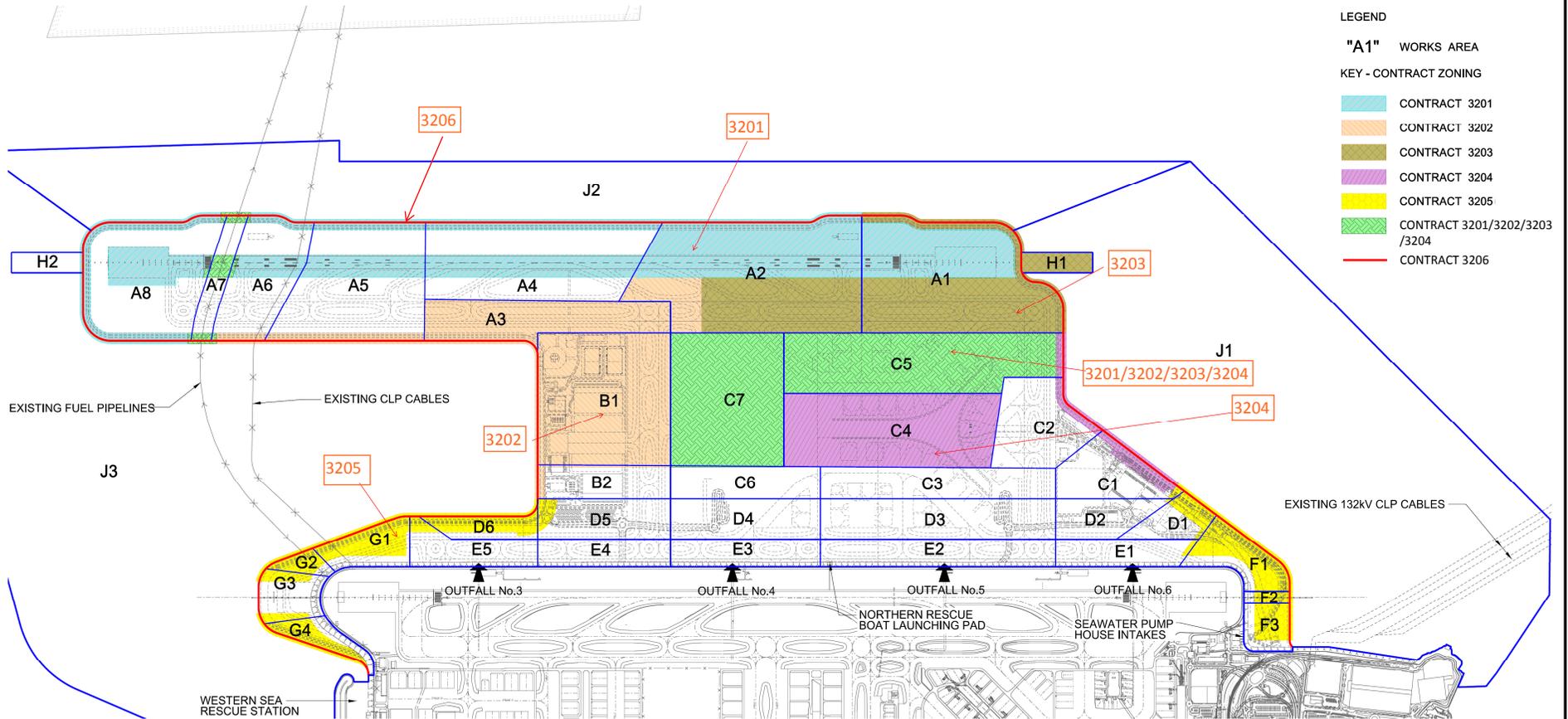


FIGURE 1.2- LOCATIONS OF RECLAMATION WORKS AREA



806000 E.

808000 E.

810000 E.

812000 E.

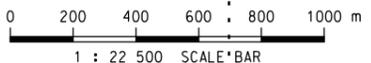
814000 E.

820000 N.

818000 N.

LEGEND:

- - - PROPOSED RECLAMATION AREA
- NOISE MONITORING STATION (UPDATED EM&A MANUAL)
- ▲ AIR QUALITY MONITORING STATION (UPDATED EM&A MANUAL)
- + CHEK LAP KOK WIND STATION



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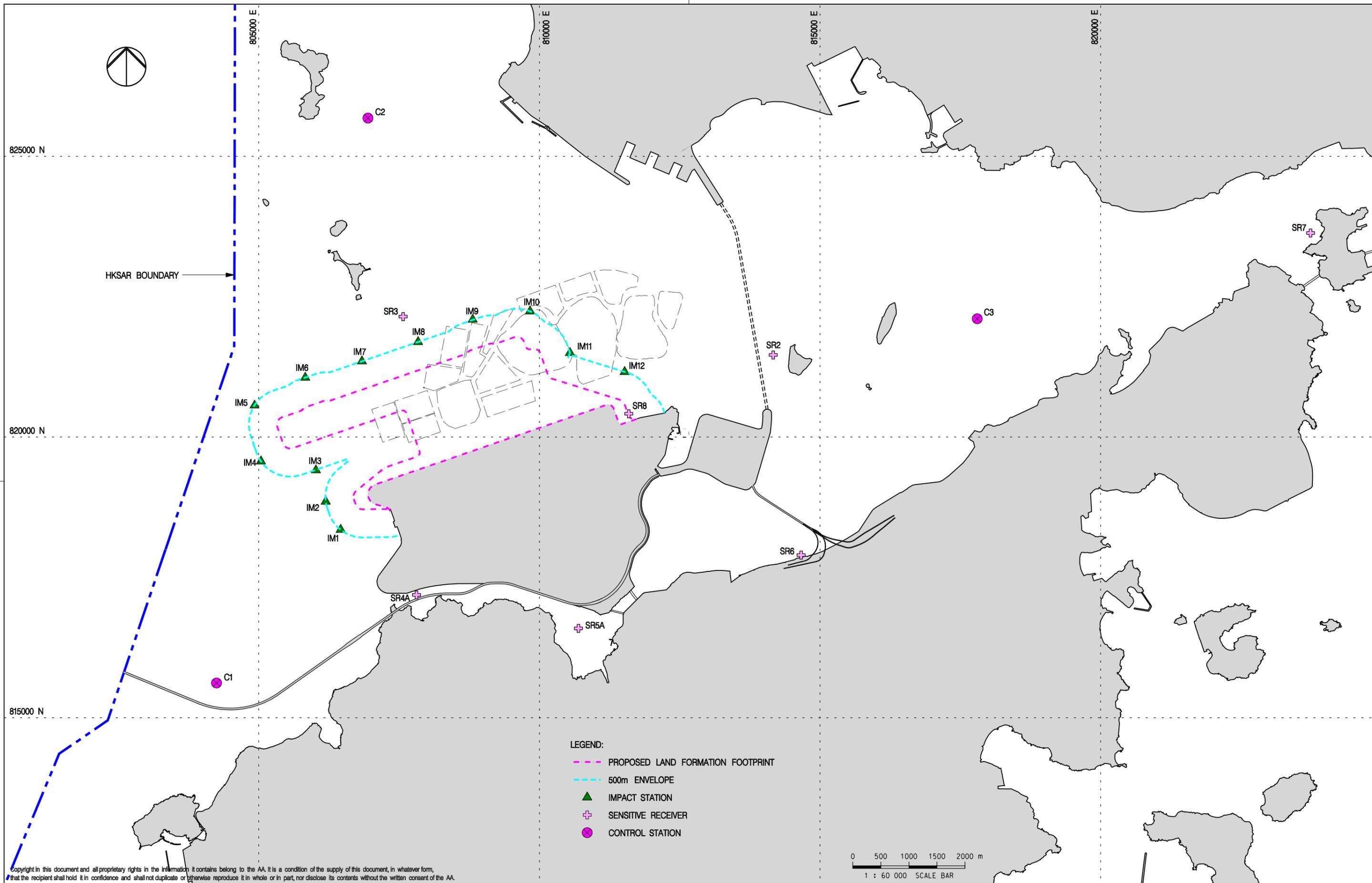
Rev.	Date	Description	Checked
A	06JAN16	FIRST ISSUE	RO
B	29JAN16	GENERAL REVISION	RO
C	11FEB16	GENERAL REVISION	RO



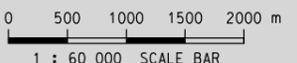
Title
LOCATIONS OF AIR AND NOISE MONITORING STATIONS AND CHEK LAP KOK WIND STATION

Consultant's Signatures for Approval		Date
Design	AM	11FEB16
Checkers	AM / TK	11FEB16
Approver	EC	11FEB16

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	FIGURE 2.1
Scale at A3	1 : 22500
Rev.	C



- LEGEND:
- PROPOSED LAND FORMATION FOOTPRINT
 - 500m ENVELOPE
 - ▲ IMPACT STATION
 - ⊕ SENSITIVE RECEIVER
 - ⊗ CONTROL STATION



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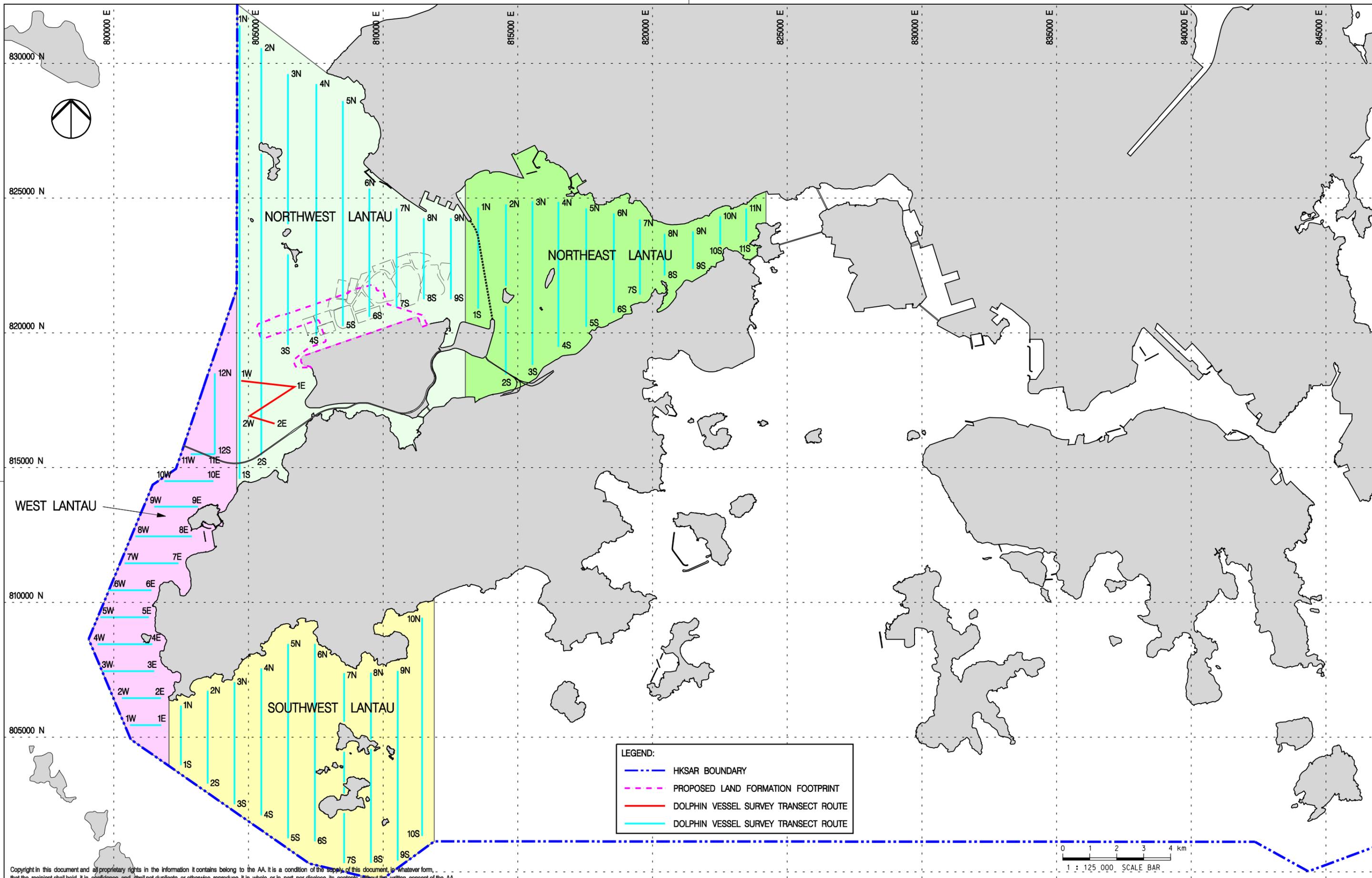
Rev.	Date	Description	Checked
A	02DEC15	FIRST ISSUE	DC
B	04MAY16	GENERAL REVISION	RO
C	06JUN16	GENERAL REVISION	LC



Title
WATER QUALITY MONITORING STATIONS

Consultant's Signatures for Approval		Date
Design	DC	06JUN16
Checkers	DC / TK	06JUN16
Approver	EC	06JUN16

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM		Scale at A3
Drawing No.	FIGURE 3.1	1 : 60000
Rev.	C	



LEGEND:

- - - HKSAR BOUNDARY
- - - PROPOSED LAND FORMATION FOOTPRINT
- DOLPHIN VESSEL SURVEY TRANSECT ROUTE
- DOLPHIN VESSEL SURVEY TRANSECT ROUTE

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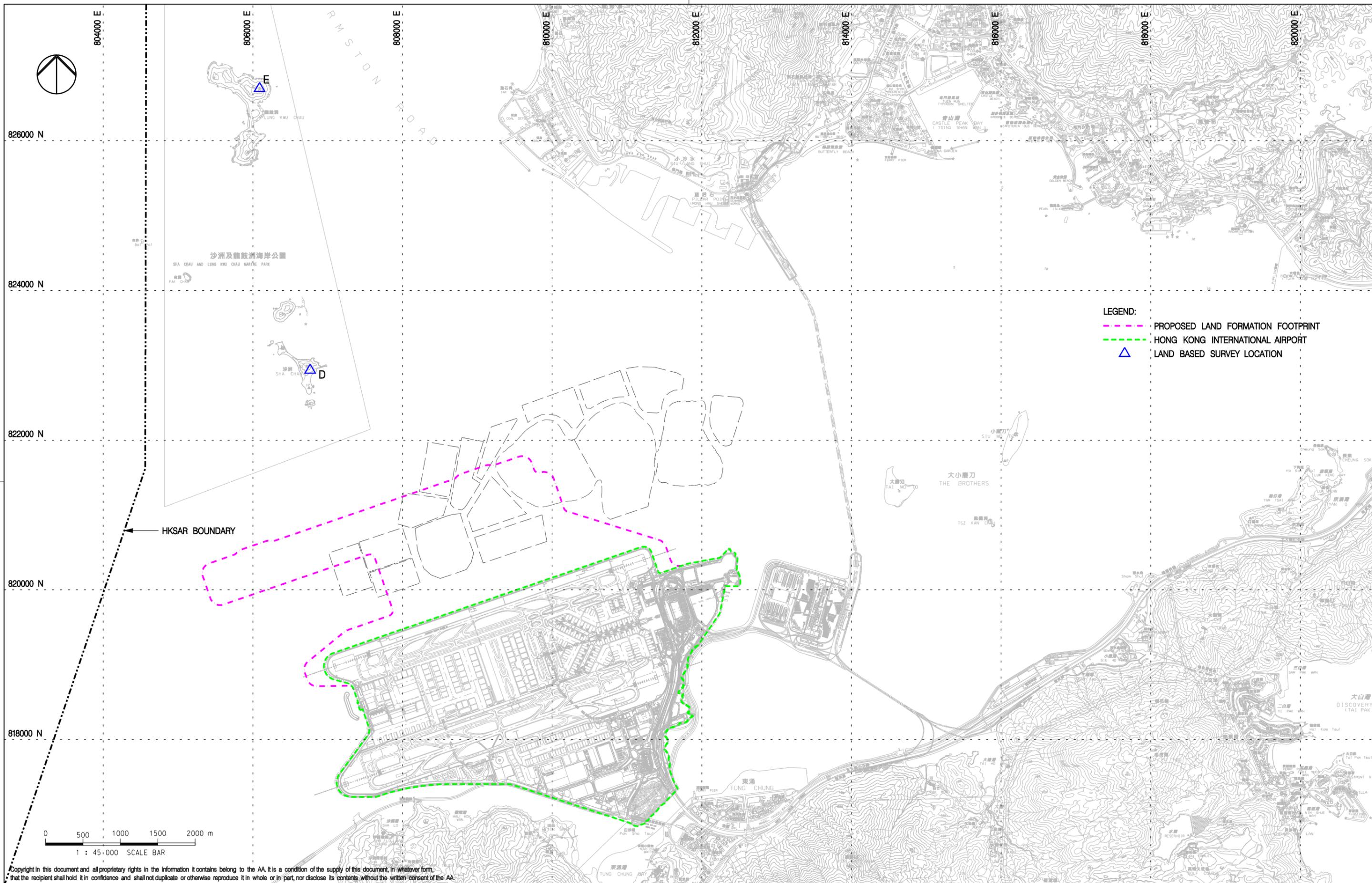
Rev.	Date	Description	Checked
A	02DEC15	FIRST ISSUE	JC



Title
VESSEL BASED DOLPHIN MONITORING TRANSECTS IN BASELINE MONITORING

Consultant's Signatures for Approval		Date
Design	JC	02DEC15
Checkers	JC / TK	02DEC15
Approver	EC	02DEC15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	Scale at A3 1 : 125000
FIGURE 6.1	Rev. A



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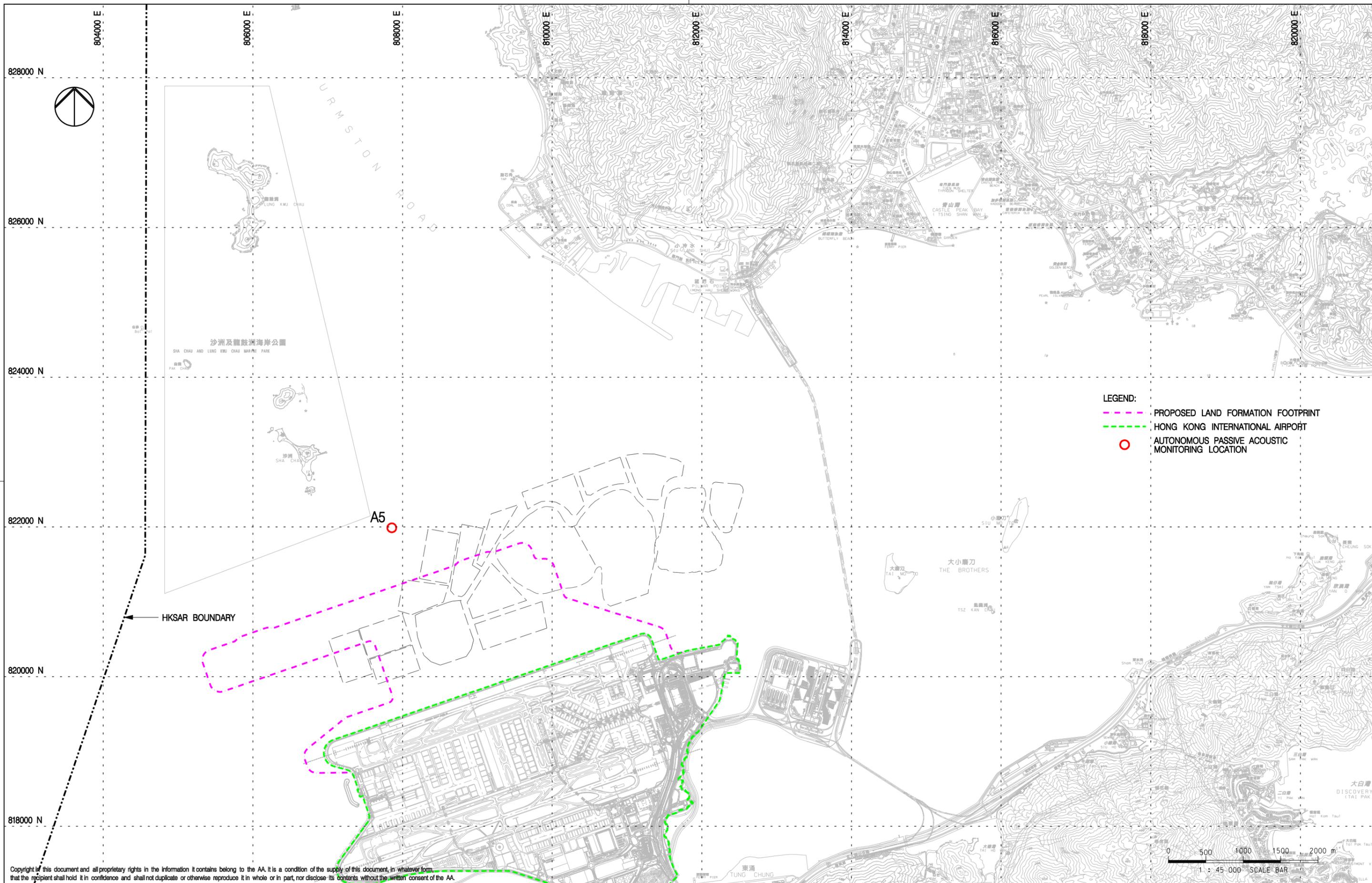
Rev.	Date	Description	Checked
A	02DEC15	FIRST ISSUE	JC



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

Consultant's Signatures for Approval		Date
Design	JC	02DEC15
Checkers	JC / TK	02DEC15
Approver	EC	02DEC15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	FIGURE 6.2
Scale at A3	1 : 45000
Rev.	A



- LEGEND:**
- PROPOSED LAND FORMATION FOOTPRINT
 - HONG KONG INTERNATIONAL AIRPORT
 - AUTONOMOUS PASSIVE ACOUSTIC MONITORING LOCATION

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Rev.	Date	Description	Checked
A	02DEC15	FIRST ISSUE	JC



Title
LOCATIONS FOR AUTONOMOUS PASSIVE ACOUSTIC MONITORING IN BASELINE AND CONSTRUCTION PHASES

Consultant's Signatures for Approval		Date
Design	JC	02DEC15
Checkers	JC / TK	02DEC15
Approver	EC	02DEC15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	FIGURE 6.5
Scale at A3	1 : 45000
Rev.	A

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

Appendix A 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	-	Dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation should be adopted. These practices include: Good Site Management <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
			Disturbed Parts of the Roads <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
			Exposed Earth <ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seeding 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	N/A

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 <p>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.</p>	Within construction site / Duration of the construction phase	I
5.2.6.5	2.1	-	Best Practices for Concrete Batching Plant <p>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:</p> <p>Cement and other dusty materials</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? [^]
			<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 	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	<p>N/A</p>

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented? [^]
			<p>surrounding the concrete batching plant, ground stockpiling may be used;</p> <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: <ul style="list-style-type: none"> (a) 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 (b) 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	N/A
			<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	N/A
			<p>Housekeeping</p> <p>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.</p>	Within Concrete Batching Plant / Duration of the construction phase	N/A
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; 	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 efflux velocity of gases from the main chimney shall not be less than 12 m/s at full load condition; ▪ 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. 	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	<p>N/A</p>
			<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; ▪ 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 	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	<p>N/A</p>

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented? [^]
			<p>and ducted to a dust collection system to meet the required particulates limiting value; and</p> <ul style="list-style-type: none"> 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. 	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	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>	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	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. 	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	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. 	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	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> <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 	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	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>installed inside a reasonably dust tight housing, shall be enclosed and ducted to a dust extraction and collection system such as a fabric filter;</p> <ul style="list-style-type: none"> ▪ 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
			<p>Storage piles and bins</p> <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 	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?^
			by water spraying wherever practicable; <ul style="list-style-type: none"> 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. 		
			Rock drilling equipment 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	N/A
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; 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. 	Within the Project site / During construction phase / Prior to commencement of operation	I
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	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
				phase / Prior to commencement of operation	
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					
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 	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>the EIA report;</p> <ul style="list-style-type: none"> ▪ 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; ▪ 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; ▪ 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 ▪ The Silt Curtain Deployment Plan shall be implemented. 		
			<p><u>Specific Measures to be Applied to Land Formation Activities prior to Commencement of Marine Filling Works</u></p> <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; ▪ 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 ▪ The silt curtains and silt screens should be regularly checked and maintained. 	<p>Within construction site / Duration of the construction phase</p>	<p>I</p>
			<p><u>Specific Measures to be Applied to Land Formation Activities during Marine Filling Works</u></p> <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; ▪ Double layer silt curtains to be applied at the south-western opening prior to commencement of marine filling activities; ▪ 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 ▪ The silt curtains and silt screens should be regularly checked and maintained. 	<p>Within construction site / Duration of the construction phase</p>	<p>N/A</p>
			<p><u>Specific Measures to be Applied to the Field Joint Excavation Works for the Submarine Cable Diversion</u></p> <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 	<p>Within construction site / Duration of the construction phase</p>	<p>N/A</p>

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p>the Dumping and Sea Ordinance (DASO) permit conditions; and</p> <ul style="list-style-type: none"> Silt curtains surrounding the closed grab dredger to be deployed as a precautionary measure. 		
8.8.1.4	5.1	-	<p>Modification of the Existing Seawall</p> <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	I
8.8.1.5	5.1	-	<p>Construction of New Stormwater Outfalls and Modifications to Existing Outfalls</p> <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	<p>Piling Activities for Construction of New Runway Approach Lights and HKIAAA Marker Beacons</p> <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	N/A
8.8.1.8	5.1	-	<p>Construction Site Runoff and Drainage</p> <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 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); Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove 	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>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;</p> <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; ▪ 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; ▪ 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; ▪ 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; 		
8.8.1.9	5.1	-	<p>Sewage Effluent from Construction Workforce</p> <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		<p>General Construction Activities</p> <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 ▪ 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. 	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	<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. 	Within construction site / During construction phase	I
			<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
<p>Waste Management Implication – Construction Phase</p>					
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 ▪ 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. 	Project Site Area / During design and 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? [^]
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; ▪ 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 	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"> 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; 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; All practical measures, including but not limited to speed control for vehicles, should be taken to minimise dust emission; Good housekeeping should be maintained at all times at the sediment treatment facility and storage area; Treated and untreated sediment should be clearly separated and stored separately; and 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. 	Project Site Area / Construction Phase	N/A
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 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. 	Project Site Area / Construction Phase	N/A
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>	Project Site Area / Construction Phase	I

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			<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. 		
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	N/A
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. 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. 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. 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. 	Project Site Area inaccessible during site reconnaissance / Prior to Construction Phase	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 	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?^
			material), provision of washing facilities and prohibition of smoking and eating on site; <ul style="list-style-type: none"> 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. 		
Terrestrial Ecological – Construction Phase					
12.10.1.1	9.2	2.14	Pre-construction Egretty Survey <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 HDD drilling works at HKIA	I
12.7.2.3 and 12.7.2.6	9.1	2.30	Avoidance and Minimisation of Direct Impact to Egretty <ul style="list-style-type: none"> The daylighting location will avoid direct encroachment to the Sheung Sha Chau egretty. The daylighting location and mooring of flat top barge, if required, will be kept away from the egretty; 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 	During construction phase at Sheung Sha Chau Island	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented? [^]
Sheung Sha Chau Island during all seasons.					
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. 	HKIAAA 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	N/A
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; 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; Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; Avoid bored piling during CWD peak calving season (Mar to Jun); Prohibition of underwater percussive piling; and 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. 	During construction phase at marine works area	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; 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); Use of bored piling in short duration to form the new approach lights and marker beacons for the new 	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?^
			runway; and <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 the CWDs and other marine ecological resources. 		
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
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	N/A
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

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
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; 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 A DEZ would also be implemented during bored piling work but as a precautionary measure only. 	Marine waters around land formation works area during construction phase	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 <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. 	Construction phase	I
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	N/A
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; 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; 	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 bored piling in short duration to form the new approach lights and marker beacons for the new runway; and 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. 		
14.9.1.11	-		<p>Strict Enforcement of No-Dumping Policy</p> <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
14.9.1.12	-		<p>Good Construction Site Practices</p> <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	-		<p>Mitigation for Indirect Disturbance due to Deterioration of Water Quality</p> <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; 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); Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and 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. 	All works area during the construction phase	I
Landscaping 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;	N/A

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	-	CM3 - Phasing of the construction stage to reduce visual impacts during the construction phase.	Upon handover and completion of works. All works areas for duration of works; Upon handover and completion of works.	N/A
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
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	N/A
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.	N/A
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	N/A
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

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	-	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.	N/A
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; Upon handover and completion of works.	N/A
Cultural Heritage Impact – Construction Phase					
Not applicable.					
Health Impact – Aircraft Emissions					
Not applicable.					
Health Impact – Aircraft Noise					
Not applicable.					

Notes:

I= implemented where applicable; N/A= not applicable to the construction works implemented during the reporting month.

[^] Checked by ET during site inspection

Appendix B. Monitoring Schedule

Monitoring Schedule of This Reporting Period

DECEMBER 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Site Inspection NM6 WQ General & Regular DCM mid- ebb: 14:11 mid- flood: 08:45	2 AR1A CWD Vessel Survey	3 WQ General & Regular DCM mid- ebb: 15:24 mid- flood: 10:02
4	5 Site Inpsection CWD Vessel Survey	6 NM5/AR2 WQ General & Regular DCM mid- ebb: 18:12 mid- flood: 12:40	7 Site Inspection CWD Land-based Survey	8 Site Inspection NM1A/AR1A NM4 NM3A NM6 CWD Land-based Survey WQ General & Regular DCM mid- ebb: 20:53 mid- flood: 14:29	9 Site Inspection CWD Land-based Survey	10 WQ General & Regular DCM mid- ebb: 09:17 mid- flood: 15:49
11	12 Site Inpsection NM5/AR2 CWD Land-based Survey	13 NM6 CWD Vessel Survey WQ General & Regular DCM mid- ebb: 12:17 mid- flood: 17:48	14 NM1A/AR1A NM4 NM3A CWD Vessel Survey	15 WQ General & Regular DCM mid- ebb: 13:59 mid- flood: 08:35	16 Site Inspection AR2 CWD Land-based Survey Ecological Monitoring	17 WQ General & Regular DCM mid- ebb: 15:31 mid- flood: 10:13
18	19 Site Inpsection NM6 CWD Vessel Survey	20 NM1A/AR1A NM4 NM3A CWD Vessel Survey WQ General & Regular DCM mid- ebb: 18:24 mid- flood: 12:45	21 Site Inspection	22 Site Inspection NM5/AR2 CWD Vessel Survey WQ General & Regular DCM mid- ebb: 06:58 mid- flood: 14:27	23 Site Inspection AR1A CWD Vessel Survey	24 WQ General & Regular DCM mid- ebb: 09:43 mid- flood: 15:46
25	26	27 WQ General & Regular DCM mid- ebb: 12:06 mid- flood: 06:50	28 Site Inspection NM5/AR2	29 Site Inspection NM1A/AR1A NM4 NM6 WQ General & Regular DCM mid- ebb: 13:17 mid- flood: 08:02	30 Site Inspection NM3A	31 WQ General & Regular DCM mid- ebb: 14:29 mid- flood: 09:08
Notes: Air quality and Noise monitoring Station CWD - Chinese White Dolphin WQ - Water Quality DCM - Deep Cement Mixing * Rescheduled due to adverse weather ^ Cancelled due to adverse weather NM1A/AR1A - Man Tung Road Park NM3A - Site Office NM4 - Ching Chung Hau Po Woon Primary School NM5/AR2 - Village House, Tin Sum NM6 - House No. 1, Sha Lo Wan						

Tentative Monitoring Schedule of Next Reporting Period

JANUARY 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 Site Inspection NM5/AR2 WQ General & Regular DCM mid-ebb: 16:39 mid-flood: 11:02	4 Site Inspection NM1A/AR1A NM4 WQ General & Regular DCM mid-ebb: 18:49 mid-flood: 12:35	5 Site Inspection NM6 NM3A CWD Vessel Survey WQ General & Regular DCM mid-ebb: 18:49 mid-flood: 12:35	6 Site Inspection CWD Vessel Survey	7 WQ General & Regular DCM mid-ebb: 07:22 mid-flood: 14:16
8	9 Site Inspection NM5/AR2 CWD Vessel Survey CWD Land-based Survey	10 NM1A/AR1A NM4 NM6 CWD Vessel Survey CWD Land-based Survey WQ General & Regular DCM mid-ebb: 11:18 mid-flood: 16:43	11 Site Inspection NM3A CWD Vessel Survey	12 Site Inspection CWD Vessel Survey WQ General & Regular DCM mid-ebb: 13:02 mid-flood: 07:40	13 Site Inspection AR2	14 WQ General & Regular DCM mid-ebb: 14:29 mid-flood: 09:07
15	16 Site Inspection NM1A/AR1A NM4 NM6 CWD Vessel Survey	17 NM3A CWD Vessel Survey WQ General & Regular DCM mid-ebb: 16:33 mid-flood: 11:02	18 Site Inspection	19 Site Inspection NM5/AR2 CWD Land-based Survey WQ General & Regular DCM mid-ebb: 18:23 mid-flood: 12:15	20 Site Inspection AR1A Ecological Monitoring	21 WQ General & Regular DCM mid-ebb: 06:47 mid-flood: 13:47
22	23 Site Inspection NM3A CWD Land-based Survey	24 CWD Land-based Survey WQ General & Regular DCM mid-ebb: 11:04 mid-flood: 16:07	25 Site Inspection NM5/AR2	26 Site Inspection NM1A/AR1A NM4 NM6 WQ General & Regular DCM mid-ebb: 12:23 mid-flood: 07:12	27 Site Inspection AR2	28 WQ General & Regular DCM mid-ebb: 13:34 mid-flood: 08:13
29	30	31 WQ General & Regular DCM mid-ebb: 15:24 mid-flood: 09:41				
<p>Notes:</p> <p>Air quality and Noise monitoring Station</p> <p>CWD - Chinese White Dolphin WQ - Water Quality DCM - Deep Cement Mixing</p> <p>* Rescheduled due to adverse weather ^ Cancelled due to adverse weather</p> <p>NM1A/AR1A - Man Tung Road Park NM3A - Site Office NM4 - Ching Chung Hau Po Woon Primary School NM5/AR2 - Village House, Tin Sum NM6 - House No. 1, Sha Lo Wan</p>						

Appendix C. Monitoring Results

Air Quality Monitoring Results

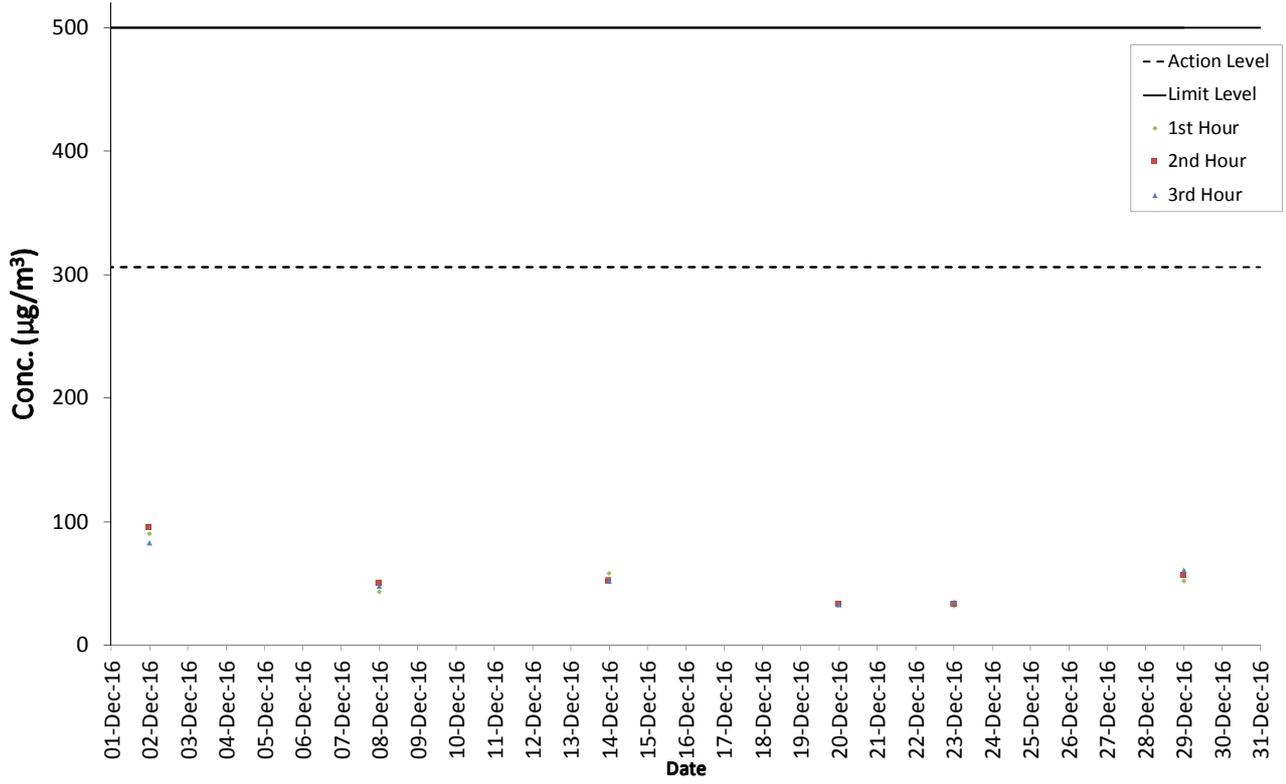
1-hour TSP Results**Station: AR1A- Man Tung Road Park**

Date	Time	Weather	Wind Speed (m/s)	Wind Direction (deg)	1-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
02-Dec-16	08:56	Sunny	3.3	20	90	306	500
02-Dec-16	09:56	Sunny	2.8	17	95	306	500
02-Dec-16	10:56	Sunny	2.9	45	83	306	500
08-Dec-16	13:30	Sunny	5.9	334	43	306	500
08-Dec-16	14:30	Sunny	2.7	321	50	306	500
08-Dec-16	15:30	Sunny	2.5	280	48	306	500
14-Dec-16	08:55	Fine	5.8	57	58	306	500
14-Dec-16	09:55	Fine	5.9	56	52	306	500
14-Dec-16	10:55	Fine	6	55	52	306	500
20-Dec-16	09:00	Sunny	3.2	69	33	306	500
20-Dec-16	10:00	Sunny	4.5	58	33	306	500
20-Dec-16	11:00	Sunny	3.9	60	33	306	500
23-Dec-16	09:00	Sunny	4.2	60	32	306	500
23-Dec-16	10:00	Sunny	4.5	46	33	306	500
23-Dec-16	11:00	Sunny	3.5	45	35	306	500
29-Dec-16	14:09	Cloudy	5.5	341	52	306	500
29-Dec-16	15:09	Cloudy	4.2	348	56	306	500
29-Dec-16	16:09	Cloudy	3.9	37	61	306	500

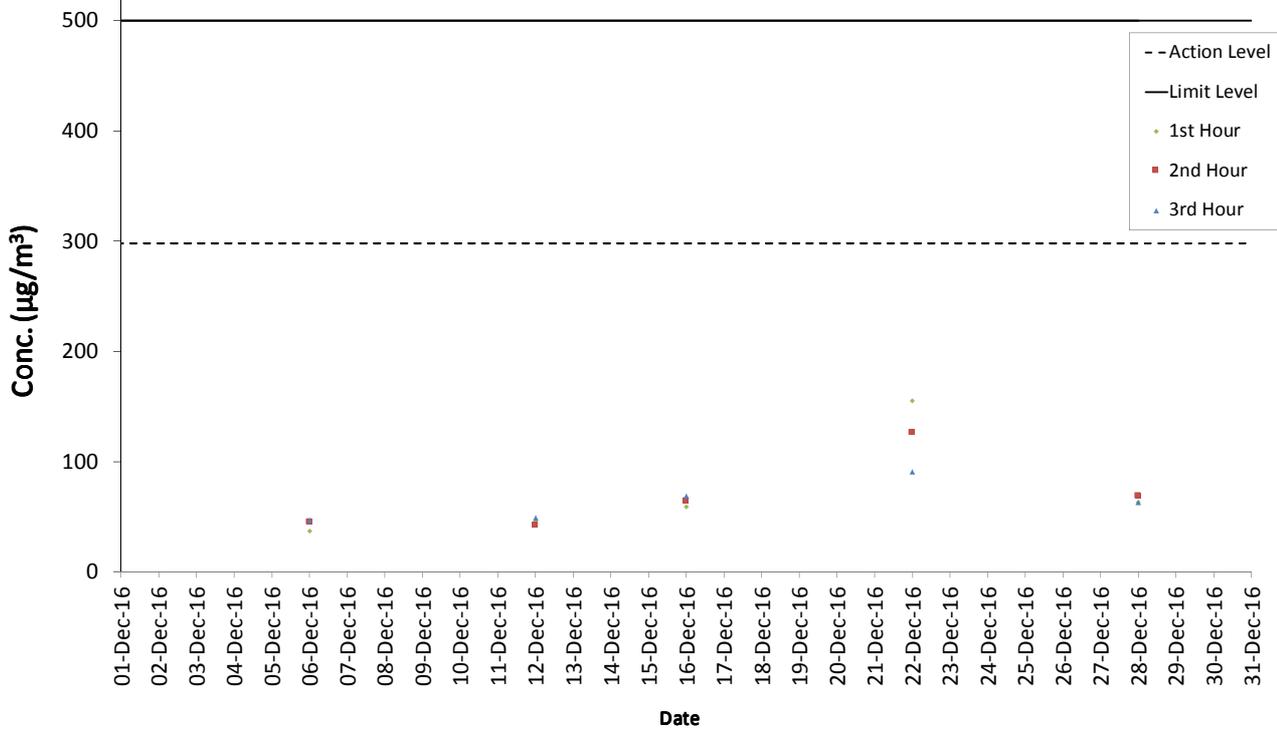
1-hour TSP Results**Station: AR2- Village House, Tin Sum**

Date	Time	Weather	Wind Speed (m/s)	Wind Direction (deg)	1-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
06-Dec-16	09:00	Fine	5.2	37	37	298	500
06-Dec-16	10:00	Fine	4.1	31	45	298	500
06-Dec-16	11:00	Fine	6.5	43	47	298	500
12-Dec-16	08:50	Fine	6.1	69	46	298	500
12-Dec-16	09:50	Fine	6.3	63	42	298	500
12-Dec-16	10:50	Fine	6.7	59	49	298	500
16-Dec-16	08:55	Sunny	6.3	42	59	298	500
16-Dec-16	09:55	Sunny	8.4	47	64	298	500
16-Dec-16	10:55	Sunny	4.7	51	69	298	500
22-Dec-16	08:55	Fine	6.3	337	155	298	500
22-Dec-16	09:55	Fine	8.3	331	126	298	500
22-Dec-16	10:55	Fine	9.3	336	91	298	500
28-Dec-16	08:55	Fine	4.1	57	63	298	500
28-Dec-16	09:55	Fine	6.9	54	69	298	500
28-Dec-16	10:55	Fine	4.6	44	63	298	500

AR1A 1-Hour TSP



AR2 1-Hour TSP



Noise Monitoring Results

Noise Measurement Results

Station: NM1A- Man Tung Road Park

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
08-Dec-16	Sunny	15:21	73.0	61.5	72
08-Dec-16	Sunny	15:26	72.5	61.0	
08-Dec-16	Sunny	15:31	71.0	61.0	
08-Dec-16	Sunny	15:36	71.0	61.0	
08-Dec-16	Sunny	15:41	71.0	61.0	
08-Dec-16	Sunny	15:46	69.0	59.5	71
14-Dec-16	Fine	10:05	71.5	55.5	
14-Dec-16	Fine	10:10	72.0	57.0	
14-Dec-16	Fine	10:15	70.5	56.5	
14-Dec-16	Fine	10:20	70.0	56.5	
14-Dec-16	Fine	10:25	70.5	56.5	71
14-Dec-16	Fine	10:30	73.0	58.0	
20-Dec-16	Sunny	09:17	70.5	56.5	
20-Dec-16	Sunny	09:22	70.5	56.5	
20-Dec-16	Sunny	09:27	71.5	57.5	
20-Dec-16	Sunny	09:32	72.5	58.0	71
20-Dec-16	Sunny	09:37	70.0	56.0	
20-Dec-16	Sunny	09:42	70.0	56.0	
29-Dec-16	Fine	14:32	73.5	60.5	
29-Dec-16	Fine	14:37	69.5	60.0	
29-Dec-16	Fine	14:42	69.0	59.5	71
29-Dec-16	Fine	14:47	69.5	60.0	
29-Dec-16	Fine	14:52	68.0	58.5	
29-Dec-16	Fine	14:57	68.0	58.5	

Remarks:

+3dB (A) correction was applied to free-field measurement

Noise Measurement Results

Station: NM3A- Site Office

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
08-Dec-16	Sunny	13:02	70.5	59.5	63
08-Dec-16	Sunny	13:07	73.0	59.0	
08-Dec-16	Sunny	13:12	68.0	59.5	
08-Dec-16	Sunny	13:17	67.5	59.0	
08-Dec-16	Sunny	13:22	70.0	61.0	
08-Dec-16	Sunny	13:27	69.0	59.0	
14-Dec-16	Sunny	14:13	69.5	58.5	61
14-Dec-16	Sunny	14:18	68.5	57.0	
14-Dec-16	Sunny	14:23	66.0	57.0	
14-Dec-16	Sunny	14:28	67.0	58.0	
14-Dec-16	Sunny	14:33	69.5	57.5	
14-Dec-16	Sunny	14:38	67.0	57.5	63
20-Dec-16	Cloudy	11:18	67.0	57.5	
20-Dec-16	Cloudy	11:23	67.5	57.0	
20-Dec-16	Cloudy	11:28	67.5	56.5	
20-Dec-16	Cloudy	11:33	67.0	56.0	
20-Dec-16	Cloudy	11:38	66.5	57.0	61
20-Dec-16	Cloudy	11:43	66.0	56.5	
30-Dec-16	Sunny	13:24	69.5	58.0	
30-Dec-16	Sunny	13:29	66.5	56.0	
30-Dec-16	Sunny	13:34	70.5	57.5	
30-Dec-16	Sunny	13:39	67.0	57.0	61
30-Dec-16	Sunny	13:44	69.0	56.5	
30-Dec-16	Sunny	13:49	68.5	57.5	

Noise Measurement Results

Station: NM4- Ching Chung Hau Po Won Primary School

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
08-Dec-16	Sunny	11:01	63.5	59.5	64
08-Dec-16	Sunny	11:06	63.5	58.5	
08-Dec-16	Sunny	11:11	63.5	58.5	
08-Dec-16	Sunny	11:16	63.0	58.5	
08-Dec-16	Sunny	11:21	63.5	58.0	
08-Dec-16	Sunny	11:26	62.5	58.0	
14-Dec-16	Sunny	13:00	65.0	61.5	68
14-Dec-16	Sunny	13:05	68.5	63.0	
14-Dec-16	Sunny	13:10	72.5	67.5	
14-Dec-16	Sunny	13:15	71.5	62.0	
14-Dec-16	Sunny	13:20	63.5	58.5	
14-Dec-16	Sunny	13:25	66.5	61.0	
20-Dec-16	Sunny	13:33	63.5	59.5	65
20-Dec-16	Sunny	13:38	63.5	59.5	
20-Dec-16	Sunny	13:43	63.0	58.5	
20-Dec-16	Sunny	13:48	62.0	58.0	
20-Dec-16	Sunny	13:53	62.5	58.5	
20-Dec-16	Sunny	13:58	62.5	58.5	
29-Dec-16	Fine	13:10	64.5	58.5	60
29-Dec-16	Fine	13:15	65.5	59.0	
29-Dec-16	Fine	13:20	66.5	61.0	
29-Dec-16	Fine	13:25	65.5	60.0	
29-Dec-16	Fine	13:30	66.0	60.5	
29-Dec-16	Fine	13:35	65.0	59.5	

Remarks:

+3dB (A) correction was applied to free-field measurement

Noise Measurement Results

Station: NM5- Village House, Tin Sum

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
06-Dec-16	Fine	09:09	64.5	53.0	61
06-Dec-16	Fine	09:14	58.5	51.5	
06-Dec-16	Fine	09:19	61.5	52.0	
06-Dec-16	Fine	09:24	59.5	51.5	
06-Dec-16	Fine	09:29	62.5	54.0	
06-Dec-16	Fine	09:34	67.5	54.0	
12-Dec-16	Fine	09:14	57.5	50.5	59
12-Dec-16	Fine	09:19	57.5	50.0	
12-Dec-16	Fine	09:24	61.0	50.5	
12-Dec-16	Fine	09:29	55.0	49.0	
12-Dec-16	Fine	09:34	58.0	51.0	
12-Dec-16	Fine	09:39	55.8	51.0	
22-Dec-16	Fine	09:20	61.5	54.0	62
22-Dec-16	Fine	09:25	63.0	55.0	
22-Dec-16	Fine	09:30	66.0	55.0	
22-Dec-16	Fine	09:35	65.5	55.5	
22-Dec-16	Fine	09:40	65.0	54.0	
22-Dec-16	Fine	09:45	63.5	55.0	
28-Dec-16	Cloudy	09:12	66.0	52.0	61
28-Dec-16	Cloudy	09:17	62.0	52.5	
28-Dec-16	Cloudy	09:22	61.5	51.5	
28-Dec-16	Cloudy	09:27	63.0	54.0	
28-Dec-16	Cloudy	09:32	64.0	54.5	
28-Dec-16	Cloudy	09:37	59.5	50.0	

Remarks:

+3dB (A) correction was applied to free-field measurement

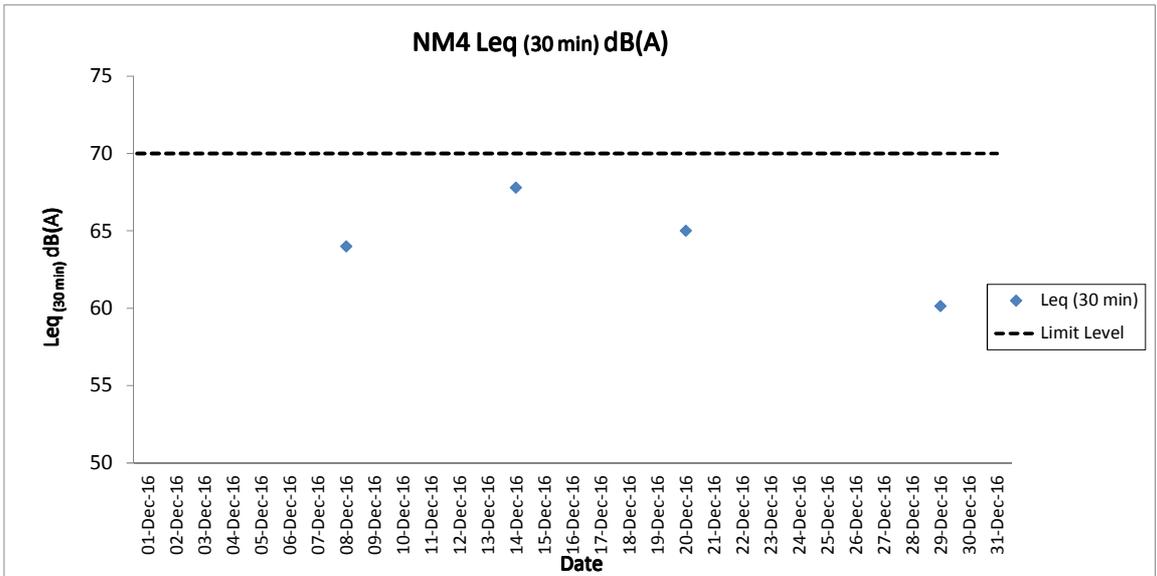
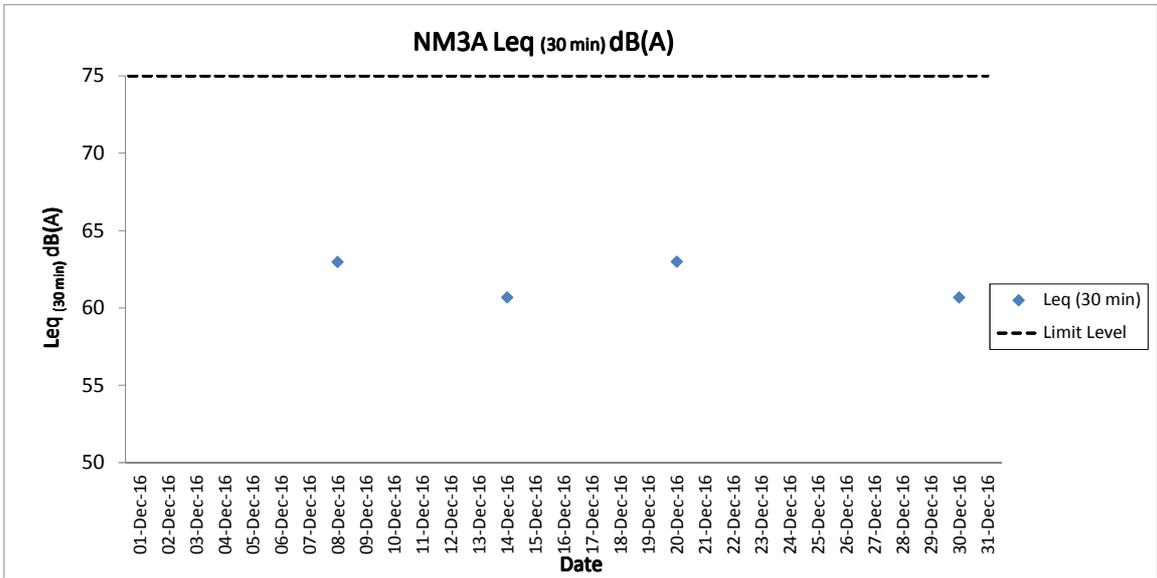
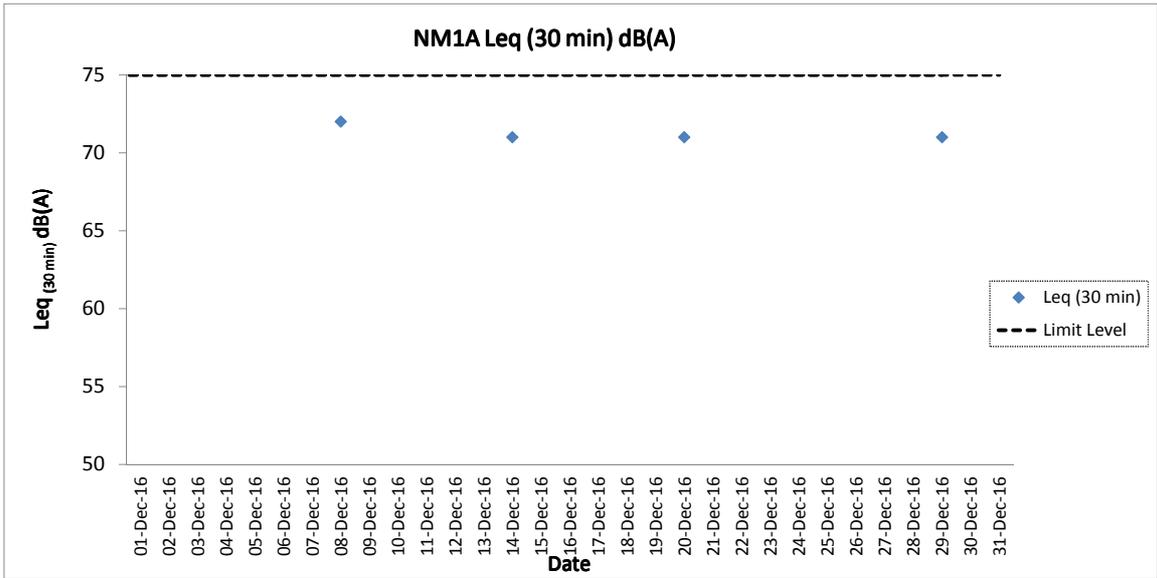
Noise Measurement Results

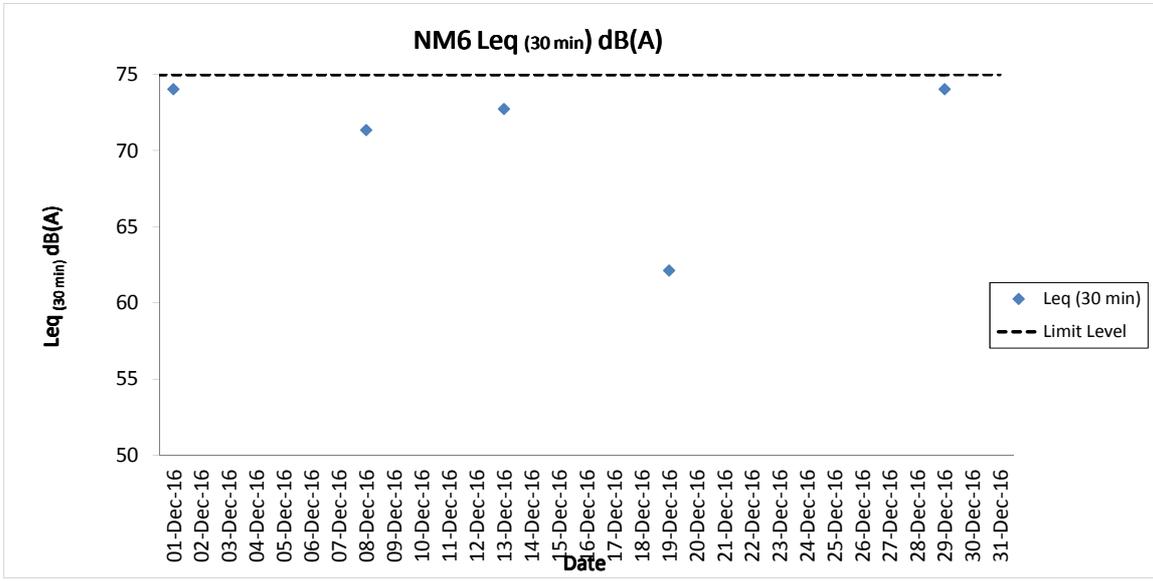
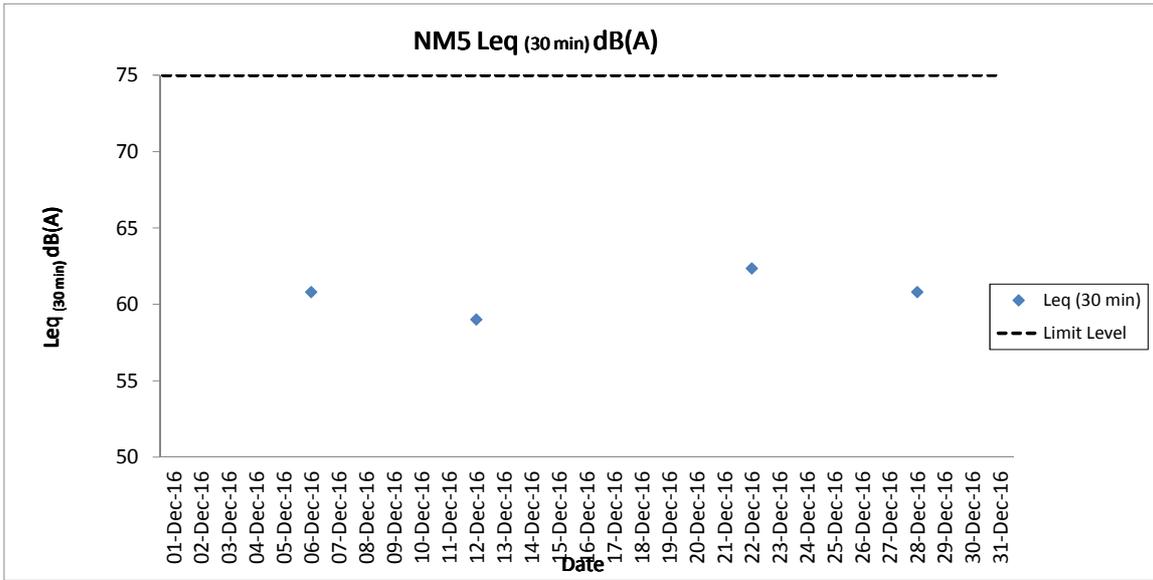
Station: NM6- House No.1 Sha Lo Wan

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
01-Dec-16	Sunny	09:39	78.5	61.5	74
01-Dec-16	Sunny	09:44	78.5	60.5	
01-Dec-16	Sunny	09:49	76.0	62.5	
01-Dec-16	Sunny	09:54	77.0	63.5	
01-Dec-16	Sunny	09:59	78.0	61.5	
01-Dec-16	Sunny	10:04	74.5	61.5	
08-Dec-16	Sunny	09:39	74.5	60.5	71
08-Dec-16	Sunny	09:44	75.0	57.0	
08-Dec-16	Sunny	09:49	76.5	56.5	
08-Dec-16	Sunny	09:54	69.5	54.5	
08-Dec-16	Sunny	09:59	75.5	58.5	
08-Dec-16	Sunny	10:04	69.5	57.0	
13-Dec-16	Sunny	09:41	76.5	53.0	73
13-Dec-16	Sunny	09:46	76.0	52.5	
13-Dec-16	Sunny	09:51	79.0	51.0	
13-Dec-16	Sunny	09:56	75.0	56.0	
13-Dec-16	Sunny	10:01	76.5	57.5	
13-Dec-16	Sunny	10:06	74.5	56.0	
19-Dec-16	Sunny	09:40	69.0	59.0	62
19-Dec-16	Sunny	09:45	69.5	62.5	
19-Dec-16	Sunny	09:50	68.5	57.0	
19-Dec-16	Sunny	09:55	68.5	58.0	
19-Dec-16	Sunny	10:00	72.5	57.0	
19-Dec-16	Sunny	10:05	68.0	57.5	
29-Dec-16	Cloudy	09:40	77.5	60.0	74
29-Dec-16	Cloudy	09:45	77.0	61.0	
29-Dec-16	Cloudy	09:50	75.0	61.5	
29-Dec-16	Cloudy	09:55	75.0	61.0	
29-Dec-16	Cloudy	10:00	76.0	63.5	
29-Dec-16	Cloudy	10:05	75.0	62.5	

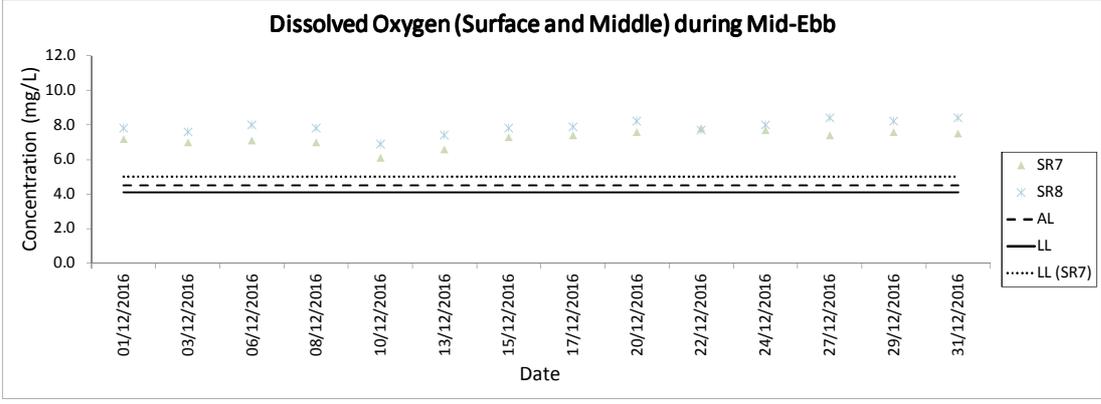
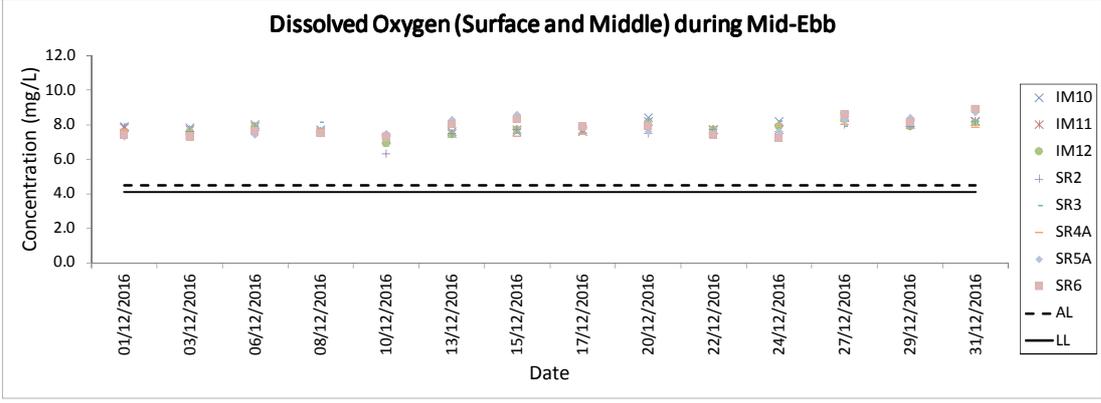
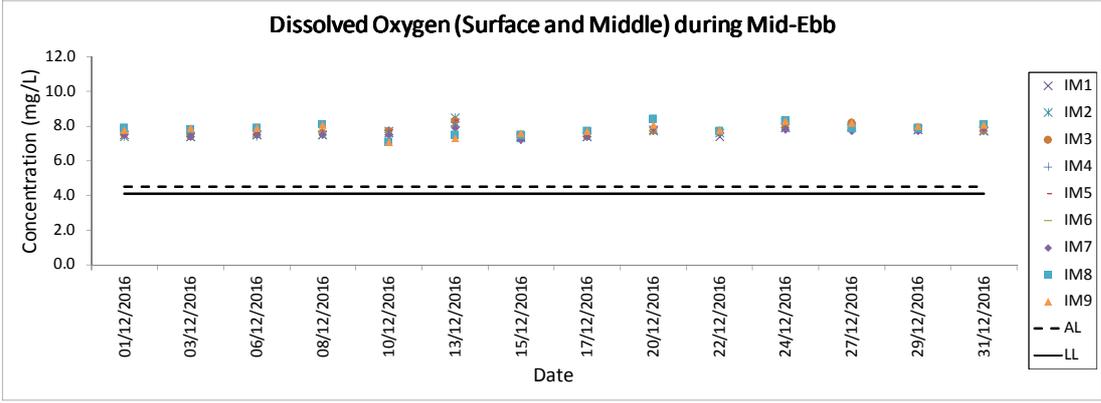
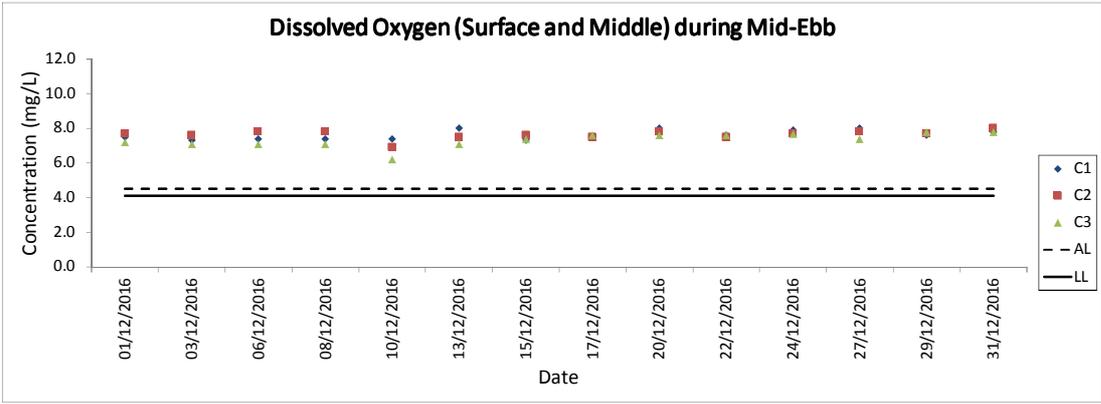
Remarks:

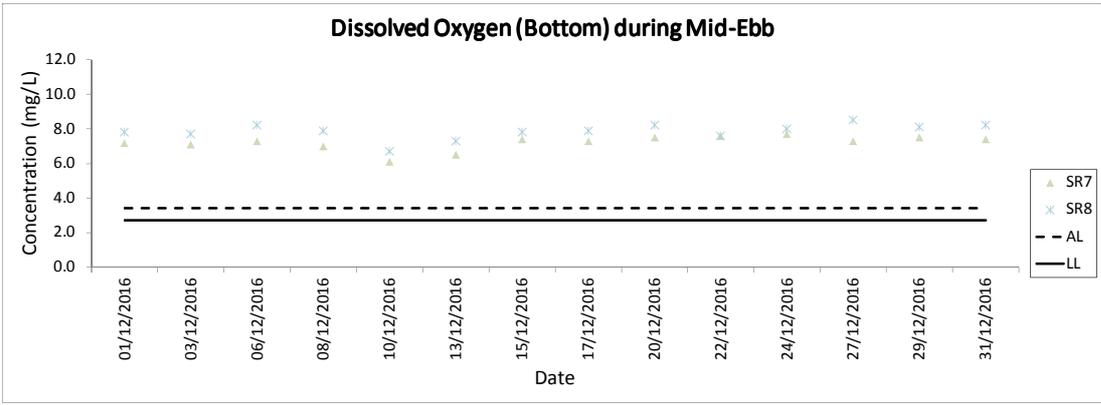
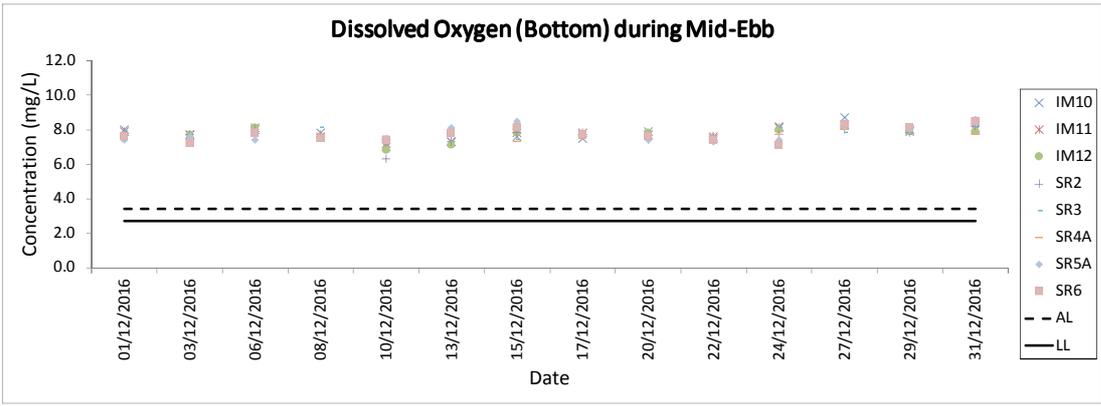
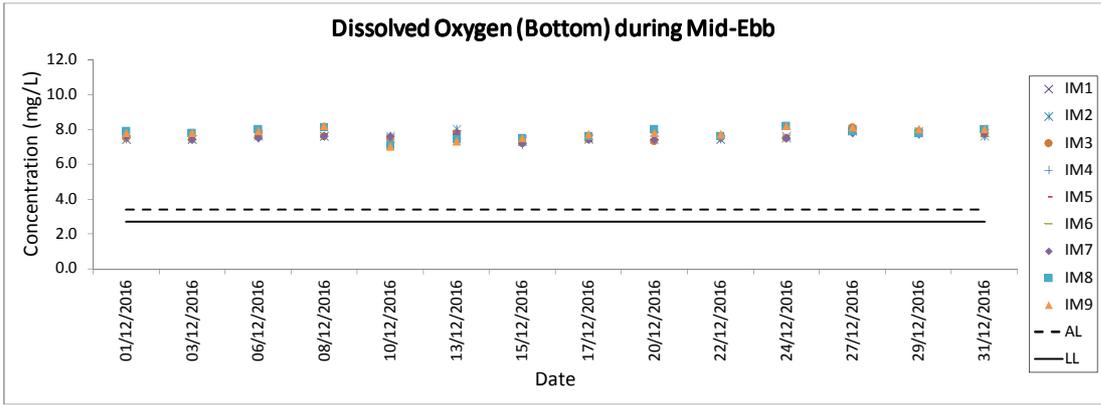
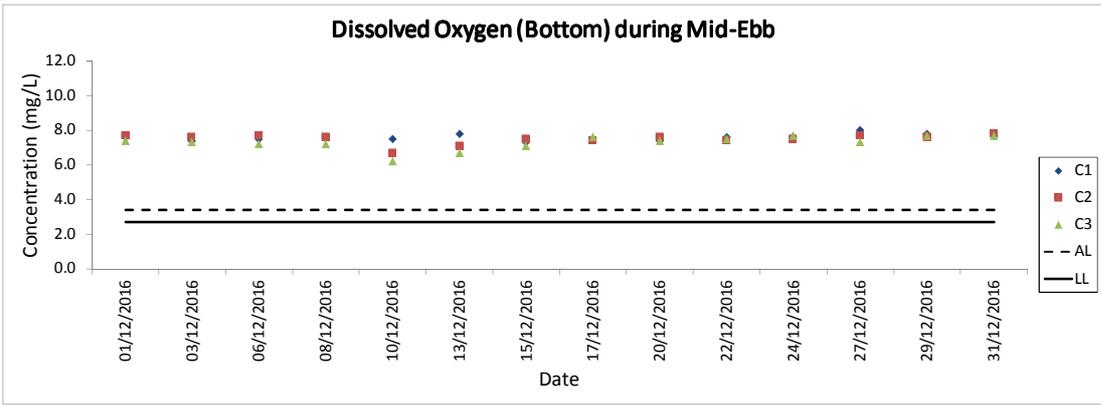
+3dB (A) correction was applied to free-field measurement

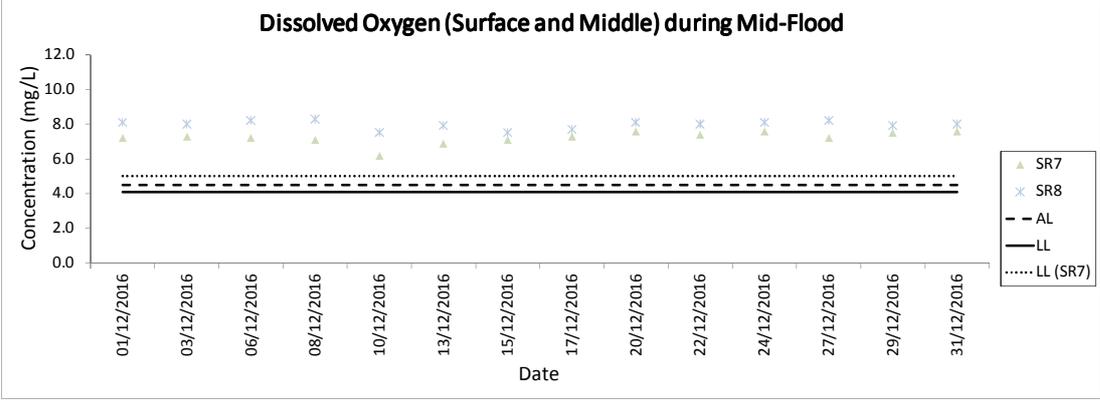
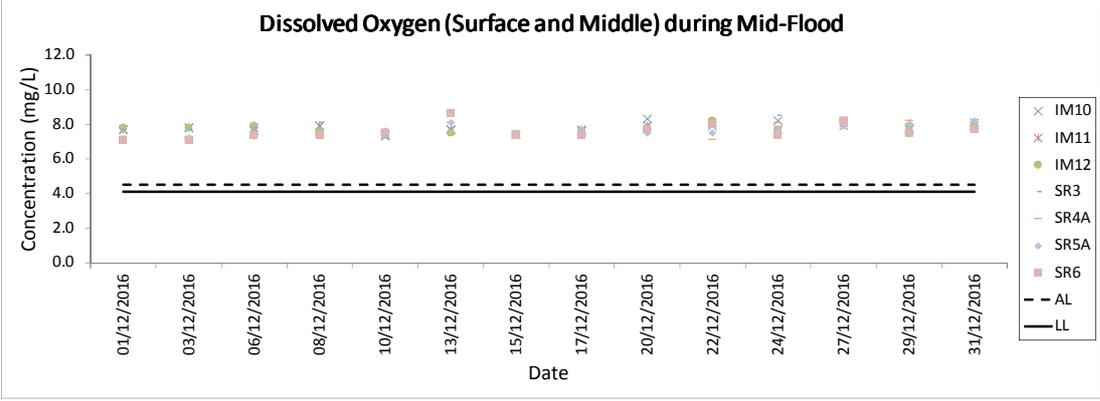
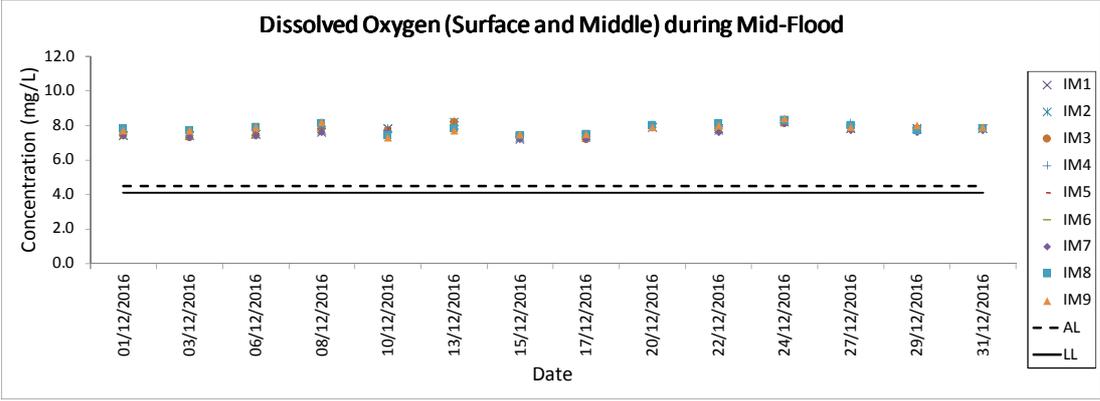
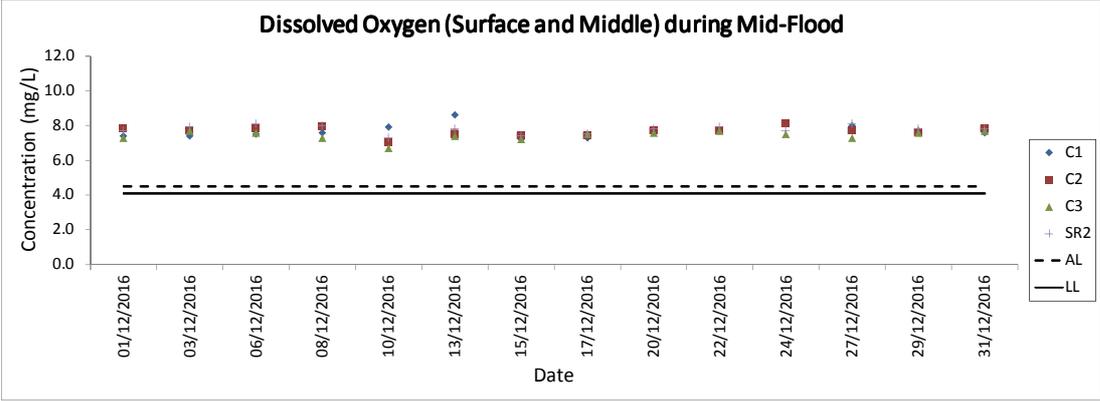


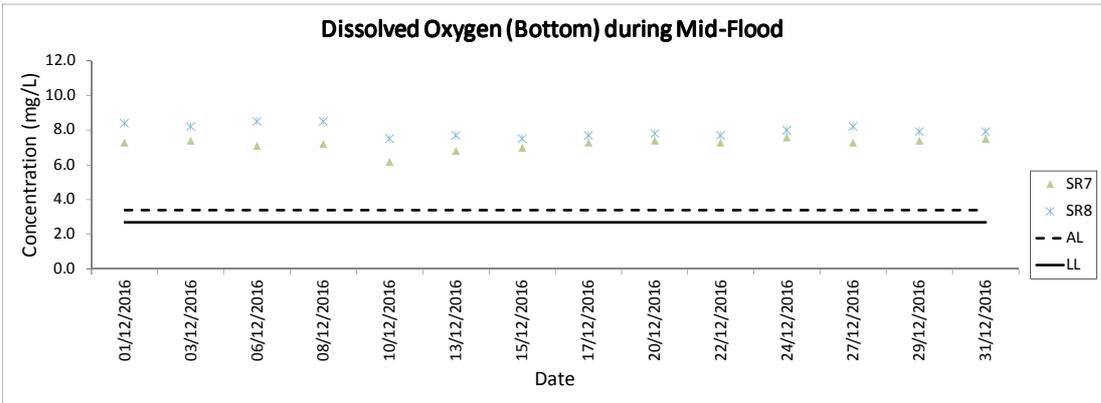
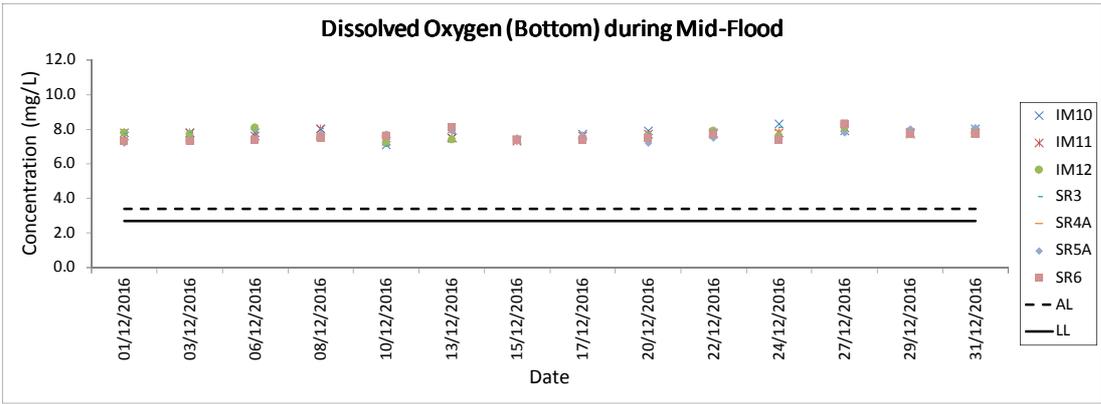
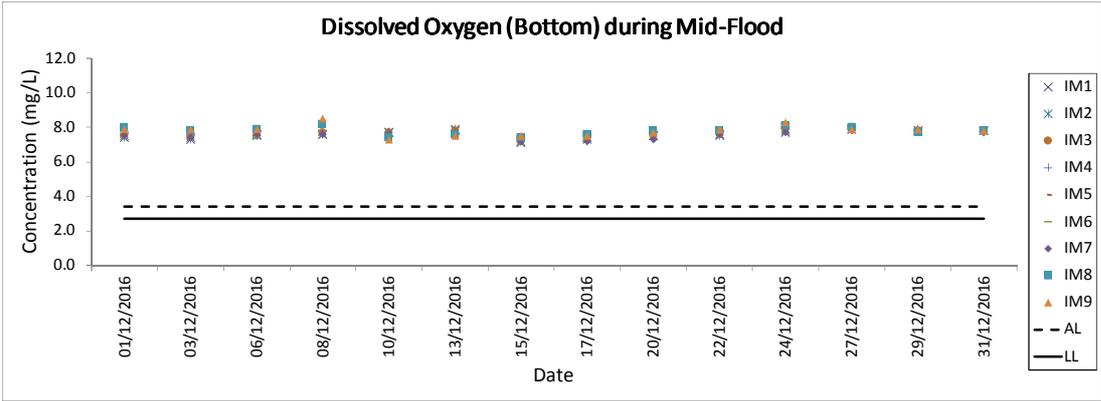
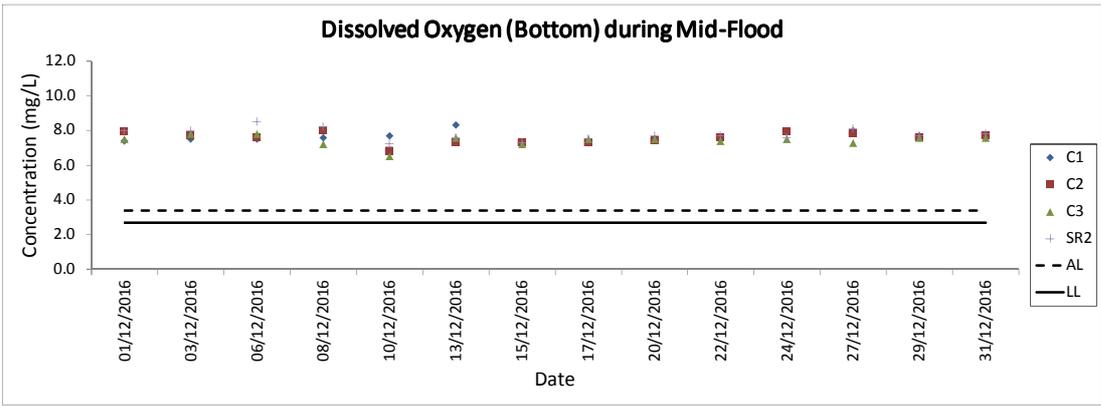


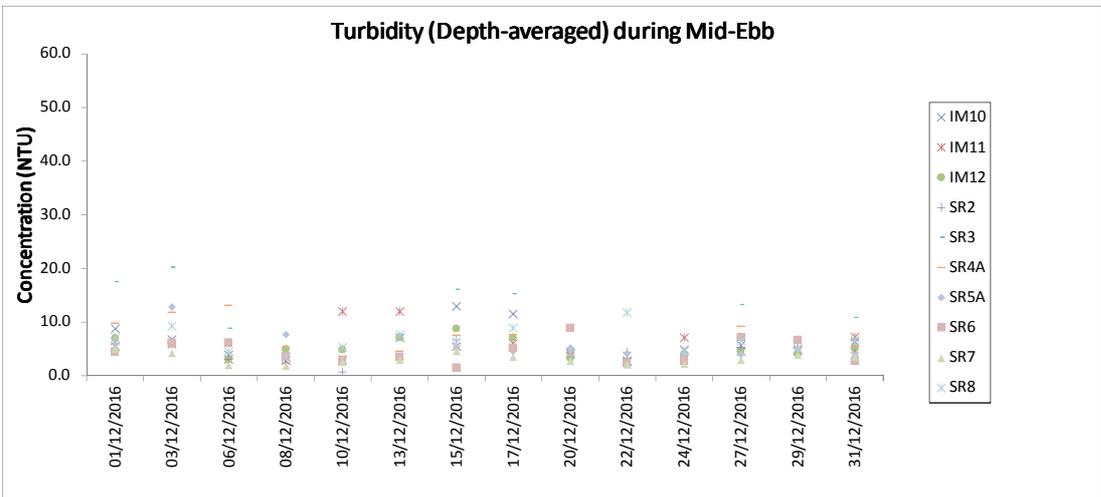
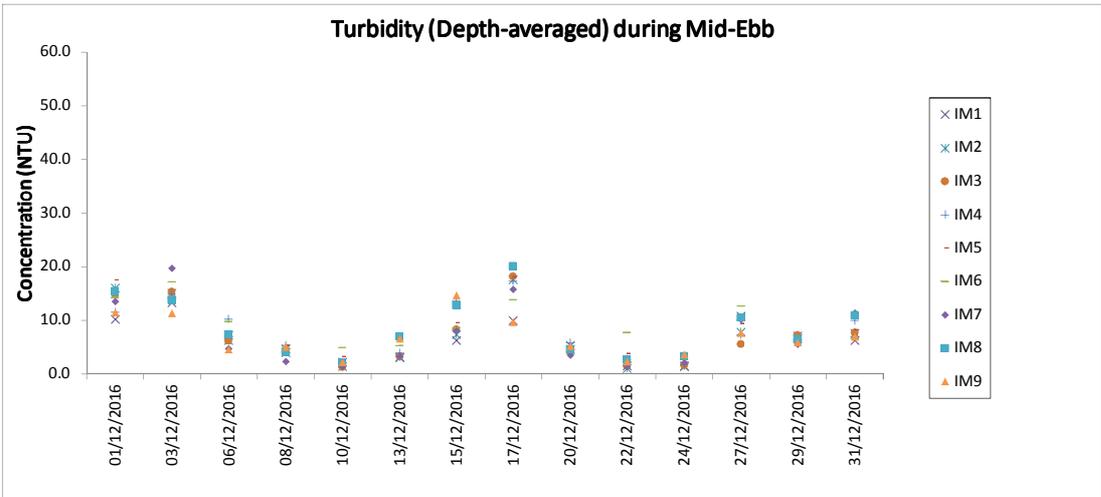
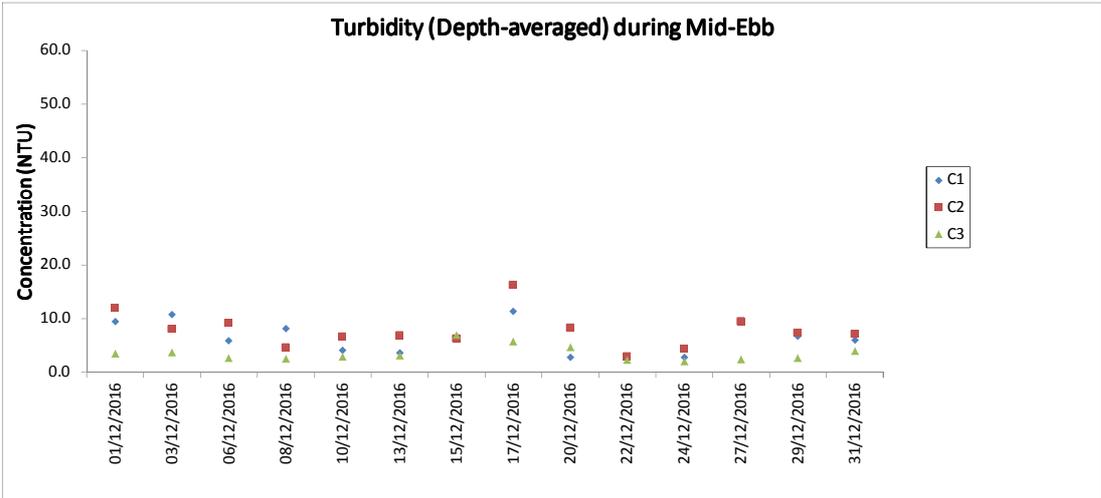
Water Quality Monitoring Results



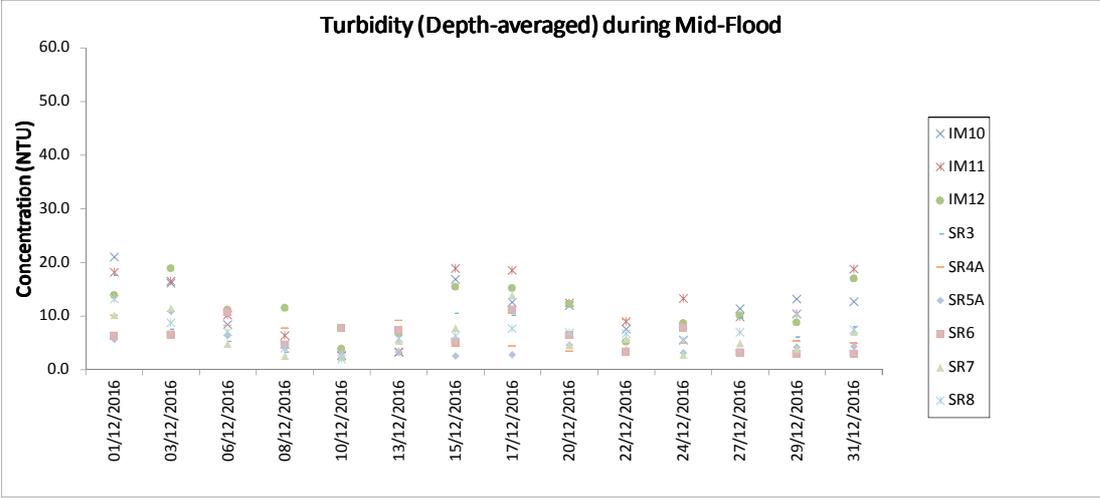
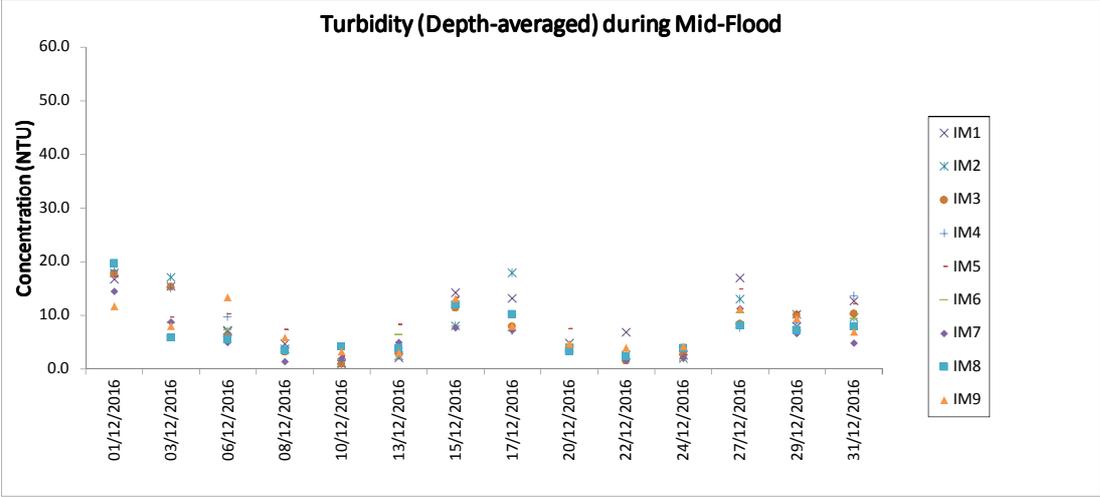
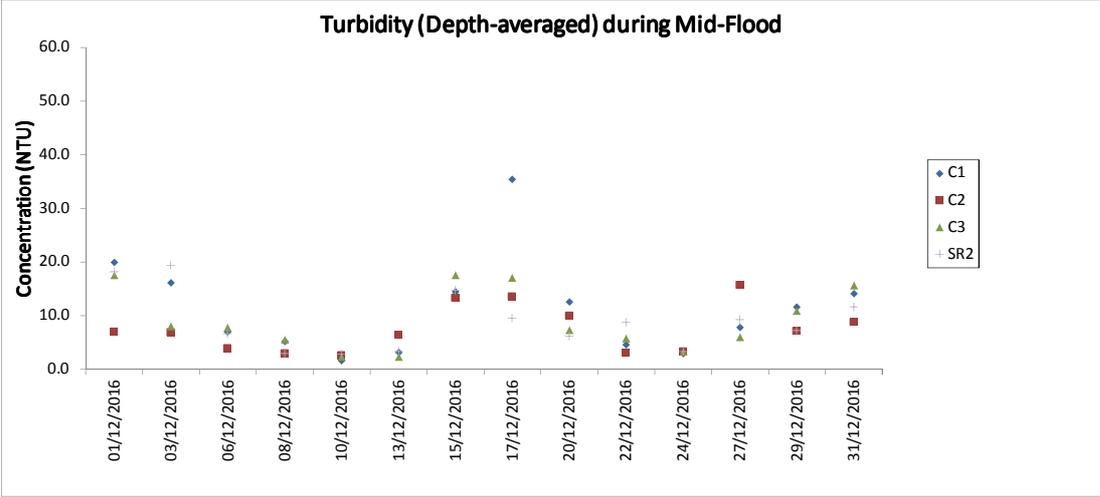




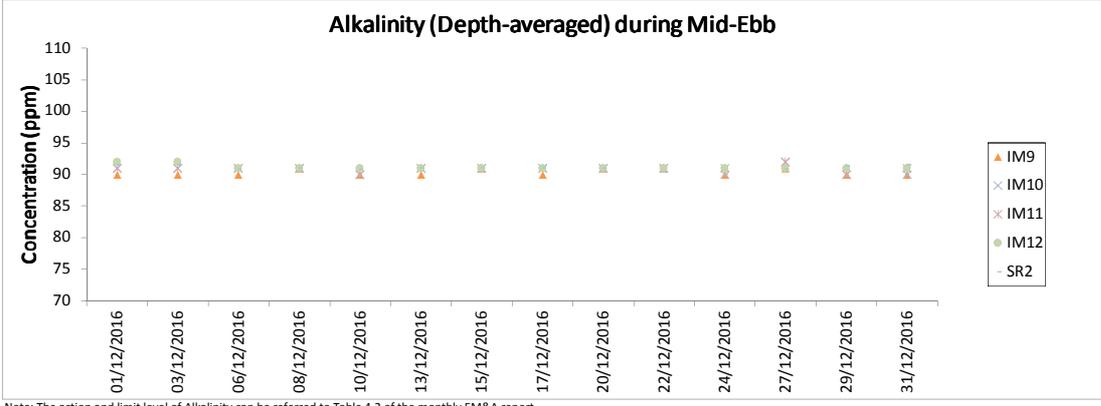
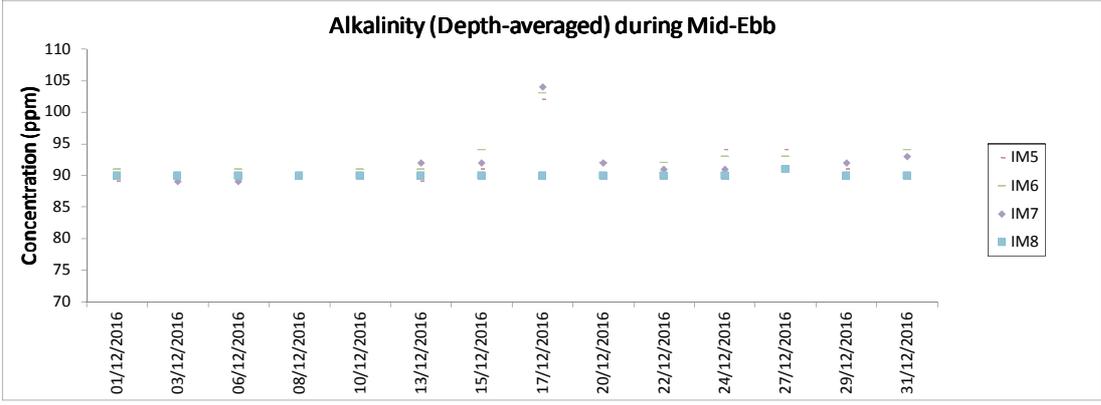
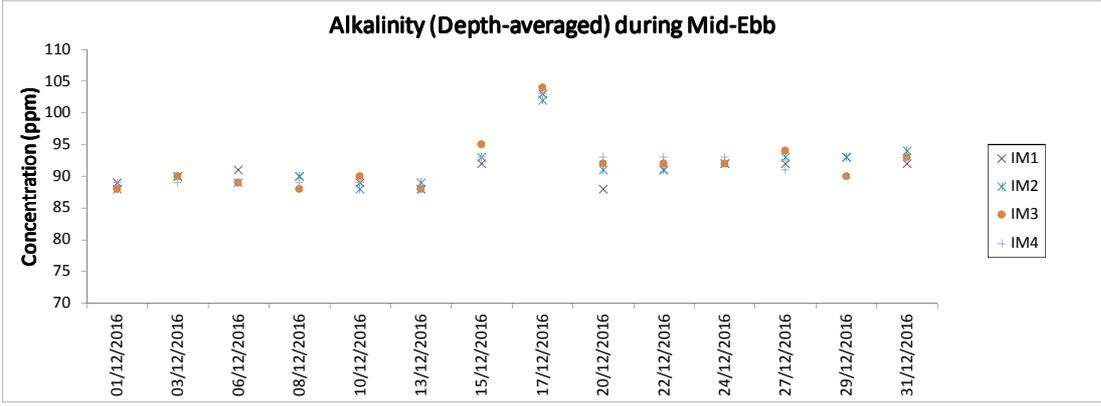
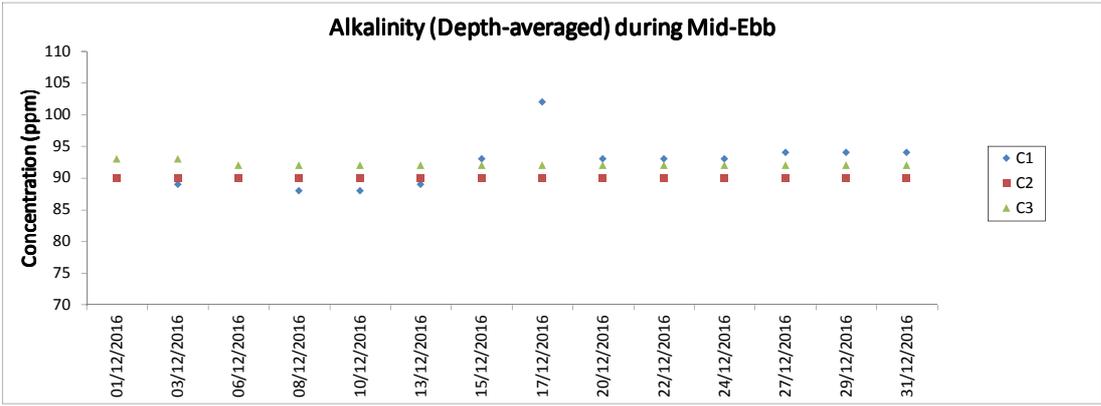




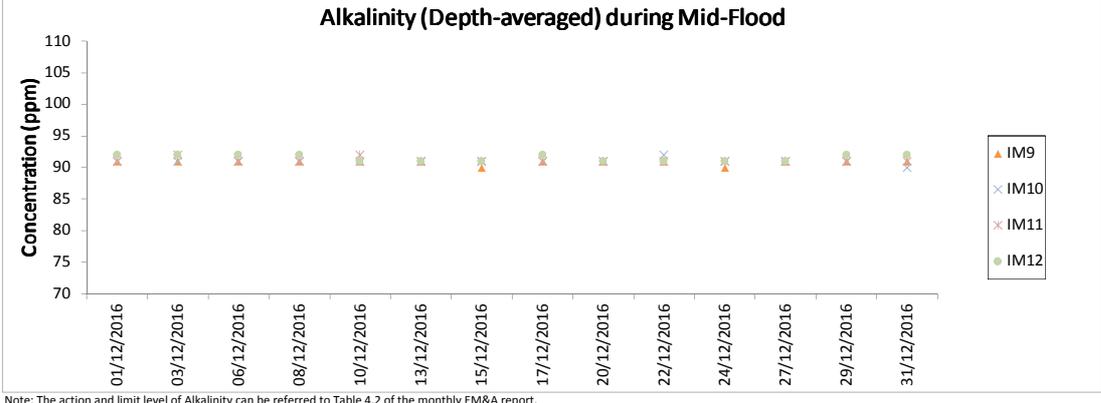
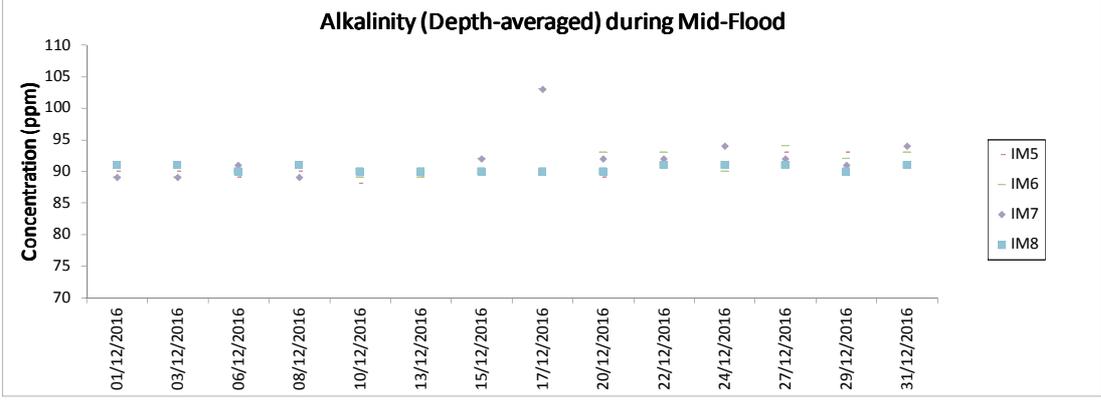
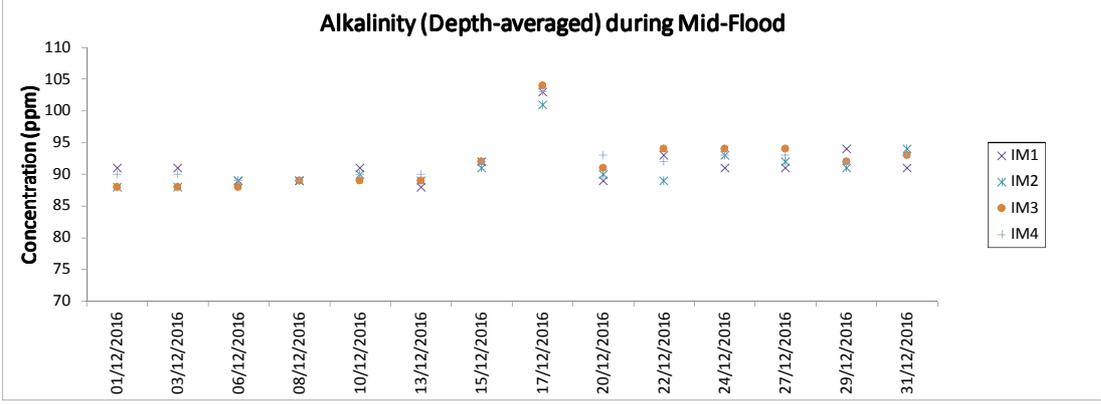
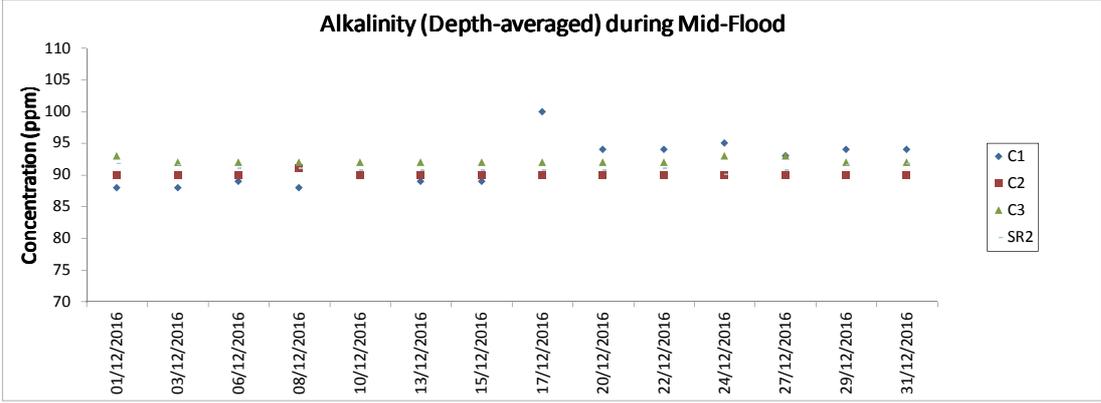
Note: The action and limit level of Turbidity can be referred to Table 4.2 of the monthly EM&A report.



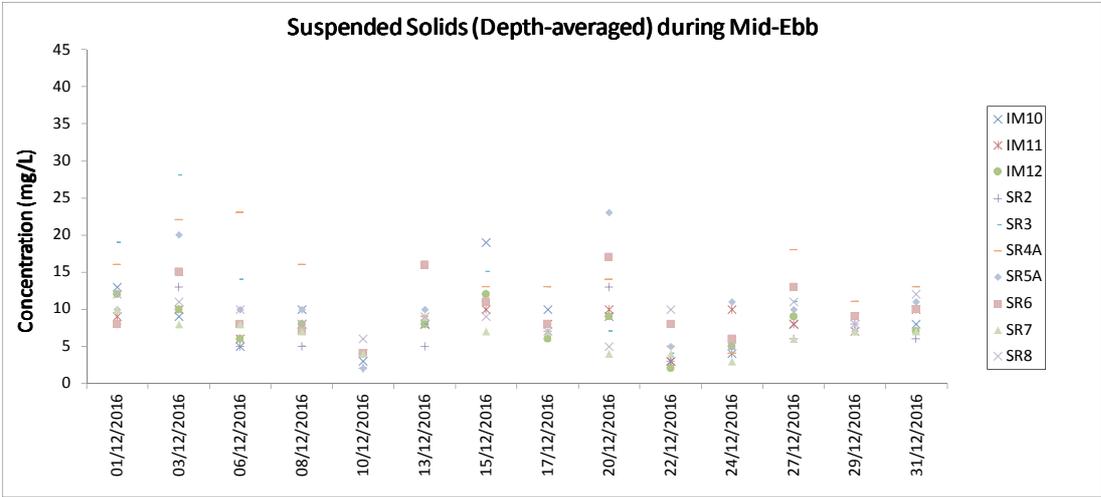
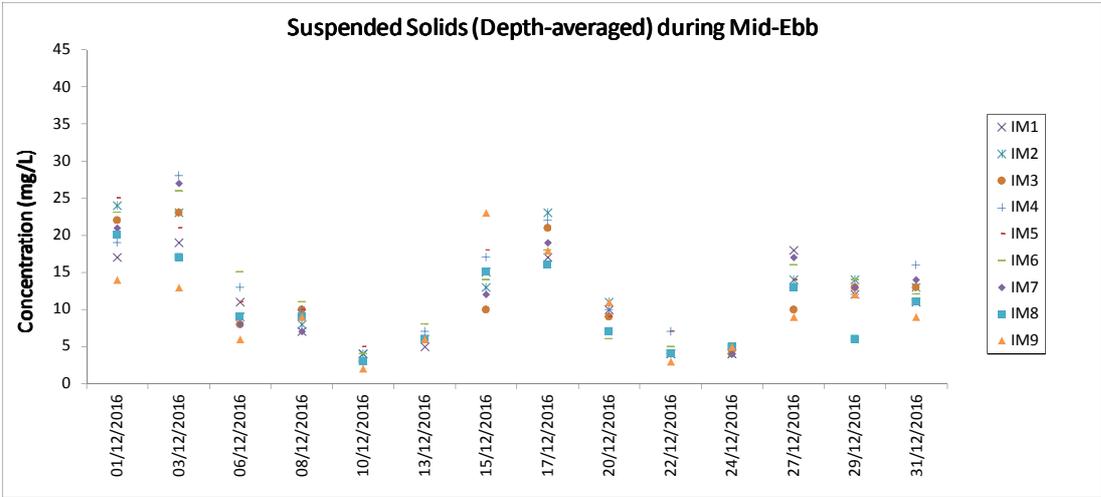
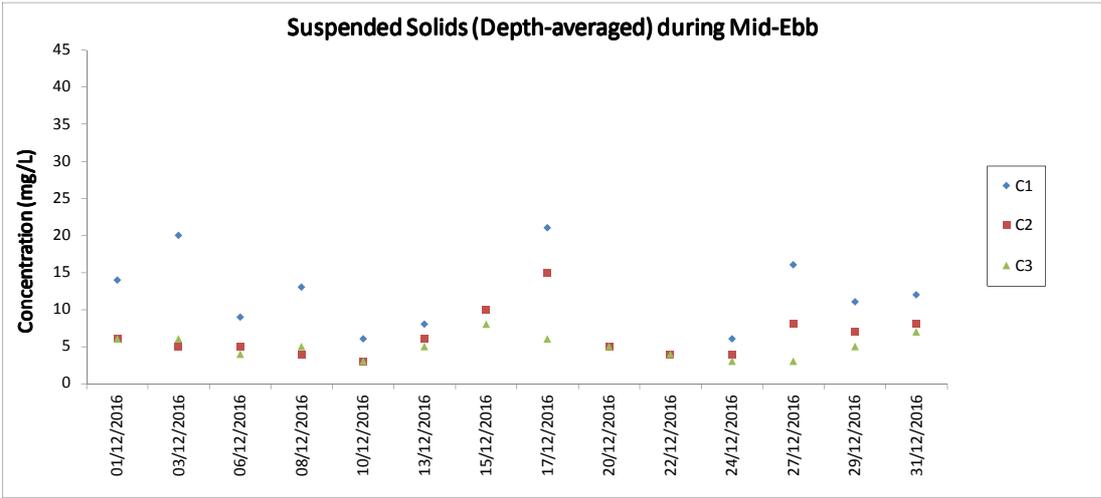
Note: The action and limit level of Turbidity can be referred to Table 4.2 of the monthly EM&A report.



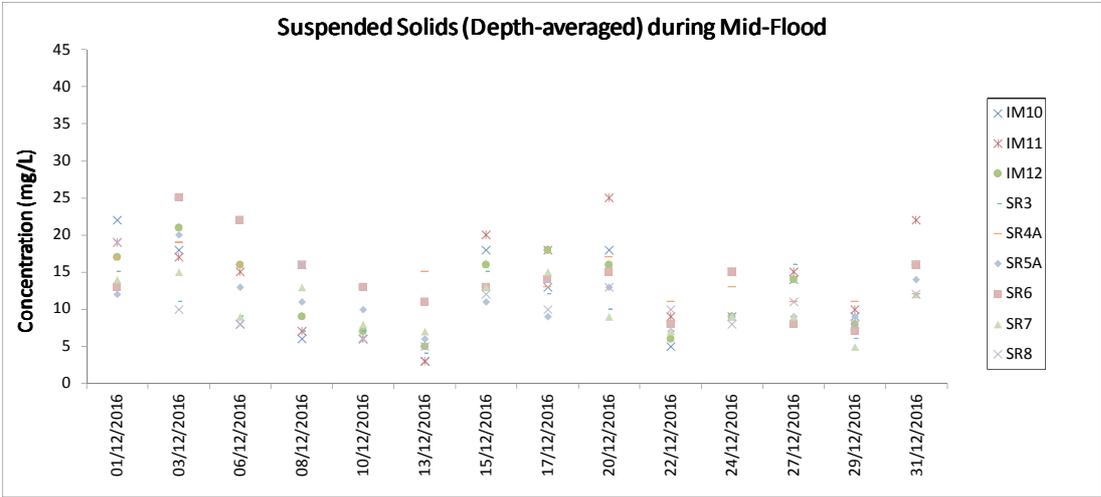
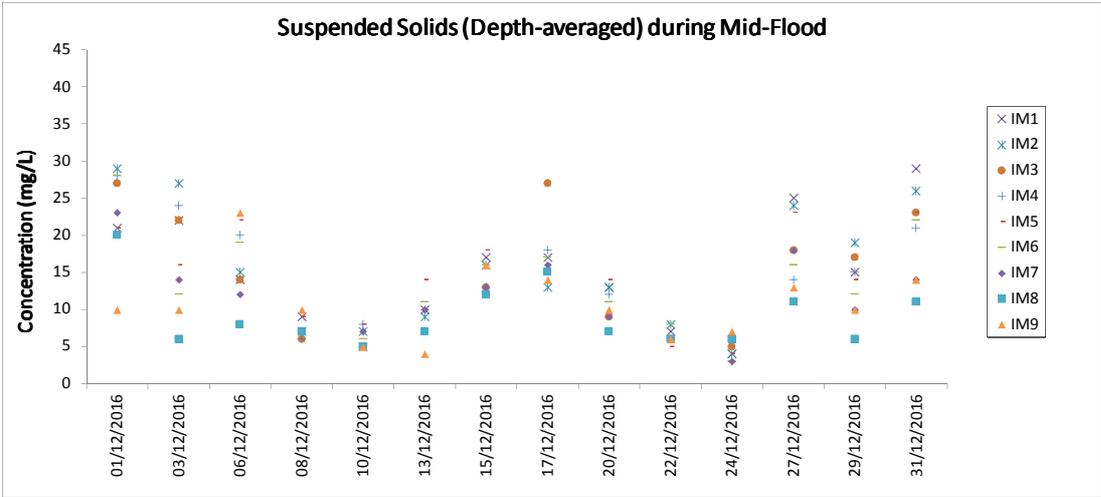
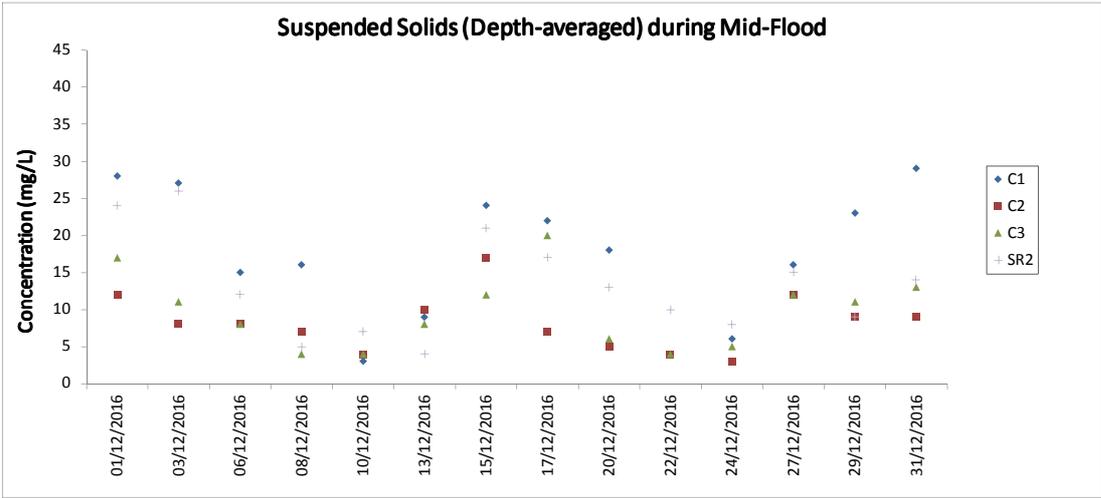
Note: The action and limit level of Alkalinity can be referred to Table 4.2 of the monthly EM&A report.



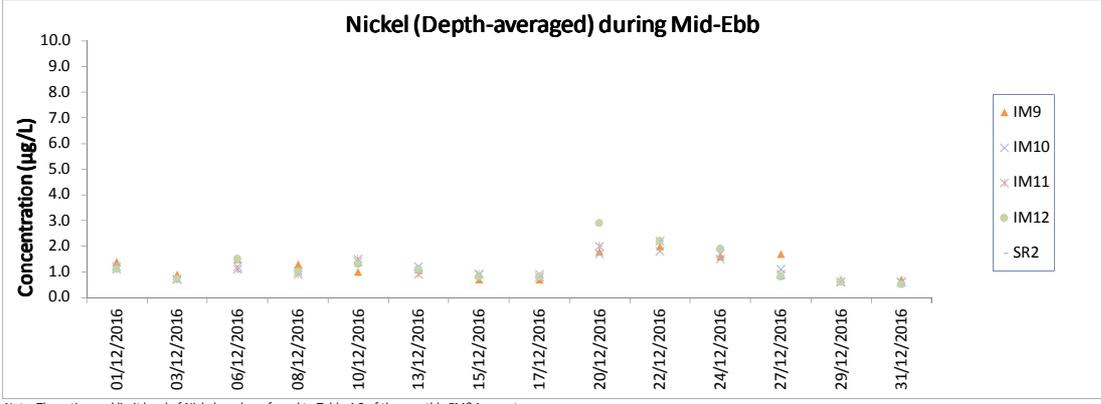
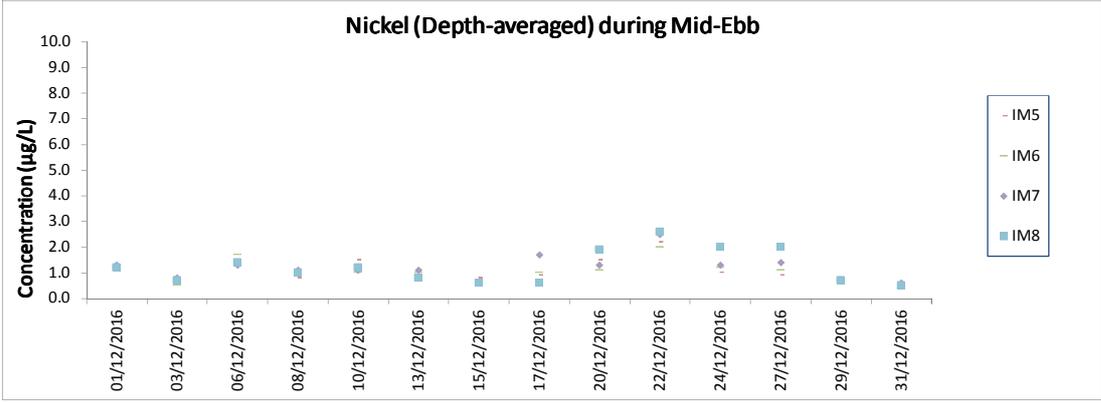
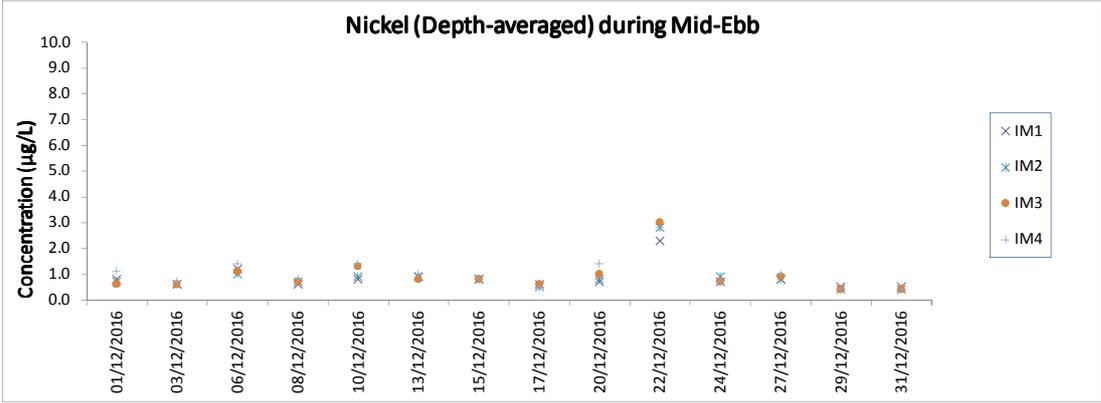
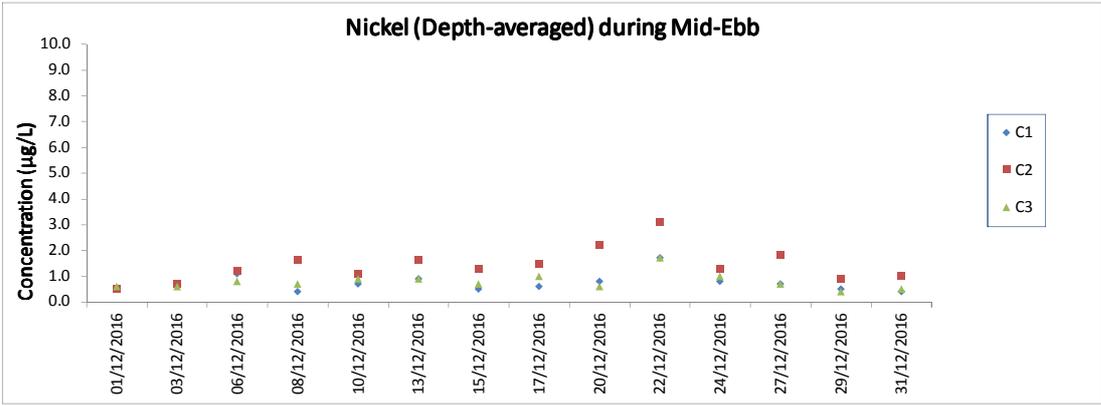
Note: The action and limit level of Alkalinity can be referred to Table 4.2 of the monthly EM&A report.



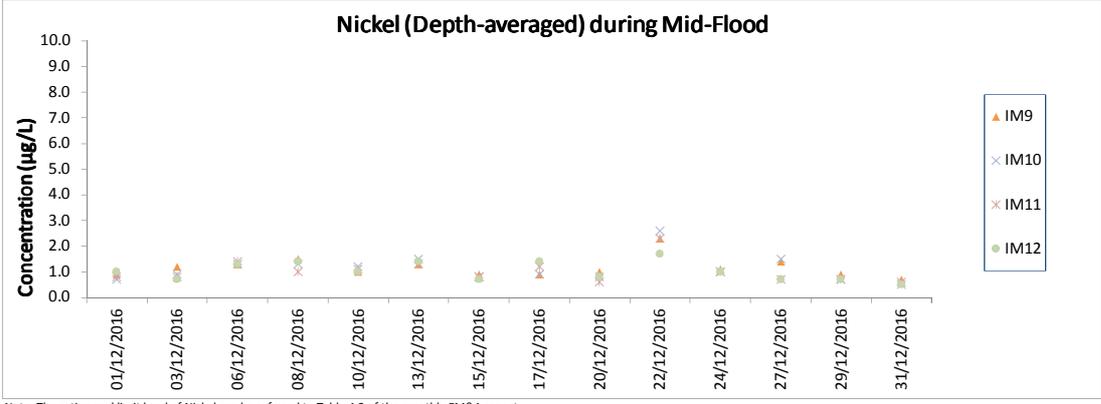
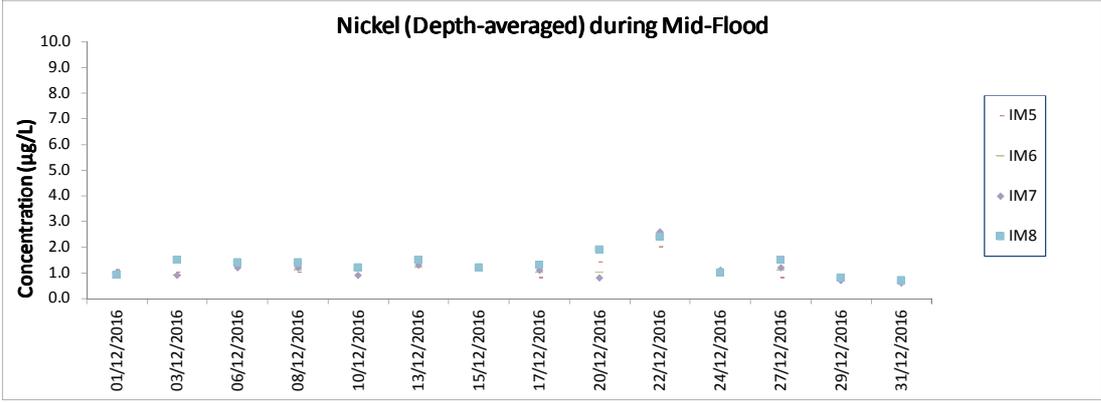
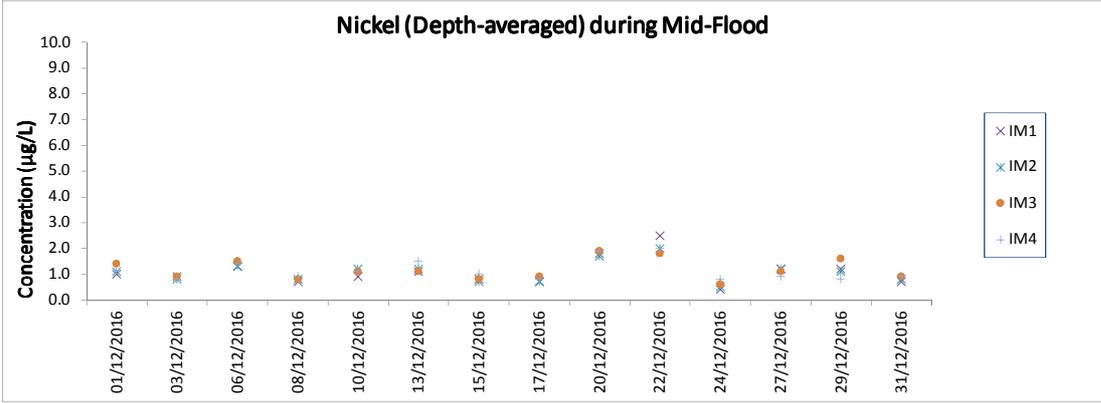
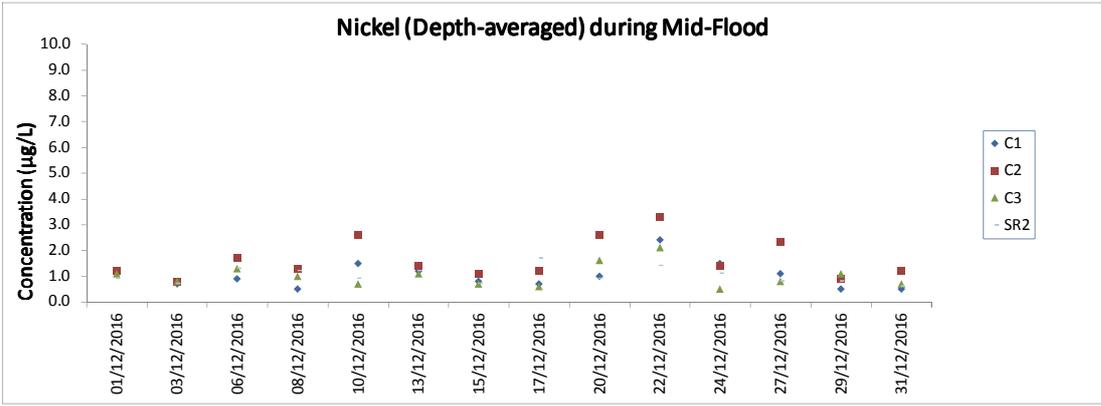
Note: The action and limit level of Suspended Solids can be referred to Table 4.2 of the monthly EM&A report.



Note: The action and limit level of Suspended Solids can be referred to Table 4.2 of the monthly EM&A report.



Note: The action and limit level of Nickel can be referred to Table 4.2 of the monthly EM&A report.



Note: The action and limit level of Nickel can be referred to Table 4.2 of the monthly EM&A report.
 The monitoring results of Chromium at all monitoring stations were below the reporting limit $0.2 \mu\text{g/L}$,
 the impact monitoring results of Chromium at all monitoring stations can be referred to Appendix E. of the monthly EM&A report.

Chinese White Dolphin Monitoring Results

CWD Small Vessel Line-transect Survey

Survey Effort Data

DATE	AREA	BEAU	KM SEARCHED	SEASON	VESSEL	TYPE
05-Oct-16	NWL	2	57.65	AUTUMN	32166	3RS ET
05-Oct-16	NWL	3	24.37	AUTUMN	32166	3RS ET
07-Oct-16	SWL	2	19.10	AUTUMN	32166	3RS ET
07-Oct-16	SWL	3	41.15	AUTUMN	32166	3RS ET
07-Oct-16	SWL	4	2.05	AUTUMN	32166	3RS ET
19-Oct-16	NEL	2	2.20	AUTUMN	32166	3RS ET
19-Oct-16	NEL	3	18.00	AUTUMN	32166	3RS ET
19-Oct-16	NEL	4	27.50	AUTUMN	32166	3RS ET
20-Oct-16	NEL	2	30.40	AUTUMN	32166	3RS ET
20-Oct-16	NEL	3	16.80	AUTUMN	32166	3RS ET
24-Oct-16	AW	1	4.80	AUTUMN	32166	3RS ET
24-Oct-16	WL	1	5.39	AUTUMN	32166	3RS ET
24-Oct-16	WL	2	6.10	AUTUMN	32166	3RS ET
24-Oct-16	WL	3	15.88	AUTUMN	32166	3RS ET
24-Oct-16	WL	4	3.82	AUTUMN	32166	3RS ET
24-Oct-16	SWL	3	4.89	AUTUMN	32166	3RS ET
24-Oct-16	SWL	4	0.41	AUTUMN	32166	3RS ET
25-Oct-16	SWL	2	1.05	AUTUMN	32166	3RS ET
25-Oct-16	SWL	3	31.73	AUTUMN	32166	3RS ET
25-Oct-16	SWL	4	28.02	AUTUMN	32166	3RS ET
25-Oct-16	SWL	5	2.00	AUTUMN	32166	3RS ET
26-Oct-16	AW	2	2.81	AUTUMN	32166	3RS ET
26-Oct-16	AW	3	1.83	AUTUMN	32166	3RS ET
26-Oct-16	WL	2	12.50	AUTUMN	32166	3RS ET
26-Oct-16	WL	3	9.25	AUTUMN	32166	3RS ET
26-Oct-16	WL	4	9.44	AUTUMN	32166	3RS ET
26-Oct-16	SWL	3	1.06	AUTUMN	32166	3RS ET
26-Oct-16	SWL	4	4.03	AUTUMN	32166	3RS ET
28-Oct-16	NWL	1	6.27	AUTUMN	32166	3RS ET
28-Oct-16	NWL	2	73.09	AUTUMN	32166	3RS ET
28-Oct-16	NWL	3	0.90	AUTUMN	32166	3RS ET
04-Nov-16	NWL	2	22.59	AUTUMN	32166	3RS ET
04-Nov-16	NWL	3	60.71	AUTUMN	32166	3RS ET
11-Nov-16	NEL	1	15.31	AUTUMN	32166	3RS ET
11-Nov-16	NEL	2	31.79	AUTUMN	32166	3RS ET
14-Nov-16	SWL	2	62.10	AUTUMN	32166	3RS ET
14-Nov-16	SWL	3	0.90	AUTUMN	32166	3RS ET
16-Nov-16	NEL	2	1.90	AUTUMN	32166	3RS ET
16-Nov-16	NEL	3	41.92	AUTUMN	32166	3RS ET
16-Nov-16	NEL	4	3.28	AUTUMN	32166	3RS ET
17-Nov-16	SWL	2	1.15	AUTUMN	32166	3RS ET
17-Nov-16	SWL	3	5.59	AUTUMN	32166	3RS ET
17-Nov-16	WL	2	13.18	AUTUMN	32166	3RS ET
17-Nov-16	WL	3	17.84	AUTUMN	32166	3RS ET
17-Nov-16	AW	2	4.91	AUTUMN	32166	3RS ET
18-Nov-16	AW	2	1.43	AUTUMN	32166	3RS ET
18-Nov-16	AW	3	3.25	AUTUMN	32166	3RS ET

DATE	AREA	BEAU	KM SEARCHED	SEASON	VESSEL	TYPE
18-Nov-16	WL	2	18.03	AUTUMN	32166	3RS ET
18-Nov-16	WL	3	11.86	AUTUMN	32166	3RS ET
18-Nov-16	WL	4	2.45	AUTUMN	32166	3RS ET
18-Nov-16	SWL	3	6.84	AUTUMN	32166	3RS ET
21-Nov-16	NWL	2	3.82	AUTUMN	32166	3RS ET
21-Nov-16	NWL	3	26.42	AUTUMN	32166	3RS ET
21-Nov-16	NWL	4	43.55	AUTUMN	32166	3RS ET
21-Nov-16	NWL	5	7.91	AUTUMN	32166	3RS ET
28-Nov-16	SWL	2	7.14	AUTUMN	32166	3RS ET
28-Nov-16	SWL	3	35.02	AUTUMN	32166	3RS ET
28-Nov-16	SWL	4	16.84	AUTUMN	32166	3RS ET
28-Nov-16	SWL	5	1.39	AUTUMN	32166	3RS ET
02-Dec-16	NWL	2	24.31	WINTER	32166	3RS ET
02-Dec-16	NWL	3	54.34	WINTER	32166	3RS ET
02-Dec-16	NWL	4	3.20	WINTER	32166	3RS ET
05-Dec-16	AW	2	4.86	WINTER	32166	3RS ET
05-Dec-16	WL	2	9.23	WINTER	32166	3RS ET
05-Dec-16	WL	3	23.91	WINTER	32166	3RS ET
05-Dec-16	SWL	2	5.52	WINTER	32166	3RS ET
05-Dec-16	SWL	3	1.31	WINTER	32166	3RS ET
13-Dec-16	SWL	2	52.96	WINTER	32166	3RS ET
13-Dec-16	SWL	3	7.50	WINTER	32166	3RS ET
14-Dec-16	AW	3	1.96	WINTER	32166	3RS ET
14-Dec-16	AW	4	2.96	WINTER	32166	3RS ET
14-Dec-16	WL	3	13.26	WINTER	32166	3RS ET
14-Dec-16	WL	4	18.34	WINTER	32166	3RS ET
14-Dec-16	WL	5	2.20	WINTER	32166	3RS ET
14-Dec-16	SWL	3	2.29	WINTER	32166	3RS ET
14-Dec-16	SWL	4	4.41	WINTER	32166	3RS ET
19-Dec-16	NWL	2	39.79	WINTER	32166	3RS ET
19-Dec-16	NWL	3	22.34	WINTER	32166	3RS ET
19-Dec-16	NWL	4	3.20	WINTER	32166	3RS ET
20-Dec-16	NWL	2	7.59	WINTER	32166	3RS ET
20-Dec-16	NEL	1	3.67	WINTER	32166	3RS ET
20-Dec-16	NEL	2	17.41	WINTER	32166	3RS ET
20-Dec-16	NEL	3	22.32	WINTER	32166	3RS ET
20-Dec-16	NEL	4	3.00	WINTER	32166	3RS ET
22-Dec-16	SWL	2	0.90	WINTER	32166	3RS ET
22-Dec-16	SWL	3	25.80	WINTER	32166	3RS ET
22-Dec-16	SWL	4	23.20	WINTER	32166	3RS ET
22-Dec-16	SWL	5	13.20	WINTER	32166	3RS ET
23-Dec-16	NEL	1	7.40	WINTER	32166	3RS ET
23-Dec-16	NEL	2	27.00	WINTER	32166	3RS ET
23-Dec-16	NEL	3	12.80	WINTER	32166	3RS ET

Notes:

CWD monitoring survey data of the two preceding survey months (i.e. October and November 2016) are presented for reference only.

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.
05-Oct-16	1	1048	CWD	2	NWL	2	N/A	OFF	3RS ET	22.2716	113.8719	AUTUMN	NONE
05-Oct-16	2	1141	CWD	1	NWL	3	19	ON	3RS ET	22.3571	113.8781	AUTUMN	NONE
05-Oct-16	3	1212	CWD	2	NWL	3	N/A	OFF	3RS ET	22.5836	115.8169	AUTUMN	NONE
05-Oct-16	4	1246	CWD	2	NWL	2	102	ON	3RS ET	22.3696	113.8886	AUTUMN	NONE
07-Oct-16	1	1200	FP	2	SWL	3	116	ON	3RS ET	22.7397	115.8400	AUTUMN	NONE
24-Oct-16	1	1017	CWD	4	WL	2	206	ON	3RS ET	22.2698	113.8436	AUTUMN	NONE
24-Oct-16	2	1054	CWD	1	WL	3	87	ON	3RS ET	22.2599	113.8416	AUTUMN	NONE
24-Oct-16	3	1127	CWD	2	WL	3	91	ON	3RS ET	22.2404	113.8307	AUTUMN	NONE
24-Oct-16	4	1154	CWD	1	WL	3	108	ON	3RS ET	22.2236	113.8326	AUTUMN	NONE
24-Oct-16	5	1242	CWD	1	WL	4	11	ON	3RS ET	22.2018	113.8219	AUTUMN	NONE
24-Oct-16	6	1252	CWD	2	WL	3	48	ON	3RS ET	22.1983	113.8274	AUTUMN	NONE
24-Oct-16	7	1321	CWD	3	WL	3	N/A	OFF	3RS ET	22.1918	113.8383	AUTUMN	NONE
24-Oct-16	8	1403	CWD	1	SWL	3	45	ON	3RS ET	22.1863	113.8587	AUTUMN	NONE
25-Oct-16	1	1457	CWD	1	SWL	4	N/A	OFF	3RS ET	22.1943	113.8519	AUTUMN	NONE
25-Oct-16	2	1511	CWD	1	WL	3	N/A	OFF	3RS ET	22.2166	113.8338	AUTUMN	NONE
25-Oct-16	3	1518	CWD	1	WL	3	N/A	OFF	3RS ET	22.2293	113.8371	AUTUMN	NONE
25-Oct-16	4	1523	CWD	3	WL	3	N/A	OFF	3RS ET	22.2386	113.8406	AUTUMN	PURSE SEINE
26-Oct-16	1	1032	CWD	1	WL	2	135	ON	3RS ET	22.2675	113.8600	AUTUMN	NONE
26-Oct-16	2	1047	CWD	2	WL	2	149	ON	3RS ET	22.2616	113.8553	AUTUMN	NONE
26-Oct-16	3	1112	CWD	1	WL	2	168	ON	3RS ET	22.2500	113.8348	AUTUMN	NONE
26-Oct-16	4	1133	CWD	2	WL	2	38	ON	3RS ET	22.2413	113.8394	AUTUMN	NONE
26-Oct-16	5	1219	CWD	7	WL	4	286	ON	3RS ET	22.2143	113.8219	AUTUMN	NONE
26-Oct-16	6	1309	CWD	1	WL	4	390	ON	3RS ET	22.1885	113.8419	AUTUMN	PURSE SEINE
26-Oct-16	7	1350	CWD	4	SWL	3	441	ON	3RS ET	22.1933	113.8493	AUTUMN	NONE
26-Oct-16	8	1403	CWD	2	SWL	3	14	ON	3RS ET	22.1905	113.8490	AUTUMN	NONE
26-Oct-16	9	1412	CWD	2	SWL	3	395	ON	3RS ET	22.1863	113.8488	AUTUMN	NONE
26-Oct-16	10	1440	CWD	1	SWL	3	63	ON	3RS ET	22.1976	113.8589	AUTUMN	NONE
28-Oct-16	1	0949	CWD	7	NWL	2	210	ON	3RS ET	22.3757	113.8682	AUTUMN	NONE
28-Oct-16	2	1145	CWD	2	NWL	2	623	ON	3RS ET	22.3548	113.8781	AUTUMN	NONE
04-Nov-16	1	1041	CWD	4	NWL	3	330	ON	3RS ET	22.2788	113.8779	AUTUMN	NONE
04-Nov-16	2	1221	CWD	3	NWL	3	149	ON	3RS ET	22.3807	113.8890	AUTUMN	NONE

DATE	STG #	TIME	CWD/FP	GP SZ	AREA	BEAU	PSD	EFFORT	TYPE	DEC LAT	DEC LON	SEASON	BOAT ASSOC.
14-Nov-16	1	1406	CWD	1	SWL	2	19	ON	3RS ET	22.2076	113.8796	AUTUMN	NONE
17-Nov-16	1	1226	CWD	4	WL	3	1	ON	3RS ET	22.2311	113.8389	AUTUMN	NONE
17-Nov-16	2	1308	CWD	3	WL	2	390	ON	3RS ET	22.2452	113.8508	AUTUMN	NONE
17-Nov-16	3	1415	CWD	2	WL	2	11	ON	3RS ET	22.2900	113.8614	AUTUMN	NONE
18-Nov-16	1	1041	CWD	1	WL	3	243	ON	3RS ET	22.2571	113.8373	AUTUMN	NONE
21-Nov-16	1	1035	CWD	5	NWL	3	9	ON	3RS ET	22.2844	113.8683	AUTUMN	NONE
28-Nov-16	1	1048	FP	1	SWL	3	52	ON	3RS ET	22.1579	113.9360	AUTUMN	NONE
28-Nov-16	2	1112	FP	1	SWL	4	125	ON	3RS ET	22.1689	113.9277	AUTUMN	NONE
28-Nov-16	3	1116	FP	1	SWL	4	183	ON	3RS ET	22.1703	113.9273	AUTUMN	NONE
28-Nov-16	4	1139	CWD	4	SWL	3	86	ON	3RS ET	22.2050	113.9178	AUTUMN	NONE
28-Nov-16	5	1430	CWD	1	SWL	3	125	ON	3RS ET	22.1967	113.8778	AUTUMN	NONE
28-Nov-16	6	1514	CWD	5	SWL	4	148	ON	3RS ET	22.1979	113.8683	AUTUMN	NONE
02-Dec-16	1	1129	CWD	2	NWL	3	172	ON	3RS ET	22.3780	113.8768	WINTER	NONE
02-Dec-16	2	1234	CWD	2	NWL	3	187	ON	3RS ET	22.3664	113.8876	WINTER	NONE
05-Dec-16	1	1028	CWD	2	WL	2	34	ON	3RS ET	22.2683	113.8608	WINTER	NONE
05-Dec-16	2	1045	CWD	1	WL	3	100	ON	3RS ET	22.2606	113.8480	WINTER	NONE
05-Dec-16	3	1110	CWD	5	WL	3	171	ON	3RS ET	22.2506	113.8363	WINTER	NONE
05-Dec-16	4	1154	CWD	1	WL	3	42	ON	3RS ET	22.2412	113.8365	WINTER	NONE
05-Dec-16	5	1250	CWD	11	WL	2	276	ON	3RS ET	22.2056	113.8398	WINTER	NONE
13-Dec-16	4	1239	CWD	2	SWL	2	611	ON	3RS ET	22.1771	113.9056	WINTER	NONE
13-Dec-16	5	1350	CWD	5	SWL	3	87	ON	3RS ET	22.1480	113.8884	WINTER	PAIR TRAWLER
13-Dec-16	6	1413	CWD	1	SWL	3	297	ON	3RS ET	22.1691	113.8878	WINTER	NONE
13-Dec-16	7	1436	CWD	1	SWL	2	72	ON	3RS ET	22.1998	113.8876	WINTER	NONE
13-Dec-16	8	1452	CWD	1	SWL	2	280	ON	3RS ET	22.2039	113.8779	WINTER	PURSE SEINE
13-Dec-16	9	1544	CWD	2	SWL	2	90	ON	3RS ET	22.1956	113.8685	WINTER	NONE
19-Dec-16	2	0943	CWD	6	NWL	3	687	ON	3RS ET	22.4160	113.8686	WINTER	NONE
19-Dec-16	3	1026	CWD	2	NWL	2	358	ON	3RS ET	22.3696	113.8679	WINTER	NONE
19-Dec-16	4	1036	CWD	4	NWL	2	460	ON	3RS ET	22.3689	113.8685	WINTER	NONE
19-Dec-16	5	1224	CWD	1	NWL	2	50	ON	3RS ET	22.3817	113.8760	WINTER	NONE
19-Dec-16	6	1234	CWD	4	NWL	2	497	ON	3RS ET	22.3893	113.8778	WINTER	NONE
19-Dec-16	7	1255	CWD	9	NWL	2	119	ON	3RS ET	22.3903	113.8888	WINTER	PURSE SEINE

Abbreviations: STG# = Sighting Number; GP SZ = Dolphin 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

Notes:

CWD monitoring survey data of the two preceding survey months (i.e. October and November 2016) are presented for reference only. No relevant figure or text will be mentioned in the monthly EM&A report.

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

Calculation of the running quarterly STG and ANI in the whole survey area (NEL, NWL, AW, WL, SWL):

A total of 1169.39 km of survey effort was collected under Beaufort Sea State 3 or below with favourable visibility; total no. of 47 on-effort sightings and total number of 128 dolphins from on-effort sightings were collected under such condition. Calculation of the running quarterly encounter rates are shown as below:

Running Quarterly Encounter Rate of Number of Dolphin Sightings (STG)

$$STG = \frac{47}{1169.39} \times 100 = 4.02$$

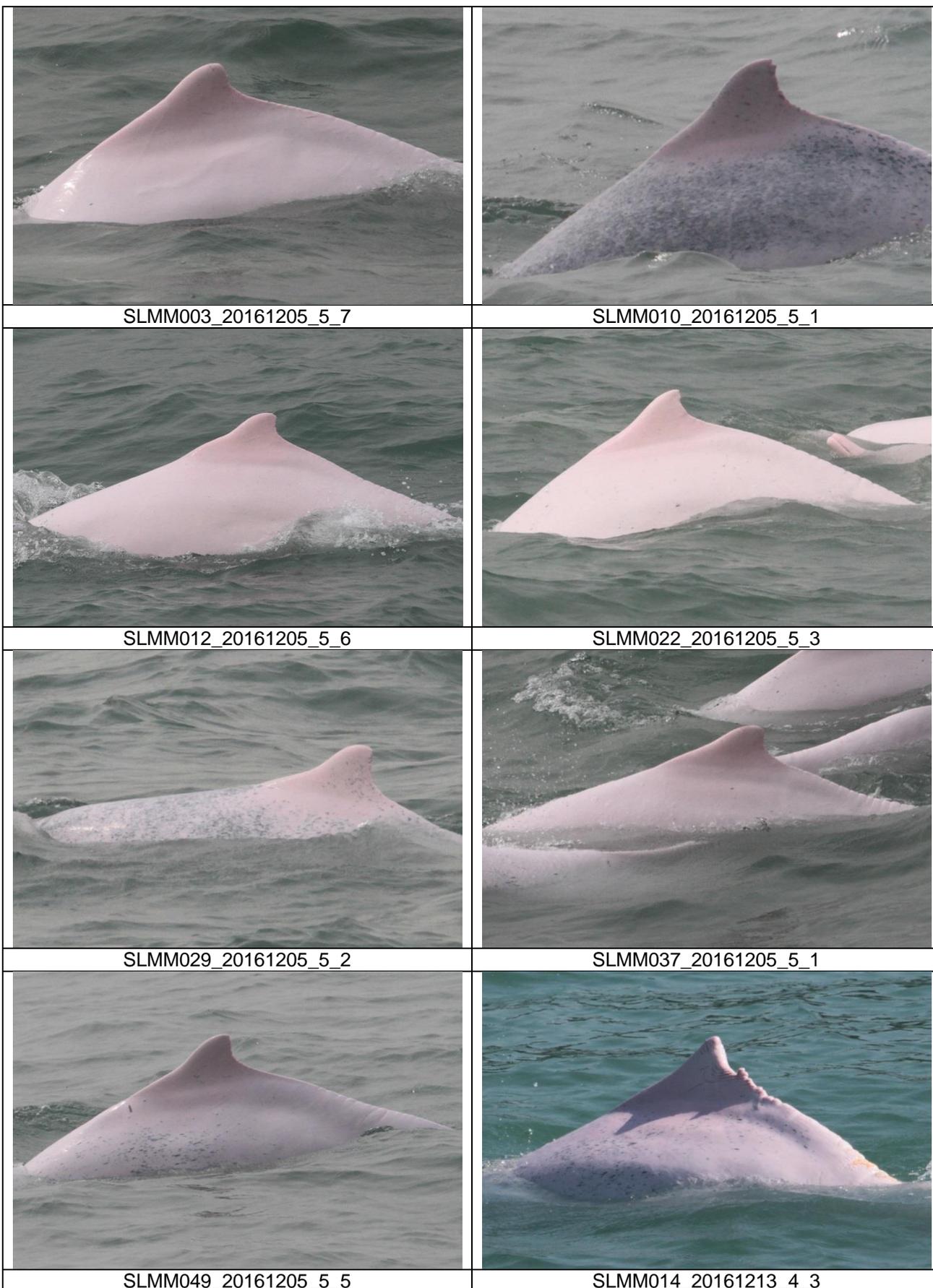
Running Quarterly Encounter Rate of Number of Dolphins (ANI)

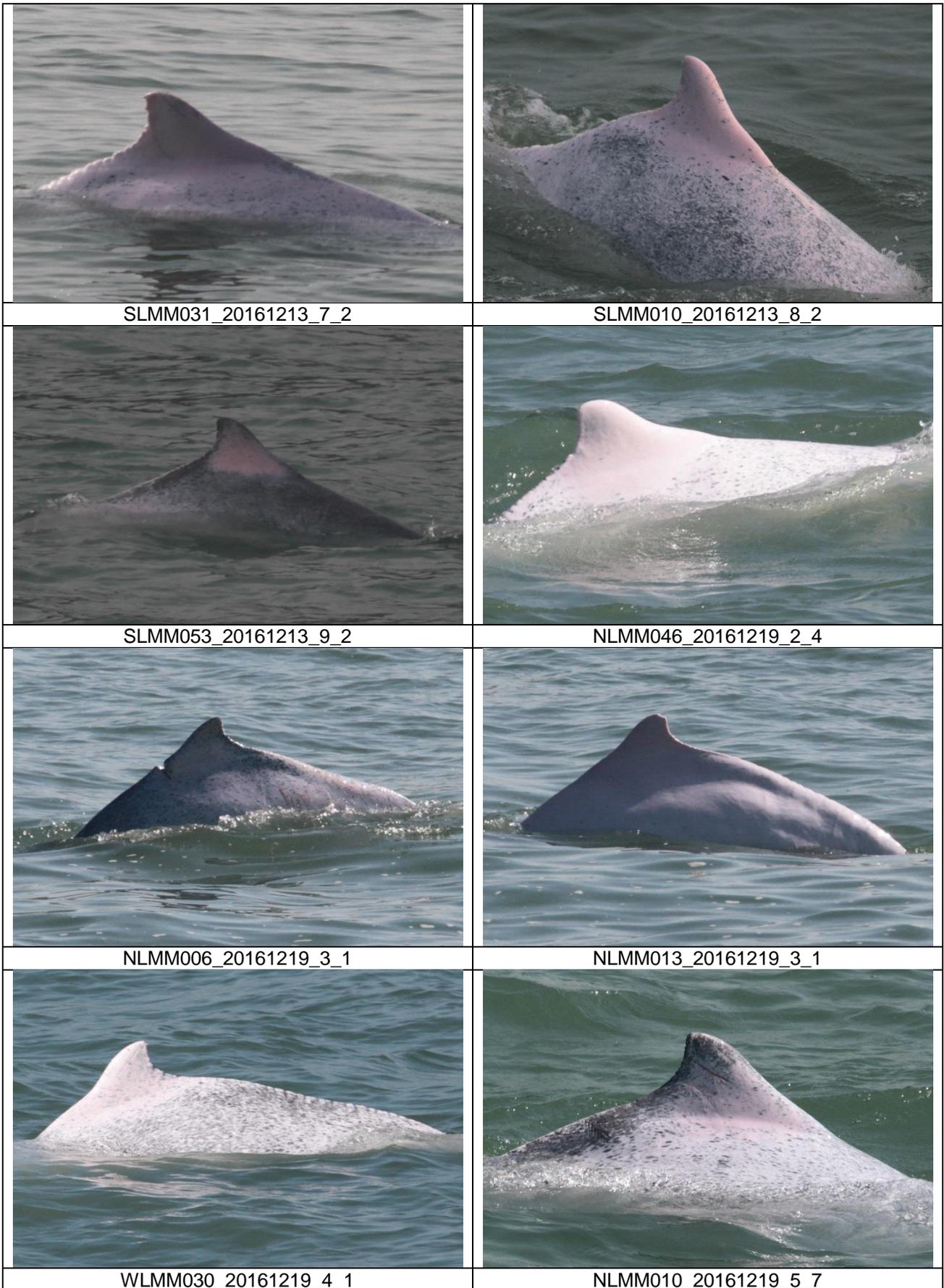
$$ANI = \frac{128}{1169.39} \times 100 = 10.95$$

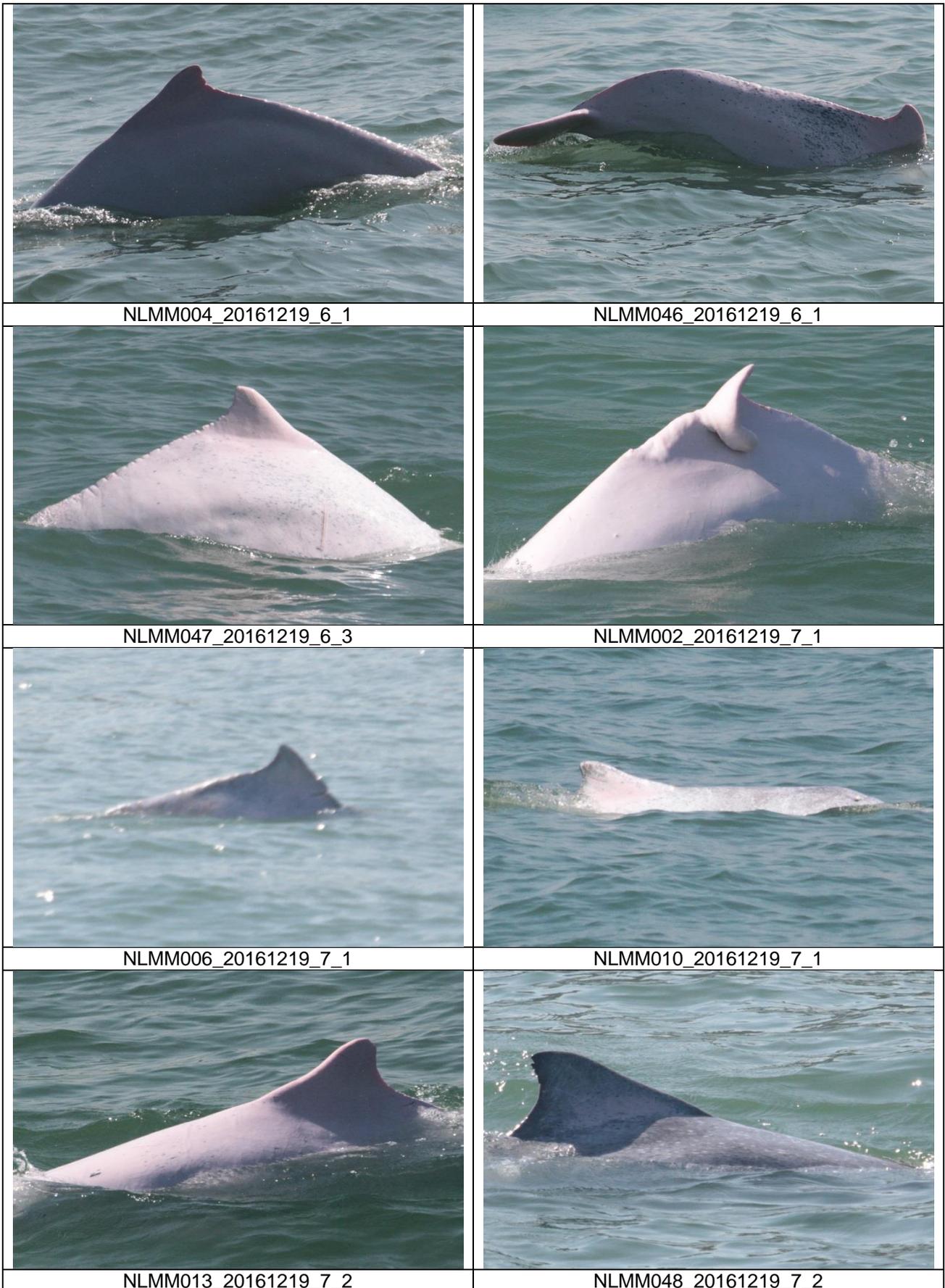
CWD Small Vessel Line-transect Survey

Photo Identification

	
NLMM045_20161202_1_1	SLMM019_20161205_1_4
	
SLMM007_20161205_3_3	WLMM007_20161205_3_3
	
WLMM063_20161205_4_3	SLMM002_20161205_5_2









NLMM049_20161219_7_3

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

Date	Station	Start Time	End Time	Duration	Beaufort Range	Visibility	No. of Focal Follow Dolphin Groups Tracked	Dolphin Group Size Range
7-Dec-16	Lung Kwu Chau	8:53	14:53	6:00	2-4	3	1	1
8-Dec-16	Lung Kwu Chau	8:40	14:10	5:30	3	3	1	5
9-Dec-16	Sha Chau	8:35	14:35	6:00	2	3	0	0
12-Dec-16	Lung Kwu Chau	8:42	15:12	6:30	2-3	2	5	1-3
16-Dec-16	Sha Chau	8:49	14:49	6:00	3	3	0	0

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

Ecological Monitoring

Ecological Monitoring – site photos and location map regarding the monthly ecological monitoring for the egret area on Sheung Sha Chau and the HDD works



Appendix D. Status of Environmental Permits and Licences

Statutory Reference	Description		Permit/ Reference No.	Status	
EIAO	Environmental Permit		EP-489/2014	Approved on 7 Nov 2014	
Contract No.	Description	Location	Permit/ Reference No.	Status	
P560 (R)	Notification of Construction Work under APCO	Launching Site	397150	Receipt acknowledged by EPD on 15 Jan 2016	
		Site Office	397151		
		Stockpiling Area	398015		Receipt acknowledged by EPD on 18 Jan 2016
		Sheung Sha Chau	405860		Receipt acknowledged by EPD on 5 Aug 2016
	Construction Noise Permit (General Works)	Launching Site	GW-RS0968-16	Valid from 21 Sep 2016 to 20 Mar 2017	
		Stockpiling Area	GW-RS0974-16	Valid from 23 Sep 2016 to 22 Mar 2017	
		Sheung Sha Chau	GW-RW0642-16	Valid from 13 Nov 2016 to 26 Mar 2017	
	Discharge License under WPCO	Launching Site	WT00024249-2016	Approved on 25 Apr 2016	
		Stockpiling Area	WT00024250-2016	Approved on 25 Apr 2016	
	Registration as Chemical Waste Producer	Launching Site	WPN 5213-951-L2902-01	Update the Registration on 3 Oct 2016	
		Stockpiling Area	WPN 5213-951-L2902-02	Update the Registration on 3 Oct 2016	
	Bill Account for disposal		A/C 7023982	Approval granted from EPD on 14 Dec 2015	
	3201	Notification of Construction Work under APCO	Works area of 3201	406004	Receipt acknowledged by EPD on 10 Aug 2016
Construction Noise Permit (General Works)		Works area of 3201	GW-RS1025-16	Valid from 3 Oct 2016 to 31 Dec 2016 (Superseded by GW-RS1276-16)	

Statutory Reference	Description		Permit/ Reference No.	Status
				on 12 Dec 2016)
	Construction Noise Permit (General Works)	Works area of 3201	GW-RS1276-16	Valid from 14 Dec 2016 to 13 Jun 2017
	Registration as Chemical Waste Producer	Works area of 3201	WPN 5213-951-P3231-01	Completion of Registration on 9 Sep 2016
	Bill Account for disposal		A/C 7025760	Approval granted from EPD on 31 Aug 2016
3202	Notification of Construction Work under APCO	Works area of 3202	407624	Receipt acknowledged by EPD on 15 Sep 2016
	Construction Noise Permit (General Works)	Works area of 3202	GW-RS1188-16	Cancelled on 28 Dec 2016
	Construction Noise Permit (General Works)	Works area of 3202	GW-RS1330-16	Valid from 28 Oct 2016 to 27 Jun 2017
	Bill Account for disposal		A/C 7025739	Approval granted from EPD on 31 August 2016
3203	Notification of Construction Work under APCO	Works area of 3203	407053	Receipt acknowledged by EPD on 2 Sep 2016
	Construction Noise Permit (General Works)	Works area of 3203	GW-RS1019-16	Valid from 7 Oct 2016 to 6 Apr 2017 (Superseded by GW-RS1198-16 on 7 Dec 2016)
	Construction Noise Permit (General Works)	Works area of 3203	GW-RS1198-16	Valid from 7 Dec 2016 to 6 May 2017
	Registration as Chemical Waste Producer	Works area of 3203	WPN 5213-951-S3954-01	Update the Registration on 12 Dec 2016
	Bill Account for disposal		7025846	Approval granted from EPD on 9 Sep 2016
3204	Notification of Construction Work under APCO	Works area of 3204	406446	Receipt acknowledged by EPD on 19 Aug 2016
		Site Office of 3204	407726	Receipt acknowledged by EPD on 19 Sep 2016
	Construction Noise Permit (General Works)	Works Area of 3204	GW-RS1197-16	Valid from 1 Dec 2016 to 31 May 2017 (Superseded by GW-RS1294-16 on 16 Dec 2016)
	Construction Noise Permit (General Works)	Works Area of 3204	GW-RS1294-16	Valid from 16 Dec 2016 to 15 Jun 2017
	Registration as Chemical	Works Area of 3204	WPN 5213-951-C4102-	Completion of

Statutory Reference	Description		Permit/ Reference No.	Status
	Waste Producer		01	Registration on 15 Sep 2016
	Bill Account for disposal		A/C 7025969	Approval granted from EPD on 21 Sep 2016
3205	Notification of Construction Work under APCO	Works area of 3205	409041	Receipt acknowledged by EPD on 19 Oct 2016
	Construction Noise Permit (General Works)	Works Area of 3205	GW-RS1191-16	Valid from 25 Nov 2016 to 24 May 2017 (Superseded by GW-RS1298-16 on 20 Dec 2016)
	Construction Noise Permit (General Works)	Works Area of 3205	GW-RS1298-16	Valid from 20 Dec 2016 to 19 Jun 2017
	Bill Account for disposal	Works area of 3205	A/C 7026295	Approval granted from EPD on 9 Nov 2016
3206	Notification of Construction Work under APCO	Works area of 3206	409237	Receipt acknowledged by EPD on 25 Oct 2016
	Registration as Chemical Waste Producer	Works area of 3206	WPN 5213-951-Z4035-01	Completion of Registration on 18 Nov 2016
	Registration as Chemical Waste Producer	Works area of 3206	WPN 5213-951-Z4035-02	Completion of Registration on 18 Nov 2016
	Construction Noise Permit (General Works)	Works Area of 3206	GW-RS1280-16	Valid from 14 Dec 2016 to 13 Mar 2017
	Bill Account for disposal	Works area of 3206	7026398	Approval granted from EPD on 16 Nov 2016
3213	Registration as Chemical Waste Producer	Works area of 3213	WPN 5213-951-W3376-04	Completion of Registration on 18 Nov 2016
	Bill Account for disposal		A/C 7025860	Approval granted from EPD on 12 Sep 2016

Appendix E. Cumulative Statistics on Exceedances, Environmental Complaints, Notification of Summons and Status of Prosecution

Statistics for Exceedances for 1-hour TSP, Noise and Waste Monitoring

		Total no. recorded in the reporting month	Total no. recorded since the project commenced
1-hr TSP	Action	0	0
	Limit	0	0
Noise	Action	0	0
	Limit	0	0
Waste	Action	0	0
	Limit	0	0
Water	Action	0	0
	Limit	0	0
CWD	Action	0	0
	Limit	0	0

Remark: Exceedances, which are not project related, are not shown in this table.

Statistics for Complaints, Notifications of Summons and Prosecution

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Prosecutions
This reporting month	1	0	0
From 28 December 2015 to end of the reporting month	1	0	0

Appendix F. Data of SkyPier HSF Movements to/from Zhuhai and Macau (between 1 and 31 December 2016)

Data of SkyPier HSF Movements to/from Zhuhai and Macau (between 1 and 31 December 2016)

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM - Macao (Maritime Ferry Terminal) YFT - Macao (Taipa) ZUI - Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
01-Dec	08:20	3A061	YFT	Arrival	12.0	-	-
01-Dec	08:23	8S210	MFM	Arrival	12.4	-	-
01-Dec	09:57	3A071	MFM	Arrival	13.0	-	-
01-Dec	10:37	8S212	MFM	Arrival	11.8	-	-
01-Dec	10:45	3A081	ZUI	Arrival	12.9	-	-
01-Dec	11:09	8S121	MFM	Departure	11.1	-	-
01-Dec	11:21	3A063	YFT	Arrival	12.3	-	-
01-Dec	12:13	3A181	ZUI	Departure	13.6	-	-
01-Dec	12:24	3A168	YFT	Departure	12.9	-	-
01-Dec	12:46	8S215	MFM	Arrival	12.8	-	-
01-Dec	13:03	3A064	YFT	Arrival	11.7	-	-
01-Dec	13:23	8S123	MFM	Departure	11.6	-	-
01-Dec	13:42	3A082	ZUI	Arrival	13.5	-	-
01-Dec	14:15	3A182	ZUI	Departure	12.5	-	-
01-Dec	14:16	3A164	YFT	Departure	11.5	-	-
01-Dec	15:04	3A065	YFT	Arrival	12.8	-	-
01-Dec	16:20	3A167	YFT	Departure	13.1	-	-
01-Dec	16:39	8S218	MFM	Arrival	11.4	-	-
01-Dec	16:40	3A083	ZUI	Arrival	13.3	-	-
01-Dec	17:00	3A067	YFT	Arrival	11.8	-	-
01-Dec	17:08	8S126	MFM	Departure	13.5	-	-
01-Dec	17:15	3A183	ZUI	Departure	13.8	-	-
01-Dec	19:10	3A166	YFT	Departure	13.4	-	-
01-Dec	19:48	3A084	ZUI	Arrival	12.3	-	-
01-Dec	20:03	3A185	ZUI	Departure	13.5	-	-
01-Dec	20:59	8S2113	MFM	Arrival	12.2	-	-
01-Dec	20:59	3A169	YFT	Departure	12.4	-	-
01-Dec	22:05	8S522	MFM	Departure	12.6	-	-
02-Dec	08:22	3A061	YFT	Arrival	12.1	-	-
02-Dec	08:27	8S210	MFM	Arrival	12.2	-	-
02-Dec	10:08	3A071	MFM	Arrival	11.9	-	-
02-Dec	10:41	3A081	ZUI	Arrival	13.2	-	-
02-Dec	10:42	8S212	MFM	Arrival	10.8	-	-
02-Dec	11:10	8S121	MFM	Departure	11.2	-	-
02-Dec	11:18	3A063	YFT	Arrival	11.5	-	-
02-Dec	12:11	3A181	ZUI	Departure	14.1	-	-
02-Dec	12:14	3A168	YFT	Departure	11.7	-	-
02-Dec	12:45	8S215	MFM	Arrival	10.9	-	-
02-Dec	13:03	3A064	YFT	Arrival	12.6	-	-
02-Dec	13:26	8S123	MFM	Departure	10.8	-	-
02-Dec	13:54	3A082	ZUI	Arrival	13.2	-	-
02-Dec	14:15	3A182	ZUI	Departure	12.6	-	-
02-Dec	14:19	3A164	YFT	Departure	12.7	-	-
02-Dec	14:54	3A065	YFT	Arrival	11.9	-	-
02-Dec	16:18	3A167	YFT	Departure	11.0	-	-
02-Dec	16:38	3A083	ZUI	Arrival	13.3	-	-
02-Dec	16:43	8S218	MFM	Arrival	11.0	-	-
02-Dec	17:00	3A067	YFT	Arrival	12.2	-	-
02-Dec	17:00	3A183	ZUI	Departure	13.9	-	-
02-Dec	17:13	8S126	MFM	Departure	10.9	-	-
02-Dec	18:58	3A166	YFT	Departure	12.8	-	-
02-Dec	19:45	3A084	ZUI	Arrival	13.1	-	-
02-Dec	20:11	3A185	ZUI	Departure	14.0	-	-
02-Dec	21:04	3A169	YFT	Departure	13.3	-	-
02-Dec	21:05	8S2113	MFM	Arrival	11.6	-	-
02-Dec	21:57	8S522	MFM	Departure	12.3	-	-
03-Dec	08:18	3A061	YFT	Arrival	12.4	>15	<1
03-Dec	08:29	8S210	MFM	Arrival	10.9	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
03-Dec	10:02	3A071	MFM	Arrival	11.7	-	-
03-Dec	10:43	8S212	MFM	Arrival	12.0	-	-
03-Dec	10:57	3A081	ZUI	Arrival	13.1	-	-
03-Dec	11:04	8S121	MFM	Departure	11.7	-	-
03-Dec	11:25	3A063	YFT	Arrival	11.6	-	-
03-Dec	12:17	3A181	ZUI	Departure	13.1	-	-
03-Dec	12:17	3A168	YFT	Departure	11.2	-	-
03-Dec	12:57	3A064	YFT	Arrival	12.6	-	-
03-Dec	13:06	8S215	MFM	Arrival	10.1	-	-
03-Dec	13:40	8S123	MFM	Departure	11.4	-	-
03-Dec	13:56	3A082	ZUI	Arrival	12.8	-	-
03-Dec	14:14	3A164	YFT	Departure	12.8	-	-
03-Dec	14:15	3A182	ZUI	Departure	12.7	-	-
03-Dec	14:57	3A065	YFT	Arrival	12.1	-	-
03-Dec	16:21	3A167	YFT	Departure	12.2	-	-
03-Dec	16:32	3A083	ZUI	Arrival	13.4	-	-
03-Dec	16:41	8S218	MFM	Arrival	11.6	-	-
03-Dec	16:52	3A067	YFT	Arrival	13.0	-	-
03-Dec	16:58	3A183	ZUI	Departure	13.7	-	-
03-Dec	17:12	8S126	MFM	Departure	12.1	-	-
03-Dec	19:09	3A166	YFT	Departure	12.7	-	-
03-Dec	19:43	3A084	ZUI	Arrival	13.2	-	-
03-Dec	20:06	3A185	ZUI	Departure	13.8	-	-
03-Dec	20:59	8S2113	MFM	Arrival	13.0	-	-
03-Dec	21:00	3A169	YFT	Departure	13.6	-	-
03-Dec	22:05	8S522	MFM	Departure	12.5	-	-
04-Dec	08:27	3A061	YFT	Arrival	12.0	-	-
04-Dec	08:31	8S210	MFM	Arrival	12.0	-	-
04-Dec	09:56	3A071	MFM	Arrival	10.8	-	-
04-Dec	10:38	8S212	MFM	Arrival	11.6	-	-
04-Dec	10:43	3A081	ZUI	Arrival	12.7	-	-
04-Dec	11:08	8S121	MFM	Departure	12.8	-	-
04-Dec	11:26	3A063	YFT	Arrival	11.8	-	-
04-Dec	12:19	3A181	ZUI	Departure	13.0	-	-
04-Dec	12:25	3A168	YFT	Departure	11.8	-	-
04-Dec	12:52	8S215	MFM	Arrival	11.3	-	-
04-Dec	12:57	3A064	YFT	Arrival	12.3	-	-
04-Dec	13:17	8S123	MFM	Departure	11.3	-	-
04-Dec	13:54	3A082	ZUI	Arrival	12.9	-	-
04-Dec	14:14	3A164	YFT	Departure	12.4	-	-
04-Dec	14:19	3A182	ZUI	Departure	13.1	-	-
04-Dec	14:55	3A065	YFT	Arrival	12.7	-	-
04-Dec	16:16	3A167	YFT	Departure	12.0	-	-
04-Dec	16:42	8S218	MFM	Arrival	11.8	-	-
04-Dec	16:44	3A083	ZUI	Arrival	13.1	-	-
04-Dec	16:57	3A067	YFT	Arrival	12.5	-	-
04-Dec	17:07	8S126	MFM	Departure	12.7	-	-
04-Dec	17:11	3A183	ZUI	Departure	13.2	-	-
04-Dec	19:12	3A166	YFT	Departure	12.1	-	-
04-Dec	19:44	3A084	ZUI	Arrival	12.0	-	-
04-Dec	20:15	3A185	ZUI	Departure	11.5	-	-
04-Dec	20:52	8S2113	MFM	Arrival	13.0	-	-
04-Dec	21:06	3A169	YFT	Departure	12.3	-	-
04-Dec	21:56	8S522	MFM	Departure	13.0	-	-
05-Dec	08:24	3A061	YFT	Arrival	12.3	-	-
05-Dec	08:36	8S210	MFM	Arrival	11.6	≤5	<1
05-Dec	10:06	3A071	MFM	Arrival	11.4	-	-
05-Dec	10:40	3A081	ZUI	Arrival	12.2	-	-
05-Dec	10:42	8S212	MFM	Arrival	11.4	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
05-Dec	11:06	8S121	MFM	Departure	11.6	-	-
05-Dec	11:29	3A063	YFT	Arrival	11.3	-	-
05-Dec	12:14	3A181	ZUI	Departure	13.8	-	-
05-Dec	12:21	3A168	YFT	Departure	11.0	-	-
05-Dec	12:52	8S215	MFM	Arrival	11.4	-	-
05-Dec	13:08	3A064	YFT	Arrival	12.6	-	-
05-Dec	13:16	8S123	MFM	Departure	11.2	-	-
05-Dec	13:47	3A082	ZUI	Arrival	11.9	-	-
05-Dec	14:09	3A182	ZUI	Departure	11.5	-	-
05-Dec	14:10	3A164	YFT	Departure	12.8	-	-
05-Dec	15:03	3A065	YFT	Arrival	11.6	-	-
05-Dec	16:15	3A167	YFT	Departure	11.7	-	-
05-Dec	16:35	3A083	ZUI	Arrival	13.3	-	-
05-Dec	16:40	8S218	MFM	Arrival	11.5	-	-
05-Dec	17:02	3A067	YFT	Arrival	12.5	-	-
05-Dec	17:06	8S126	MFM	Departure	12.6	-	-
05-Dec	17:09	3A183	ZUI	Departure	13.2	-	-
05-Dec	19:10	3A166	YFT	Departure	12.3	-	-
05-Dec	19:44	3A084	ZUI	Arrival	12.9	-	-
05-Dec	20:05	3A185	ZUI	Departure	13.4	-	-
05-Dec	20:57	8S2113	MFM	Arrival	12.4	-	-
05-Dec	21:02	3A169	YFT	Departure	12.3	-	-
05-Dec	22:04	8S522	MFM	Departure	13.0	-	-
06-Dec	08:21	3A061	YFT	Arrival	9.8	-	-
06-Dec	08:40	8S210	MFM	Arrival	11.8	-	-
06-Dec	10:01	3A071	MFM	Arrival	11.7	-	-
06-Dec	10:40	8S212	MFM	Arrival	12.2	≤5	<1
06-Dec	10:42	3A081	ZUI	Arrival	12.4	-	-
06-Dec	11:04	8S121	MFM	Departure	13.0	-	-
06-Dec	11:24	3A063	YFT	Arrival	11.3	≤5	<1
06-Dec	12:10	3A181	ZUI	Departure	13.5	-	-
06-Dec	12:14	3A168	YFT	Departure	12.3	-	-
06-Dec	12:52	8S215	MFM	Arrival	12.5	-	-
06-Dec	12:57	3A064	YFT	Arrival	12.2	-	-
06-Dec	13:15	8S123	MFM	Departure	12.8	-	-
06-Dec	14:04	3A082	ZUI	Arrival	12.6	-	-
06-Dec	14:23	3A164	YFT	Departure	12.4	-	-
06-Dec	14:24	3A182	ZUI	Departure	13.3	-	-
06-Dec	15:00	3A065	YFT	Arrival	11.9	-	-
06-Dec	16:16	3A167	YFT	Departure	12.0	-	-
06-Dec	16:38	3A083	ZUI	Arrival	12.2	-	-
06-Dec	16:40	8S218	MFM	Arrival	11.5	-	-
06-Dec	16:51	3A067	YFT	Arrival	12.4	-	-
06-Dec	17:03	3A183	ZUI	Departure	13.8	-	-
06-Dec	17:15	8S126	MFM	Departure	13.0	-	-
06-Dec	18:59	3A166	YFT	Departure	12.1	-	-
06-Dec	19:49	3A084	ZUI	Arrival	13.3	-	-
06-Dec	20:08	3A185	ZUI	Departure	13.2	-	-
06-Dec	20:52	8S2113	MFM	Arrival	12.2	-	-
06-Dec	21:00	3A169	YFT	Departure	12.2	-	-
06-Dec	21:53	8S522	MFM	Departure	12.7	-	-
07-Dec	08:21	3A061	YFT	Arrival	12.1	-	-
07-Dec	08:26	8S210	MFM	Arrival	12.6	-	-
07-Dec	09:47	3A071	MFM	Arrival	12.9	-	-
07-Dec	10:39	8S212	MFM	Arrival	12.8	-	-
07-Dec	10:46	3A081	ZUI	Arrival	12.4	-	-
07-Dec	11:15	8S121	MFM	Departure	12.2	-	-
07-Dec	11:20	3A063	YFT	Arrival	12.1	-	-
07-Dec	12:11	3A181	ZUI	Departure	13.8	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
07-Dec	12:17	3A168	YFT	Departure	12.3	-	-
07-Dec	12:44	8S215	MFM	Arrival	12.3	-	-
07-Dec	13:06	3A064	YFT	Arrival	11.9	-	-
07-Dec	13:19	8S123	MFM	Departure	12.3	-	-
07-Dec	13:44	3A082	ZUI	Arrival	12.9	-	-
07-Dec	14:20	3A164	YFT	Departure	12.5	-	-
07-Dec	14:22	3A182	ZUI	Departure	12.2	-	-
07-Dec	14:57	3A065	YFT	Arrival	12.4	-	-
07-Dec	16:25	3A167	YFT	Departure	12.5	-	-
07-Dec	16:34	3A083	ZUI	Arrival	13.1	-	-
07-Dec	16:40	8S218	MFM	Arrival	11.2	-	-
07-Dec	17:03	8S126	MFM	Departure	11.7	-	-
07-Dec	17:05	3A183	ZUI	Departure	13.5	-	-
07-Dec	17:07	3A067	YFT	Arrival	12.5	-	-
07-Dec	19:06	3A166	YFT	Departure	12.2	-	-
07-Dec	19:43	3A084	ZUI	Arrival	13.1	-	-
07-Dec	20:10	3A185	ZUI	Departure	13.8	-	-
07-Dec	21:00	3A169	YFT	Departure	12.5	-	-
07-Dec	21:17	8S2113	MFM	Arrival	12.7	-	-
07-Dec	22:00	8S522	MFM	Departure	12.2	-	-
08-Dec	08:19	3A061	YFT	Arrival	12.4	-	-
08-Dec	08:37	8S210	MFM	Arrival	11.4	-	-
08-Dec	09:47	3A071	MFM	Arrival	12.8	-	-
08-Dec	10:43	3A081	ZUI	Arrival	13.0	-	-
08-Dec	10:56	8S212	MFM	Arrival	9.6	-	-
08-Dec	11:22	8S121	MFM	Departure	12.1	-	-
08-Dec	11:26	3A063	YFT	Arrival	11.4	-	-
08-Dec	12:15	3A168	YFT	Departure	12.5	-	-
08-Dec	12:17	3A181	ZUI	Departure	13.7	-	-
08-Dec	12:50	8S215	MFM	Arrival	10.9	-	-
08-Dec	13:03	3A064	YFT	Arrival	11.6	-	-
08-Dec	13:18	8S123	MFM	Departure	11.7	-	-
08-Dec	13:43	3A082	ZUI	Arrival	13.3	-	-
08-Dec	14:14	3A182	ZUI	Departure	13.3	-	-
08-Dec	14:17	3A164	YFT	Departure	11.8	-	-
08-Dec	14:54	3A065	YFT	Arrival	12.2	-	-
08-Dec	16:19	3A167	YFT	Departure	12.5	-	-
08-Dec	16:39	3A083	ZUI	Arrival	13.5	-	-
08-Dec	16:46	8S218	MFM	Arrival	11.4	-	-
08-Dec	17:01	3A067	YFT	Arrival	11.6	-	-
08-Dec	17:09	3A183	ZUI	Departure	14.0	-	-
08-Dec	17:10	8S126	MFM	Departure	12.4	-	-
08-Dec	19:03	3A166	YFT	Departure	12.8	-	-
08-Dec	19:44	3A084	ZUI	Arrival	13.4	-	-
08-Dec	20:10	3A185	ZUI	Departure	13.6	-	-
08-Dec	21:00	8S2113	MFM	Arrival	12.7	-	-
08-Dec	21:01	3A169	YFT	Departure	12.3	-	-
09-Dec	08:18	3A061	YFT	Arrival	12.2	-	-
09-Dec	08:41	8S210	MFM	Arrival	11.8	-	-
09-Dec	09:59	3A071	MFM	Arrival	12.2	-	-
09-Dec	10:43	3A081	ZUI	Arrival	12.8	-	-
09-Dec	10:52	8S212	MFM	Arrival	11.9	-	-
09-Dec	11:22	8S121	MFM	Departure	11.9	-	-
09-Dec	11:29	3A063	YFT	Arrival	12.2	-	-
09-Dec	12:12	3A181	ZUI	Departure	13.8	-	-
09-Dec	12:13	3A168	YFT	Departure	12.0	-	-
09-Dec	13:00	8S215	MFM	Arrival	12.4	-	-
09-Dec	13:03	3A064	YFT	Arrival	12.0	-	-
09-Dec	13:19	8S123	MFM	Departure	12.9	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
09-Dec	13:46	3A082	ZUI	Arrival	12.2	-	-
09-Dec	14:15	3A182	ZUI	Departure	13.7	-	-
09-Dec	14:18	3A164	YFT	Departure	12.3	-	-
09-Dec	14:58	3A065	YFT	Arrival	11.8	-	-
09-Dec	16:17	3A167	YFT	Departure	12.4	-	-
09-Dec	16:35	3A083	ZUI	Arrival	12.8	-	-
09-Dec	16:40	8S218	MFM	Arrival	10.0	-	-
09-Dec	16:59	3A067	YFT	Arrival	12.0	-	-
09-Dec	16:59	3A183	ZUI	Departure	13.8	-	-
09-Dec	17:01	8S126	MFM	Departure	11.9	-	-
09-Dec	18:59	3A166	YFT	Departure	12.8	-	-
09-Dec	19:48	3A084	ZUI	Arrival	13.4	-	-
09-Dec	20:08	3A185	ZUI	Departure	13.8	-	-
09-Dec	20:55	8S2113	MFM	Arrival	12.7	-	-
09-Dec	21:00	3A169	YFT	Departure	12.6	-	-
09-Dec	22:05	8S522	MFM	Departure	11.1	-	-
10-Dec	08:20	3A061	YFT	Arrival	12.1	-	-
10-Dec	08:29	8S210	MFM	Arrival	12.2	-	-
10-Dec	09:55	3A071	MFM	Arrival	12.9	-	-
10-Dec	10:38	8S212	MFM	Arrival	12.0	-	-
10-Dec	10:45	3A081	ZUI	Arrival	12.0	-	-
10-Dec	11:09	8S121	MFM	Departure	11.3	-	-
10-Dec	11:23	3A063	YFT	Arrival	11.7	-	-
10-Dec	12:12	3A181	ZUI	Departure	13.8	-	-
10-Dec	12:22	3A168	YFT	Departure	12.3	-	-
10-Dec	12:52	8S215	MFM	Arrival	12.4	-	-
10-Dec	12:58	3A064	YFT	Arrival	11.7	-	-
10-Dec	13:18	8S123	MFM	Departure	11.0	-	-
10-Dec	13:45	3A082	ZUI	Arrival	12.4	-	-
10-Dec	14:13	3A182	ZUI	Departure	11.7	-	-
10-Dec	14:20	3A164	YFT	Departure	12.9	-	-
10-Dec	14:56	3A065	YFT	Arrival	12.2	≤5	<1
10-Dec	16:11	3A167	YFT	Departure	12.2	-	-
10-Dec	16:36	3A083	ZUI	Arrival	12.8	-	-
10-Dec	16:43	8S218	MFM	Arrival	12.5	-	-
10-Dec	16:58	3A067	YFT	Arrival	12.4	-	-
10-Dec	17:02	3A183	ZUI	Departure	13.9	-	-
10-Dec	17:11	8S126	MFM	Departure	12.6	-	-
10-Dec	19:04	3A166	YFT	Departure	12.7	-	-
10-Dec	19:44	3A084	ZUI	Arrival	13.5	-	-
10-Dec	20:04	3A185	ZUI	Departure	14.1	-	-
10-Dec	20:53	8S2113	MFM	Arrival	12.1	-	-
10-Dec	20:59	3A169	YFT	Departure	13.0	-	-
10-Dec	21:59	8S522	MFM	Departure	11.0	-	-
11-Dec	08:24	3A061	YFT	Arrival	11.8	-	-
11-Dec	08:25	8S210	MFM	Arrival	10.8	-	-
11-Dec	09:52	3A071	MFM	Arrival	12.5	-	-
11-Dec	10:43	8S212	MFM	Arrival	12.6	-	-
11-Dec	10:45	3A081	ZUI	Arrival	13.3	-	-
11-Dec	11:11	8S121	MFM	Departure	12.2	-	-
11-Dec	11:38	3A063	YFT	Arrival	12.0	-	-
11-Dec	12:15	3A181	ZUI	Departure	13.8	-	-
11-Dec	12:17	3A168	YFT	Departure	12.1	-	-
11-Dec	12:52	8S215	MFM	Arrival	11.2	-	-
11-Dec	13:06	3A064	YFT	Arrival	11.5	-	-
11-Dec	13:20	8S123	MFM	Departure	12.0	-	-
11-Dec	13:49	3A082	ZUI	Arrival	12.3	-	-
11-Dec	14:18	3A182	ZUI	Departure	13.1	-	-
11-Dec	14:22	3A164	YFT	Departure	11.8	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
11-Dec	14:58	3A065	YFT	Arrival	11.7	-	-
11-Dec	16:18	3A167	YFT	Departure	12.3	-	-
11-Dec	16:35	3A083	ZUI	Arrival	12.4	-	-
11-Dec	16:45	8S218	MFM	Arrival	9.5	-	-
11-Dec	16:59	3A067	YFT	Arrival	11.9	-	-
11-Dec	17:07	3A183	ZUI	Departure	13.8	-	-
11-Dec	17:11	8S126	MFM	Departure	11.9	-	-
11-Dec	19:13	3A166	YFT	Departure	13.4	-	-
11-Dec	19:51	3A084	ZUI	Arrival	12.9	-	-
11-Dec	20:11	3A185	ZUI	Departure	13.7	-	-
11-Dec	20:58	8S2113	MFM	Arrival	12.5	-	-
11-Dec	21:05	3A169	YFT	Departure	12.4	-	-
11-Dec	22:00	8S522	MFM	Departure	12.2	-	-
12-Dec	08:18	3A061	YFT	Arrival	12.0	-	-
12-Dec	08:32	8S210	MFM	Arrival	10.9	-	-
12-Dec	09:59	3A071	MFM	Arrival	12.8	-	-
12-Dec	10:39	3A081	ZUI	Arrival	13.4	-	-
12-Dec	10:43	8S212	MFM	Arrival	12.7	-	-
12-Dec	11:06	8S121	MFM	Departure	12.8	-	-
12-Dec	11:17	3A063	YFT	Arrival	12.8	-	-
12-Dec	12:15	3A168	YFT	Departure	12.9	-	-
12-Dec	12:17	3A181	ZUI	Departure	14.0	-	-
12-Dec	12:55	8S215	MFM	Arrival	12.4	-	-
12-Dec	13:03	3A064	YFT	Arrival	12.5	-	-
12-Dec	13:26	8S123	MFM	Departure	12.9	-	-
12-Dec	13:51	3A082	ZUI	Arrival	13.6	-	-
12-Dec	14:22	3A164	YFT	Departure	12.8	-	-
12-Dec	14:35	3A182	ZUI	Departure	13.3	-	-
12-Dec	14:58	3A065	YFT	Arrival	12.4	-	-
12-Dec	16:18	3A167	YFT	Departure	13.2	-	-
12-Dec	16:42	3A083	ZUI	Arrival	12.3	-	-
12-Dec	16:44	8S218	MFM	Arrival	10.8	-	-
12-Dec	17:03	3A067	YFT	Arrival	12.2	-	-
12-Dec	17:05	3A183	ZUI	Departure	13.8	-	-
12-Dec	17:06	8S126	MFM	Departure	12.7	-	-
12-Dec	19:02	3A166	YFT	Departure	12.9	-	-
12-Dec	19:45	3A084	ZUI	Arrival	13.5	-	-
12-Dec	20:22	3A185	ZUI	Departure	13.2	-	-
12-Dec	21:01	8S2113	MFM	Arrival	12.1	-	-
12-Dec	21:11	3A169	YFT	Departure	12.3	-	-
12-Dec	22:03	8S522	MFM	Departure	12.0	-	-
13-Dec	08:12	3A061	YFT	Arrival	12.7	-	-
13-Dec	08:28	8S210	MFM	Arrival	12.3	-	-
13-Dec	09:54	3A071	MFM	Arrival	11.3	-	-
13-Dec	10:43	8S212	MFM	Arrival	12.2	-	-
13-Dec	10:44	3A081	ZUI	Arrival	13.4	-	-
13-Dec	11:07	8S121	MFM	Departure	11.3	-	-
13-Dec	11:22	3A063	YFT	Arrival	13.1	-	-
13-Dec	12:15	3A181	ZUI	Departure	13.8	-	-
13-Dec	12:21	3A168	YFT	Departure	13.5	-	-
13-Dec	13:03	3A064	YFT	Arrival	12.9	-	-
13-Dec	13:10	8S215	MFM	Arrival	11.9	-	-
13-Dec	13:42	8S123	MFM	Departure	11.5	-	-
13-Dec	13:48	3A082	ZUI	Arrival	12.7	-	-
13-Dec	14:22	3A164	YFT	Departure	12.5	-	-
13-Dec	14:35	3A182	ZUI	Departure	13.3	-	-
13-Dec	14:56	3A065	YFT	Arrival	13.1	-	-
13-Dec	16:21	3A167	YFT	Departure	13.4	-	-
13-Dec	16:37	3A083	ZUI	Arrival	12.9	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
13-Dec	16:43	8S218	MFM	Arrival	11.3	-	-
13-Dec	17:02	3A067	YFT	Arrival	12.6	-	-
13-Dec	17:10	3A183	ZUI	Departure	13.2	-	-
13-Dec	17:11	8S126	MFM	Departure	12.0	-	-
13-Dec	19:04	3A166	YFT	Departure	13.0	-	-
13-Dec	19:42	3A084	ZUI	Arrival	14.0	-	-
13-Dec	20:12	3A185	ZUI	Departure	11.2	-	-
13-Dec	20:57	3A169	YFT	Departure	13.0	-	-
13-Dec	21:04	8S2113	MFM	Arrival	13.6	-	-
13-Dec	22:04	8S522	MFM	Departure	12.2	-	-
14-Dec	08:14	3A061	YFT	Arrival	13.1	-	-
14-Dec	08:30	8S210	MFM	Arrival	12.4	-	-
14-Dec	09:50	3A071	MFM	Arrival	12.1	-	-
14-Dec	10:38	3A081	ZUI	Arrival	11.7	-	-
14-Dec	10:41	8S212	MFM	Arrival	11.8	-	-
14-Dec	11:07	8S121	MFM	Departure	12.9	-	-
14-Dec	11:20	3A063	YFT	Arrival	12.6	-	-
14-Dec	12:17	3A168	YFT	Departure	12.8	-	-
14-Dec	12:22	3A181	ZUI	Departure	13.1	-	-
14-Dec	12:51	8S215	MFM	Arrival	11.8	-	-
14-Dec	13:06	3A064	YFT	Arrival	12.2	-	-
14-Dec	13:23	8S123	MFM	Departure	12.0	-	-
14-Dec	13:50	3A082	ZUI	Arrival	13.1	-	-
14-Dec	14:17	3A164	YFT	Departure	11.4	-	-
14-Dec	14:18	3A182	ZUI	Departure	13.8	-	-
14-Dec	15:01	3A065	YFT	Arrival	12.8	≤5	<1
14-Dec	16:16	3A167	YFT	Departure	12.2	-	-
14-Dec	16:35	3A083	ZUI	Arrival	12.3	-	-
14-Dec	16:40	8S218	MFM	Arrival	11.6	-	-
14-Dec	17:02	3A067	YFT	Arrival	12.0	-	-
14-Dec	17:07	3A183	ZUI	Departure	12.9	-	-
14-Dec	17:07	8S126	MFM	Departure	12.4	-	-
14-Dec	18:59	3A166	YFT	Departure	11.5	-	-
14-Dec	19:49	3A084	ZUI	Arrival	12.6	-	-
14-Dec	20:12	3A185	ZUI	Departure	13.4	-	-
14-Dec	20:59	3A169	YFT	Departure	13.3	-	-
14-Dec	21:14	8S2113	MFM	Arrival	10.9	-	-
15-Dec	08:17	3A061	YFT	Arrival	11.7	-	-
15-Dec	08:31	8S210	MFM	Arrival	10.8	-	-
15-Dec	10:06	3A071	MFM	Arrival	12.3	-	-
15-Dec	10:40	8S212	MFM	Arrival	12.3	-	-
15-Dec	10:46	3A081	ZUI	Arrival	12.0	-	-
15-Dec	11:16	8S121	MFM	Departure	12.3	-	-
15-Dec	11:21	3A063	YFT	Arrival	11.5	-	-
15-Dec	12:08	3A181	ZUI	Departure	12.8	-	-
15-Dec	12:16	3A168	YFT	Departure	13.1	-	-
15-Dec	12:57	8S215	MFM	Arrival	12.0	-	-
15-Dec	13:07	3A064	YFT	Arrival	12.3	-	-
15-Dec	13:33	8S123	MFM	Departure	11.7	-	-
15-Dec	13:52	3A082	ZUI	Arrival	13.8	-	-
15-Dec	14:21	3A164	YFT	Departure	12.6	-	-
15-Dec	14:23	3A182	ZUI	Departure	12.6	-	-
15-Dec	14:58	3A065	YFT	Arrival	12.4	-	-
15-Dec	16:11	3A167	YFT	Departure	12.6	-	-
15-Dec	16:38	3A083	ZUI	Arrival	12.3	-	-
15-Dec	16:41	8S218	MFM	Arrival	11.5	-	-
15-Dec	17:09	3A067	YFT	Arrival	12.1	-	-
15-Dec	17:11	3A183	ZUI	Departure	13.0	-	-
15-Dec	17:12	8S126	MFM	Departure	12.6	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
15-Dec	19:15	3A166	YFT	Departure	12.7	-	-
15-Dec	19:52	3A084	ZUI	Arrival	12.2	-	-
15-Dec	20:09	3A185	ZUI	Departure	12.7	-	-
15-Dec	20:54	3A169	YFT	Departure	11.2	-	-
15-Dec	21:10	8S2113	MFM	Arrival	12.5	-	-
15-Dec	22:01	8S522	MFM	Departure	13.1	-	-
16-Dec	08:19	3A061	YFT	Arrival	12.0	-	-
16-Dec	08:43	8S210	MFM	Arrival	11.5	-	-
16-Dec	09:58	3A071	MFM	Arrival	12.3	-	-
16-Dec	10:43	3A081	ZUI	Arrival	12.0	-	-
16-Dec	10:45	8S212	MFM	Arrival	12.7	-	-
16-Dec	11:09	8S121	MFM	Departure	11.5	-	-
16-Dec	11:28	3A063	YFT	Arrival	10.9	-	-
16-Dec	12:15	3A168	YFT	Departure	11.6	-	-
16-Dec	12:19	3A181	ZUI	Departure	13.3	-	-
16-Dec	12:32	3A181	ZUI	Departure	13.3	≤5	<1
16-Dec	12:53	8S215	MFM	Arrival	13.4	-	-
16-Dec	13:00	3A064	YFT	Arrival	11.3	-	-
16-Dec	13:23	8S123	MFM	Departure	12.3	-	-
16-Dec	13:48	3A082	ZUI	Arrival	14.1	-	-
16-Dec	14:15	3A182	ZUI	Departure	12.9	-	-
16-Dec	14:17	3A164	YFT	Departure	11.5	-	-
16-Dec	15:04	3A065	YFT	Arrival	11.9	-	-
16-Dec	16:13	3A167	YFT	Departure	11.9	-	-
16-Dec	16:37	3A083	ZUI	Arrival	12.9	-	-
16-Dec	16:40	8S218	MFM	Arrival	13.9	-	-
16-Dec	16:59	3A067	YFT	Arrival	11.7	-	-
16-Dec	17:01	3A183	ZUI	Departure	13.6	-	-
16-Dec	17:09	8S126	MFM	Departure	13.9	-	-
16-Dec	19:07	3A166	YFT	Departure	12.5	-	-
16-Dec	19:47	3A084	ZUI	Arrival	12.4	-	-
16-Dec	20:13	3A185	ZUI	Departure	13.5	-	-
16-Dec	20:56	8S2113	MFM	Arrival	13.1	-	-
16-Dec	21:05	3A169	YFT	Departure	13.1	-	-
16-Dec	22:15	8S522	MFM	Departure	12.5	-	-
17-Dec	08:31	3A061	YFT	Arrival	11.4	-	-
17-Dec	08:42	8S210	MFM	Arrival	11.9	-	-
17-Dec	10:15	3A071	MFM	Arrival	12.0	-	-
17-Dec	10:42	3A081	ZUI	Arrival	12.6	-	-
17-Dec	10:58	8S212	MFM	Arrival	11.5	-	-
17-Dec	11:22	3A063	YFT	Arrival	12.5	-	-
17-Dec	11:30	8S121	MFM	Departure	11.7	-	-
17-Dec	12:12	3A181	ZUI	Departure	13.1	-	-
17-Dec	12:14	3A168	YFT	Departure	13.0	-	-
17-Dec	13:07	8S215	MFM	Arrival	11.8	-	-
17-Dec	13:10	3A064	YFT	Arrival	12.7	-	-
17-Dec	13:45	8S123	MFM	Departure	11.9	-	-
17-Dec	13:49	3A082	ZUI	Arrival	13.9	-	-
17-Dec	14:17	3A182	ZUI	Departure	12.9	-	-
17-Dec	14:19	3A164	YFT	Departure	12.2	-	-
17-Dec	14:59	3A065	YFT	Arrival	12.5	-	-
17-Dec	16:16	3A167	YFT	Departure	12.4	-	-
17-Dec	16:31	3A083	ZUI	Arrival	13.1	-	-
17-Dec	16:51	8S218	MFM	Arrival	12.4	-	-
17-Dec	17:03	3A067	YFT	Arrival	12.2	-	-
17-Dec	17:03	3A183	ZUI	Departure	13.6	-	-
17-Dec	17:30	8S126	MFM	Departure	12.4	-	-
17-Dec	19:06	3A166	YFT	Departure	12.2	-	-
17-Dec	19:46	3A084	ZUI	Arrival	12.8	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
17-Dec	20:10	3A185	ZUI	Departure	13.5	-	-
17-Dec	21:01	8S2113	MFM	Arrival	12.0	-	-
17-Dec	21:17	3A169	YFT	Departure	12.9	-	-
17-Dec	22:20	8S522	MFM	Departure	13.6	-	-
18-Dec	08:21	3A061	YFT	Arrival	12.3	-	-
18-Dec	08:50	8S210	MFM	Arrival	11.7	-	-
18-Dec	09:50	8S2123	MFM	Arrival	11.0	-	-
18-Dec	09:58	3A071	MFM	Arrival	13.5	-	-
18-Dec	10:42	3A081	ZUI	Arrival	12.7	-	-
18-Dec	11:02	8S212	MFM	Arrival	11.3	-	-
18-Dec	11:30	3A063	YFT	Arrival	11.9	-	-
18-Dec	11:45	8S121	MFM	Departure	11.7	-	-
18-Dec	12:16	3A168	YFT	Departure	12.3	-	-
18-Dec	12:16	3A181	ZUI	Departure	12.8	-	-
18-Dec	12:57	8S215	MFM	Arrival	12.8	-	-
18-Dec	13:01	3A064	YFT	Arrival	12.7	-	-
18-Dec	13:38	8S123	MFM	Departure	12.0	-	-
18-Dec	13:50	3A082	ZUI	Arrival	13.0	-	-
18-Dec	14:20	3A164	YFT	Departure	12.9	-	-
18-Dec	14:21	3A182	ZUI	Departure	12.2	-	-
18-Dec	14:56	3A065	YFT	Arrival	12.2	-	-
18-Dec	16:17	3A167	YFT	Departure	11.9	-	-
18-Dec	16:36	3A083	ZUI	Arrival	13.4	-	-
18-Dec	16:47	8S218	MFM	Arrival	12.5	-	-
18-Dec	16:57	3A067	YFT	Arrival	12.8	-	-
18-Dec	17:20	3A183	ZUI	Departure	13.4	-	-
18-Dec	17:20	8S126	MFM	Departure	13.0	-	-
18-Dec	19:15	3A166	YFT	Departure	12.5	-	-
18-Dec	19:52	3A084	ZUI	Arrival	12.9	-	-
18-Dec	20:25	3A185	ZUI	Departure	13.8	-	-
18-Dec	20:58	3A169	YFT	Departure	12.2	-	-
18-Dec	21:08	8S2113	MFM	Arrival	12.2	-	-
19-Dec	08:22	3A061	YFT	Arrival	11.4	-	-
19-Dec	08:52	8S210	MFM	Arrival	12.6	-	-
19-Dec	10:09	3A071	MFM	Arrival	11.1	-	-
19-Dec	10:42	3A081	ZUI	Arrival	12.9	-	-
19-Dec	10:55	8S212	MFM	Arrival	10.7	-	-
19-Dec	11:26	8S121	MFM	Departure	11.5	-	-
19-Dec	11:29	3A063	YFT	Arrival	12.7	-	-
19-Dec	12:25	3A181	ZUI	Departure	13.0	-	-
19-Dec	12:27	3A168	YFT	Departure	12.6	-	-
19-Dec	12:55	8S215	MFM	Arrival	11.6	-	-
19-Dec	13:01	3A064	YFT	Arrival	12.6	-	-
19-Dec	13:20	8S123	MFM	Departure	11.3	-	-
19-Dec	13:52	3A082	ZUI	Arrival	12.7	-	-
19-Dec	14:18	3A164	YFT	Departure	13.4	-	-
19-Dec	14:21	3A182	ZUI	Departure	13.7	-	-
19-Dec	14:59	3A065	YFT	Arrival	12.3	-	-
19-Dec	16:20	3A167	YFT	Departure	12.2	-	-
19-Dec	16:34	3A083	ZUI	Arrival	13.5	-	-
19-Dec	16:42	8S218	MFM	Arrival	12.8	-	-
19-Dec	16:57	3A067	YFT	Arrival	13.2	-	-
19-Dec	17:10	3A183	ZUI	Departure	12.6	-	-
19-Dec	17:15	8S126	MFM	Departure	13.7	-	-
19-Dec	19:07	3A166	YFT	Departure	11.2	-	-
19-Dec	19:43	3A084	ZUI	Arrival	13.1	-	-
19-Dec	19:46	8S2127	MFM	Arrival	12.0	-	-
19-Dec	20:10	3A185	ZUI	Departure	13.2	-	-
19-Dec	21:01	8S2113	MFM	Arrival	11.7	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
19-Dec	21:10	3A169	YFT	Departure	11.7	-	-
20-Dec	08:28	3A061	YFT	Arrival	12.4	-	-
20-Dec	08:41	8S210	MFM	Arrival	12.0	-	-
20-Dec	09:51	8S2123	MFM	Arrival	13.4	-	-
20-Dec	10:29	3A071	MFM	Arrival	11.0	-	-
20-Dec	10:47	3A081	ZUI	Arrival	12.8	-	-
20-Dec	11:06	8S212	MFM	Arrival	11.7	-	-
20-Dec	11:17	3A063	YFT	Arrival	12.5	-	-
20-Dec	11:48	8S121	MFM	Departure	12.2	-	-
20-Dec	12:19	3A181	ZUI	Departure	12.9	-	-
20-Dec	12:21	3A168	YFT	Departure	13.1	-	-
20-Dec	13:03	3A064	YFT	Arrival	12.7	-	-
20-Dec	13:05	8S215	MFM	Arrival	11.6	-	-
20-Dec	13:46	8S123	MFM	Departure	11.8	-	-
20-Dec	13:49	3A082	ZUI	Arrival	12.8	-	-
20-Dec	14:23	3A164	YFT	Departure	13.3	-	-
20-Dec	14:23	3A182	ZUI	Departure	12.1	-	-
20-Dec	14:58	3A065	YFT	Arrival	12.8	-	-
20-Dec	16:19	3A167	YFT	Departure	13.2	-	-
20-Dec	16:36	3A083	ZUI	Arrival	12.7	-	-
20-Dec	16:47	8S218	MFM	Arrival	11.8	-	-
20-Dec	16:57	3A067	YFT	Arrival	12.7	-	-
20-Dec	17:12	8S126	MFM	Departure	12.1	-	-
20-Dec	17:15	3A183	ZUI	Departure	13.5	-	-
20-Dec	19:04	3A166	YFT	Departure	12.2	-	-
20-Dec	19:43	3A084	ZUI	Arrival	13.4	-	-
20-Dec	20:07	3A185	ZUI	Departure	14.0	-	-
20-Dec	21:02	8S2113	MFM	Arrival	12.5	-	-
20-Dec	21:07	3A169	YFT	Departure	12.1	-	-
20-Dec	21:57	8S522	MFM	Departure	13.2	-	-
21-Dec	08:13	3A061	YFT	Arrival	13.0	-	-
21-Dec	08:30	8S210	MFM	Arrival	11.9	-	-
21-Dec	10:07	3A071	MFM	Arrival	11.6	-	-
21-Dec	10:44	8S212	MFM	Arrival	11.6	-	-
21-Dec	10:47	3A081	ZUI	Arrival	13.7	-	-
21-Dec	11:23	3A063	YFT	Arrival	11.4	-	-
21-Dec	11:24	8S121	MFM	Departure	12.3	-	-
21-Dec	12:23	3A168	YFT	Departure	12.1	-	-
21-Dec	12:25	3A181	ZUI	Departure	13.4	-	-
21-Dec	12:49	8S215	MFM	Arrival	11.3	-	-
21-Dec	13:02	3A064	YFT	Arrival	12.1	-	-
21-Dec	13:19	8S123	MFM	Departure	13.1	-	-
21-Dec	13:46	3A082	ZUI	Arrival	12.9	-	-
21-Dec	14:24	3A164	YFT	Departure	12.4	-	-
21-Dec	14:29	3A182	ZUI	Departure	13.4	-	-
21-Dec	15:00	3A065	YFT	Arrival	11.2	-	-
21-Dec	16:14	3A167	YFT	Departure	11.6	-	-
21-Dec	16:36	3A083	ZUI	Arrival	13.8	-	-
21-Dec	16:46	8S218	MFM	Arrival	11.1	-	-
21-Dec	16:56	3A067	YFT	Arrival	12.5	-	-
21-Dec	17:09	3A183	ZUI	Departure	13.4	-	-
21-Dec	17:23	8S126	MFM	Departure	13.8	-	-
21-Dec	19:08	3A166	YFT	Departure	13.7	-	-
21-Dec	19:44	3A084	ZUI	Arrival	13.8	-	-
21-Dec	20:13	3A185	ZUI	Departure	13.5	-	-
21-Dec	21:00	8S2113	MFM	Arrival	12.6	-	-
21-Dec	21:27	3A169	YFT	Departure	12.9	-	-
21-Dec	22:04	8S522	MFM	Departure	10.7	-	-
22-Dec	08:23	3A061	YFT	Arrival	12.3	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
22-Dec	08:28	8S210	MFM	Arrival	12.8	-	-
22-Dec	10:05	3A071	MFM	Arrival	12.1	-	-
22-Dec	10:35	8S212	MFM	Arrival	11.6	-	-
22-Dec	10:51	3A081	ZUI	Arrival	11.7	-	-
22-Dec	11:03	8S121	MFM	Departure	11.9	-	-
22-Dec	11:18	3A063	YFT	Arrival	11.9	-	-
22-Dec	12:20	3A168	YFT	Departure	13.1	-	-
22-Dec	12:24	3A181	ZUI	Departure	13.5	-	-
22-Dec	12:48	8S215	MFM	Arrival	11.9	-	-
22-Dec	13:11	3A064	YFT	Arrival	11.9	-	-
22-Dec	13:15	8S123	MFM	Departure	11.3	-	-
22-Dec	13:57	3A082	ZUI	Arrival	12.6	-	-
22-Dec	14:18	3A182	ZUI	Departure	12.8	-	-
22-Dec	14:20	3A164	YFT	Departure	12.1	-	-
22-Dec	14:57	3A065	YFT	Arrival	13.0	-	-
22-Dec	16:20	3A167	YFT	Departure	12.5	-	-
22-Dec	16:37	3A083	ZUI	Arrival	12.7	-	-
22-Dec	16:46	8S218	MFM	Arrival	11.4	-	-
22-Dec	17:05	3A067	YFT	Arrival	12.8	-	-
22-Dec	17:06	3A183	ZUI	Departure	13.6	-	-
22-Dec	17:07	8S126	MFM	Departure	11.6	-	-
22-Dec	19:18	3A166	YFT	Departure	9.6	-	-
22-Dec	19:44	3A084	ZUI	Arrival	13.0	-	-
22-Dec	20:14	3A185	ZUI	Departure	12.9	-	-
22-Dec	21:10	8S2113	MFM	Arrival	11.7	-	-
22-Dec	21:15	3A169	YFT	Departure	13.7	-	-
22-Dec	22:03	8S522	MFM	Departure	12.6	-	-
23-Dec	08:21	3A061	YFT	Arrival	12.7	-	-
23-Dec	08:31	8S210	MFM	Arrival	12.5	-	-
23-Dec	09:47	3A071	MFM	Arrival	12.5	-	-
23-Dec	10:41	3A081	ZUI	Arrival	13.7	-	-
23-Dec	10:42	8S212	MFM	Arrival	12.1	-	-
23-Dec	11:12	8S121	MFM	Departure	11.7	-	-
23-Dec	11:18	3A063	YFT	Arrival	12.0	-	-
23-Dec	12:18	3A181	ZUI	Departure	12.7	-	-
23-Dec	12:19	3A168	YFT	Departure	12.9	-	-
23-Dec	12:51	8S215	MFM	Arrival	11.5	-	-
23-Dec	13:02	3A064	YFT	Arrival	11.8	-	-
23-Dec	13:18	8S123	MFM	Departure	12.0	-	-
23-Dec	13:50	3A082	ZUI	Arrival	12.2	-	-
23-Dec	14:18	3A164	YFT	Departure	12.0	-	-
23-Dec	14:18	3A182	ZUI	Departure	13.3	-	-
23-Dec	14:54	3A065	YFT	Arrival	11.9	-	-
23-Dec	16:20	3A167	YFT	Departure	12.4	-	-
23-Dec	16:33	3A083	ZUI	Arrival	13.6	-	-
23-Dec	16:50	8S218	MFM	Arrival	10.4	-	-
23-Dec	17:01	3A067	YFT	Arrival	11.9	-	-
23-Dec	17:12	3A183	ZUI	Departure	13.2	-	-
23-Dec	17:20	8S126	MFM	Departure	12.5	-	-
23-Dec	19:26	3A166	YFT	Departure	12.3	-	-
23-Dec	19:46	3A084	ZUI	Arrival	13.8	-	-
23-Dec	20:11	3A185	ZUI	Departure	13.5	-	-
23-Dec	21:05	8S2113	MFM	Arrival	12.5	-	-
23-Dec	21:20	3A169	YFT	Departure	13.7	-	-
23-Dec	22:11	8S522	MFM	Departure	12.4	-	-
24-Dec	08:17	3A061	YFT	Arrival	12.0	-	-
24-Dec	08:34	8S210	MFM	Arrival	11.9	-	-
24-Dec	10:03	3A071	MFM	Arrival	12.9	-	-
24-Dec	10:47	3A081	ZUI	Arrival	13.7	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
24-Dec	10:48	8S212	MFM	Arrival	11.5	-	-
24-Dec	11:14	3A063	YFT	Arrival	12.7	-	-
24-Dec	11:14	8S121	MFM	Departure	12.4	-	-
24-Dec	12:15	3A181	ZUI	Departure	13.4	-	-
24-Dec	12:17	3A168	YFT	Departure	13.3	-	-
24-Dec	12:52	8S215	MFM	Arrival	11.8	-	-
24-Dec	13:03	3A064	YFT	Arrival	11.9	-	-
24-Dec	13:31	8S123	MFM	Departure	11.6	-	-
24-Dec	13:50	3A082	ZUI	Arrival	13.3	-	-
24-Dec	14:29	3A164	YFT	Departure	12.8	-	-
24-Dec	14:32	3A182	ZUI	Departure	13.7	-	-
24-Dec	15:00	3A065	YFT	Arrival	12.9	-	-
24-Dec	16:35	3A167	YFT	Departure	13.3	-	-
24-Dec	16:41	3A083	ZUI	Arrival	13.9	-	-
24-Dec	16:46	8S218	MFM	Arrival	12.0	-	-
24-Dec	17:04	3A067	YFT	Arrival	12.0	-	-
24-Dec	17:25	8S126	MFM	Departure	12.0	-	-
24-Dec	17:28	3A183	ZUI	Departure	14.3	-	-
24-Dec	19:13	3A166	YFT	Departure	13.3	-	-
24-Dec	19:56	3A084	ZUI	Arrival	13.9	-	-
24-Dec	20:09	3A185	ZUI	Departure	12.9	-	-
24-Dec	21:00	8S2113	MFM	Arrival	12.3	-	-
24-Dec	21:15	3A169	YFT	Departure	12.5	-	-
24-Dec	22:13	8S522	MFM	Departure	12.4	-	-
25-Dec	08:24	3A061	YFT	Arrival	12.3	-	-
25-Dec	08:31	8S210	MFM	Arrival	12.0	-	-
25-Dec	09:54	3A071	MFM	Arrival	13.1	-	-
25-Dec	10:50	8S212	MFM	Arrival	13.4	-	-
25-Dec	10:51	3A081	ZUI	Arrival	13.4	-	-
25-Dec	11:21	3A063	YFT	Arrival	12.0	-	-
25-Dec	11:21	8S121	MFM	Departure	11.9	-	-
25-Dec	12:33	3A181	ZUI	Departure	13.8	-	-
25-Dec	12:34	3A168	YFT	Departure	12.2	-	-
25-Dec	12:54	8S215	MFM	Arrival	12.3	-	-
25-Dec	13:02	3A064	YFT	Arrival	12.4	-	-
25-Dec	13:32	8S123	MFM	Departure	12.5	-	-
25-Dec	13:49	3A082	ZUI	Arrival	12.5	-	-
25-Dec	14:31	3A164	YFT	Departure	13.4	-	-
25-Dec	14:34	3A182	ZUI	Departure	13.5	-	-
25-Dec	15:07	3A065	YFT	Arrival	11.9	-	-
25-Dec	16:30	3A167	YFT	Departure	11.7	-	-
25-Dec	16:42	3A083	ZUI	Arrival	13.4	-	-
25-Dec	16:44	8S218	MFM	Arrival	12.5	-	-
25-Dec	16:53	3A067	YFT	Arrival	12.6	-	-
25-Dec	17:19	3A183	ZUI	Departure	13.5	-	-
25-Dec	17:24	8S126	MFM	Departure	12.5	-	-
25-Dec	19:05	3A166	YFT	Departure	12.2	-	-
25-Dec	19:48	3A084	ZUI	Arrival	13.4	-	-
25-Dec	20:14	3A185	ZUI	Departure	13.4	-	-
25-Dec	20:27	8S2113	MFM	Arrival	12.6	>5 and ≤15	<1
25-Dec	21:20	3A169	YFT	Departure	13.7	-	-
25-Dec	22:07	8S522	MFM	Departure	12.3	-	-
26-Dec	08:17	3A061	YFT	Arrival	11.6	-	-
26-Dec	08:28	8S210	MFM	Arrival	13.5	-	-
26-Dec	10:12	3A071	MFM	Arrival	12.0	-	-
26-Dec	10:40	3A081	ZUI	Arrival	13.4	-	-
26-Dec	10:50	8S212	MFM	Arrival	11.5	-	-
26-Dec	11:15	8S121	MFM	Departure	11.7	-	-
26-Dec	11:23	3A063	YFT	Arrival	11.8	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
26-Dec	12:21	3A181	ZUI	Departure	13.4	-	-
26-Dec	12:28	3A168	YFT	Departure	12.6	-	-
26-Dec	12:50	8S215	MFM	Arrival	11.3	-	-
26-Dec	12:54	3A064	YFT	Arrival	13.4	-	-
26-Dec	13:23	8S123	MFM	Departure	12.0	-	-
26-Dec	13:55	3A082	ZUI	Arrival	13.3	-	-
26-Dec	14:18	3A182	ZUI	Departure	13.1	-	-
26-Dec	14:42	3A164	YFT	Departure	13.2	-	-
26-Dec	15:08	3A065	YFT	Arrival	12.6	-	-
26-Dec	16:30	3A167	YFT	Departure	13.1	-	-
26-Dec	16:39	8S218	MFM	Arrival	10.8	-	-
26-Dec	16:53	3A083	ZUI	Arrival	13.3	-	-
26-Dec	17:05	3A067	YFT	Arrival	12.4	-	-
26-Dec	17:23	8S126	MFM	Departure	11.6	-	-
26-Dec	17:28	3A183	ZUI	Departure	13.8	-	-
26-Dec	19:35	3A166	YFT	Departure	12.8	-	-
26-Dec	19:56	3A084	ZUI	Arrival	13.2	-	-
26-Dec	20:17	3A185	ZUI	Departure	11.8	-	-
26-Dec	20:58	8S2113	MFM	Arrival	7.3	-	-
26-Dec	21:19	3A169	YFT	Departure	12.4	-	-
26-Dec	22:00	8S522	MFM	Departure	12.3	-	-
27-Dec	08:34	8S210	MFM	Arrival	10.8	-	-
27-Dec	08:58	3A061	YFT	Arrival	12.2	-	-
27-Dec	09:53	3A071	MFM	Arrival	12.0	-	-
27-Dec	10:49	3A081	ZUI	Arrival	13.1	-	-
27-Dec	10:56	8S212	MFM	Arrival	11.6	-	-
27-Dec	11:23	3A063	YFT	Arrival	12.0	-	-
27-Dec	11:23	8S121	MFM	Departure	11.8	-	-
27-Dec	12:10	3A181	ZUI	Departure	13.7	-	-
27-Dec	12:32	3A168	YFT	Departure	12.5	-	-
27-Dec	13:07	8S215	MFM	Arrival	11.2	-	-
27-Dec	13:12	3A064	YFT	Arrival	12.1	-	-
27-Dec	13:34	8S123	MFM	Departure	11.5	-	-
27-Dec	13:38	3A082	ZUI	Arrival	12.2	-	-
27-Dec	14:30	3A164	YFT	Departure	12.1	-	-
27-Dec	14:30	3A182	ZUI	Departure	13.1	-	-
27-Dec	15:16	3A065	YFT	Arrival	11.8	-	-
27-Dec	16:26	3A167	YFT	Departure	12.7	-	-
27-Dec	16:44	3A083	ZUI	Arrival	13.1	-	-
27-Dec	16:47	8S218	MFM	Arrival	11.0	-	-
27-Dec	16:57	3A183	ZUI	Departure	13.5	-	-
27-Dec	17:07	3A067	YFT	Arrival	11.9	-	-
27-Dec	17:24	8S126	MFM	Departure	11.4	-	-
27-Dec	19:32	3A166	YFT	Departure	13.8	-	-
27-Dec	19:51	3A084	ZUI	Arrival	13.5	-	-
27-Dec	20:09	3A185	ZUI	Departure	13.2	-	-
27-Dec	21:09	8S2113	MFM	Arrival	13.0	-	-
27-Dec	21:09	3A169	YFT	Departure	12.5	-	-
27-Dec	22:09	8S522	MFM	Departure	13.1	-	-
28-Dec	08:16	3A061	YFT	Arrival	11.8	-	-
28-Dec	08:31	8S210	MFM	Arrival	10.8	-	-
28-Dec	09:51	3A071	MFM	Arrival	11.3	-	-
28-Dec	10:46	8S212	MFM	Arrival	11.8	-	-
28-Dec	10:50	3A081	ZUI	Arrival	13.2	-	-
28-Dec	11:12	3A063	YFT	Arrival	13.7	-	-
28-Dec	11:17	8S121	MFM	Departure	11.3	-	-
28-Dec	12:18	3A168	YFT	Departure	13.7	-	-
28-Dec	12:21	3A181	ZUI	Departure	13.3	-	-
28-Dec	12:33	8S215	MFM	Arrival	12.0	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
28-Dec	13:09	3A064	YFT	Arrival	12.5	-	-
28-Dec	13:31	8S123	MFM	Departure	13.2	-	-
28-Dec	13:44	3A082	ZUI	Arrival	13.0	-	-
28-Dec	14:19	3A182	ZUI	Departure	12.6	-	-
28-Dec	14:32	3A164	YFT	Departure	12.8	-	-
28-Dec	14:57	3A065	YFT	Arrival	13.4	-	-
28-Dec	16:19	3A167	YFT	Departure	13.7	-	-
28-Dec	16:35	3A083	ZUI	Arrival	13.2	-	-
28-Dec	16:46	8S218	MFM	Arrival	12.1	-	-
28-Dec	17:07	3A067	YFT	Arrival	12.0	-	-
28-Dec	17:15	3A183	ZUI	Departure	13.5	-	-
28-Dec	17:18	8S126	MFM	Departure	12.2	-	-
28-Dec	19:28	3A166	YFT	Departure	12.7	-	-
28-Dec	19:46	3A084	ZUI	Arrival	13.5	-	-
28-Dec	20:06	3A185	ZUI	Departure	13.1	-	-
28-Dec	20:52	8S2113	MFM	Arrival	13.0	-	-
28-Dec	21:09	3A169	YFT	Departure	13.0	-	-
28-Dec	22:07	8S522	MFM	Departure	13.7	-	-
29-Dec	08:13	3A061	YFT	Arrival	13.2	-	-
29-Dec	08:28	8S210	MFM	Arrival	12.5	-	-
29-Dec	10:04	3A071	MFM	Arrival	10.6	-	-
29-Dec	10:46	8S212	MFM	Arrival	10.3	-	-
29-Dec	10:58	3A081	ZUI	Arrival	12.2	-	-
29-Dec	11:20	3A063	YFT	Arrival	11.5	-	-
29-Dec	11:29	8S121	MFM	Departure	12.0	-	-
29-Dec	12:24	3A168	YFT	Departure	12.0	-	-
29-Dec	12:25	3A181	ZUI	Departure	12.9	-	-
29-Dec	12:59	8S215	MFM	Arrival	10.5	-	-
29-Dec	13:11	3A064	YFT	Arrival	11.4	-	-
29-Dec	13:24	8S123	MFM	Departure	11.3	-	-
29-Dec	13:56	3A082	ZUI	Arrival	13.4	-	-
29-Dec	14:18	3A182	ZUI	Departure	11.4	-	-
29-Dec	14:20	3A164	YFT	Departure	12.0	-	-
29-Dec	14:58	3A065	YFT	Arrival	12.6	-	-
29-Dec	16:31	3A167	YFT	Departure	12.6	-	-
29-Dec	16:36	3A083	ZUI	Arrival	13.0	-	-
29-Dec	16:42	8S218	MFM	Arrival	10.2	-	-
29-Dec	17:04	3A183	ZUI	Departure	13.2	-	-
29-Dec	17:16	3A067	YFT	Arrival	11.7	-	-
29-Dec	17:29	8S126	MFM	Departure	11.7	-	-
29-Dec	19:19	3A166	YFT	Departure	12.8	-	-
29-Dec	19:43	3A084	ZUI	Arrival	12.5	-	-
29-Dec	20:10	3A185	ZUI	Departure	12.8	-	-
29-Dec	20:56	8S2113	MFM	Arrival	12.9	-	-
29-Dec	21:17	3A169	YFT	Departure	11.8	-	-
29-Dec	22:19	8S522	MFM	Departure	12.5	-	-
30-Dec	08:17	3A061	YFT	Arrival	11.0	-	-
30-Dec	08:40	8S210	MFM	Arrival	8.1	-	-
30-Dec	09:51	3A071	MFM	Arrival	12.0	-	-
30-Dec	10:43	3A081	ZUI	Arrival	12.4	-	-
30-Dec	10:53	8S212	MFM	Arrival	11.6	-	-
30-Dec	11:23	8S121	MFM	Departure	11.7	-	-
30-Dec	11:31	3A063	YFT	Arrival	12.2	-	-
30-Dec	12:17	3A168	YFT	Departure	12.4	-	-
30-Dec	12:20	3A181	ZUI	Departure	13.6	-	-
30-Dec	12:31	8S215	MFM	Arrival	13.2	-	-
30-Dec	13:03	3A064	YFT	Arrival	11.6	-	-
30-Dec	13:21	8S123	MFM	Departure	11.9	-	-
30-Dec	13:53	3A082	ZUI	Arrival	13.1	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [MFM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUI- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
30-Dec	14:28	3A182	ZUI	Departure	11.0	-	-
30-Dec	14:32	3A164	YFT	Departure	11.7	-	-
30-Dec	15:02	3A065	YFT	Arrival	12.4	-	-
30-Dec	16:14	3A083	ZUI	Arrival	12.8	≤5	<1
30-Dec	16:18	3A167	YFT	Departure	12.6	-	-
30-Dec	16:45	8S218	MFM	Arrival	11.8	-	-
30-Dec	16:57	3A183	ZUI	Departure	13.8	-	-
30-Dec	17:12	3A067	YFT	Arrival	11.3	-	-
30-Dec	17:16	8S126	MFM	Departure	11.5	-	-
30-Dec	19:36	3A166	YFT	Departure	13.5	-	-
30-Dec	19:45	3A084	ZUI	Arrival	12.3	-	-
30-Dec	20:09	3A185	ZUI	Departure	12.8	-	-
30-Dec	20:55	8S2113	MFM	Arrival	12.2	-	-
30-Dec	21:07	3A169	YFT	Departure	13.2	-	-
30-Dec	22:35	8S522	MFM	Departure	12.5	-	-
31-Dec	08:21	3A061	YFT	Arrival	11.7	-	-
31-Dec	08:31	8S210	MFM	Arrival	11.5	-	-
31-Dec	09:54	3A071	MFM	Arrival	13.3	-	-
31-Dec	10:39	8S212	MFM	Arrival	12.3	-	-
31-Dec	10:47	3A081	ZUI	Arrival	13.4	-	-
31-Dec	11:10	8S121	MFM	Departure	13.4	-	-
31-Dec	11:24	3A063	YFT	Arrival	11.1	-	-
31-Dec	12:14	3A181	ZUI	Departure	13.7	-	-
31-Dec	12:20	3A168	YFT	Departure	11.7	-	-
31-Dec	12:52	8S215	MFM	Arrival	12.4	-	-
31-Dec	13:06	3A064	YFT	Arrival	12.2	-	-
31-Dec	13:18	8S123	MFM	Departure	12.4	-	-
31-Dec	13:53	3A082	ZUI	Arrival	13.1	-	-
31-Dec	14:16	3A182	ZUI	Departure	12.5	-	-
31-Dec	14:41	3A164	YFT	Departure	12.1	-	-
31-Dec	15:05	3A065	YFT	Arrival	12.1	-	-
31-Dec	16:17	3A167	YFT	Departure	11.1	-	-
31-Dec	16:37	3A083	ZUI	Arrival	12.8	-	-
31-Dec	16:42	8S218	MFM	Arrival	8.4	-	-
31-Dec	17:05	3A067	YFT	Arrival	12.2	-	-
31-Dec	17:10	8S126	MFM	Departure	12.7	-	-
31-Dec	17:11	3A183	ZUI	Departure	14.1	-	-
31-Dec	19:11	3A166	YFT	Departure	12.6	-	-
31-Dec	19:45	3A084	ZUI	Arrival	13.6	-	-
31-Dec	20:14	3A185	ZUI	Departure	12.4	-	-
31-Dec	21:00	8S2113	MFM	Arrival	11.5	-	-
31-Dec	21:06	3A169	YFT	Departure	11.6	-	-
31-Dec	22:03	8S522	MFM	Departure	12.2	-	-

Follow-up on instantaneous speeding

Referring to the data of SkyPier HSF movements in December 2016, instantaneous speeding (i.e. a sudden change in speed at over 15 knots for a short period of time) within the SCZ was recorded from 9 HSF movements. The duration of instantaneous speeding of all the 9 movements were less than one minute. After investigation, the AIS data and ferry operators' responses showed the cases were due to local strong water currents or giving way to other vessels, which are public safety / emergency reasons. The captain had reduced speed and maintained the speed at less than 15 knots after the public safety / emergency incidents.

Eight HSF movements with insufficient transmission of AIS data received in December. AIS data was retrieved from other sources such as Marine Traffic Data and Shipxy. Vessel captain was also requested to provide the radar track photos which indicated the vessel entered the SCZ though the gate access point and no speeding in the SCZ.