



CONTRACT NO: HY/2019/14
NEW WANG TONG RIVER BRIDGE
UNDER ENVIRONMENTAL PERMIT NO. EP-555/2018/A
MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT
MARCH 2022

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DATE:

20 April 2022



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Your reference:

Our reference: HKHYD202/50/107954

Date: 20 April 2022

Attention: Mr Kennick Ho

BY EMAIL & POST
(email: ek1-1.wd@hyd.gov.hk)

Dear Sirs

Agreement No. WD 23/2020
Environmental Monitoring and Audit for New Wang Tong River Bridge
Monthly Environmental Monitoring & Audit Report (March 2022)

We refer to email of 19 April 2022 attaching a Monthly Environmental Monitoring & Audit Report (March 2022) prepared by the Environmental Team (ET) of the captioned.

We have no comment and hereby verified the Monthly Environmental Monitoring & Audit Report (March 2022) in accordance with Clause 3.4 of the Environmental Permit no. EP-555/2018/A.

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

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/YCFF/lsm

cc Lam Environmental Services Limited – Mr Raymond Dai (Fax no.: 2882 3331)

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EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – [March 2022](#) of New Wang Tong River Bridge under Environmental Permit no. EP-555/2018/A (Hereafter as “the Project”). The construction works of the Project was commenced on 12 July 2021 and the tentative completion date is Q3 2024. This is the 9th EM&A report presenting the environmental monitoring findings and information recorded during the period of [01 March 2022 to 31 March 2022](#). The cut-off date of reporting is at the end of each reporting month.

- ii. In the reporting month, the principal work activities conducted are as follow:

- [Cofferdam construction of MP1](#)

Noise Monitoring

- iii. Noise monitoring was conducted at one noise monitoring station once per week in the reporting month.
- iv. [No action or limit level exceedance was recorded in this reporting period.](#)

Air Quality Monitoring

- v. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring was conducted at two monitoring station. 24-hour TSP shall be sampled at least once in every 6 days, while sampling for 1-hour TSP shall be at least 3 times in every 6 day in the reporting month.
- vi. [No action or limit level exceedance was recorded in this reporting period.](#)

Water Quality Monitoring

- vii. [Water quality monitoring was conducted at seven monitoring stations three days per week according to the schedule in the reporting month since 17 March 2022.](#)
- viii. Owing to accessibility and safety issues, water quality monitoring at Station W3 was cancelled with verification from the IEC in November 2020 and approval from the EPD in December 2020.
- ix. [No action or limit level exceedance was recorded in this reporting period as water quality monitoring results were taken as reference such that no action and limit level exceedance was concluded and recorded. Review of action or limit level exceedance will be conducted for water quality monitoring results when marine-based construction work occurred.](#)

Site Inspections and Audit

- x. The [Environmental Team \(ET\)](#) conducted weekly site inspections on [2, 9, 16, 23 and 30 March 2022](#). IEC attended the joint site inspection on [23 March 2022](#). No non-compliance was found during the site inspection while reminders on environmental measures were recommended.



- xi. The Environmental Team (ET) conducted monthly landscape site inspections on 23 March 2022. No non-compliance was found during the site inspection.

Complaints, Notifications of Summons and Successful Prosecutions

- xii. No environmental complaint, notification of summons and successful prosecution regarding the construction works was recorded in the reporting period.

Reporting Changes

- xiii. There are no particular reporting changes.

Future Key Issues

- xiv. In coming reporting 3 months, the scheduled construction activities and the recommended mitigation measures are listed as follows:

| Key Construction Works | Recommended Mitigation Measures |
|--|--|
| <ul style="list-style-type: none"> • Cofferdam construction of MP1 • Construction plants mobilization • Piling construction | <ul style="list-style-type: none"> • Dust control during dust generating works; • Implementation of proper noise pollution control; • Covering noisy part of piling machine with proper sound insulation material; • Provision of surface runoff collection and perimeter protection to properly treat runoff without direct discharge into Wang Tong River; • Provision of water-tight cofferdam for piling construction in Wang Tong River; and • Proper waste handling and storage. |

1 Introduction

1.1 Scope of the Report

- 1.1.1. Lam Environmental Services Limited (LES) has been appointed to work as the Environmental Team (ET) under Environmental Permit (EP) no. EP-555/2018/A to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for New Wang Tong River Bridge (Register No.: AEIAR-199/2016).
- 1.1.2. In accordance with Clause 3.4 stated in EP-522/2018/A, 1 hard copy and 1 electronic copy of Monthly EM&A Report shall be submitted to the Director within 10 working days after the end of each reporting month.
- 1.1.3. According to Section 10.3.1 of the Project EM&A Manual, the Monthly EM&A Report should be submitted within 10 working days of the end of each reporting month, with the first report due in the month after construction commences.

1.2 Structure of the Report

Section 1 **Introduction** – details the scope and structure of the report.

Section 2 **Project Background** – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.

Section 3 **Status of Regulatory Compliance** – summarizes the status of valid Environmental Permits / Licenses during the reporting period.

Section 4 **Monitoring Requirements** – summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.

Section 5 **Monitoring Results** – summarizes the monitoring results obtained in the reporting period.

Section 6 **Compliance Audit** – summarizes the auditing of monitoring results, all exceedances environmental parameters.

Section 7 **Environmental Site Audit** – summarizes the findings of weekly site inspections



undertaken within the reporting period, with a review of any relevant follow-up actions within the reporting period.

Section 8 ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution

Section 9 ***Conclusion***

2 Project Background

2.1 Background

- 2.1.1. Silver Mine Bay is a popular bathing beach in Mui Wo, Lantau that attracted 4,550 visitors on a peak day and over 69,000 visitors utilized the beach in 2012.
- 2.1.2. In order to relieve the overcrowding problem and the road safety concern of Wang Tong Bridge (hereafter called “Old Bridge”), two bridges (pedestrian bridge and cycle bridge) are proposed to replace the Old Bridge. The new pedestrian bridge and the new cycle bridge (hereafter called “New Bridge”) are also designed to align with the future amenity development on the northern side of the Old Bridge. The location of the project site is shown in [Figure 2.1](#).
- 2.1.3. The Project consists of a designated project under Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) which is Item C.12 – (a)...a dredging operation which is less than 500m from the nearest boundary of an existing...(iii) bathing beach...
- 2.1.4. The major components of the Project under Environmental Permit (EP) (EP No. EP-555/2018/A) comprises: (i) demolition of the existing Wang Tong River Bridge; and (ii) construction of a new twin bridge with segregation for pedestrians and cyclists.

2.2 Project Organization and Contact Personnel

- 2.2.1 Highways Department is the overall project controllers for the Project. For the construction phase of the Project, Contractor(s), Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.
- 2.2.2 The project organization and lines of communication with respect to environmental protection works are shown in [Figure 2.2](#). Key personnel and contact particulars are summarized in **Table 2.2**:

Table 2.2 Contact Details of Key Personnel

| Party | Role | Post | Name | Contact No. | Contact Fax |
|---|---|---|---------------------|-------------|-------------|
| Highways Department (HyD) | The Engineer for the Contract | Senior Engineer | Mr. Lai Fu Keung | 3903 6792 | 3188 3418 |
| | Engineer's Representative | Engineer | Mr. Yeung Sui Chung | 3903 6813 | 3188 3418 |
| Unison Construction Engineering Limited | Contractor | Site Agent | Mr. Peter Lui | 2690 2232 | 2363 3199 |
| | | Environmental Officer | Ms. Suki Chan | | |
| ANewR Consulting Limited | Independent Environmental Checker (IEC) | Independent Environmental Checker (IEC) | Mr. James Choi | 2618 2831 | 3007 8648 |
| Lam Environmental Services Limited | Environmental Team (ET) | Environmental Team Leader (ETL) | Mr. Raymond Dai | 2882 3939 | 2882 3331 |

2.3 Construction Activities

2.3.1 In the reporting month, the principal work activities conducted are as follow.

- Cofferdam construction of MP1
- Construction plants mobilization
- Pilling construction

2.3.2 In coming reporting 3 months, the scheduled construction activities are listed as follows:

- Piling construction

3 Status of Regulatory Compliance

3.1 Status of Environmental Licensing and Permitting under the Project

3.1.1. A summary of the current status on licences and/or permits on environmental protection pertinent to the Project is shown in **Table 3.1**.

Table 3.1 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project

| Permits and/or Licences | Permit. No. / Account No. | Valid From | Expiry Date | Status |
|---|--|-------------|--------------------|--------|
| Environmental Permit | EP-555/2018/A | 16 Dec 2020 | N/A | Valid |
| Billing Account for Disposal of Construction Waste | 7038550 | 29 Mar 2021 | End of the Project | Valid |
| Registration as a Chemical Waste Producer | 5213-962-U2333-01 | 28 Jun 2021 | N/A | Valid |
| Notification pursuant to Air Pollution Control (Construction Dust) Regulation | Form NA submitted to EPD on 25 Jun 2021. | | | |
| Discharge Licence | WT00040069-2021 | 10/1/2022 | 31/1/2027 | Valid |
| Construction Noise Permit | N/A | | | |

3.2 Status of Submission under the EP-555/2018/A

3.2.1. A summary of the current status on submission under EP-555/2018/A is shown in **Table 3.2**.

Table 3.2 Summary of submission status under EP-555/2018/A

| EP Condition | Submission | Date of Latest Submission [^] or Approval [#] |
|----------------|--|---|
| Condition 1.12 | Notification of Commencement Date of Works | 3 June 2021 [^] |
| Condition 2.7 | Submission of Management Organization of Main Construction Companies, the ET and the IEC | 20 May 2021 [^] |
| Condition 2.8 | Submission of Construction Works Schedule and Location Plan | 22 June 2021 [#] |
| Condition 2.9 | Submission of Breeding Bird Survey Report | 29 December 2020 [#] |
| Condition 3.3 | Submission of Baseline Monitoring Report | 24 June 2021 [#] |
| Condition 4.2 | Setting up Dedicated Internet Website | 28 April 2021 [^] |

4 Monitoring Requirements

4.1 Noise Monitoring

NOISE MONITORING STATIONS

4.1.1. The noise monitoring stations for the Project are listed and shown in **Table 4.1** and [Figure 4.1](#).

Table 4.1 Noise Monitoring Station

| Monitoring Station ID | Monitoring Location | Measurement Type | Level (in terms of no. of floor) |
|-----------------------|---------------------|------------------|----------------------------------|
| NMS1 A | 1 Tung Wan Tau Road | Free-field | G/F |

Remarks A: As discussed with the lot owner, a fine adjustment of location at the boundary of 1 Tung Wan Tau Road was proposed and approved in the Baseline Monitoring Report, in order to prevent access obstruction.

NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

4.1.2. For daytime construction work on normal weekdays (0700-1900 Monday to Saturday), one set of 30-min measurement shall be carried out at each NMS every week. Measurement procedures shall be referred to the Noise Control Ordinance-TM. Construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq, 30min}$ shall be used as the monitoring parameter. As supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

MONITORING EQUIPMENT

4.1.3. Noise monitoring was performed using sound level meter at the designated monitoring locations. The sound level meters shall comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator shall be deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 4.2**.

Table 4.2 Noise Monitoring Equipment

| Equipment | Brand and Model | Series Number |
|------------------------------|------------------|---------------|
| Integrated Sound Level Meter | Larson Davis LxT | 3737 |
| Acoustic Calibrator | HLES-02 | 2019612534 |

4.1.4. The calibration certificates of the noise monitoring equipment are attached in [Appendix 4.2](#).

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

4.2.1. Monitoring Procedure

- (a) The monitoring station shall normally be at a point 1m from the exterior of the sensitive receiver's building façade and be at a position 1.2m above the ground.
- (b) Façade measurements were made at the monitoring locations. For free-field

measurement, a correction factor of +3 dB (A) would be applied.

- (c) The battery condition was checked to ensure the correct functioning of the meter.
- (d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
- (e) Frequency weighting: A, Time weighting: Fast, Measurement time set: continuous 5 mins
- (f) Prior and after to the noise measurement, the meter was checked using the acoustic calibrator for 94dB (A) at 1000 Hz. 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.

4.2.2. Maintenance and Calibration

- (a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- (b) The sound level meter and calibrator were calibrated at yearly intervals.

EVENT AND ACTION PLAN

4.1.5. Noise Standards for Daytime Construction Activities are specified under EIAO-TM. The Action and Limit levels for construction noise are defined in **Table 4.3** and [Appendix 4.1](#). Should non-compliance of the criteria occurs, action in accordance with the Event and Action Plan in [Appendix 6.1](#) shall be carried out.

Table 4.3 Action and Limit Level for Noise Monitoring

| Monitoring Station | Action Level | Limit Level |
|--------------------|---|-------------|
| NMS1 | When one documented complaint is received | 75 dB(A) |

4.2 Air Monitoring

AIR QUALITY MONITORING STATIONS

4.2.3. The air monitoring stations for the Project are listed and shown in **Table 4.4** and **Figure 4.3**.

Table 4.4 Air Monitoring Station

| Monitoring Station | Location | Level (in terms of no. of floor) |
|----------------------|-------------------------|----------------------------------|
| AMS1 ^A | Silvermine Beach Resort | G/F |
| AMS2 ^{B, C} | 1 Tung Wan Tau Road | G/F |

Remarks A: AMS1 recommended under EM&A manual is at the north of boundary wall of Silvermine Beach Resort. Positioning of HVS on a narrow road at the northern boundary wall would obstruct access of passengers. After liaison with the resort owner, HVS is located near the eastern boundary wall, which is representative and suitable for air quality monitoring. Thus, fine adjustment of location at the boundary of Silvermine Beach Resort was therefore proposed and approved in the Baseline Monitoring Report.

Remarks B: As discussed with the lot owner, a fine adjustment of location at the boundary of 1 Tung Wan Tau Road was proposed and approved in the Baseline Monitoring Report, in order to prevent access obstruction and to minimize noise nuisance induced from HVS operation.

Remarks C: As the agreement of ER and IEC, a fine adjustment of location at the boundary of 1 Tung Wan Tau Road was proposed and approved in the impact monitoring since mid-September 2021, in order to prevent the interruption of GI working area conducted by contractor.

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

4.2.4. One-hour and 24-hour TSP levels should be measured to indicate the impacts of construction dust on air quality.

4.2.5. 24-hour TSP shall be sampled at least once in every 6 days, while sampling for 1-hour TSP shall be at least 3 times in every 6 days when the highest dust impact takes place.

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

4.2.6. 24-hour TSP Measuring Installation (HVS)

- (a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS.
- (b) No furnace or incinerator flues were nearby.
- (c) Airflow around the sampler was unrestricted
- (d) 0.6 - 1.7 m³ per minute adjustable flow range
- (e) Equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation;
- (f) Installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
- (g) Equipped with a shelter to protect the filter and sampler;
- (h) Capable of operating continuously for a 24-hour period.

4.2.7. 24-hour Measuring Procedures

- (a) The power supply was checked to ensure the HVS works properly.
- (b) The filter holder and the area surrounding the filter were cleaned.
- (c) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.

- (d) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- (e) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
- (f) Then the shelter lid was closed and was secured with the aluminum strip.
- (g) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- (h) A new flowrate record sheet was set into the flow recorder.
- (i) The flow rate of the HVS was checked and adjusted at around 1.2 m³ /min. The range specified in the EM&A Manual was between 0.6-1.7 m³ /min.
- (j) The programmable timer was set for a sampling period of 24 hrs + 1 hr, and the starting time, weather condition and the filter number were recorded.
- (k) The initial elapsed time was recorded.
- (l) At the end of sampling, the sampled filter was removed carefully and folded in half-length so that only surfaces with collected particulate matter were in contact.
- (m) It was then placed in a clean plastic envelope and sealed.
- (n) All monitoring information was recorded on a standard data sheet.
- (o) Filters were sent to laboratory for further testing.

4.2.8. 1-hour Measuring Procedures

- (a) Check the calibration period of portable direct reading dust meter prior to monitoring (The direct reading dust meter was calibrated at 2-years interval and checked with High Volume Sampler (HVS) yearly, details refer to Section 2.5.4)
- (b) Record the site condition near / around the monitoring stations.
- (c) Install the portable direct reading dust meter to the monitoring location.
- (d) Slide the power switch to turn the power on.
- (e) Check of portable direct reading dust meter to ensure the equipment operation in normal condition.
- (f) Select the period of measurement to 60mins.
- (g) Check and set the correct time.
- (h) Select the appropriate unit display for the equipment.
- (i) Slide the power switch to turn the power off when the monitoring period ended (3 times 1 hour TSP monitoring per day).
- (j) Uninstall the portable direct reading dust meter
- (k) Collected the sampled data for analysis.

Remark: Procedures (c) to (h) may be different subject to the brands and models of portable direct reading dust.

4.2.9. Maintenance and Calibration

- (a) The direct reading dust meter was calibrated at 2-years interval and checked with High Volume Sampler (HVS) yearly to determine the accuracy and validity of the results measured.
- (b) Checking of direct reading dust meter will be carried out in order to determine the conversion factor between the direct reading dust meter and the standard equipment, HVS. The comparison check is to be considered valid based on correlation coefficient checked by HOKLAS laboratory

4.2.10. High Volume Sampler (HVS – Model TE-5170) completed with the appropriate sampling inlets were installed for the 24-hour TSP sampling. 1-hour TSP air quality monitoring was performed by using portable direct reading dust meters at each designated monitoring station, which was verified by IEC and approved by the Engineer’s Representative (ER) on 4 December 2020 according to Section 3.4.5 and 3.3.2 of the Project EM&A Manual. The brand and model of the equipment are given in **Table 4.5**.

Table 4.5 Air Quality Monitoring Equipment

| Equipment | Brand and model | Series Number |
|------------------------------------|---------------------|----------------------------------|
| Portable direct reading dust meter | Met One Aerocet 831 | R14332, Y23153 W15449, Y23154 |
| High Volume Sampler | TE-5170 | HVS019 HVS020 |

4.2.11. The calibration certificates of the air quality monitoring equipment are attached in [Appendix 4.2](#).

WIND DATA

4.2.12. Hong Kong Observatory (HKO) meteorological information is widely accepted to be used in various environmental monitoring practices within HKSAR due to its professional quality and precision. Therefore, the daily wind data including Prevailing Wind Direction (degrees) and Mean Wind Speed (km/h) were obtained from Peng Chau Automatic Weather Station to serve as the representative data for meteorological condition during monitoring. The method was agreed by the IEC and approved by the ER on 4 December 2020. The representative wind data from Peng Chau Station were obtained covering the 1-hour and 24-hour TSP monitoring periods. The wind data were extracted and shown in [Appendix 4.3](#).

EVENT AND ACTION PLAN

4.2.13. The Action and Limit levels for construction air quality are defined in **Table 4.6** and [Appendix 4.1](#). Should non-compliance of the air quality criteria occur, action in accordance with the Event and Action Plan in [Appendix 6.1](#) shall be carried out.

Table 4.6 Action and Limit Level for Air Quality Monitoring

| Parameter | Monitoring Station | Action Level (µg/m ³) | Limit Level (µg/m ³) |
|-------------------|--------------------|-----------------------------------|----------------------------------|
| 24-hour TSP Level | AMS1 | 176.0 | 260.0 |
| | AMS2 | 176.0 | 260.0 |
| 1-hour TSP Level | AMS1 | 276.5 | 500.0 |
| | AMS2 | 283.7 | 500.0 |

4.3 Water Quality Monitoring

WATER QUALITY MONITORING STATIONS

4.3.1. Water quality monitoring was undertaken at 7 monitoring stations in the reporting month. The proposed water quality monitoring stations of the Project are shown in **Table 4.7** and [Figure 4.3](#).

Table 4.7 Marine Water Quality Stations for Water Quality Monitoring

| Station | Description | Monitoring Period | Monitoring Station | Easting | Northing |
|---------|--|-------------------|--------------------|---------|----------|
| W1 | Wang Tong River (Major tributary) | Mid-Flood | Impact | 817747 | 814519 |
| | | Mid-Ebb | Control | | |
| W2 | Wang Tong River (Major tributary) | Mid-Flood | Impact | 817775 | 814471 |
| | | Mid-Ebb | Control | | |
| W3 * | Wang Tong River (Minor tributary to Tai Wai Yuen) | Mid-Flood | Impact | 817803 | 814537 |
| | | Mid-Ebb | Control | | |
| W4 | Wang Tong River (Minor tributary to Tai Wai Yuen) | Mid-Flood | Impact | 817825 | 814481 |
| | | Mid-Ebb | Control | | |
| W5 | Silvermine Bay (Near Silvermine Bay Beach) | Mid-Flood | Control | 817909 | 814452 |
| | | Mid-Ebb | Impact | | |
| W6 | Silvermine Bay (Near Silvermine Bay Beach) | Mid-Flood | Control | 818024 | 814447 |
| | | Mid-Ebb | Impact | | |
| W7 | Silvermine Bay (Open Water) | Mid-Flood | Control | 818061 | 814277 |
| | | Mid-Ebb | Impact | | |
| W8 | Silvermine Bay (Open Water) | Mid-Flood | Control | 818224 | 814444 |
| | | Mid-Ebb | Impact | | |

Remark *: Water quality monitoring at Station W3 was cancelled with verification from the IEC and approval from the EPD.

WATER QUALITY PARAMETERS, FREQUENCY AND DURATION

- 4.3.2. The levels of dissolved oxygen (DO), turbidity, salinity and pH shall be measured in situ while suspended solids (SS) is determined by laboratory analysis at all the designated monitoring stations.
- 4.3.3. In association with the water quality parameters, other relevant data shall also be recorded, such as monitoring location / position, time, water temperature, DO saturation, weather conditions, and any special phenomena underway near the monitoring station.
- 4.3.4. Impact Monitoring shall be carried out 3 days per week, at mid-flood and mid-ebb tides (within ± 1.75 hour of the predicted time). The interval between two sets of monitoring shall not be less than 36 hours. The monitoring period should avoid concurrent marine project in the vicinity.
- 4.3.5. The sampling frequency of at least three days per week should be undertaken when the highest dust impact occurs. Upon completion of the construction works, the monitoring exercise at the designated monitoring locations should be continued for four weeks in the same manner as the impact monitoring. In case exceedance of Action/Limit Level is recorded, the frequency shall be increased as per the Event and Action Plan.

- 4.3.6. To ensure the robustness of in-situ measurement, parameters shall be measured in duplicate. In case the difference between duplicates is larger than 25%, a third set of measurement shall be carried out.

SAMPLING PROCEDURES AND MONITORING EQUIPMENT

Dissolved Oxygen, pH And Temperature Measuring Equipment

- 4.3.7. The instrument should be a portable, weatherproof dissolved oxygen and pH measuring instrument complete with cable, sensor, comprehensive operation manuals, and use a DC power source. It should be capable of measuring:

- a dissolved oxygen level in the range of 0-20 mg/l and 0-200% saturation
- a pH level in the range of 0 to 14 units
- a temperature of 0-45 degree Celsius

- 4.3.8. It should have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables should be available for replacement where necessary. Salinity compensation shall be build-in in the DO equipment

Turbidity Measurement Instrument

- 4.3.9. Nephelometric method shall be used in measuring turbidity in-situ. The instrument shall be portable, weatherproof complete with a cable, sensor, comprehensive operation manuals and DC power source. It shall have a photoelectric sensor capable of measuring turbidity between 0-1000 NTU and complete with a cable with at least 25 m in length. The meter shall be calibrated in order to establish the relationship between NTU units and suspended solids level. Turbidity shall be measured on split water sample collected from the same depths of suspended solid samples.

Sampler

- 4.3.10. A water sampler, consisting of a transparent PVC or glass cylinder of a capacity of not less than two litres which can be effectively sealed with cups at both ends shall be used. The water sampler shall have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.

Sampler Container and Storage

- 4.3.11. A water sampler, Water samples for suspended solids measurement should be collected in high-density polythene bottles, packed in ice (cooled to 4°C without being frozen), and delivered to ALS Technichem (HK) Pty Ltd. as soon as possible after collection for analysis.

Water Depth Detector

- 4.3.12. A portable, battery-operated echo sounder shall be used for the determination of water depth at each designated monitoring station. This unit can either be handheld or affixed to the bottom of the workboat, if the same vessel is to be used throughout the monitoring programme.

Salinity

- 4.3.13. A portable salinometer capable of measuring salinity in the range of 0-40‰ shall be provided for measuring salinity of the water at each of monitoring location.

Monitoring Position Equipment

- 4.3.14. A hand-held or boat-fixed type digital Global Positioning System (GPS) with waypoint bearing indication or other equivalent instrument of similar accuracy shall be provided and used during monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

MONITORING METHODOLOGY

4.2.14. Monitoring Procedure

- (a) The condition near the monitoring stations shall be observed and recorded on the data log sheet.
- (b) Check of sensors and electrodes with certified standard solutions before each use.
- (c) Wet bulb calibration for a DO meter should be carried out before measurement.
- (d) Water depth should be recorded by detector before sampling.
- (e) Sample would be taken using bucket sampler at surface level.
- (f) Transfer the sampled water carefully into cleaned water bottles (2x 1000ml) provided by the laboratory at the spot after the collection of the water sample for the subsequent laboratory Suspended Solid testing.
- (g) Transfer the sampled water from the bucket sampler to the rinsed water container for in-situ measurement (In case of the in-situ measurement cannot be carried at spot due to safety and adverse weather condition, sampled water from the bucket sampler will be transfer to cleaned water bottles provided by laboratory. Then, In-situ measurement will be conducted at a safe location which sampled water inside cleaned water bottle will be transfer to the rinsed water container for in-situ measurement) In-situ measurement shall be measured in duplicate.
- (h) Parameters including Water Temperature (°C), pH (units), Salinity (ppt), DO (mg/L), DO saturation (%) will be measured by the Multifunctional Meter and Turbidity (NTU) will be measured by turbid meter. (Water Temperature and Salinity will be measured as reference parameters)
- (i) Record the result on the data log sheet and record any special finding during / after in-situ measurement.
- (j) The water sample bottles will be stored in a cool box (at cooled to 4°C without being frozen), which shall be delivered to HOKLAS laboratory (ALS Technichem (HK) Pty Ltd) for further testing to determine the level of SS.

4.2.15. Maintenance and Calibration

- (a) The responses of sensors and electrodes of the water quality monitoring equipment were cleaned and checked at regular intervals.
- (b) DO meter (Multifunctional Meter) and turbid meter was certified by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at three monthly intervals.

4.3.15. Brand and model of the equipment are given in **Table 4.8**.

Table 4.8 Water Quality Monitoring Equipment

| Equipment | Brand and model | Series Number |
|-----------------------|-----------------------|---------------|
| Multifunctional Meter | YSI Professional Plus | 14E101065 |
| Turbid meter | Xin Rui WGZ-3B | 1807069 |

4.3.16. [With respect to the commencement of mini-piling work, water quality monitoring has been implemented starting from 17 March 2022.](#) Calibration certificates of the water quality monitoring equipment to be attached in [Appendix 4.2](#) will be prepared in the upcoming reporting month during commencement of monitoring.

LABORATORY MEASUREMENT / ANALYSIS

4.3.17. Analysis of suspended solids will be carried out in a HOKLAS accredited laboratory, which is ALS Technichem (HK) Pty Ltd.

EVENT AND ACTION PLAN

4.3.18. The Action and Limit levels for construction water quality are defined in **Table 4.9** and [Appendix 4.1](#). Should the monitoring results of the water quality parameters at any designated monitoring station exceed the water quality criteria, action in accordance with the Event and Action Plan in [Appendix 6.1](#) shall be carried out.

Table 4.9 Action and Limit Level for Water Quality Monitoring

| Monitoring Station | Depth | DO (mg/L) + | | Turbidity (NTU) ~ | | SS (mg/L) ~ | |
|--------------------|--------------------------|--------------|-------------|---|--|--|--|
| | | Action Level | Limit Level | Action Level | Limit Level | Action Level | Limit Level |
| W1 | Surface, Middle & Bottom | 6.5 | 5.3 | 7.7 NTU or 120% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 12.4 NTU or 130% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 8.9 mg/L or 120% of upstream control station's SS at the same tide of the same day, whichever is higher | 11.3 mg/L or 130% of upstream control station's SS at the same tide of the same day, whichever is higher |
| W2 | | | | | | | |
| W4 | | | | | | | |
| W5 | Surface, Middle & Bottom | 5.9 | 5.5 | 9.8 NTU or 120% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 10.5 NTU or 130% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 12.6 mg/L or 120% of upstream control station's SS at the same tide of the same day, whichever is higher | 15.0 mg/L or 130% of upstream control station's SS at the same tide of the same day, whichever is higher |
| W6 | | | | | | | |
| W7 | | | | | | | |
| W8 | Surface & Middle | 5.9 | 5.5 | 9.8 NTU or 120% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 10.5 NTU or 130% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 12.6 mg/L or 120% of upstream control station's SS at the same tide of the same day, whichever is higher | 15.0 mg/L or 130% of upstream control station's SS at the same tide of the same day, whichever is higher |
| | Bottom | | | | | | |

Remarks +: For DO, non-compliance occurs when monitoring results is lower than the limits.

Remarks -: For SS and Turbidity, non-compliance occurs when monitoring results is larger than the limits

5 Monitoring Results

5.0.1 The environmental monitoring will be implemented based on the division of works areas of each designed projects. Overall layout showing work areas and monitoring stations is shown in [Figure 2.1](#) and [Figure 4.1 – 4.3](#) respectively.

5.0.2 The environment monitoring schedules for reporting month and coming month are presented in [Appendix 5.1](#).

5.1 Noise Monitoring Results

5.1.1 Noise monitoring results measured in this reporting period are reviewed and summarized. Details of noise monitoring results and graphical presentation can be referred in [Appendix 5.2](#).

5.1.2 [No action or limit level exceedance was recorded in this reporting month.](#)

5.2 Air Monitoring Results

5.2.1 Air quality monitoring results measured in this reporting period are reviewed and summarized. Details of air monitoring results and graphical presentation can be referred in [Appendix 5.3](#).

5.2.2 [No action or limit level exceedance was recorded in this reporting month.](#)

5.3 Water Quality Monitoring Results

5.3.1 Water quality monitoring results measured in this reporting period are reviewed and summarized. Details of water quality monitoring results and graphical presentation can be referred in [Appendix 5.4](#).

5.3.2 [No action or limit level exceedance was recorded in this reporting period as water quality monitoring results were taken as reference such that no action and limit level exceedance was concluded and recorded. Review of action or limit level exceedance will be conducted for water quality monitoring results when marine-based construction work occurred.](#)

5.4 Waste Management

5.4.1 The quantities of waste for disposal in the Reporting Period are summarized in [Table 5.1](#) and [Table 5.2](#). The Monthly Summary Waste Flow Table is shown in [Appendix 5.5](#). Whenever possible, materials were reused on-site as far as practicable.

Table 5.1 Summary of Quantities of Inert C&D Materials

| Waste Type | Quantity (this month) | Quantity (Project commencement to the end of last month) | Cumulative Quantity-to-Date |
|--|-----------------------|--|-----------------------------|
| Hard Rock and Large Broken Concrete (Inert) (in '000m ³) | 0 | 0.007 | 0.007 |
| Reused in this Contract (Inert) (in '000m ³) | 0 | 0 | 0 |
| Reused in other Projects (Inert) (in '000m ³) | 0 | 0 | 0 |
| Disposal as Public Fill (Inert) (in '000m ³) | 0 | 0 | 0 |

Table 5.2 Summary of Quantities of C&D Wastes

| Waste Type | Quantity (this month) | Quantity (Project commencement to the end of last month) | Cumulative Quantity-to-Date |
|--|-----------------------|--|-----------------------------|
| Metals (in '000kg) | 0 | 0 | 0 |
| Paper / Cardboard Packing (in '000kg) | 0 | 0 | 0 |
| Plastics (in '000kg) | 0 | 0.03 | 0.03 |
| Chemical Wastes (in '000kg) | 0 | 0 | 0 |
| General Refuses (in '000m ³) | 0.01 | 0.026 | 0.036 |

6 Compliance Audit

6.1.1 The Event Action Plan for construction noise, air quality and water quality are presented in [Appendix 6.1](#).

6.1.2 The summary of exceedance is presented in [Appendix 6.2](#).

6.2 Noise Monitoring.

6.2.1 [No action or limit level exceedance was recorded in this reporting period.](#)

6.3 Air Quality Monitoring

6.3.1 [No action or limit level exceedance was recorded in this reporting period.](#)

6.4 Water Quality Monitoring

6.4.1 [No action or limit level exceedance was recorded in this reporting period.](#)

6.5 Review of the Reasons for and the Implications of Non-compliance

6.5.1 [No environmental non-compliance was recorded in the reporting month.](#)

6.6 Summary of action taken in the event of and follow-up on non-compliance

6.6.1 [There was no particular action taken since no non-compliance was recorded in the reporting period.](#)

7 Environmental Site Audit

7.0.1. Within this reporting month, weekly environmental site audits were conducted on [2, 9, 16, 23 and 30 March 2022](#). IEC attended the joint site inspection on [23 March 2022](#).

7.0.2. No non-compliance was found during the site inspection while reminders on environmental measures were recommended. Results and findings of these inspections in this reporting month are listed below in **Table 7.1**.

Table 7.1 Summary of Environmental Inspections

| Item | Date | Reminder(s)/ Observation(s) | Action taken by Contractor | Outcome |
|----------------------------|-----------------------------|-----------------------------|----------------------------|---------|
| 20220302_1 | 2 Mar 2022 | Nil. | Nil. | Nil. |
| 20220309_1 | 9 Mar 2022 | Nil. | Nil. | Nil. |
| 20220316_1 | 16 Mar 2022 | Nil. | Nil. | Nil. |
| 20220323_1 | 23 Mar 2022 | Nil. | Nil. | Nil. |
| 20220330_1 | 30 Mar 2022 | Nil. | Nil. | Nil. |

7.0.3. Within this reporting month, monthly landscape site audits were conducted on [23 Feb 2022](#).

7.0.4. No non-compliance was found during the landscape site inspection. Results and findings of these inspections in this reporting month are listed below in **Table 7.2**.

Table 7.2 Summary of Landscape site inspections

| Item | Date | Reminder(s)/ Observation(s) | Action taken by Contractor | Outcome |
|------|------|-----------------------------|----------------------------|---------|
| - | - | - | - | - |

8. Complaints, Notification of Summons and Prosecution

- 8.0.1. No environmental complaint, notification of summons and successful prosecution regarding construction works was recorded in the reporting period.
- 8.0.2. The details of cumulative complaint log and updated summary of complaints are presented in [Appendix 8.1](#).
- 8.0.3. Cumulative statistic on complaints and successful prosecutions are summarized in **Table 8.1** and **Table 8.2** respectively.

Table 8.1 Cumulative Statistics on Complaints

| Reporting Period | No. of Complaints |
|---|-------------------|
| March 2021 | 0 |
| Project commencement to the end of last reporting month | - |
| Total | 0 |

Table 8.2 Cumulative Statistics on Successful Prosecutions

| Environmental Parameters | Cumulative No. Brought Forward | No. of Successful Prosecutions this month (Offence Date) | Cumulative No. Project-to-Date |
|--------------------------|--------------------------------|--|--------------------------------|
| Air | - | 0 | 0 |
| Noise | - | 0 | 0 |
| Water | - | 0 | 0 |
| Waste | - | 0 | 0 |
| Total | - | 0 | 0 |

9. Conclusion

- 9.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.
- 9.0.2. Mitigation measures according to the environmental mitigation implementation schedule and the EIA were generally implemented by the Contractor. Hence, the EM&A programme was considered effective and shall be maintained.
- 9.0.3. The scheduled construction activities and the recommended mitigation measures for the coming 3 months are listed in **Table 9.1**. The construction programmes of the Project are provided in [Appendix 9.1](#).

Table 9.1 Construction Activities and Recommended Mitigation Measures in Coming Reporting 3 Months

| Key Construction Works | Recommended Mitigation Measures |
|--|--|
| <ul style="list-style-type: none"> • Cofferdam construction of MP1 • Construction plants mobilization • Piling construction | <ul style="list-style-type: none"> • Dust control during dust generating works; • Implementation of proper noise pollution control; • Covering noisy part of piling machine with proper sound insulation material; • Provision of surface runoff collection and perimeter protection to properly treat runoff without direct discharge into Wang Tong River; • Provision of water-tight cofferdam for piling construction in Wang Tong River; and • Proper waste handling and storage. |



Figure 2.1

Project Layout



- NOTES**
1. ALL LEVELS ARE IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
 2. CO-ORDINATES ARE OF HONG KONG 1980 GRID SYSTEM.
 3. ALL LEVELS ALONG KERB ARE KERB BOTTOM LEVEL.
 4. CHANNELS ARE U SHAPED EXCEPT WHERE STATED, WIDTHS ARE GIVEN.
 5. DATE OF SURVEY FOR HIGH WATER MARK : NOV 2020

- LEGEND:**
- LIMIT OF WORKS SITE
 - HIGH WATER MARK (AS AT NOV.2020)
 - PROPOSED PILECAP AND SOCKETED H PILES
 - EXCAVATION AND PILING WORKS AREA WITHIN COFFERDAM
 - EXCAVATION AREAS BELOW HIGH WATER MARK
 - PROPOSED BRIDGE PIERS
 - EXTENT OF ABUTMENTS
 - WORKS LAYOUT

SOURCE

PROJECT
HY/2019/14
NEW WANG TONG RIVER BRIDGE

DRAWING TITLE
LOCATION PLAN

SCALE 1:200 A1 594X841

DRAWING NO. CLP-EP-01 REV. -

DATE: 2019-10-08 09:00:00



Figure 2.2

Project Organization Chart



Project Organization Chart

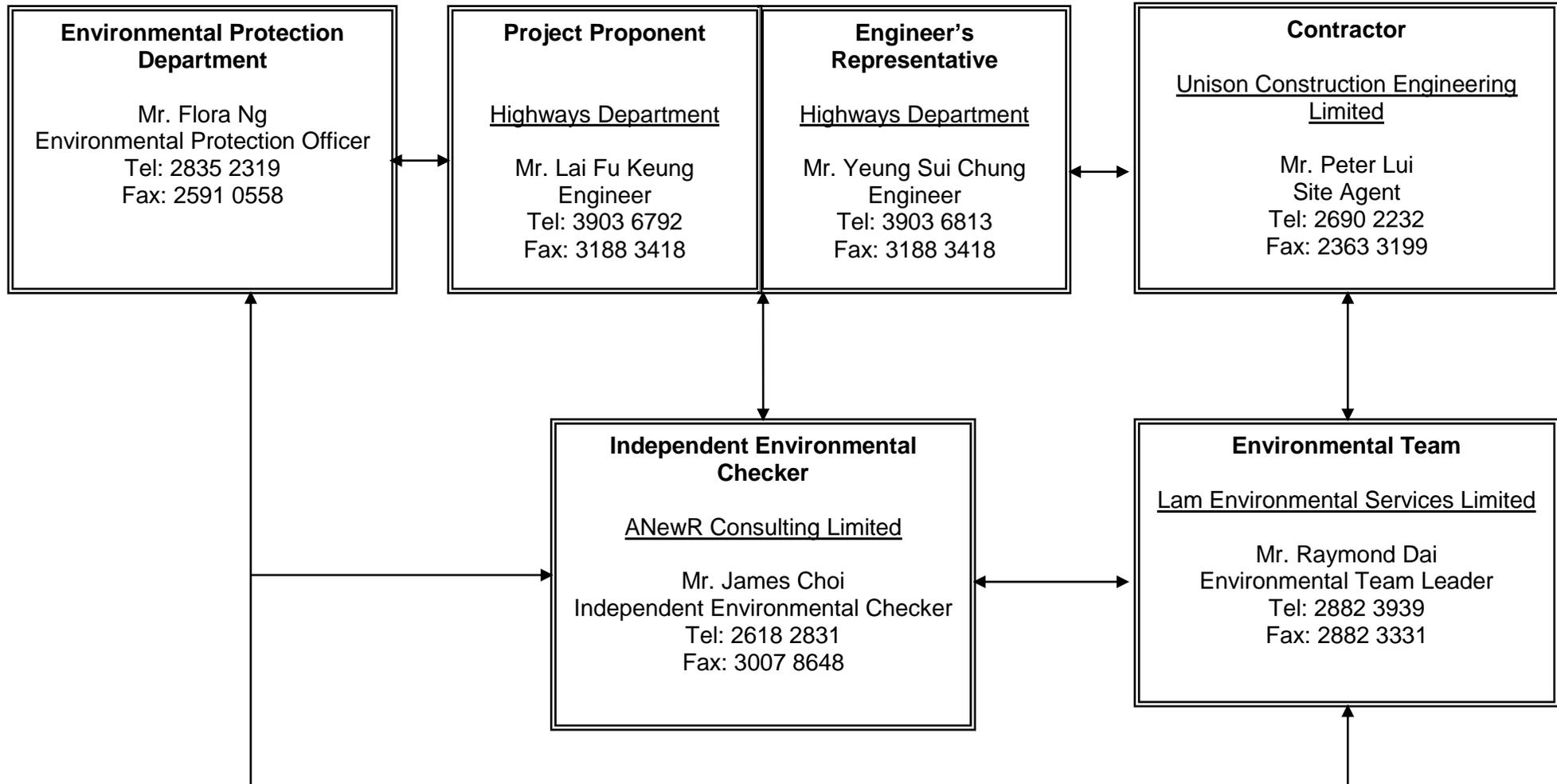
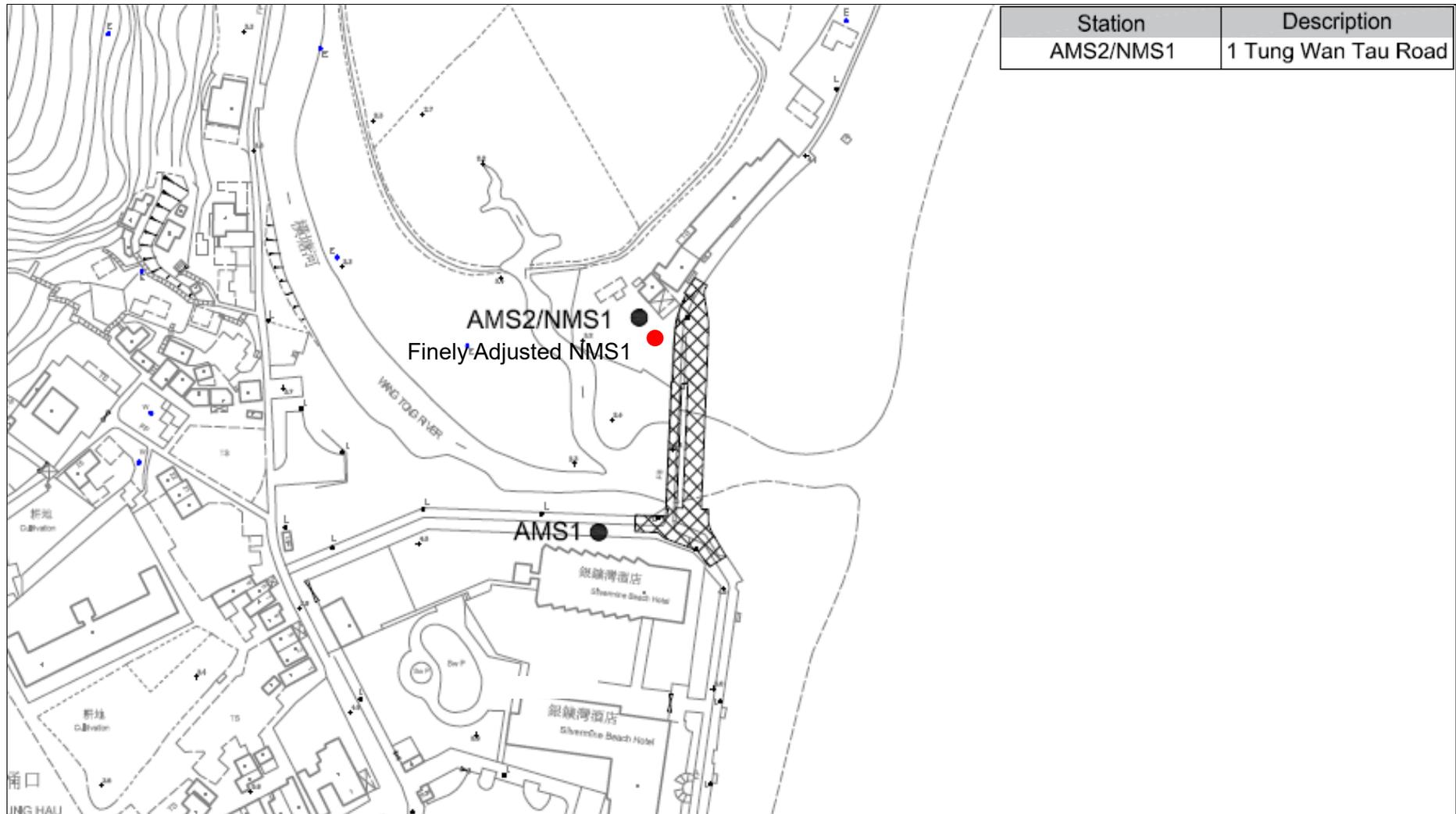


Figure 2.2



Figure 4.1 to Figure 4.3

Locations of Monitoring Stations



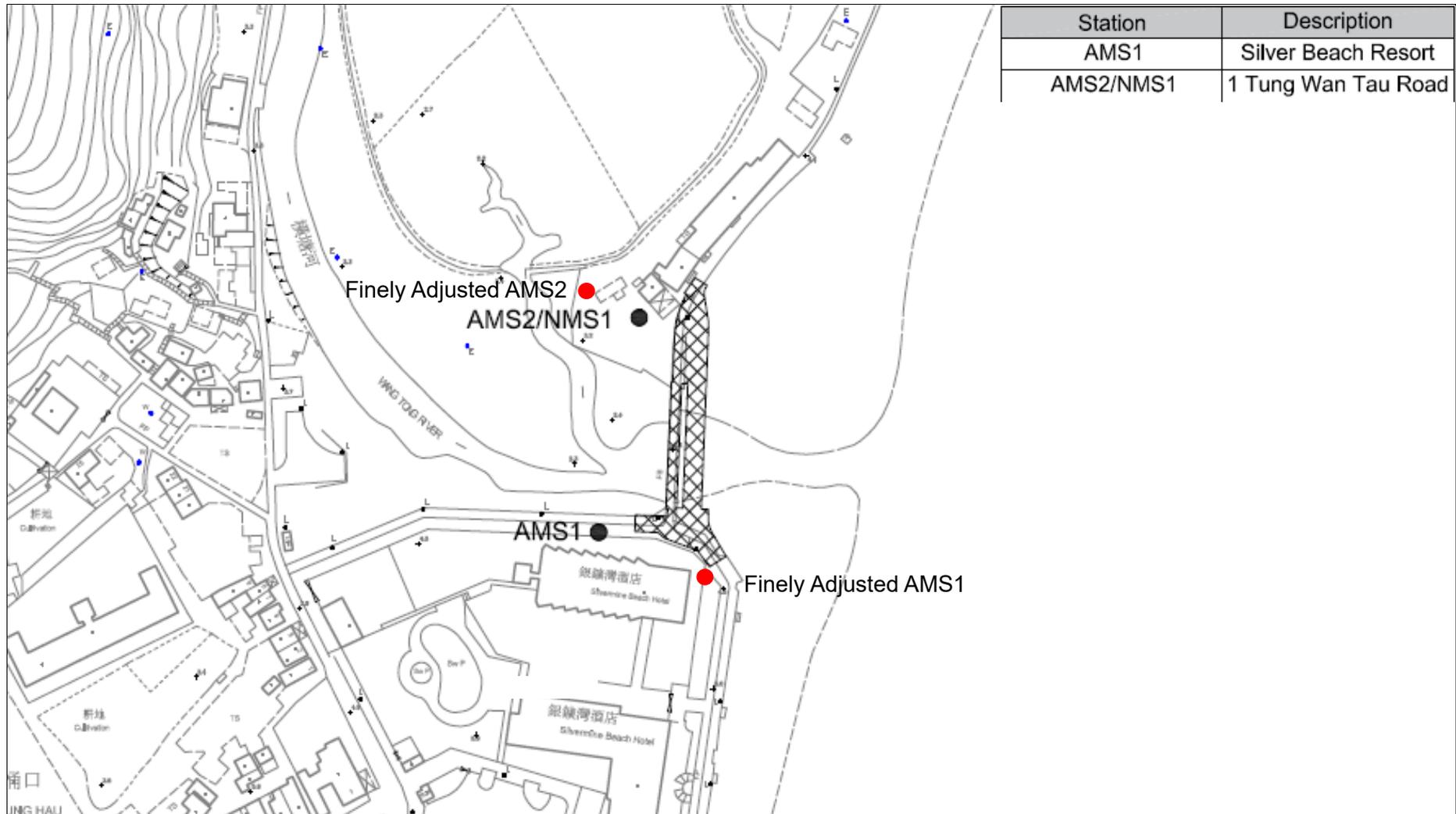
| Station | Description |
|-----------|---------------------|
| AMS2/NMS1 | 1 Tung Wan Tau Road |

Legend:

- Finely Adjusted Location of Noise Monitoring Station
- Original Noise Monitoring Station stated in EM&A Manual

Figure 4.1

Location of Noise Monitoring Stations



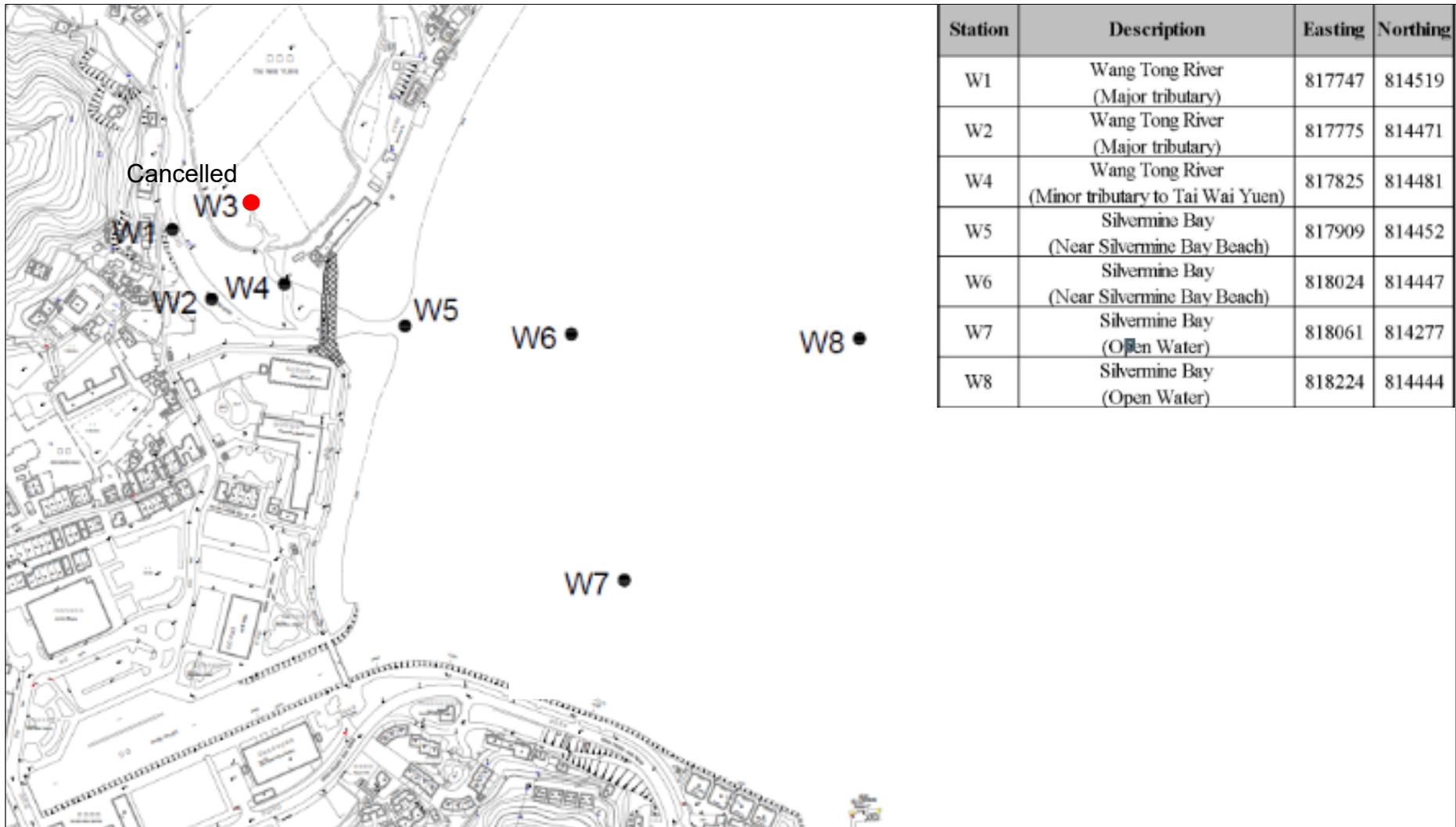
| Station | Description |
|-----------|---------------------|
| AMS1 | Silver Beach Resort |
| AMS2/NMS1 | 1 Tung Wan Tau Road |

Legend:

- Finely Adjusted Location of Air Quality Monitoring Station
- Original Air Quality Monitoring Station stated in EM&A Manual

Figure 4.2

Location of Air Quality Monitoring Stations



Legend:

- Cancelled Water Quality Monitoring Station
- Original Water Quality Monitoring Station stated in EM&A Manual

Figure 4.3

Location of Water Quality Monitoring Stations



Appendix 3.1

Environmental Mitigation Implementation Schedule

Appendix 3.1 - Implementation Schedule of Recommended Mitigation Measures

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|---------------------------|---|---|-------------------------------------|--------------------------------|--------------------------------------|---|
| Air Quality Impact | | | | | | |
| Construction Phase | | | | | | |
| A1 | Good housekeeping to minimize dust generation, e.g. by properly handling and storing dusty materials | To minimize dust generation | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A2 | Adopt dust control measures, such as dust suppression using water spray on exposed soil, in areas with dusty construction activities, and during material handling | To minimize dust generation due to erosion | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A3 | Dust suppression shall be applied to the working area immediately before, during and immediately after site clearance, excavation or earth moving operation to keep the surface wet. | To minimize dust generation due to erosion | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A4 | Use water spray to wet the remaining dusty materials on the floor after removing stockpile. The surface of roads or streets shall be free from dust | To minimize dust generation due to erosion | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A5 | Storage of dusty materials and debris shall be either entirely covered by impervious sheeting or stored in a three-side and top enclosed area. Alternatively, it should be sprayed with water or a dust suppression chemical to maintain the entire surface wet | To minimize dust generation due to erosion | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A6 | All demolished items (e.g. trees, vegetation, structures, debris and rubbish) that may dislodge dust particles shall be covered entirely by impervious sheeting or placed in a three-side and top enclosed area within a day of demolition. | To minimize dust generation | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A7 | Store cement bags in shelter with 3 sides and the top covered by impervious materials if the stack exceeds 20 bags | To prevent leakage of cement | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A8 | Cement bag shall be debagged, batched and mixed in a three-side and top enclosed area | To minimize dust generation | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A9 | Maintain a reasonable height when dropping excavated materials to limit dust generation | To minimize dust generation during movement of excavated materials | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A10 | Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating, soil compacting or paving | To minimize dust generation due to erosion | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|----------------------|---|--|-------------------------------------|--------------------------------|--|---|
| A11 | Cover materials on trolleys and trucks before leaving the site to prevent debris from dropping during traffic movement or being blown away by wind | To prevent falling of debris during traffic movement and by wind | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A12 | Water or a dust suppression chemical shall be continuously sprayed on the surface where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation is carried out, unless the process is accompanied by the operation of an effective dust extraction and filtering device | To minimize dust emission | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A13 | Regular maintenance of plant equipment to prevent black smoke emission | To minimize black smoke emission | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A14 | Throttle down or switch off unused machines or machine in intermittent use | To minimize unnecessary emission | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A15 | Minimize excavation area as far as possible | To minimize dust emission and potential release of odour from exposed ground | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A16 | Cover open stockpiles of construction materials (e.g. aggregates, sand and fill materials) with impermeable materials such as tarpaulin during rainstorms. | To prevent soil erosion under rainstorm | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A17 | Hoarding of not less than 2.4 m high shall be erected from ground level to surround the work area except for a site entrance or exit | To minimize dust emission | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |
| A18 | Carry out air quality monitoring throughout the construction period | To monitor construction dust level | HyD's Contractor | At representative ASRs | Prior to and throughout construction phase | EIAO-TM |
| A19 | Carry out regular site inspection to audit the implementation of mitigation measures | To check the implementation status and effectiveness of mitigation measures | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|---------------------|---|--|------------------------------|-------------------------|-------------------------------|--|
| Noise Impact | | | | | | |
| Construction Phase | | | | | | |
| N1 | Schedule noisy activities to minimise exposure of nearby NSRs to high levels of construction noise | To minimize construction noise level | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N2 | Use hand-held plant equipment or manual equipment as far as possible | To minimize construction noise level | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N3 | Use Quality Powered Mechanical Equipment (QPME) which produces lower noise level | To minimize construction noise level | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N4 | In the direction of noise sensitive receivers, erect mobile barriers with 3m in height from a few metres of stationary plants, and from about 5m of more mobile plant such as hydraulic breaker to prevent direct view. The barrier should have skid footing and a small cantilevered upper portion. The minimum surface density of the movable noise barrier is 7 kg/m ² and provide with noise absorbing material. | To lower noise transmission | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N5 | Position mobile noisy equipment in location and direction away from NSR | To minimize noise transmission to NSR | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N6 | Use silencer or muffler on plant equipment and should be properly maintained | To minimize noise transmission | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N7 | Operate noisy plant equipment such as air compressor, generator and concrete pump within enclosure | To minimize noise transmission | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N8 | Cover the noisy part of piling machine with acoustic mat | To minimize noise transmission | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N9 | Throttle down or switch off unused machines or machine in intermittent use between work | To minimize noise production | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N10 | Avoid carrying out noisy activities at the same time | To minimize noise production | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|----------------------|---|---|-------------------------------------|--------------------------------|--|---|
| N11 | Reduce the percentage on-time for some noisy PMEs | To minimize noise production | HyD's Contractor | Whole construction site | Throughout construction phase | NCO, EIAO-TM |
| N12 | Carry out noise monitoring throughout the construction period | To monitor construction noise level | HyD's Contractor | At representative NSRs | Prior to and throughout construction phase | EIAO-TM |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|-----------------------------|--|---|------------------------------|-------------------------|-------------------------------|--|
| Water Quality Impact | | | | | | |
| Construction Phase | | | | | | |
| W1 | Works in the river (excavation within highwater mark and cutting of pier of Old Bridge) shall be carried out inside the watertight cofferdam. The cofferdam can only be removed after completion of work. | To prevent the excavated materials or cuttings from falling into the water and being carried into the sea | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM |
| W2 | Install sheet piles by vibratory action. | To minimize dispersion of sand | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W3 | Erect water-tight temporary working platform that can contain falling debris above Wang Tong River. The platform shall be sheltered by tarpaulin for directing rainwater away from the working platform. | To prevent falling of debris and generation of surface runoff into the river | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W4 | Water removed from the cofferdam should be desilted before discharge. | To prevent discharge of silty water | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM |
| W5 | Set up sedimentation tank for settling suspended solids in wastewater before discharge into storm drains. Sand/silt removal facilities such as sand traps, silt traps and sedimentation basin should be provided with adequate capacity. | To reduce the amount of suspended solid in wastewater | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W6 | Maintain silt removal facilities, channels, manholes before and after rainstorm. | To prevent failure that may lead to flooding | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W7 | Remove silt and grit from silt trap at regular interval. | To prevent blockage that may lead to flooding | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W8 | Design works program carefully to minimize work areas, hence minimize soil exposure and site runoff. | To minimize surface runoff and chance of erosion | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W9 | Arrange excavation works outside rainy seasons (April to September) as far as possible. If this cannot be achieved, the following measures should be implemented: | To minimize surface runoff and chance of erosion | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| | - Cover temporary exposed slope surfaces with impermeable materials, e.g. tarpaulin | | | | | |
| | - Protect temporary access roads by crushed stone or gravel | | | | | |
| | - Carry out adequate surface protection measures well before the arrival of a rainstorm | | | | | |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|----------------------|--|---|-------------------------------------|--------------------------------|--------------------------------------|---|
| W10 | Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating, soil compacting or paving | To prevent soil erosion under rainstorm | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W11 | Cover open stockpiles of construction materials (e.g. aggregates, sand and fill materials) with impermeable materials such as tarpaulin during rainstorms. | To prevent soil erosion under rainstorm | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W12 | Cover and temporary seal manholes to prevent silt, construction materials or debris and surface runoff from entering foul sewers. | To prevent overloading of foul sewers | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W13 | Placing equipment, materials and wastes away from Wang Tong River and Silver Mine Bay | To prevent water contamination | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM |
| W14 | Remove waste from the site regularly. | To prevent waste accumulation | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| W15 | Apply discharge license for effluent discharge. Treat the discharge to comply with the requirement in TM-DSS. | To ensure compliance with effluent discharge requirement | HyD's Contractor | Whole construction site | Throughout construction phase | WPCO, TM-DSS, EIAO-TM |
| W16 | Reuse treated effluent onsite, e.g. dust suppression and general cleaning. | To minimize wastewater generation | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |
| W17 | Monitor effluent water quality. | To ensure compliance with effluent discharge requirement | HyD's Contractor | Whole construction site | Throughout construction phase | WPCO, EIAO-TM |
| W18 | Register as chemical waste producer if chemical waste will be generated. | To control chemical waste | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM |
| W19 | Perform maintenance of vehicles and equipment that have oil leakage and spillage potential on hard standings within a bunded area with sumps and oil interceptors. | To prevent oil leakage or spillage | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM |
| W20 | Dispose chemical waste in accordance to Waste Disposal Ordinance. Follow the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i> , examples as follows: | To avoid accident in waste storage and handling | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |
| | - Store chemical wastes at designated safe location with adequate space | | | | | |
| W21 | Placing chemical toilet away from waterbodies as far as possible and on stable, impermeable surface | To minimize accidental leakage of sewage into waterbodies | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|----------------------|--|---|-------------------------------------|--------------------------------|---|---|
| W22 | Carry out water quality monitoring at water sensitive receivers | To identify any water quality impact due to the project | HyD's Contractor | Whole construction site | Before, throughout and after construction phase | EIAO-TM |
| W23 | Carry out regular site inspection to audit the implementation of mitigation measures | To check the implementation status and effectiveness of mitigation measures | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM, APCO |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|--------------------------|---|---|-------------------------------------|--------------------------------|--------------------------------------|---|
| Ecological Impact | | | | | | |
| Construction Phase | | | | | | |
| E1 | Before site clearance, the work area should be inspected by ecologist to confirm no active bird nest is present. If any active bird nest is identified, suitable size of buffer area should be established until the nest is abandoned. | To minimize direct impact on the breeding activity of Black-collared Starling | HyD's Contractor | Whole construction site | Before site clearance | EIAO-TM |
| E2 | Erection of hoarding, fencing or provision of clear demarcation of work zones | To minimize direct impact outside work boundary | HyD's Contractor | Whole construction site | Throughout construction phase | EIAO-TM |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|---|---|--|------------------------------|-------------------------|-------------------------------|--|
| Waste Management | | | | | | |
| Construction Phase | | | | | | |
| WM1 | Allocate an area for waste sorting and storage of C&D materials into the following categories for reuse, recycle or disposal if possible. Remove waste from the Site for sorting once generated if no suitable space can be identified. | To minimize waste generation | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |
| | - excavated material suitable for reuse | | | | | |
| | - inert C&D materials for reuse/disposal offsite | | | | | |
| | - non-inert C&D materials for disposal at landfills | | | | | |
| | - chemical waste | | | | | |
| - general refuse | | | | | | |
| WM2 | Adopt good site practice as follows: | To proper handling of waste | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |
| | - Provide training to workers on site cleanliness, waste management (waste reduction, reuse and recycle) and chemical handling procedures | | | | | |
| | - Provide sufficient waste collection points and regular removal | | | | | |
| | - Cover waste materials with tarpaulin or in enclosure during transportation | | | | | |
| | - Maintain drainage systems, sumps and oil interceptors | | | | | |
| - Sort out chemical waste for proper handling and treatment onsite or offsite | | | | | | |
| WM3 | Adopt waste reduction measures as follows: | To minimize waste generation | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |
| | - Allocate area/containers for sorting, recovering and storing waste for reuse, recycle or disposal (e.g. demolition debris and excavated materials, general refuse like aluminium cans). Remove waste from the Site for sorting once generated if no suitable space can be identified. | | | | | |
| | - Allocate area for proper storage of construction materials to prevent contamination | | | | | |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|-----------|---|--|------------------------------|-------------------------|-------------------------------|--|
| WM4 | Prepare and implement a site specific Waste Management Plan (WMP) as part of Environmental Management Plan (EMP) in accordance with ETWB TCW No. 19/25. Detail waste management method in the form of avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal according to the recommendations on the EIA and EM&A Manual. It should be approved by the ER and regularly reviewed. | To provide guidance to waste management | HyD's Contractor | Whole construction site | Throughout construction phase | ETWB TCW No. 19/2005, EIAO-TM |
| WM5 | Store waste materials properly as follows: | To properly store waste | HyD's Contractor | Whole construction site | Throughout construction phase | ProPECC PN 1/94, EIAO-TM |
| | - Avoid contamination by proper handling and storing waste | | | | | |
| | - Prevent erosion by covering waste | | | | | |
| | - Maintain and clean storage area regularly | | | | | |
| | - Sort and stockpile different materials at designated location to enhance reuse | | | | | |
| WM6 | Apply for relevant waste disposal permits in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28). | To properly dispose waste | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28), Dumping at Sea Ordinance (Cap. 466), EIAO-TM |
| WM7 | Implement trip-ticket system for recording the amount of waste generated, recycled and disposed, including chemical wastes | To monitor movement of waste | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal (Chemical Waste) (General) Regulation, Waste Disposal Ordinance, EIAO-TM |
| WM8 | Reduce water content in wet spoil generated from piling work by mixing with dry materials. Only dispose treated spoil with less than 25% dry density to Public Fill Reception Facilities | To minimize load to reception facilities | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |
| WM9 | Dispose dry waste or waste with less than 70% water content by weight to landfill | To minimize load to reception facilities | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|-----------|--|--|------------------------------|-------------------------|-------------------------------|---|
| WM10 | Follow the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</i> as follows: | To avoid accident in waste storage and handling | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |
| | - Store chemical wastes with suitable containers. Seal and maintain the container to avoid leakage or spillage during storage, handling and transport | | | | | |
| | - Label chemical waste containers in both English and Chinese with instructions in accordance to Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation | | | | | |
| | - The container capacity should be smaller than 450 litres unless agreed by the EPD | | | | | |
| W11 | Comply with the requirement of the chemical storage area: | To ensure proper storage of chemical waste | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |
| | - Store only chemical waste and label clearly the chemical characters of the waste | | | | | |
| | - Have at least 3 sides enclosed and protected from rainfall with cover | | | | | |
| | - Provide sufficient ventilation | | | | | |
| | - Have impermeable floor and has bunds to contain 110% of the capacity of the largest container or 20% of the total volume of the stored waste in the area, whichever is larger | | | | | |
| | - Adequately spaced incompatible materials | | | | | |
| W12 | Transfer used lubricants, waste oils and other chemicals to oil recycling companies, if possible, and empty oil drums for reuse or refill. No direct or indirect discharge is permitted | To ensure proper disposal of chemical waste | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM |
| W13 | Hire licensed chemical waste disposal contractors for waste collection and removal. Dispose chemical waste at the approved CWTC at Tsing Yi or other licensed facility | To ensure proper disposal of chemical waste | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM |
| W14 | Provide recycling bins for sorting out recyclables for collection by recycling companies. Non-recyclables should be removed to designated landfills every day by licensed collectors to prevent environmental and health nuisance. | To ensure proper recycling and disposal of general refuse | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |
| W15 | Terminate excavation work if contaminated soil is found. Prepare Land Contamination Plan (CAP) in accordance with EPD's Guidance Note for Contaminated Land Assessment and Remediation for identifying soil and groundwater sampling locations, followed by testing and remediation where necessary. | To identify presence of contaminated soil and provide proper remediation | HyD's Contractor | Whole construction site | Throughout construction phase | Waste Disposal Ordinance, EIAO-TM |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|-----------|---|--|------------------------------|--------------------------------|--------------------------------------|--|
| W16 | <p>Marine sediment shall be cement solidified and sent to laboratory for Toxicity Characteristics Leaching Procedure (TCLP) test according to USEPA Method 1311 and 6020. The results are considered satisfactory if Universal Treatment Standards (UTS) are being met as per Table 4.6 of Practice Guide of Investigation and Remediation of Contaminated Land. The Unconfined Compressive Strength (UCS) of the solidified sediment shall also reach 1000kPa according to the above Practice Guide. If the TCLP and UCS testing results cannot meet the criteria, the sediment shall be retreated by cement solidification. After passing the tests, the solidified sediment shall be backfilled on land after the piling work (e.g. for construction of new piers and abutments). Alternatively, the solidified sediment shall be delivered to public fill reception facilities for beneficial reuse as the last resort.</p> | <p>To prevent leakage of contaminants to water.</p> | <p>HyD's Contractor</p> | <p>Whole construction site</p> | <p>Throughout construction phase</p> | <p>Waste Disposal Ordinance, EIAO-TM, Practice Guide of Investigation and Remediation of Contaminated Land</p> |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|-----------------------------|---|--|------------------------------|--|-------------------------------|--|
| Landscape and Visual | | | | | | |
| Construction Phase | | | | | | |
| CM1 | The construction area and contractor's temporary works areas should be minimised to avoid impacts on adjacent landscape. (Measure for mitigating Landscape and Visual impacts) | To minimise landscape footprint and reduce potential for visual impact | HyD's Contractor | Adjacent to existing bridge | Construction Phase | To approved Detailed Design and RLA's Approval |
| CM2 | Reduction of construction period to practical minimum. (Measure for mitigating Visual impact) | To reduce duration of impacts | HyD's Contractor | N/A | Construction Phase | To approved Detailed Design and RLA's Approval |
| CM3 | Construction traffic (land and sea) including construction plant, construction vessels and barges should be kept to a practical minimum. (Measure for mitigating Visual impact) | To minimise temporary visual impacts | HyD's Contractor | Connecting roads to site and Silver Mine Bay | Construction Phase | To approved Detailed Design and RLA's Approval |
| CM4 | Erection of decorative mesh screens or construction hoardings around works areas in visually unobtrusive colours. (Measure for mitigating Visual impact) | To screen works sites and plant | HyD's Contractor | Around works areas | Construction Phase | To approved Detailed Design and RLA's Approval |
| CM5 | Avoidance of excessive height and bulk of site buildings and structures. (Measure for mitigating Visual impact) | To reduce temporary visual impacts | HyD's Contractor | Within works sites | Construction Phase | To approved Detailed Design and RLA's Approval |
| CM6 | Control of night-time lighting by hooding all lights and through minimisation of night working periods. (Measure for mitigating Visual impact) | To reduce temporary visual impacts | HyD's Contractor | Within works sites | Construction Phase | To approved Detailed Design and RLA's Approval |

| EM&A Ref. | Recommended Mitigation Measures | Objectives of the Recommended Measure & Main Concerns to address | Who to Implement the measure | Location of the measure | When to implement the measure | What requirements or standard for the measure to achieve |
|-----------|--|--|------------------------------|------------------------------------|-------------------------------|--|
| CM7 | <p>All existing trees shall be carefully protected before, during construction and after construction. A Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees or trees to be transplanted, including trees in contractor's works areas for approval by the Registered Landscape Architect (RLA). This method statement for tree protection and transplanting shall make reference to "Guidelines on Tree Preservation during Construction" and "Guidelines on Tree Transplanting" published by GLTM of the DEVB. Early preparation of trees to be transplanted shall be undertaken to increase their likely survival rate following transplanting. (Measure for mitigating Landscape impact)</p> | To minimise tree impacts and maximise tree preservation | HyD's Contractor | Within and adjacent to works sites | Construction Phase | To approved Detailed Design and RLA's Approval |
| CM8 | <p>Minimisation of Impacts to Wang Tong River through minimised and carefully controlled dredging for pile/abutment removal/construction works. (Measure for mitigating Landscape impact)</p> | To minimise contamination of Wang Tong River | HyD's Contractor | Wang Tong River | Construction Phase | To approved Detailed Design and RLA's Approval |



Appendix 4.1

Action and Limit Level

Action and Limit Level

Action and Limit Level for Noise Monitoring

| Monitoring Station ID | Time Period | Parameter | Action Level | Limit Level dB(A) |
|-----------------------|--|-----------------|---|-------------------|
| NMS1 | 0700-1900 hrs on normal weekdays | $L_{eq, 30min}$ | When one documented complaint is received | 75 |

Baseline Level for Noise Monitoring

(For reference and calculation of Construction Noise Levels (CNLs))

| Monitoring Station ID | Monitoring Station | 0700-1900 hrs on normal weekdays | |
|-----------------------|---------------------|----------------------------------|-------------|
| | | $L_{eq (30min), dB(A)}$ | |
| | | Average | Range |
| NMS1 | 1 Tung Wan Tau Road | 60.1 | 52.7 – 64.4 |

Remark:

Each of daily 30-minute sampling period includes six consecutive $L_{eq (5min)}$ readings.

Due to free-field measurement, a correction factor of +3 dB(A) is adopted.

All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured L_{eq} – Baseline L_{eq} = CNL), in order to facilitate the interpretation of the noise exceedance.

Action and Limit Level for Air Quality Monitoring

| Monitoring Station ID | 1-hour TSP Level | | 24-hour TSP Level | |
|-----------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|
| | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) |
| AMS1 | 276.5 | 500.0 | 176.0 | 260.0 |
| AMS2 | 283.7 | 500.0 | 176.0 | 260.0 |



Action and Limit Level for Water Monitoring

| Monitoring Station | Depth | DO (mg/L) + | | Turbidity (NTU) - | | SS (mg/L) - | |
|--------------------|------------------|--------------|-------------|---|--|--|--|
| | | Action Level | Limit Level | Action Level | Limit Level | Action Level | Limit Level |
| W1 | Middle | 6.5 | 5.3 | 7.7 NTU or 120% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 12.4 NTU or 130% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 8.9 mg/L or 120% of upstream control station's SS at the same tide of the same day, whichever is higher | 11.3 mg/L or 130% of upstream control station's SS at the same tide of the same day, whichever is higher |
| W2 | | | | | | | |
| W4 | | | | | | | |
| W5 | Middle | 5.9 | 5.5 | 9.8 NTU or 120% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 10.5 NTU or 130% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 12.6 mg/L or 120% of upstream control station's SS at the same tide of the same day, whichever is higher | 15.0 mg/L or 130% of upstream control station's SS at the same tide of the same day, whichever is higher |
| W6 | | | | | | | |
| W7 | | | | | | | |
| W8 | Surface & Middle | 5.9 | 5.5 | 9.8 NTU or 120% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 10.5 NTU or 130% of upstream control station's turbidity at the same tide of the same day, whichever is higher | 12.6 mg/L or 120% of upstream control station's SS at the same tide of the same day, whichever is higher | 15.0 mg/L or 130% of upstream control station's SS at the same tide of the same day, whichever is higher |
| | Bottom | | | | | | |

Remarks +: For DO, non-compliance occurs when monitoring results is lower than the limits.

Remarks -: For SS and Turbidity, non-compliance occurs when monitoring results is larger than the limits.



Appendix 4.2

Copies of Calibration Certificates



CERTIFICATE OF CALIBRATION

Certificate No.: 21CA1021 05-02

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Honglim Co., Ltd.
Type/Model No.: HLES-02
Serial/Equipment No.: 2019612534
Adaptors used: -

Item submitted by

Customer: Lam Environmental Services Limited
Address of Customer: -
Request No.: -
Date of receipt: 21-Oct-2021

Date of test: 25-Oct-2021

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|-------------------------|----------|------------|--------------|---------------|
| Lab standard microphone | B&K 4180 | 2341427 | 04-May-2022 | SCL |
| Preamplifier | B&K 2673 | 2239857 | 31-May-2022 | CEPREI |
| Measuring amplifier | B&K 2610 | 2346941 | 01-Jun-2022 | CEPREI |
| Signal generator | DS 360 | 33873 | 27-May-2022 | CEPREI |
| Digital multi-meter | 34401A | US36087050 | 27-May-2022 | CEPREI |
| Audio analyzer | 8903B | GB41300350 | 28-May-2022 | CEPREI |
| Universal counter | 53132A | MY40003662 | 02-Jun-2022 | CEPREI |

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:


Feng Junqi

Date: 26-Oct-2021

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA1021 05-02

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

| Frequency Shown Hz | Output Sound Pressure Level Setting dB | Measured Output Sound Pressure Level dB | (Output level in dB re 20 μ Pa) |
|-----------------------|--|---|---|
| | | | Estimated Expanded Uncertainty dB |
| 1000 | 94.00 | 94.02 | 0.10 |

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz STF = 0.011 dB

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz Actual Frequency = 998.27 Hz

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz TND = 0.4 %

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date:

Fung Chi Yip
25-Oct-2021

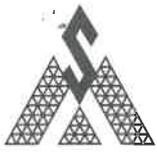
- End -

Checked by:

Date:

Chan Yuk Yiu
26-Oct-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0326 03-02 Page 1 of 2

Item tested

| | | | |
|-----------------------|----------------------------|---|------------|
| Description: | Sound Level Meter (Type 1) | , | Microphone |
| Manufacturer: | Larson Davis | , | PCB |
| Type/Model No.: | LxT1 | , | 377B02 |
| Serial/Equipment No.: | 0003737 | , | 171529 |
| Adaptors used: | - | , | - |

Item submitted by

| | |
|----------------------|-------------------------------------|
| Customer Name: | Lam Environmental Services Limited. |
| Address of Customer: | - |
| Request No.: | - |
| Date of receipt: | 26-Mar-2021 |

Date of test: 31-Mar-2021

Reference equipment used in the calibration

| Description: | Model: | Serial No. | Expiry Date: | Traceable to: |
|---------------------------------|----------|------------|--------------|---------------|
| Multi function sound calibrator | B&K 4226 | 2288444 | 23-Aug-2021 | CIGISMEC |
| Signal generator | DS 360 | 33873 | 19-May-2021 | CEPREI |

Ambient conditions

| | |
|--------------------|--------------|
| Temperature: | 21 ± 1 °C |
| Relative humidity: | 55 ± 10 % |
| Air pressure: | 1005 ± 5 hPa |

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:  Date: 07-Apr-2021 Company Chop: 



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0326 03-02 Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

| Test: | Subtest: | Status: | Expanded Uncertainty (dB) | Coverage Factor | |
|-------------------------|--|---------|---------------------------|-----------------|-----|
| Self-generated noise | A | Pass | 0.3 | 2.1 | |
| | C | Pass | 0.8 | | |
| | Lin | Pass | 1.6 | | |
| Linearity range for Leq | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | 2.2 | |
| | Reference SPL on all other ranges | Pass | 0.3 | | |
| | 2 dB below upper limit of each range | Pass | 0.3 | | |
| | 2 dB above lower limit of each range | Pass | 0.3 | | |
| Linearity range for SPL | At reference range, Step 5 dB at 4 kHz | Pass | 0.3 | | |
| | Frequency weightings | A | Pass | | 0.3 |
| | C | Pass | 0.3 | | |
| | Lin | Pass | 0.3 | | |
| Time weightings | Single Burst Fast | Pass | 0.3 | | |
| | Single Burst Slow | Pass | 0.3 | | |
| Peak response | Single 100µs rectangular pulse | Pass | 0.3 | | |
| R.M.S. accuracy | Crest factor of 3 | Pass | 0.3 | | |
| Time weighting I | Single burst 5 ms at 2000 Hz | Pass | 0.3 | | |
| | Repeated at frequency of 100 Hz | Pass | 0.3 | | |
| Time averaging | 1 ms burst duty factor 1/10 ³ at 4kHz | Pass | 0.3 | | |
| | 1 ms burst duty factor 1/10 ⁴ at 4kHz | Pass | 0.3 | | |
| Pulse range | Single burst 10 ms at 4 kHz | Pass | 0.4 | | |
| Sound exposure level | Single burst 10 ms at 4 kHz | Pass | 0.4 | | |
| Overload indication | SPL | Pass | 0.3 | | |
| | Leq | Pass | 0.4 | | |

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

| Test: | Subtest | Status | Expanded Uncertainty (dB) | Coverage Factor |
|-------------------|------------------------|--------|---------------------------|-----------------|
| Acoustic response | Weighting A at 125 Hz | Pass | 0.3 | |
| | Weighting A at 8000 Hz | Pass | 0.5 | |

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date:

Fung Chi Yip
31-Mar-2021

- End -

Checked by:

Date:

Chan Yuk Yiu
07-Apr-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



Certificate of Calibration

| Calibration Certification Information | | | |
|---------------------------------------|-----------------------------|-----------|-------|
| Cal. Date: February 3, 2021 | Rootsmeter S/N: 438320 | Ta: 293 | °K |
| Operator: Jim Tisch | | Pa: 750.6 | mm Hg |
| Calibration Model #: TE-5025A | Calibrator S/N: 3880 | | |

| Run | Vol. Init (m3) | Vol. Final (m3) | ΔVol. (m3) | ΔTime (min) | ΔP (mm Hg) | ΔH (in H2O) |
|-----|----------------|-----------------|------------|-------------|------------|-------------|
| 1 | 1 | 2 | 1 | 1.4550 | 3.2 | 2.00 |
| 2 | 3 | 4 | 1 | 1.0280 | 6.4 | 4.00 |
| 3 | 5 | 6 | 1 | 0.9180 | 8.0 | 5.00 |
| 4 | 7 | 8 | 1 | 0.8750 | 8.8 | 5.50 |
| 5 | 9 | 10 | 1 | 0.7220 | 12.8 | 8.00 |

| Data Tabulation | | | | | |
|-----------------|---------------|--|-----------|-------------|---|
| Vstd (m3) | Qstd (x-axis) | $\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis) | Va | Qa (x-axis) | $\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis) |
| 1.0002 | 0.6874 | 1.4174 | 0.9957 | 0.6844 | 0.8836 |
| 0.9959 | 0.9688 | 2.0044 | 0.9915 | 0.9645 | 1.2496 |
| 0.9937 | 1.0825 | 2.2410 | 0.9893 | 1.0777 | 1.3971 |
| 0.9927 | 1.1345 | 2.3504 | 0.9883 | 1.1295 | 1.4653 |
| 0.9873 | 1.3675 | 2.8347 | 0.9829 | 1.3614 | 1.7672 |
| QSTD | m= | 2.08437 | QA | m= | 1.30520 |
| | b= | -0.01508 | | b= | -0.00940 |
| | r= | 1.00000 | | r= | 1.00000 |

| Calculations | |
|---|--|
| Vstd= $\Delta Vol \left(\frac{Pa - \Delta P}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)$ | Va= $\Delta Vol \left(\frac{Pa - \Delta P}{Pa} \right)$ |
| Qstd= $Vstd / \Delta Time$ | Qa= $Va / \Delta Time$ |
| For subsequent flow rate calculations: | |
| Qstd= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$ | Qa= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$ |

| Standard Conditions | |
|---------------------|---------------------------------------|
| Tstd: | 298.15 °K |
| Pstd: | 760 mm Hg |
| Key | |
| ΔH: | calibrator manometer reading (in H2O) |
| ΔP: | rootsmeter manometer reading (mm Hg) |
| Ta: | actual absolute temperature (°K) |
| Pa: | actual barometric pressure (mm Hg) |
| b: | intercept |
| m: | slope |

| RECALIBRATION |
|--|
| US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30 |



1600 Washington Blvd
 Grants Pass, OR 97526
 (541) 471-7111
 (541) 471-7116 (Fax)
 Service@metone.com

**Met One
 Instruments**

Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ISO.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# 831 Instrument Serial# R14332

Date of Calibration 2/18/2021 Sensor # 12228

J. Chester AT1

AT14 MAR 02 2021

Calibration Technician

Quality Check

Temperature 30 °C

Relative Humidity 33 %

Test Procedure: **831-6100**

| PSL Size (µm) | Test Results | Test Spec. | Lot# NIST | Expiration |
|---------------|--------------|------------|-----------|------------|
| 0.5 | Pass | ± 10% | 219480 | 11/30/2022 |
| 0.7 | Pass | ± 10% | 229561 | 08/31/2023 |
| 1.0 | Pass | ± 10% | 229294 | 8/31/2023 |
| 2.5 | Pass | ± 10% | REF | NA |
| 4.0 | Pass | ± 10% | REF | NA |
| 5.0 | Pass | ± 10% | REF | NA |
| 7.0 | Pass | ± 10% | REF | NA |
| 10.0 | Pass | ± 10% | REF | NA |
| | | | | |

| Standards | Model | SN | Cal Due |
|------------------|----------------|----------|------------|
| Flowmeter | DCL-M | 103751 | 3/14/2021 |
| DMM | 189 Multimeter | 92130180 | 10/26/2021 |
| RH/TEMP SENSOR | 083E-1-6 | R20313 | 9/17/2021 |
| Particle Counter | GT-526 | M1760 | 5/19/2021 |
| | | | |

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**Met One
 Instruments**

Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ISO.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# Aerocet 831 Instrument Serial# Y23153
 Date of Calibration 9/9/2021 Sensor # 19493

AT

JGoddard ^A/_B
 Calibration Technician

Quality Check
 Relative Humidity 41 %

Temperature 22 °C

Test Procedure: **Aerocet 831-6100**

| PSL Size (µm) | Test Results | Test Spec. | Lot# NIST | Expiration |
|---------------|--------------|------------|-----------|------------|
| 0.3 | Pass | ± 10% | 223077 | 04/30/2023 |
| 0.5 | Pass | ± 10% | 219480 | 11/30/2022 |
| 1.0 | Pass | ± 10% | 229294 | 8/31/2023 |
| 2.0 | Pass | ± 10% | REF | NA |
| 5.0 | Pass | ± 10% | REF | NA |
| 3.0 | Pass | ± 10% | REF | NA |
| 5.0 | Pass | ± 10% | REF | NA |
| 10.0 | Pass | ± 10% | REF | NA |
| | | | | |

| Standards | Model | SN | Cal Due |
|----------------|-----------|----------|------------|
| RH/TEMP SENSOR | 083E-1-35 | U20080 | 11/23/2021 |
| Flowmeter | DCL-M | 103751 | 4/1/2022 |
| RH/TEMP SENSOR | 083E-1-6 | R20313 | 9/17/2021 |
| DMM | 289 | 27720071 | 8/24/2022 |
| | | | |

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Met One
 Instruments

Calibration Certificate

As Received

This certificate documents the as received condition of your instrument. Calibration was verified using accepted industry methods, equipment, procedures and standards that are traceable to NIST and ISO.

Instrument Model# Aerocet 831 Instrument Serial# W15449

Date of comparison against standard 4-27-2021 Sensor # 16439

Quality Control Technician Jason Gist AT14

Temperature 23 °C Relative Humidity 32 %

Test Procedure: Aerocet 831-6100

| As Received | Value | Range | Condition |
|-------------|--------|---------------------------------|-----------|
| Zero Count | 0 | Less than 5 particles in 5 min. | PASS |
| Air Flow | .08916 | .092 to .108 CFM | FAIL |

| PSL Size Micron | LOT# NIST | As Received PSL Count Comparison | Allowable PSL Count Comparison | Allowable Size Accuracy | As Received Condition |
|-----------------|-----------|----------------------------------|--------------------------------|-------------------------|-----------------------|
| 0.3 | 223077 | 48.87 | 10% to 90% | +/- 10 % | PASS |
| 0.5 | 219480 | 48.71 | 10% to 90% | +/- 10 % | PASS |
| 1.0 | 229294 | 48.09 | 10% to 90% | +/- 10 % | PASS |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Standards | Model | SN | Cal Due |
|------------------|---------------|----------|-----------|
| Dry Cal | Defender 530+ | 170092 | 2/9/2022 |
| DMM | 289 | 23700150 | 5/4/2021 |
| RH/TEMP SENSOR | 083E-1-6 | R20313 | 9/17/2021 |
| Particle Counter | GT-526 | M1761 | 8/26/2021 |
| | | | |

Calibration was performed by direct comparison to a count standard.



Calibration Certificate

Certificate No. 200340

Page 1 of 2 Pages

Customer : Lam Environmental Services Ltd

Address : 19/F, Remex Centre, 42 Wong Chuk Hang Road, Hong Kong

Order No. : Q14456

Date of receipt : 12-Jan-22

Item Tested

Description : Aerosol Mass Monitor

Manufacturer : Met One

I.D. : --

Model : Aerocet 831

Serial No. : Y23154

Test Conditions

Date of Test : 24-Jan-22

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Calibration procedure : Manufacturer recommended method (gravimetric), Z28.

Test Results

All results were within the tolerance(s).

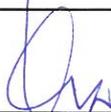
The results are shown in the attached page(s).

Main Test equipment used:

| Equipment No. | Description | Cert. No. | Traceable to |
|---------------|----------------|---------------|--------------|
| S136B | Stop Watch | 102964 | SCL-HKSAR |
| S238 | Micro Balance | 108228 | NIM-PRC |
| S201 | Std. Test Dust | 61291 | NIST |
| S207B | Std. Flowmeter | LL-2104002489 | NIM-PRC |

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant. The test results apply to the above Unit-Under-Test only

Calibrated by : 
Kin Wong

Approved by : 
Steve Kwan



Calibration Certificate

Certificate No. 200340

Page 2 of 2 Pages

Results :

1. General

Internal Filters : checked and found clean.

2. Flow Meter

| UUT Nominal Value (LPM) | Measured Value (LPM) | Tolerance (LPM) | Uncertainty |
|-------------------------|----------------------|-----------------|-------------|
| 2.83 | 2.85 | ± 0.15 | ± 0.05 |

3. Timer

| Reference Value | UUT Reading | Tolerance | Uncertainty |
|-----------------|-------------|----------------|------------------|
| 10' 00" 12 | 10 min | ± 2 sec/hr | ± 0.5 sec/hr |

4. Dust Particle (PM₁₀)

| Applied Value ($\mu\text{g}/\text{m}^3$) | UUT Reading ($\mu\text{g}/\text{m}^3$) K Factor : 0.28 | Tolerance | Uncertainty |
|--|---|------------|-------------|
| 1090 | 1092 | ± 20 % | ± 10 % |

Remark : 1. UUT: Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. ISO 12103-1 A1 respirable standard test dust was used for the calibration.

4. The K Factor to be adjusted by the customer from 1.0 to 0.28.

----- END -----



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : AMS1 Calibration Date : 9-Mar-22
 Equipment no. : HVS020 Calibration Due Date : 9-May-22

CALIBRATION OF CONTINUOUS FLOW RECORDER

| Ambient Condition | | | | | | |
|---------------------------------------|-------------------|--|--------------------------|---|--------------------------------------|---|
| Temperature, T _a | 291.7 | Kelvin | Pressure, P _a | 1017 | mmHg | |
| Orifice Transfer Standard Information | | | | | | |
| Equipment No. | 3880 | Slope, m _c | 2.08437 | Intercept, b _c | -0.01508 | |
| Last Calibration Date | 3-Aug-21 | $\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$ | | | | |
| Next Calibration Date | 3-Aug-22 | | | | | |
| Calibration of TSP | | | | | | |
| Calibration Point | Manometer Reading | | | Q _{std} (m ³ / min.) X-axis | Continuous Flow Recorder, W (CFM) | IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis |
| | (up) | (down) | (difference) | | | |
| 1 | 1.3 | 1.3 | 2.6 | 0.7906 | 34 | 34.4313 |
| 2 | 2.3 | 2.3 | 4.6 | 1.0493 | 42 | 42.5327 |
| 3 | 2.9 | 2.9 | 5.8 | 1.1773 | 48 | 48.6088 |
| 4 | 3.6 | 3.6 | 7.2 | 1.3109 | 54 | 54.6850 |
| 5 | 4.5 | 4.5 | 9.0 | 1.4648 | 59 | 59.7484 |
| By Linear Regression of Y on X | | | | | | |
| Slope, m | | = | 38.6078 | Intercept, b | | = 3.2711 |
| Correlation Coefficient* | | = | 0.9967 | | | |
| Calibration Accepted | | = | Yes/No** | | | |

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Harry Po Checked by : Alan Ng
 Date : 9-Mar-22 Date : 9-Mar-22



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : AMS2 Calibration Date : 9-Mar-22
 Equipment no. : HVS019 Calibration Due Date : 9-May-22

CALIBRATION OF CONTINUOUS FLOW RECORDER

| Ambient Condition | | | |
|-----------------------------|-------|--------|--------------------------|
| Temperature, T _a | 291.7 | Kelvin | Pressure, P _a |
| | | | 1017 mmHg |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|----------|--|---------|---------------------------|----------|
| Equipment No. | 3166 | Slope, m _c | 2.08437 | Intercept, b _c | -0.01508 |
| Last Calibration Date | 3-Aug-21 | $\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$ | | | |
| Next Calibration Date | 3-Aug-22 | | | | |

| Calibration of TSP | | | | | | |
|--------------------|-------------------|--------|--------------|---|--------------------------------------|---|
| Calibration Point | Manometer Reading | | | Q _{std} (m ³ / min.) X-axis | Continuous Flow Recorder, W (CFM) | IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis |
| | (up) | (down) | (difference) | | | |
| 1 | 1.7 | 1.7 | 3.4 | 0.9031 | 30 | 30.3805 |
| 2 | 2.3 | 2.3 | 4.6 | 1.0493 | 38 | 38.4820 |
| 3 | 3.1 | 3.1 | 6.2 | 1.2170 | 45 | 45.5708 |
| 4 | 3.5 | 3.5 | 7.0 | 1.2927 | 50 | 50.6342 |
| 5 | 4.3 | 4.3 | 8.6 | 1.4320 | 56 | 56.7103 |

By Linear Regression of Y on X

Slope, m = 49.6309 Intercept, b = -14.1495

Correlation Coefficient* = 0.9985

Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Harry Po Checked by : Alan ng
 Date : 9-Mar-22 Date : 9-Mar-22



REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: ALAN NG
CLIENT: LAM ENVIRONMENTAL SERVICES LTD
ADDRESS: 19/F, REMEX CENTRE,
42 WONG CHUK HANG ROAD,
HONG KONG

WORK ORDER: HK2201120
SUB- BATCH: 0
LABORATORY: HONG KONG
DATE RECEIVED: 07-Jan-2022
DATE OF ISSUE: 13-Jan-2022

SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type: Multifunctional Meter
Service Nature: Performance Check
Scope: Dissolved Oxygen, pH Value, Salinity and Temperature
Brand Name/ Model No.: [YSI]/ [Professional Plus]
Serial No./ Equipment No.: [19H100656/14E101065]/ [N/A]
Date of Calibration: 11-January-2022

GENERAL COMMENTS

This is the Final Report and supersedes any previous report(s) with this reference.

Mr Chan Siu Ming, Vico
Manager - Inorganics

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2201120
SUB- BATCH: 0
DATE OF ISSUE: 13-Jan-2022
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [Professional Plus]
Serial No./ Equipment No.: [19H100656/14E101065]/ [N/A]
Date of Calibration: 11-January-2022 **Date of Next Calibration:** 11-April-2022

PARAMETERS:

Dissolved Oxygen Method Ref: APHA (21st edition), 4500O: G

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) |
|-------------------------|--------------------------|------------------|
| 3.10 | 3.06 | -0.04 |
| 5.66 | 5.60 | -0.06 |
| 8.91 | 8.88 | -0.03 |
| | Tolerance Limit (mg/L) | ±0.20 |

pH Value Method Ref: APHA (21st edition), 4500H: B

| Expected Reading (pH unit) | Displayed Reading (pH unit) | Tolerance (pH unit) |
|----------------------------|-----------------------------|---------------------|
| 4.0 | 4.09 | +0.09 |
| 7.0 | 7.12 | +0.12 |
| 10.0 | 10.01 | +0.01 |
| | Tolerance Limit (pH unit) | ±0.20 |

Salinity Method Ref: APHA (21st edition), 2520B

| Expected Reading (ppt) | Displayed Reading (ppt) | Tolerance (%) |
|------------------------|-------------------------|---------------|
| 0 | 0.03 | -- |
| 10 | 10.09 | +0.9 |
| 20 | 19.94 | -0.3 |
| 30 | 29.82 | -0.6 |
| | Tolerance Limit (%) | ±10.0 |

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico
Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2201120
SUB- BATCH: 0
DATE OF ISSUE: 13-Jan-2022
CLIENT: LAM ENVIRONMENTAL SERVICES LTD

Equipment Type: Multifunctional Meter
Brand Name/
Model No.: [YSI]/ [Professional Plus]
Serial No./
Equipment No.: [19H100656/14E101065]/ [N/A]
Date of Calibration: 11-January-2022 **Date of Next Calibration:** 11-April-2022

PARAMETERS:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

| Expected Reading (°C) | Displayed Reading (°C) | Tolerance (°C) |
|-----------------------|------------------------|----------------|
| 11.5 | 10.6 | -0.9 |
| 21.5 | 20.7 | -0.8 |
| 41.5 | 40.9 | -0.6 |
| | Tolerance Limit (°C) | ±2.0 |

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico
Manager - Inorganics



REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

CONTACT: MR. DEREK LO JOB REFERENCE NO.: 22777053-A20C4301
CLIENT: LAM ENVIRONMENTAL SERVICES LTD.
DATE RECEIVED: 20/01/2022
DATE OF ISSUE: 24/01/2022
ADDRESS: 19/F, REMAX CENTRE, 42 WONG CHUK HANG ROAD,
HONG KONG
PROJECT: ---

METHOD OF PERFORMANCE CHECK/ CALIBRATION:

Ref: APHA22nd ed 2130B

COMMENTS

It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of FT Laboratories Ltd will be followed.

| | |
|----------------------|--------------|
| Scope of Test: | Turbidity |
| Equipment Type: | Turbidimeter |
| Brand Name: | Xin Rui |
| Model No.: | WGZ-3B |
| Serial No.: | 1807069 |
| Equipment No.: | --- |
| Date of Calibration: | 24/01/2022 |

Remarks:

This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Certified By:


WONG Chi Wai Sanio
Chemist

Issue Date:

24/01/2022



REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: 22777053-A20C4301
DATE OF ISSUE: 24/01/2022
CLIENT: LAM ENVIRONMENTAL SERVICES LTD.

| | |
|---------------------------|--------------|
| Equipment Type: | Turbidimeter |
| Brand Name: | Xin Rui |
| Model No.: | WGZ-3B |
| Serial No.: | 1807069 |
| Equipment No.: | --- |
| Date of Calibration: | 24/01/2022 |
| Date of next Calibration: | 26/04/2022 |
| Lab I.D.: | H220003-01 |

Parameters:

Turbidity

Method Ref: APHA 22nd ed. 2130B

| Expected Reading (NTU) | Display Reading (NTU) | Tolerance |
|------------------------|---------------------------|-----------|
| 0 | 0.00 | --- |
| 4 | 3.99 | -0.2% |
| 10 | 10.05 | 0.5% |
| 40 | 39.99 | 0.0% |
| 100 | 100.00 | 0.0% |
| 400 | 397 | -0.8% |
| 1000 | 1000 | 0.0% |
| | Tolerance Limit (\pm) | 10% |

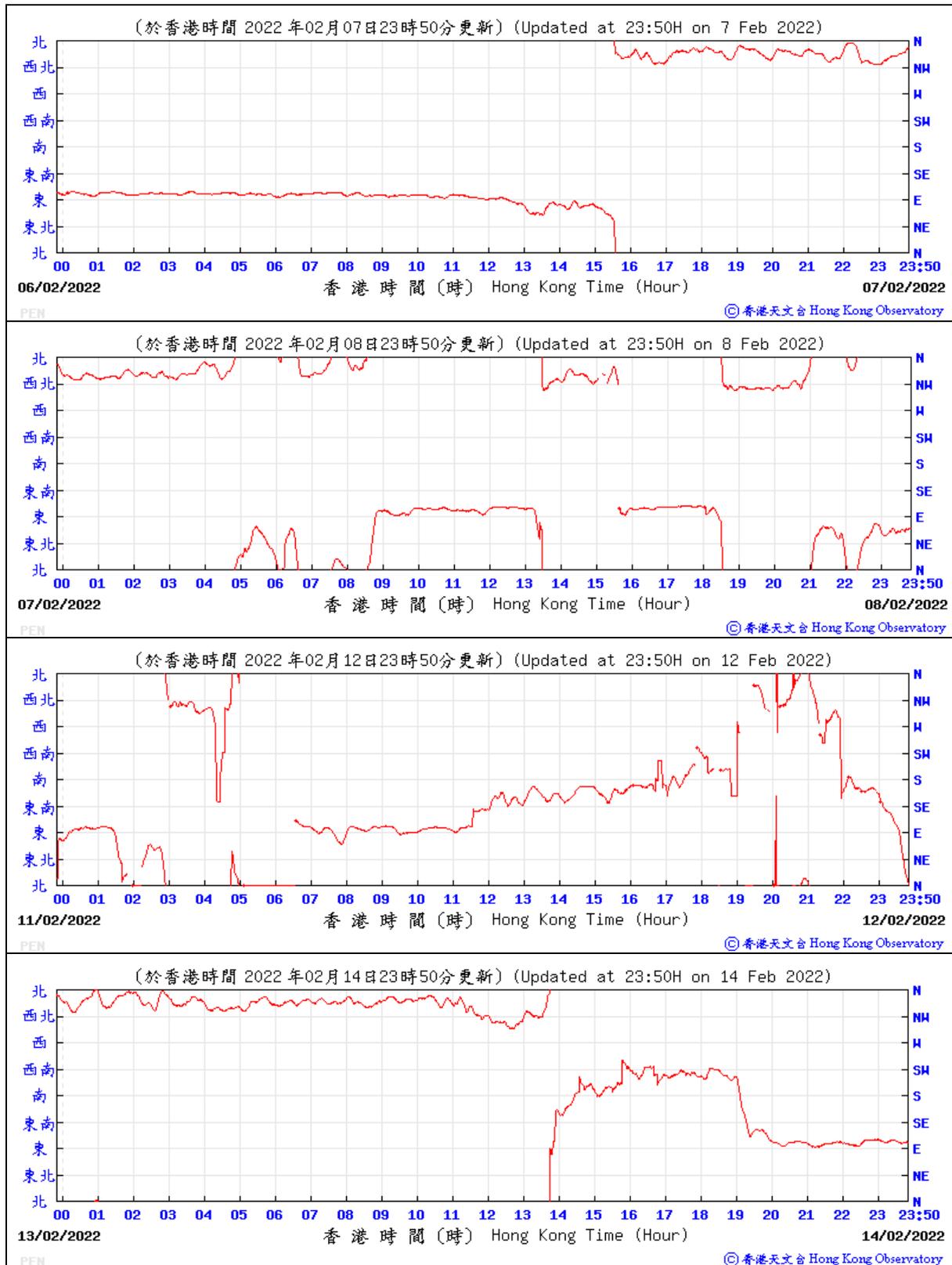
Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.



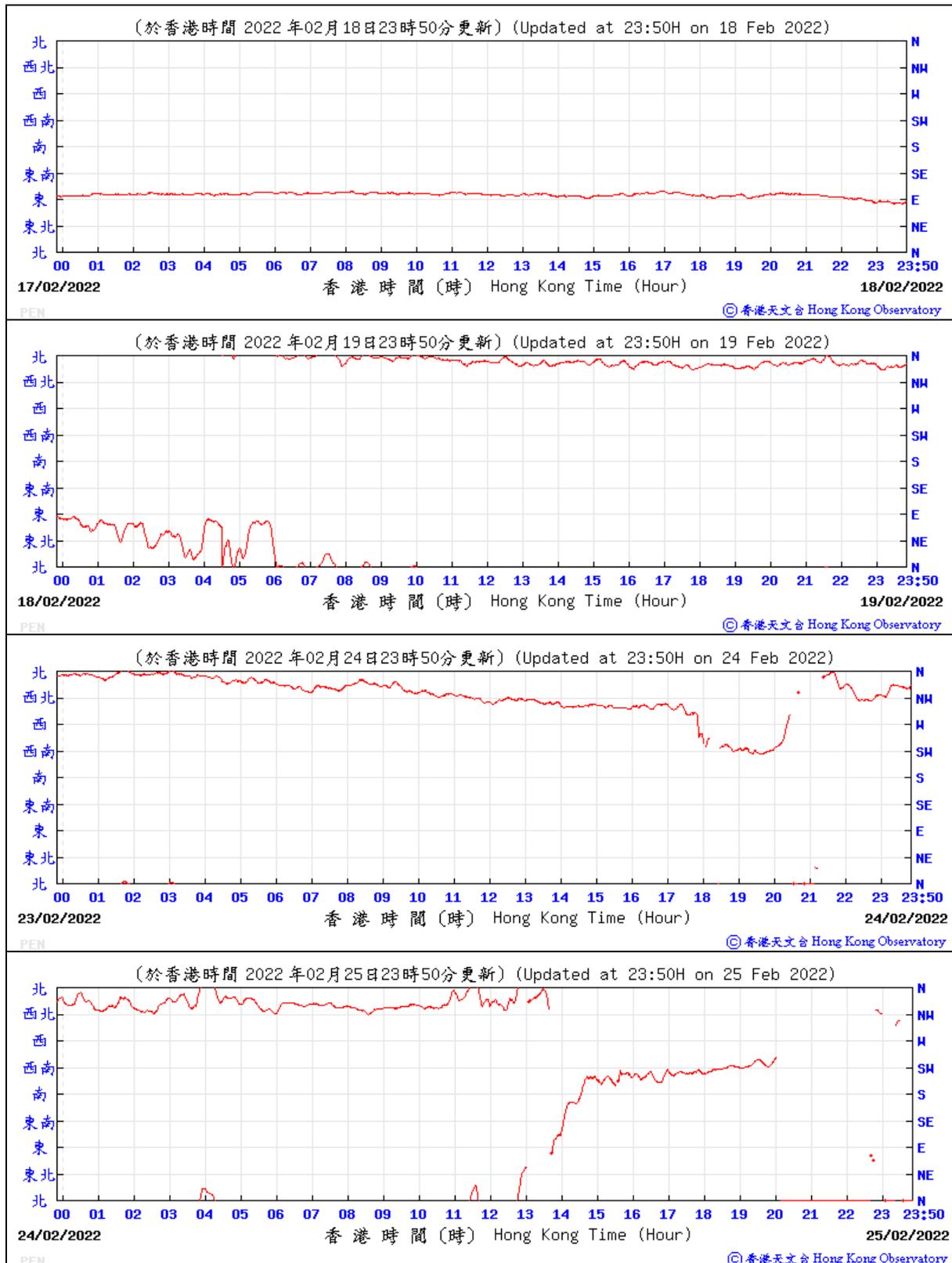
Appendix 4.3

Wind data extracted from HKO Automatic Weather Station

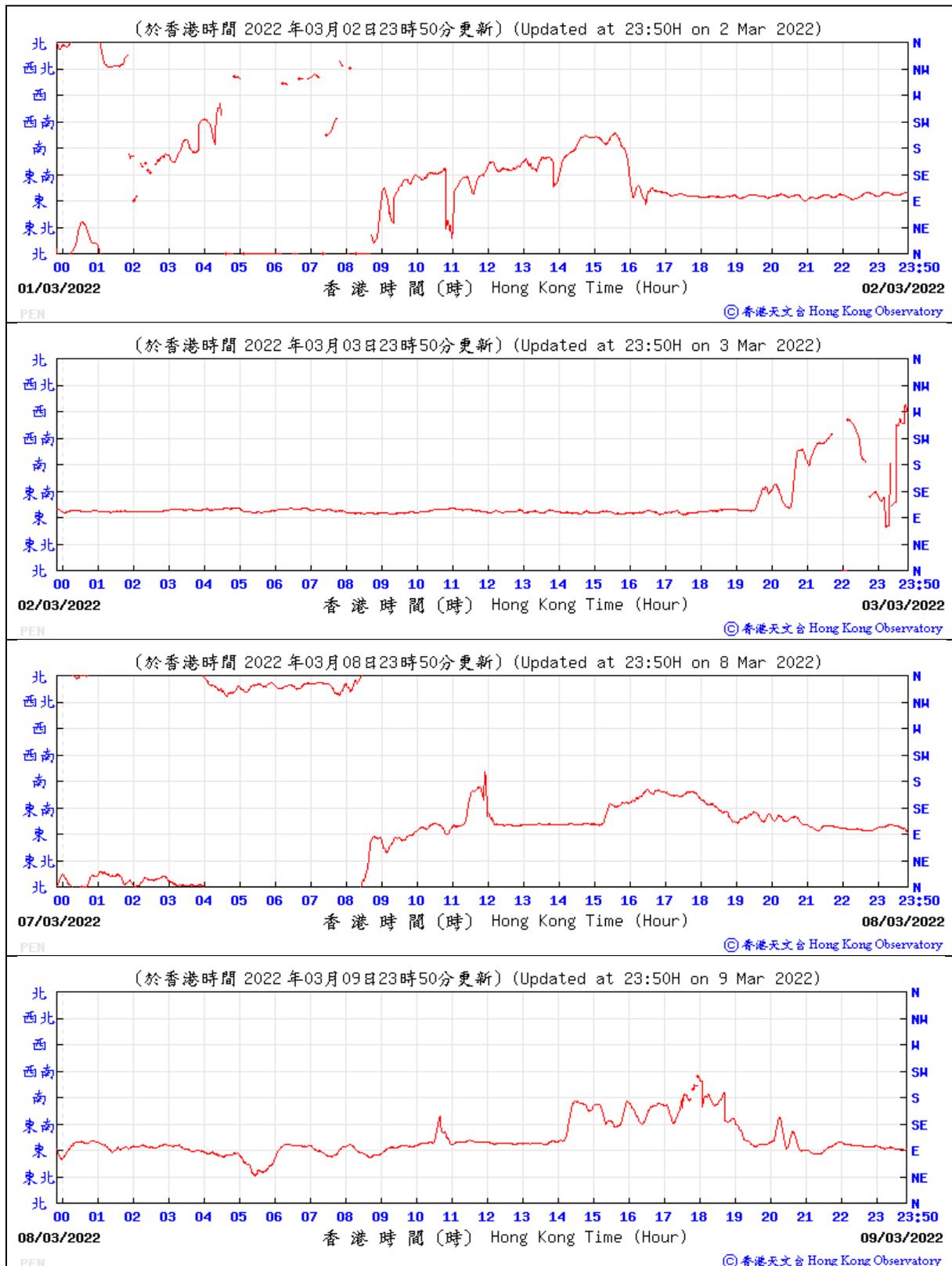
A. Wind Direction extracted from Peng Chau Automatic Weather Station for **LAST MONTH**



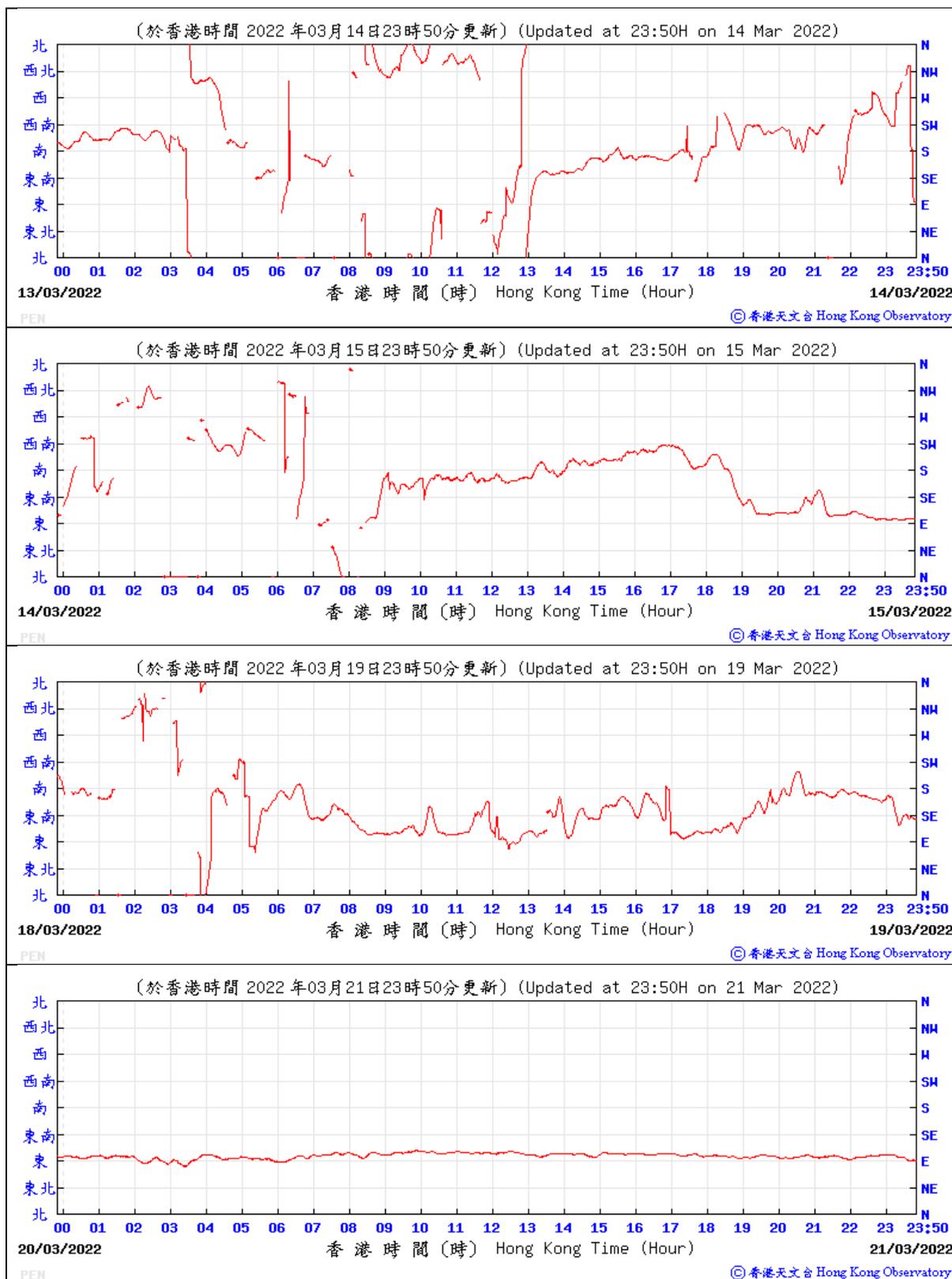
Appendix 4.3 Wind Data



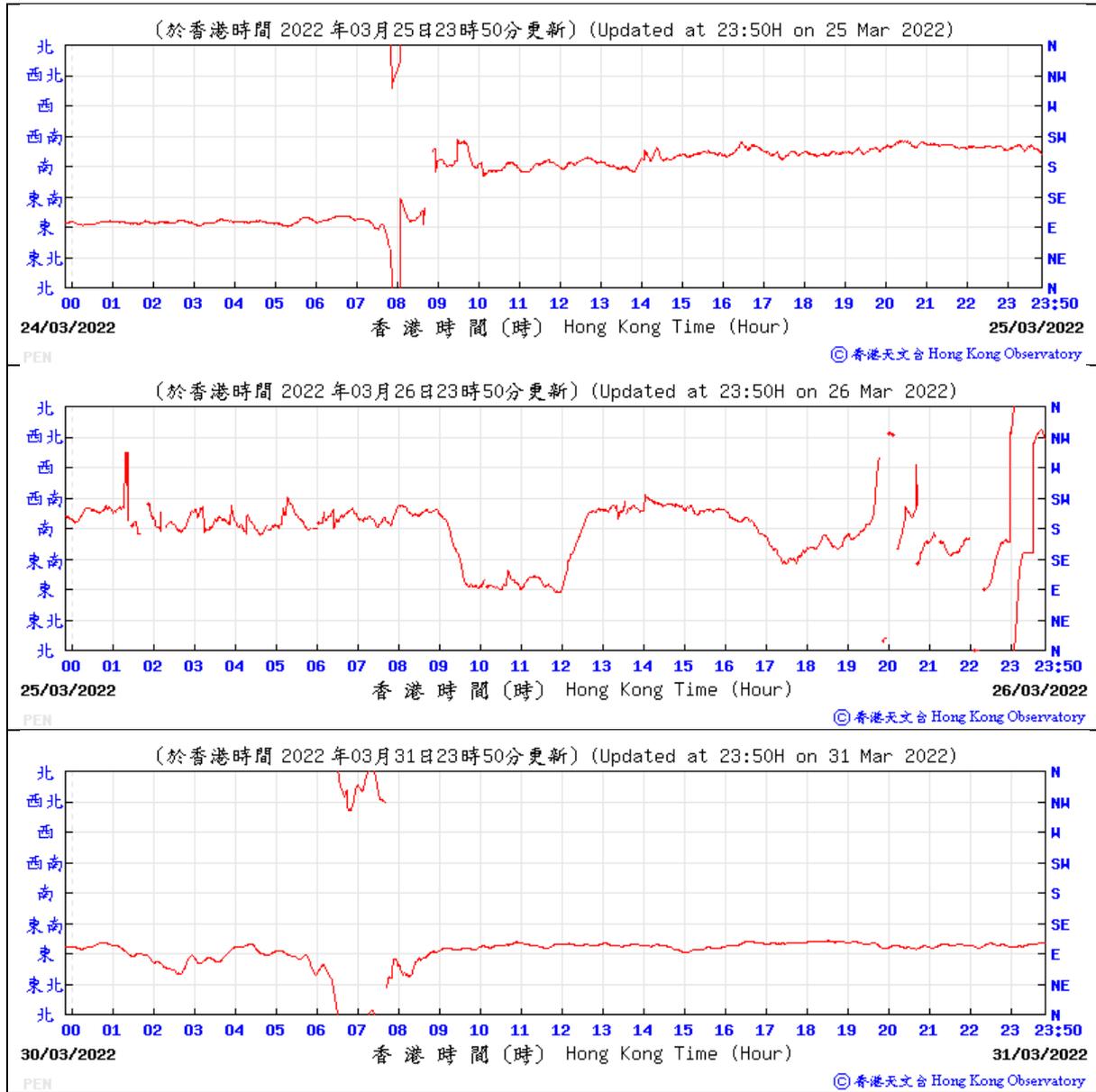
A. Wind Direction extracted from Peng Chau Automatic Weather Station



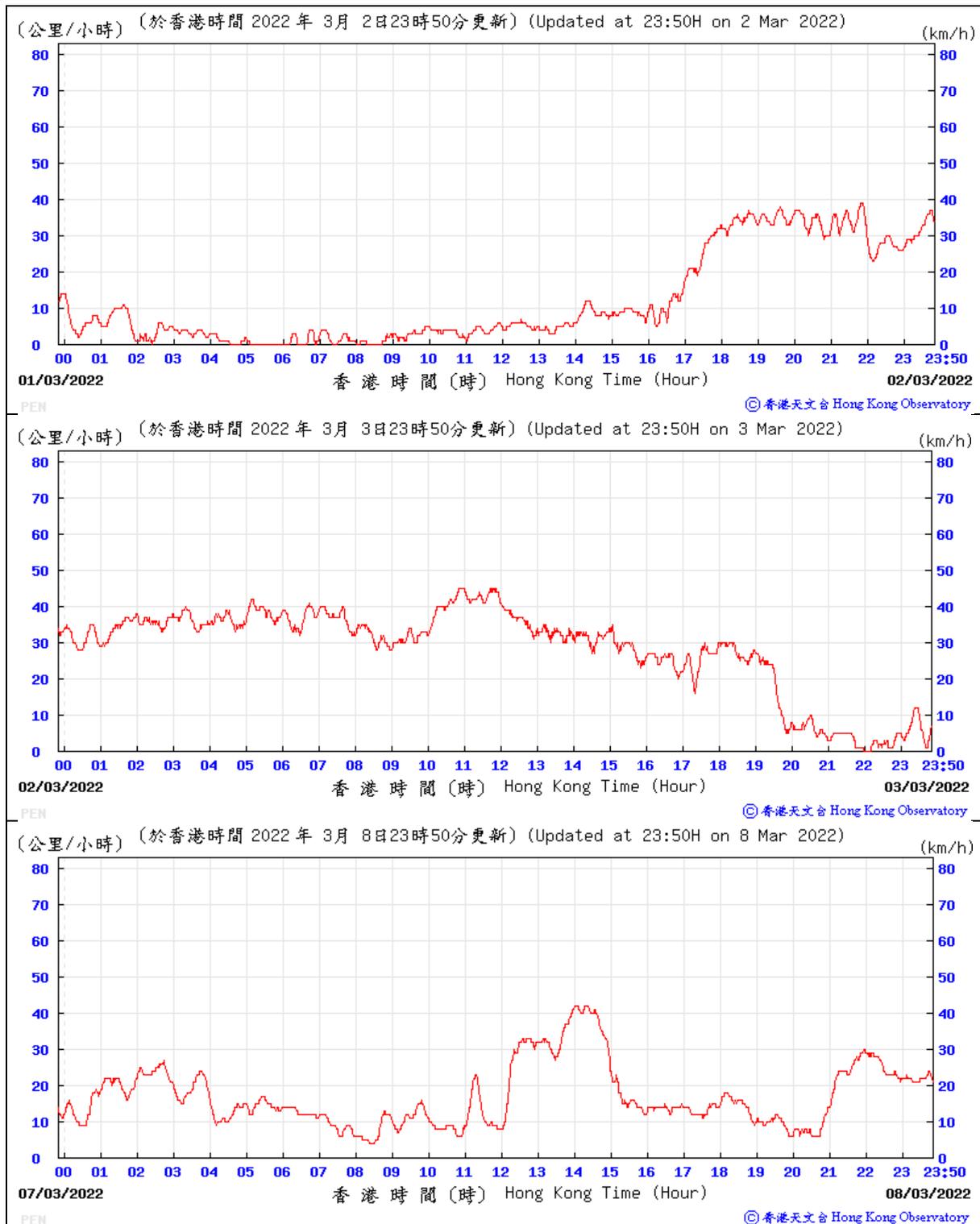
Appendix 4.3 Wind Data



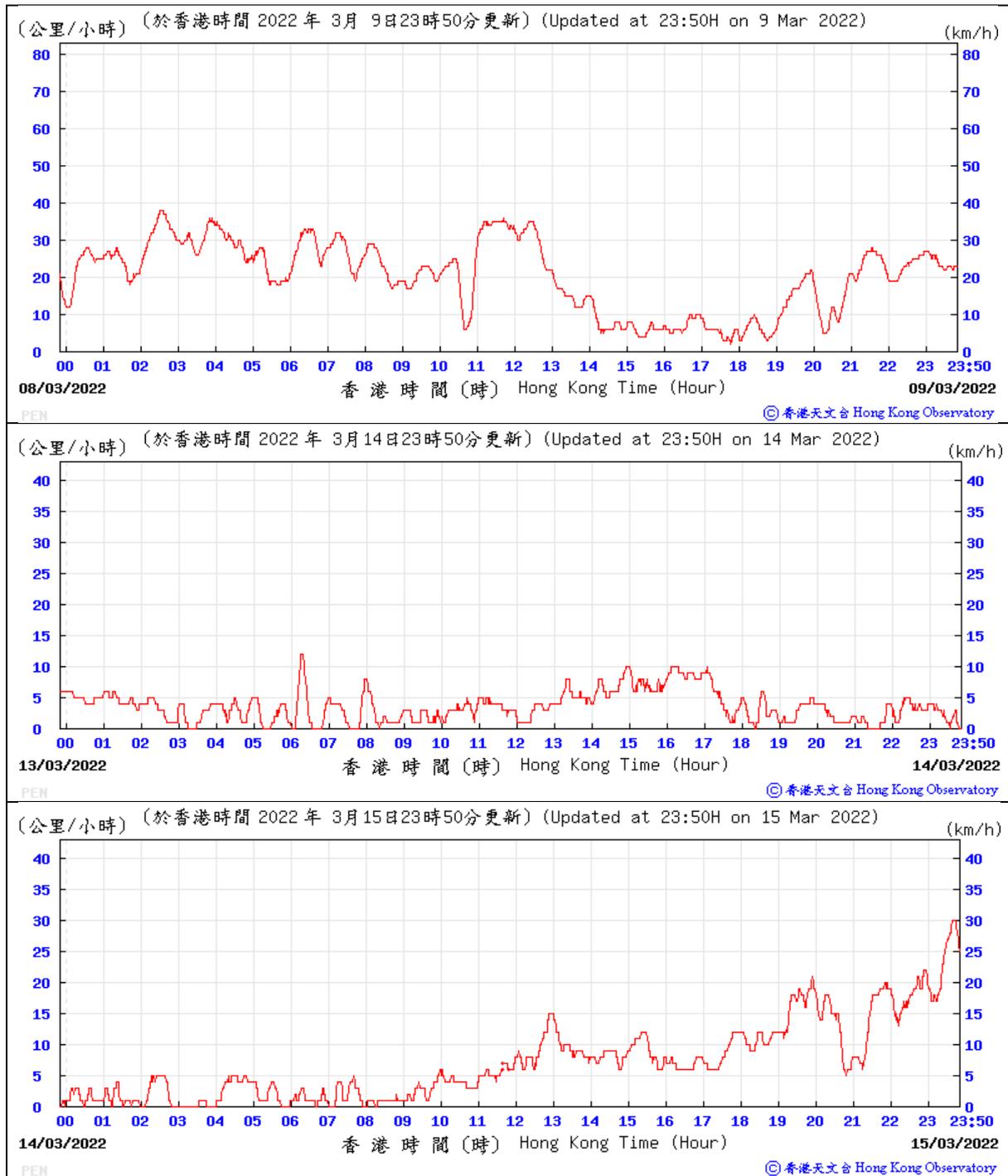
Appendix 4.3 Wind Data



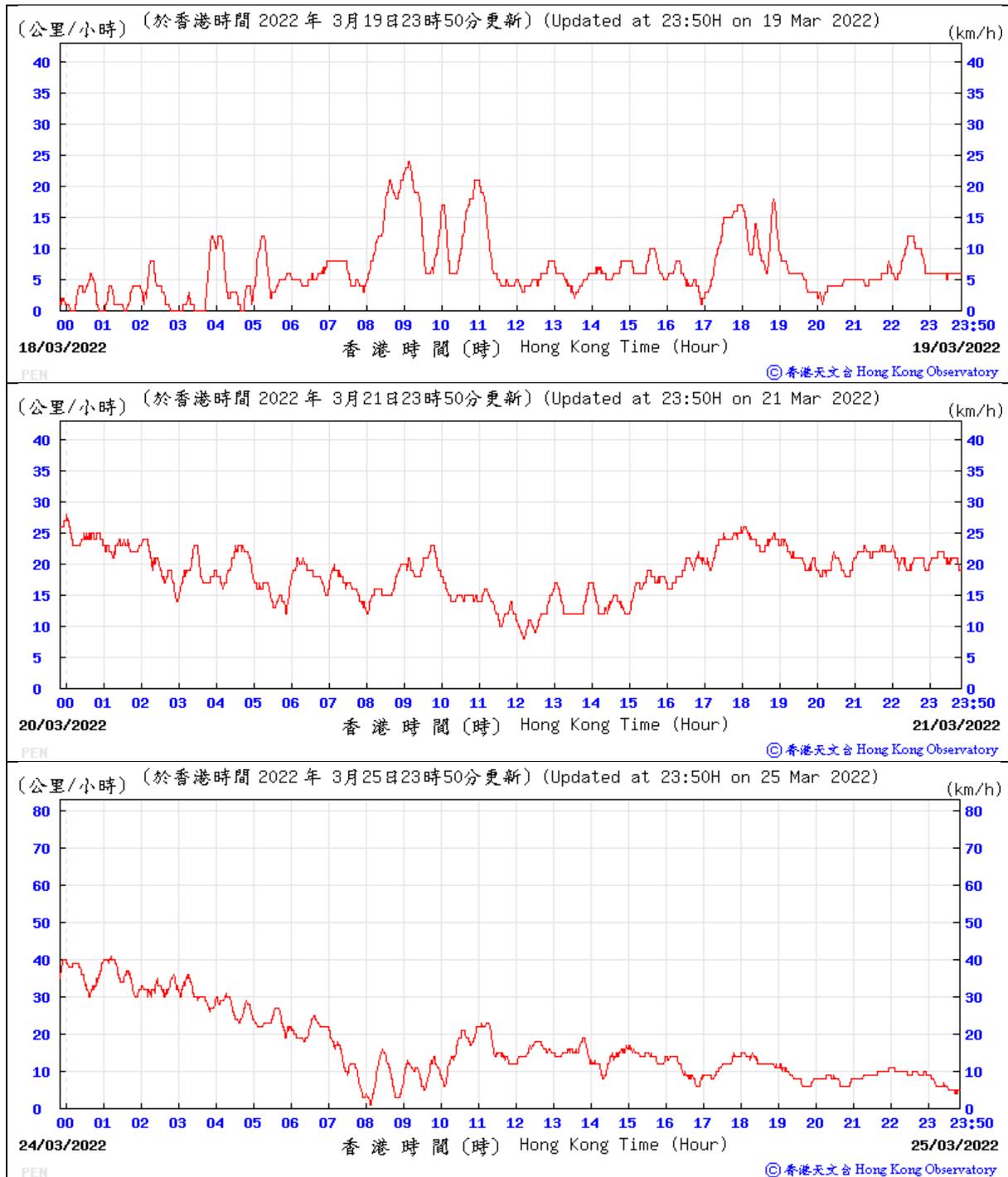
B. Wind Speed extracted from Peng Chau Automatic Weather Station



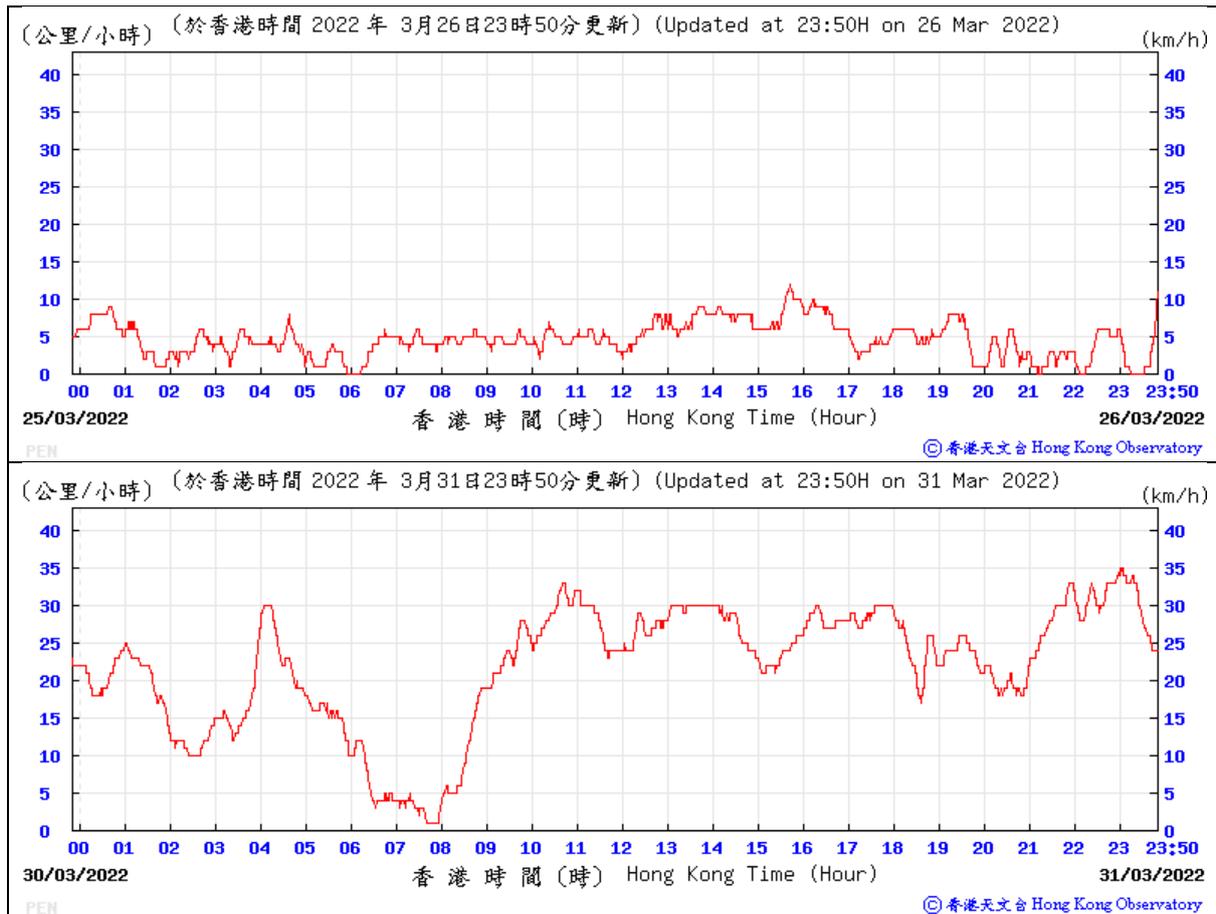
Appendix 4.3 Wind Data



Appendix 4.3 Wind Data



Appendix 4.3 Wind Data





Appendix 5.1

Monitoring Schedules for Reporting Month



Contract No. HY/2019/14
New Wang Tong River Bridge

Tentative Impact Air Quality, Noise and Water Quality Monitoring Schedule
Mar 2022

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--|---|---|--|---|--|--|
| 27 Feb | 28 Feb | 01 Mar | 02 Mar | 03 Mar | 04 Mar | 05 Mar |
| | WQM Mid-Ebb 11:15 Mid-Flood 16:05 | | 24-hr TSP WQM Mid-Ebb 12:40 Mid-Flood 17:56 | 1-hr TSP NM | WQM Mid-Flood 8:00 Mid-Ebb 13:47 | |
| 06 Mar | 07 Mar | 08 Mar | 09 Mar | 10 Mar | 11 Mar | 12 Mar |
| | WQM Mid-Ebb 9:05 Mid-Flood 15:21 | 24-hr TSP | 1-hr TSP NM WQM Mid-Ebb 9:48 Mid-Flood 16:52 | | WQM Mid-Flood 6:50 Mid-Ebb 19:50 | |
| 13 Mar | 14 Mar | 15 Mar | 16 Mar | 17 Mar | 18 Mar | 19 Mar |
| | 24-hr TSP | 1-hr TSP NM WQM Mid-Ebb 11:16 Mid-Flood 16:08 | | WQM Mid-Ebb 12:08 Mid-Flood 17:46 | | 24-hr TSP WQM Mid-Ebb 13:08 Mid-Flood 19:16 |
| 20 Mar | 21 Mar | 22 Mar | 23 Mar | 24 Mar | 25 Mar | 26 Mar |
| 1-hr TSP NM WQM Mid-Ebb 8:11 Mid-Flood 14:21 | | | WQM Mid-Ebb 9:08 Mid-Flood 15:45 | | 24-hr TSP WQM Mid-Ebb 18:01 | 1-hr TSP Mid-Flood 8:29 |
| 27 Mar | 28 Mar | 29 Mar | 30 Mar | 31 Mar | 01 Apr | 02 Apr |
| | WQM Mid-Ebb 10:17 Mid-Flood 15:01 | | WQM Mid-Ebb 11:42 Mid-Flood 17:05 | 24-hr TSP | | |

Remark:

24-hr TSP stands for 24-hour Total Suspended Particulates Monitoring;

1-hr TSP stands for 1-hour Total Suspended Particulate Monitoring;

NM stands for Noise Monitoring; and

WQM stands for Water Quality Monitoring tentatively scheduled, which actual commencement date will be subject to commencement of cofferdam construction at the river bank side of Wang Tong River.



Contract No. HY/2019/14
New Wang Tong River Bridge

Tentative Impact Air Quality, Noise and Water Quality Monitoring Schedule
Apr 2022

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--|--|---|---|---|---|
| 27 Mar | 28 Mar | 29 Mar | 30 Mar | 31 Mar | 01 Apr | 02 Apr |
| | | | | | 1-hr TSP NM WQM Mid-Flood 12:48 Mid-Ebb 18:37 | |
| 03 Apr | 04 Apr | 05 Apr | 06 Apr | 07 Apr | 08 Apr | 09 Apr |
| | WQM Mid-Flood 7:51 Mid-Ebb 14:14 | | 24-hr TSP WQM Mid-Flood 8:23 Mid-Ebb 15:19 | 1-hr TSP NM | | WQM Mid-Ebb 5:21 Mid-Flood 18:16 |
| 10 Apr | 11 Apr | 12 Apr | 13 Apr | 14 Apr | 15 Apr | 16 Apr |
| | | 24-hr TSP WQM Mid-Ebb 10:16 Mid-Flood 14:44 | 1-hr TSP NM | WQM Mid-Ebb 11:09 Mid-Flood 16:46 | | WQM Mid-Ebb 12:07 Mid-Flood 18:24 |
| 17 Apr | 18 Apr | 19 Apr | 20 Apr | 21 Apr | 22 Apr | 23 Apr |
| | 24-hr TSP WQM Mid-Ebb 7:01 Mid-Flood 13:20 | 1-hr TSP NM | WQM Mid-Flood 8:02 Mid-Ebb 14:43 | | WQM Mid-Flood 9:01 Mid-Ebb 16:40 | 24-hr TSP |
| 24 Apr | 25 Apr | 26 Apr | 27 Apr | 28 Apr | 29 Apr | 30 Apr |
| | 1-hr TSP NM WQM Mid-Ebb 9:00 Mid-Flood 13:33 | | WQM Mid-Ebb 10:40 Mid-Flood 16:05 | 24-hr TSP | 1-hr TSP WQM Mid-Ebb 11:42 Mid-Flood 17:45 | |

Remark:

24-hr TSP stands for 24-hour Total Suspended Particulates Monitoring;

1-hr TSP stands for 1-hour Total Suspended Particulate Monitoring;

NM stands for Noise Monitoring; and

WQM stands for Water Quality Monitoring tentatively scheduled, which actual commencement date will be subject to commencement of cofferdam construction at the river bank side of Wang Tong River.



Appendix 5.2

Noise Monitoring Results and Graphical Presentations



Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

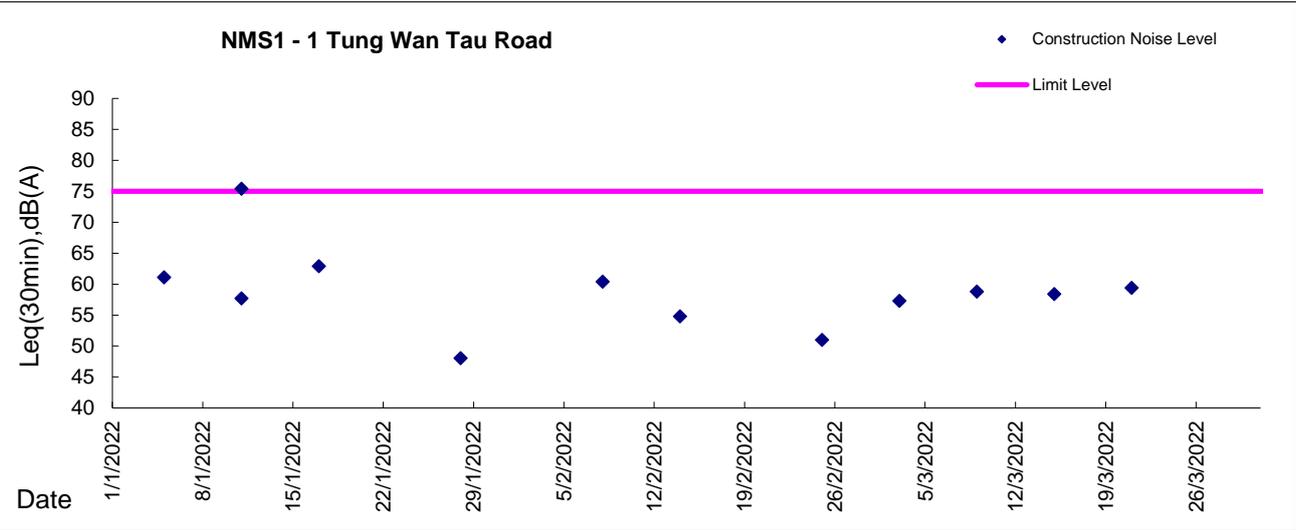
Location: NMS1 - 1 Tung Wan Tau Road

| Date | Weather | Time | Measurement Noise Level | | | Average Noise Level# | Baseline Level | Construction Noise Level | Limit Level |
|-------------|---------|-------|-------------------------|-----------------|-----------------|-----------------------|----------------|--------------------------|-------------|
| | | | L _{eq} | L ₁₀ | L ₉₀ | | | | |
| | | | Unit: dB(A), (30-min) | | | Unit: dB(A), (30-min) | | | |
| 3 Mar 2022 | Cloudy | 10:07 | 57.3 | 60.3 | 50.8 | 57.3 | 60.1 | <Baseline Level> | 75 |
| 9 Mar 2022 | Sunny | 13:30 | 58.8 | 60.2 | 51.4 | 58.8 | 60.1 | <Baseline Level> | 75 |
| 15 Mar 2022 | Sunny | 10:30 | 58.4 | 60.2 | 55.1 | 58.4 | 60.1 | <Baseline Level> | 75 |
| 21 Mar 2022 | Sunny | 10:30 | 59.4 | 59.7 | 53.7 | 59.4 | 60.1 | <Baseline Level> | 75 |

Remark:
Due to free-field measurement, a correction factor of +3 dB(A) is adopted.



Graphic Presentation of Noise Monitoring Result
Day Time (0700 - 1900hrs on normal weekdays)





Appendix 5.3

Air Quality Monitoring Results and Graphical Presentations



Report on 1-hour TSP monitoring at AMS1 - Slivermine Beach Resort
Limit Level ($\mu\text{g}/\text{m}^3$) -

500.0

| Date | Weather Condition | Time | TSP Level ($\mu\text{g}/\text{m}^3$) |
|-----------|-------------------|-------|--|
| 3-Mar-22 | Cloudy | 08:54 | 9.6 |
| 3-Mar-22 | Cloudy | 09:54 | 11.5 |
| 3-Mar-22 | Cloudy | 10:54 | 4.9 |
| 9-Mar-22 | Sunny | 12:23 | 8.7 |
| 9-Mar-22 | Sunny | 13:23 | 6.5 |
| 9-Mar-22 | Sunny | 14:23 | 7.3 |
| 15-Mar-22 | Sunny | 9:38 | 5.4 |
| 15-Mar-22 | Sunny | 10:38 | 6.4 |
| 15-Mar-22 | Sunny | 11:38 | 7.3 |
| 21-Mar-22 | Sunny | 13:07 | 19.1 |
| 21-Mar-22 | Sunny | 14:07 | 21.1 |
| 21-Mar-22 | Sunny | 15:07 | 9.8 |
| 26-Mar-22 | Sunny | 8:18 | 10.8 |
| 26-Mar-22 | Sunny | 9:18 | 254.5 |
| 26-Mar-22 | Sunny | 10:18 | 201.6 |



Report on 1-hour TSP monitoring at AMS2 - 1 Tung Wan Tau Road
Limit Level ($\mu\text{g}/\text{m}^3$) -

500.0

| Date | Weather Condition | Time | TSP Level ($\mu\text{g}/\text{m}^3$) |
|-----------|-------------------|-------|--|
| 3-Mar-22 | Cloudy | 09:15 | 159.4 |
| 3-Mar-22 | Cloudy | 10:15 | 108.4 |
| 3-Mar-22 | Cloudy | 11:15 | 90.9 |
| 9-Mar-22 | Sunny | 12:41 | 64.6 |
| 9-Mar-22 | Sunny | 13:41 | 28.3 |
| 9-Mar-22 | Sunny | 14:41 | 55.5 |
| 15-Mar-22 | Sunny | 9:57 | 134.4 |
| 15-Mar-22 | Sunny | 10:57 | 105.0 |
| 15-Mar-22 | Sunny | 11:57 | 86.1 |
| 21-Mar-22 | Sunny | 13:27 | 181.1 |
| 21-Mar-22 | Sunny | 14:27 | 201.9 |
| 21-Mar-22 | Sunny | 15:27 | 88.2 |
| 26-Mar-22 | Sunny | 8:55 | 10.4 |
| 26-Mar-22 | Sunny | 9:55 | 233.8 |
| 26-Mar-22 | Sunny | 10:55 | 120.0 |



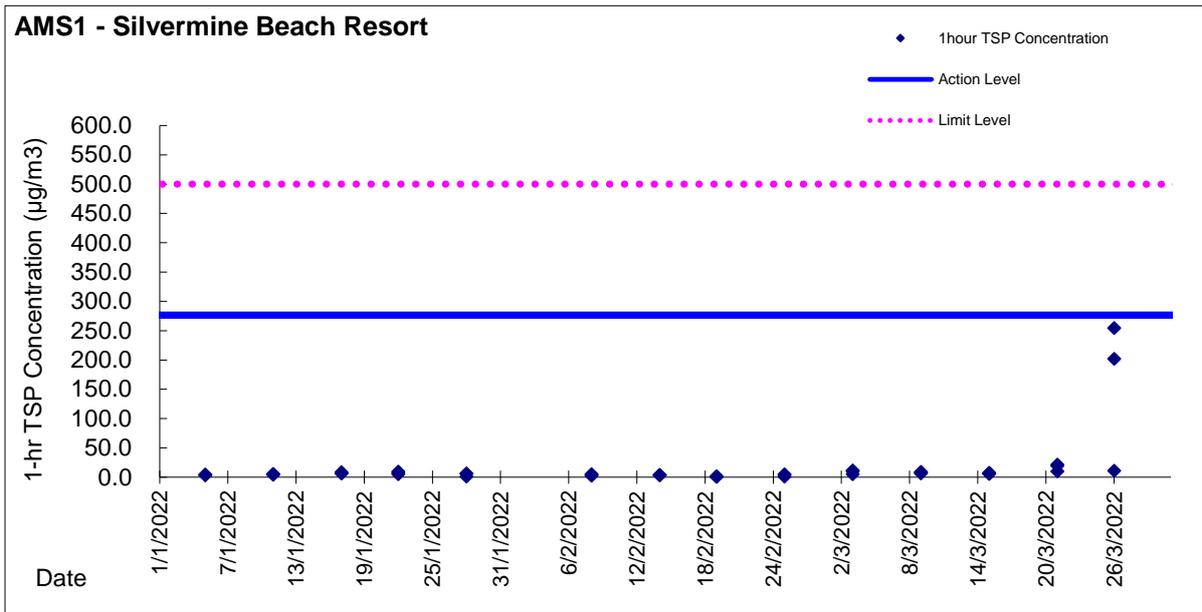
Contract No. HY/2019/04
New Wang Tong River Bridge

| | Date | Sampling Time | Weather Condition | Filter paper no. | Filter Weight, g | | Elapse Time, hr | | Sampling Time, hr | Flow Rate, m ³ /min | | | Total | TSP Level, |
|------|----------|---------------|-------------------|------------------|------------------|--------|-----------------|---------|-------------------|--------------------------------|------------|---------|------------------------|-------------------|
| | | | | | Initial | Final | Initial | Final | | Initial, Qsi | Final, Qsf | Average | Volume, m ³ | µg/m ³ |
| AMS1 | 02/03/22 | 8:00 | Sunny | 008693 | 2.7154 | 2.8252 | 1677.51 | 1701.51 | 24.00 | 0.15 | 0.96 | 0.56 | 801 | 137.1 |
| AMS1 | 08/03/22 | 8:00 | Sunny | 008656 | 2.7223 | 2.7838 | 1701.51 | 1725.51 | 24.00 | 0.14 | 0.78 | 0.46 | 664 | 92.6 |
| AMS1 | 14/03/22 | 8:00 | Sunny | 008657 | 2.7321 | 2.8085 | 1725.51 | 1749.51 | 24.00 | 0.28 | 0.83 | 0.55 | 794 | 96.2 |
| AMS1 | 19/03/22 | 8:00 | Rainy | 008659 | 2.7142 | 2.7804 | 1749.51 | 1773.51 | 24.00 | 0.19 | 0.83 | 0.51 | 738 | 89.7 |
| AMS1 | 25/03/22 | 8:00 | Sunny | 008658 | 2.7289 | 2.7817 | 1773.51 | 1797.51 | 24.00 | 0.35 | 0.52 | 0.44 | 630 | 83.8 |
| AMS1 | 31/03/22 | 8:00 | Sunny | 010567 | 2.8040 | 2.8466 | 1797.51 | 1821.51 | 24.00 | 0.13 | 0.54 | 0.33 | 480 | 88.7 |
| AMS2 | 02/03/22 | 8:00 | Sunny | 008697 | 2.7125 | 2.7865 | 2209.59 | 2233.59 | 24.00 | 1.37 | 1.38 | 1.37 | 1979 | 37.4 |
| AMS2 | 08/03/22 | 8:00 | Sunny | 008660 | 2.7061 | 2.7542 | 2233.59 | 2257.59 | 24.00 | 1.18 | 1.18 | 1.18 | 1701 | 28.3 |
| AMS2 | 14/03/22 | 8:00 | Sunny | 008661 | 2.7069 | 2.7885 | 2257.59 | 2281.59 | 24.00 | 1.17 | 1.17 | 1.17 | 1689 | 48.3 |
| AMS2 | 19/03/22 | 8:00 | Rainy | 008662 | 2.7197 | 2.7778 | 2281.59 | 2305.59 | 24.00 | 1.27 | 1.27 | 1.27 | 1831 | 31.7 |
| AMS2 | 25/03/22 | 8:00 | Sunny | 008663 | 2.7065 | 2.7570 | 2305.59 | 2329.59 | 24.00 | 1.22 | 1.22 | 1.22 | 1755 | 28.8 |
| AMS2 | 31/03/22 | 8:00 | Sunny | 008698 | 2.7137 | 2.7866 | 2329.59 | 2353.59 | 24.00 | 1.22 | 1.23 | 1.23 | 1768 | 41.2 |

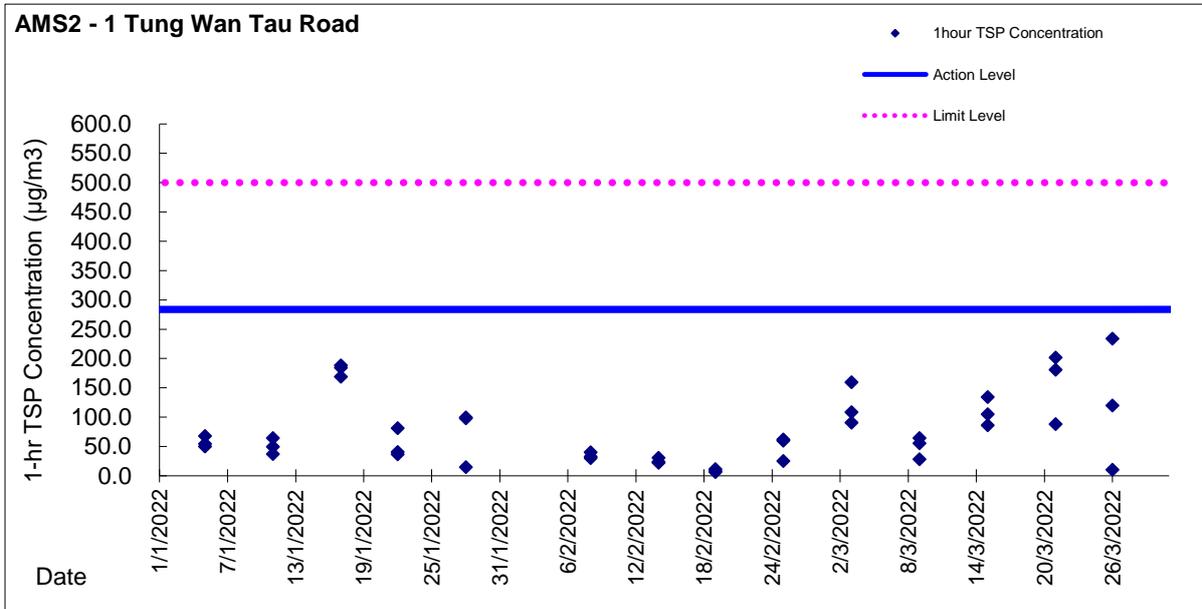
Remarks:

Graphic Presentation of TSP Result

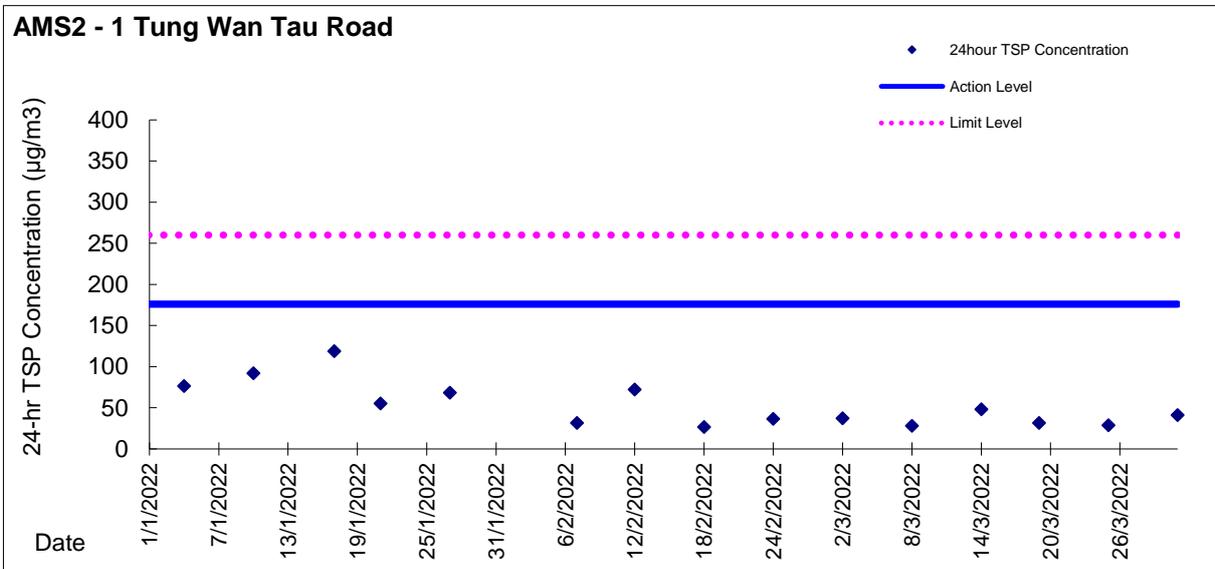
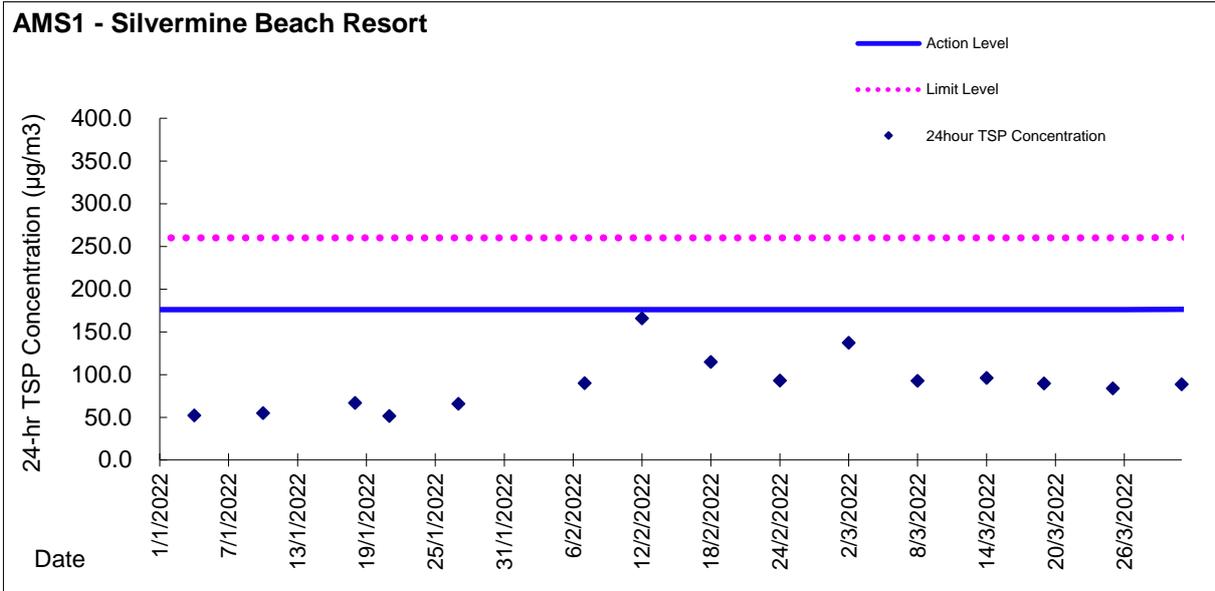
AMS1 - Silvermine Beach Resort



AMS2 - 1 Tung Wan Tau Road



Graphic Presentation of TSP Result





Appendix 5.4

Water Quality Monitoring Results and Graphical Presentations



Water Quality Monitoring at Station W1 (Surface) - Ebb Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | | |
|--|---------------|---------|---------------|------------------|----------------|---------------------|-------------------|-------|---------|-------|-------|---------|-----------------|-------|---------|--------------------|-------|---------|------------|------|---------|------------------|-------|---------|------------|---------|-------|---------|
| | | | | | | | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W1 Wang Tong River (Major tributary) | 17/3/2022 | Sunny | 11:30 | 0.50 | Surface | 0.25 | 24.00 | 24.20 | 24.2 | 8.53 | 8.12 | 8.4 | 1.53 | 1.50 | 1.5 | 66.70 | 65.40 | 66.5 | 5.53 | 5.43 | 5.5 | 5.60 | 5.54 | 5.6 | 2.50 | 2.5 | | |
| | | | 11:35 | 0.50 | | | 24.20 | 24.30 | 8.45 | 8.40 | 1.53 | 1.48 | 66.90 | 67.10 | 5.55 | 5.49 | 5.66 | 5.57 | 5.6 | 2.50 | 2.5 | | | | | | | |
| | 19/3/2022 | Sunny | 11:45 | 0.50 | | 0.25 | 26.30 | 26.20 | 26.3 | 7.68 | 7.77 | 7.7 | 1.19 | 1.26 | 1.4 | 72.80 | 78.00 | 75.0 | 5.84 | 6.12 | 6.0 | 4.73 | 4.68 | 4.8 | 3.50 | 3.7 | | |
| | | | 11:50 | 0.50 | | | 26.30 | 26.40 | 7.69 | 7.64 | 1.64 | 1.51 | 71.80 | 77.30 | 5.94 | 5.98 | 4.77 | 4.98 | 3.80 | 3.7 | | | | | | | | |
| | 21/3/2022 | Sunny | 7:30 | 0.50 | | 0.25 | 22.60 | 22.70 | 22.7 | 7.98 | 7.98 | 7.9 | 7.92 | 7.70 | 7.7 | 72.40 | 71.80 | 72.0 | 7.63 | 6.67 | 7.4 | 2.21 | 2.24 | 2.3 | 5.00 | 5.2 | | |
| | | | 7:35 | 0.50 | | | 22.60 | 22.70 | 7.85 | 7.88 | 7.82 | 7.21 | 71.70 | 71.90 | 7.55 | 7.65 | 2.34 | 2.31 | 5.40 | 5.2 | | | | | | | | |
| | 23/3/2022 | Rainy | 8:30 | 0.50 | | 0.25 | 18.80 | 18.80 | 18.9 | 7.55 | 7.46 | 7.5 | 0.69 | 0.69 | 0.7 | 86.20 | 86.10 | 87.1 | 7.91 | 7.90 | 7.9 | 2.31 | 2.34 | 2.3 | 22.70 | 22.9 | | |
| | | | 8:35 | 0.50 | | | 19.00 | 19.00 | 7.54 | 7.59 | 0.71 | 0.71 | 88.10 | 88.00 | 7.94 | 7.93 | 2.33 | 2.35 | 23.10 | 22.9 | | | | | | | | |
| | 25/3/2022 | Rainy | 17:20 | 0.50 | | 0.25 | 22.20 | 22.20 | 22.2 | 7.98 | 7.98 | 8.0 | 4.50 | 4.50 | 4.5 | 70.30 | 70.10 | 54.7 | 5.91 | 5.91 | 5.9 | 3.20 | 3.21 | 3.3 | 3.70 | 3.9 | | |
| | | | 17:25 | 0.50 | | | 22.10 | 22.20 | 7.96 | 7.95 | 4.52 | 4.52 | 71.20 | 7.20 | 5.94 | 5.94 | 3.37 | 3.37 | 4.00 | 3.9 | | | | | | | | |
| | 28/3/2022 | Cloudy | 10:00 | 0.50 | | 0.25 | 18.90 | 18.90 | 18.9 | 8.90 | 8.89 | 8.9 | 1.00 | 0.99 | 1.0 | 84.10 | 83.77 | 83.9 | 7.64 | 7.42 | 7.5 | 9.99 | 10.00 | 9.9 | 8.60 | 8.8 | | |
| | | | 10:15 | 0.50 | | | 18.90 | 18.90 | 8.91 | 8.93 | 1.02 | 1.02 | 83.90 | 83.90 | 7.55 | 7.56 | 9.75 | 9.95 | 9.00 | 8.8 | | | | | | | | |
| 30/3/2022 | Sunny | 10:45 | 0.50 | 0.25 | 21.40 | 21.30 | 21.3 | 8.47 | 8.41 | 8.3 | 2.35 | 2.24 | 2.3 | 88.60 | 90.80 | 89.6 | 8.27 | 7.79 | 7.8 | 3.16 | 3.17 | 3.2 | 4.40 | 4.7 | | | | |
| | | 10:50 | 0.50 | | 21.30 | 21.30 | 8.16 | 8.14 | 2.24 | 2.33 | 89.80 | 89.30 | 7.59 | 7.62 | 3.18 | 3.13 | 4.90 | 4.7 | | | | | | | | | | |

Water Quality Monitoring at Station W1 (Surface) - Flood Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | | |
|--|---------------|----------|---------------|------------------|----------------|---------------------|-------------------|-------|---------|-------|-------|---------|-----------------|-------|---------|--------------------|-------|---------|------------|------|---------|------------------|------|---------|------------|---------|-------|---------|
| | | | | | | | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W1 Wang Tong River (Major tributary) | 17/3/2022 | Sunny | 17:15 | 0.50 | Surface | 0.25 | 25.60 | 25.50 | 25.5 | 8.65 | 8.66 | 8.6 | 2.19 | 2.20 | 2.2 | 75.00 | 77.30 | 75.4 | 5.90 | 6.09 | 6.0 | 4.21 | 4.19 | 4.2 | 3.90 | 4.1 | | |
| | | | 17:20 | 0.50 | | | 25.50 | 25.40 | 8.64 | 8.63 | 2.19 | 2.19 | 74.90 | 74.20 | 5.95 | 6.01 | 4.20 | 4.21 | 4.20 | 4.1 | | | | | | | | |
| | 19/3/2022 | Sunny | 18:30 | 0.50 | | 0.25 | 24.20 | 24.20 | 24.2 | 7.44 | 7.53 | 7.5 | 0.99 | 1.00 | 1.0 | 69.10 | 70.30 | 69.9 | 5.78 | 6.61 | 6.1 | 1.94 | 2.01 | 2.1 | 2.80 | 2.7 | | |
| | | | 18:35 | 0.50 | | | 24.20 | 24.20 | 7.51 | 7.48 | 1.03 | 1.12 | 68.80 | 71.30 | 5.79 | 6.31 | 2.14 | 2.21 | 2.60 | 2.7 | | | | | | | | |
| | 21/3/2022 | Overcast | 14:00 | 0.50 | | 0.25 | 24.00 | 24.00 | 24.1 | 7.21 | 7.34 | 7.3 | 8.29 | 8.29 | 9.3 | 81.20 | 80.90 | 81.3 | 6.10 | 5.97 | 6.1 | 2.30 | 2.35 | 2.4 | 4.50 | 4.3 | | |
| | | | 14:05 | 0.50 | | | 24.10 | 24.10 | 7.22 | 7.31 | 8.27 | 12.51 | 82.10 | 80.90 | 6.14 | 6.03 | 2.41 | 2.36 | 4.10 | 4.3 | | | | | | | | |
| | 23/3/2022 | Rainy | 15:30 | 0.50 | | 0.25 | 18.90 | 18.90 | 18.9 | 7.57 | 7.52 | 7.6 | 0.99 | 0.99 | 1.0 | 91.00 | 90.80 | 89.9 | 7.81 | 7.79 | 7.8 | 2.01 | 2.33 | 2.3 | 10.20 | 10.5 | | |
| | | | 15:35 | 0.50 | | | 18.90 | 18.90 | 7.59 | 7.55 | 0.99 | 0.99 | 88.90 | 88.70 | 7.90 | 7.85 | 2.34 | 2.34 | 10.70 | 10.5 | | | | | | | | |
| | 26/3/2022 | Cloudy | 8:15 | 0.50 | | 0.25 | 22.40 | 22.40 | 22.4 | 8.96 | 8.95 | 8.9 | 1.42 | 1.42 | 1.4 | 71.21 | 70.12 | 72.3 | 6.88 | 6.78 | 6.8 | 2.18 | 2.17 | 2.2 | 4.50 | 4.8 | | |
| | | | 8:20 | 0.50 | | | 22.40 | 22.40 | 8.87 | 8.78 | 1.39 | 1.39 | 74.50 | 73.50 | 6.81 | 6.79 | 2.17 | 2.17 | 5.00 | 4.8 | | | | | | | | |
| | 28/3/2022 | Cloudy | 14:30 | 0.50 | | 0.25 | 19.20 | 19.20 | 19.2 | 8.87 | 8.88 | 8.9 | 1.33 | 1.34 | 1.3 | 90.10 | 89.70 | 90.0 | 8.09 | 7.98 | 8.0 | 8.19 | 8.17 | 8.2 | 5.80 | 5.6 | | |
| | | | 14:35 | 0.50 | | | 19.20 | 19.20 | 8.85 | 8.84 | 1.29 | 1.31 | 89.80 | 90.30 | 8.12 | 7.99 | 8.13 | 8.11 | 5.40 | 5.6 | | | | | | | | |
| 30/3/2022 | Sunny | 16:30 | 0.50 | 0.25 | 21.20 | 21.20 | 21.2 | 7.72 | 7.71 | 7.7 | 1.72 | 1.72 | 1.7 | 77.50 | 81.60 | 76.9 | 6.94 | 7.08 | 6.9 | 3.78 | 3.77 | 3.7 | 3.50 | 3.4 | | | | |
| | | 16:35 | 0.50 | | 21.20 | 21.20 | 7.75 | 7.73 | 1.77 | 1.75 | 75.00 | 73.30 | 6.85 | 6.88 | 3.63 | 3.46 | 3.20 | 3.4 | | | | | | | | | | |

General Note: Additional data of temperature, pH, salinity, DO saturation, DO and turbidity were obtained in each duplicate set for better representativeness.



Water Quality Monitoring at Station W2 (Surface) - Ebb Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | |
|--------------------------------------|---------------|---------|---------------|------------------|----------------|---------------------|-------------------|-------|---------|-------|-------|---------|-----------------|-------|---------|--------------------|-------|---------|------------|-------|---------|------------------|-------|---------|------------|---------|
| | | | | | | | Value | Value | Average | Value | Value | Average | Value | Value | Average | Value | Value | Average | Value | Value | Average | Value | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2 Wang Tong River (Major tributary) | 17/3/2022 | Sunny | 11:45 | 0.50 | Surface | 0.25 | 24.30 | 24.40 | 24.4 | 8.44 | 8.22 | 8.3 | 6.27 | 6.25 | 6.3 | 62.30 | 75.00 | 70.6 | 5.62 | 5.80 | 5.7 | 5.45 | 5.40 | 5.4 | 2.10 | 2.1 |
| | | | 11:50 | 0.50 | | 0.25 | 24.30 | 24.40 | 24.4 | 8.20 | 8.39 | 8.3 | 6.21 | 6.33 | 6.3 | 72.10 | 73.10 | 70.6 | 5.60 | 5.72 | 5.7 | 5.44 | 5.45 | 5.4 | 2.10 | 2.1 |
| | 19/3/2022 | Sunny | 12:00 | 0.50 | | 0.25 | 26.10 | 26.10 | 26.2 | 7.51 | 7.43 | 7.5 | 2.30 | 2.30 | 2.3 | 69.80 | 79.00 | 73.8 | 5.53 | 6.20 | 6.1 | 3.78 | 3.70 | 3.8 | 5.80 | 5.8 |
| | | | 12:05 | 0.50 | | 0.25 | 26.20 | 26.30 | 26.2 | 7.59 | 7.46 | 7.5 | 2.34 | 2.32 | 2.3 | 72.90 | 73.30 | 73.8 | 6.33 | 6.35 | 6.1 | 3.94 | 3.68 | 3.8 | 5.70 | 5.7 |
| | 21/3/2022 | Sunny | 7:45 | 0.50 | | 0.25 | 22.60 | 22.60 | 22.6 | 7.99 | 7.98 | 7.9 | 10.40 | 10.45 | 10.4 | 74.10 | 79.50 | 75.4 | 5.93 | 6.33 | 6.2 | 2.34 | 2.32 | 2.4 | 4.20 | 4.0 |
| | | | 7:50 | 0.50 | | 0.25 | 22.60 | 22.60 | 22.6 | 7.91 | 7.55 | 7.9 | 10.15 | 10.68 | 10.4 | 75.60 | 72.30 | 75.4 | 6.34 | 6.38 | 6.2 | 2.38 | 2.36 | 2.4 | 3.70 | 3.7 |
| | 23/3/2022 | Rainy | 8:45 | 0.50 | | 0.25 | 18.60 | 18.60 | 18.7 | 7.86 | 7.75 | 7.8 | 0.94 | 0.94 | 0.9 | 76.10 | 75.00 | 78.0 | 6.97 | 6.95 | 7.1 | 2.35 | 2.86 | 2.6 | 28.50 | 28.7 |
| | | | 8:50 | 0.50 | | 0.25 | 18.70 | 18.70 | 18.7 | 7.87 | 7.77 | 7.8 | 0.93 | 0.93 | 0.9 | 80.50 | 80.30 | 78.0 | 7.27 | 7.24 | 7.1 | 2.54 | 2.51 | 2.6 | 28.90 | 28.9 |
| | 25/3/2022 | Rainy | 17:30 | 0.50 | | 0.25 | 22.20 | 22.20 | 22.2 | 7.56 | 7.55 | 7.5 | 6.93 | 6.93 | 6.9 | 69.90 | 69.80 | 69.8 | 5.70 | 5.65 | 5.7 | 3.65 | 3.65 | 3.4 | 5.20 | 5.0 |
| | | | 17:35 | 0.50 | | 0.25 | 22.20 | 22.20 | 22.2 | 7.48 | 7.49 | 7.5 | 6.91 | 6.91 | 6.9 | 69.80 | 69.80 | 69.8 | 5.72 | 5.66 | 5.7 | 3.17 | 3.17 | 3.4 | 4.80 | 4.8 |
| | 28/3/2022 | Cloudy | 10:15 | 0.50 | | 0.25 | 18.70 | 18.70 | 18.7 | 8.90 | 8.88 | 8.9 | 0.89 | 0.90 | 0.9 | 84.50 | 83.90 | 84.1 | 7.63 | 7.61 | 7.5 | 9.89 | 9.91 | 9.9 | 9.40 | 9.5 |
| | | | 10:20 | 0.50 | | 0.25 | 18.60 | 18.60 | 18.7 | 8.90 | 8.89 | 8.9 | 0.94 | 0.91 | 0.9 | 84.30 | 83.80 | 84.1 | 7.41 | 7.51 | 7.5 | 9.84 | 9.85 | 9.9 | 9.60 | 9.5 |
| 30/3/2022 | Sunny | 11:00 | 0.50 | 0.25 | 21.10 | 21.20 | 21.2 | 7.81 | 7.80 | 7.8 | 7.60 | 7.63 | 7.6 | 79.60 | 80.90 | 80.0 | 6.67 | 7.03 | 6.9 | 3.43 | 3.44 | 3.4 | 4.70 | 4.9 | | |
| | | 11:05 | 0.50 | 0.25 | 21.20 | 21.20 | 21.2 | 7.81 | 7.79 | 7.8 | 7.63 | 7.64 | 7.6 | 79.30 | 80.20 | 80.0 | 6.87 | 6.89 | 6.9 | 3.44 | 3.43 | 3.4 | 5.00 | 4.9 | | |

Water Quality Monitoring at Station W2 (Surface) - Flood Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | |
|--------------------------------------|---------------|----------|---------------|------------------|----------------|---------------------|-------------------|-------|---------|-------|-------|---------|-----------------|-------|---------|--------------------|-------|---------|------------|-------|---------|------------------|-------|---------|------------|---------|
| | | | | | | | Value | Value | Average | Value | Value | Average | Value | Value | Average | Value | Value | Average | Value | Value | Average | Value | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2 Wang Tong River (Major tributary) | 17/3/2022 | Sunny | 17:30 | 0.50 | Surface | 0.25 | 25.20 | 25.00 | 25.2 | 8.41 | 8.44 | 8.4 | 6.70 | 6.75 | 6.7 | 74.10 | 77.10 | 75.3 | 5.84 | 6.24 | 6.1 | 7.33 | 7.24 | 7.3 | 6.00 | 6.2 |
| | | | 17:35 | 0.50 | | 0.25 | 25.10 | 25.30 | 25.2 | 8.42 | 8.40 | 8.4 | 6.77 | 6.73 | 6.7 | 73.90 | 76.20 | 75.3 | 5.91 | 6.22 | 6.1 | 7.31 | 7.35 | 7.3 | 6.40 | 6.2 |
| | 19/3/2022 | Sunny | 18:45 | 0.50 | | 0.25 | 24.00 | 24.00 | 24.0 | 7.75 | 7.65 | 7.7 | 6.13 | 6.16 | 6.3 | 74.40 | 88.00 | 82.2 | 6.00 | 6.95 | 6.3 | 2.22 | 2.31 | 2.3 | 2.60 | 4.3 |
| | | | 18:50 | 0.50 | | 0.25 | 24.00 | 24.00 | 24.0 | 7.77 | 7.67 | 7.7 | 6.12 | 6.61 | 6.3 | 82.30 | 84.20 | 82.2 | 6.17 | 6.23 | 6.3 | 2.34 | 2.27 | 2.3 | 5.90 | 4.3 |
| | 21/3/2022 | Overcast | 14:15 | 0.50 | | 0.25 | 23.60 | 23.60 | 23.6 | 7.61 | 7.78 | 7.5 | 5.28 | 5.27 | 5.3 | 66.80 | 66.50 | 66.4 | 5.97 | 5.94 | 5.9 | 3.48 | 3.28 | 3.4 | 6.50 | 6.5 |
| | | | 14:20 | 0.50 | | 0.25 | 23.60 | 23.60 | 23.6 | 7.21 | 7.34 | 7.5 | 5.44 | 5.31 | 5.3 | 66.10 | 66.30 | 66.4 | 5.87 | 5.99 | 5.9 | 3.65 | 3.33 | 3.4 | 6.50 | 6.5 |
| | 23/3/2022 | Rainy | 15:45 | 0.50 | | 0.25 | 18.50 | 18.50 | 18.5 | 7.60 | 7.54 | 7.6 | 1.20 | 1.20 | 1.2 | 80.90 | 80.50 | 83.1 | 7.33 | 7.29 | 7.5 | 3.12 | 3.12 | 3.1 | 14.40 | 14.3 |
| | | | 15:50 | 0.50 | | 0.25 | 18.50 | 18.50 | 18.5 | 7.61 | 7.58 | 7.6 | 1.12 | 1.12 | 1.2 | 85.90 | 85.10 | 83.1 | 7.71 | 7.70 | 7.5 | 3.15 | 3.15 | 3.1 | 14.10 | 14.3 |
| | 26/3/2022 | Cloudy | 8:30 | 0.50 | | 0.25 | 22.40 | 22.40 | 22.4 | 8.31 | 8.30 | 8.3 | 4.80 | 4.80 | 4.8 | 85.90 | 84.70 | 86.1 | 6.88 | 6.86 | 6.9 | 2.69 | 2.69 | 2.7 | 6.30 | 6.2 |
| | | | 8:35 | 0.50 | | 0.25 | 22.40 | 22.40 | 22.4 | 8.25 | 8.25 | 8.3 | 4.80 | 4.80 | 4.8 | 87.10 | 86.50 | 86.1 | 6.97 | 6.88 | 6.9 | 2.68 | 2.68 | 2.7 | 6.00 | 6.2 |
| | 28/3/2022 | Cloudy | 14:45 | 0.50 | | 0.25 | 19.20 | 19.20 | 19.3 | 8.48 | 8.48 | 8.5 | 3.21 | 3.22 | 3.2 | 88.60 | 85.70 | 86.8 | 7.52 | 7.49 | 7.5 | 9.94 | 9.93 | 9.7 | 8.00 | 8.2 |
| | | | 14:50 | 0.50 | | 0.25 | 19.30 | 19.30 | 19.3 | 8.45 | 8.45 | 8.5 | 3.15 | 3.14 | 3.2 | 86.40 | 86.30 | 86.8 | 7.53 | 7.51 | 7.5 | 9.46 | 9.54 | 9.7 | 8.40 | 8.2 |
| 30/3/2022 | Sunny | 16:45 | 0.50 | 0.25 | 21.20 | 21.20 | 21.3 | 8.24 | 8.23 | 8.2 | 4.28 | 4.28 | 4.3 | 88.70 | 85.80 | 86.2 | 7.18 | 7.11 | 7.1 | 3.61 | 3.62 | 3.6 | 4.00 | 4.3 | | |
| | | 16:50 | 0.50 | 0.25 | 21.30 | 21.30 | 21.3 | 8.13 | 8.13 | 8.2 | 4.23 | 4.23 | 4.3 | 85.10 | 85.30 | 86.2 | 7.13 | 7.13 | 7.1 | 3.59 | 3.58 | 3.6 | 4.50 | 4.3 | | |

General Note: Additional data of temperature, pH, salinity, DO saturation, DO and turbidity were obtained in each duplicate set for better representativeness.



Water Quality Monitoring at Station W4 (Surface) - Ebb Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | |
|---|---------------|---------|---------------|------------------|----------------|---------------------|-------------------|---------|------|-------|---------|-------|-----------------|-------|---------|--------------------|---------|-------|------------|-------|---------|------------------|---------|-------|------------|-------|---------|
| | | | | | | | Value | Average | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W4 Wang Tong River (Minor tributary to Tai Wai Yuen) | 17/3/2022 | Sunny | 12:00 | 0.50 | Surface | 0.25 | 24.60 | 24.60 | 24.5 | 8.08 | 7.87 | 7.9 | 9.33 | 9.37 | 9.3 | 68.10 | 73.60 | 70.8 | 5.56 | 5.68 | 5.6 | 5.91 | 5.88 | 5.8 | 3.70 | 3.7 | |
| | | | 12:05 | 0.50 | | 0.25 | 24.40 | 24.50 | 7.93 | 7.84 | 9.21 | 9.38 | 69.10 | 72.40 | 5.60 | 5.64 | 5.71 | 5.87 | 5.71 | 5.87 | 5.8 | 3.70 | 3.7 | | | | |
| | 19/3/2022 | Sunny | 12:15 | 0.50 | | 0.25 | 26.30 | 26.50 | 26.4 | 7.44 | 7.13 | 7.3 | 7.30 | 7.61 | 7.5 | 72.60 | 77.50 | 75.3 | 5.51 | 5.81 | 5.7 | 2.31 | 2.14 | 2.4 | 6.20 | 6.1 | |
| | | | 12:20 | 0.50 | | 0.25 | 26.40 | 26.40 | 7.46 | 7.33 | 7.53 | 7.64 | 75.60 | 75.30 | 5.68 | 5.95 | 5.7 | 2.66 | 2.36 | 2.4 | 6.00 | 6.0 | | | | | |
| | 21/3/2022 | Sunny | 8:00 | 0.50 | | 0.25 | 22.60 | 22.60 | 22.6 | 7.54 | 7.43 | 7.3 | 15.07 | 15.24 | 15.2 | 63.60 | 64.60 | 65.3 | 6.21 | 6.23 | 6.2 | 1.99 | 2.13 | 2.3 | 5.10 | 5.2 | |
| | | | 8:05 | 0.50 | | 0.25 | 22.60 | 22.70 | 7.12 | 7.13 | 15.15 | 15.29 | 66.60 | 66.30 | 6.51 | 6.03 | 6.2 | 2.98 | 2.03 | 2.3 | 5.30 | 5.3 | | | | | |
| | 23/3/2022 | Rainy | 9:00 | 0.50 | | 0.25 | 18.70 | 18.70 | 18.7 | 7.47 | 7.38 | 7.5 | 2.36 | 2.36 | 2.3 | 74.50 | 74.10 | 74.7 | 6.74 | 6.70 | 7.1 | 3.15 | 3.28 | 3.2 | 12.90 | 12.8 | |
| | | | 9:05 | 0.50 | | 0.25 | 18.70 | 18.70 | 7.50 | 7.51 | 2.20 | 2.20 | 75.10 | 74.90 | 7.41 | 7.38 | 7.1 | 3.24 | 3.21 | 3.2 | 12.60 | 12.6 | | | | | |
| | 25/3/2022 | Rainy | 17:45 | 0.50 | | 0.25 | 22.20 | 22.20 | 22.2 | 7.89 | 7.89 | 7.8 | 7.47 | 7.47 | 7.5 | 69.10 | 69.00 | 68.9 | 5.54 | 5.51 | 5.5 | 4.28 | 4.28 | 4.3 | 5.60 | 5.8 | |
| | | | 17:50 | 0.50 | | 0.25 | 22.20 | 22.20 | 7.78 | 7.76 | 7.47 | 7.47 | 68.80 | 68.70 | 5.57 | 5.55 | 5.5 | 4.35 | 4.35 | 4.3 | 6.00 | 6.0 | | | | | |
| | 28/3/2022 | Cloudy | 10:30 | 0.50 | | 0.25 | 18.60 | 18.60 | 18.6 | 8.62 | 8.62 | 8.6 | 1.02 | 1.02 | 1.0 | 81.60 | 80.90 | 80.5 | 7.23 | 7.18 | 7.2 | 10.00 | 10.01 | 10.0 | 17.40 | 17.5 | |
| | | | 10:35 | 0.50 | | 0.25 | 18.60 | 18.60 | 8.61 | 8.61 | 1.03 | 1.03 | 80.30 | 79.20 | 7.21 | 7.20 | 7.2 | 9.99 | 10.00 | 10.0 | 17.60 | 17.6 | | | | | |
| | 30/3/2022 | Sunny | 11:15 | 0.50 | | 0.25 | 21.30 | 21.30 | 21.4 | 7.77 | 7.75 | 7.7 | 7.51 | 7.51 | 7.4 | 72.10 | 73.60 | 72.7 | 6.08 | 6.13 | 6.1 | 4.55 | 4.54 | 4.4 | 6.00 | 5.8 | |
| | | | 11:20 | 0.50 | | 0.25 | 21.40 | 21.40 | 7.65 | 7.66 | 7.31 | 7.31 | 72.30 | 72.80 | 6.01 | 5.98 | 6.1 | 4.32 | 4.31 | 4.4 | 5.60 | 5.6 | | | | | |

Water Quality Monitoring at Station W4 (Surface) - Flood Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | |
|---|---------------|----------|---------------|------------------|----------------|---------------------|-------------------|---------|------|-------|---------|-------|-----------------|-------|---------|--------------------|---------|-------|------------|-------|---------|------------------|---------|-------|------------|-------|---------|
| | | | | | | | Value | Average | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W4 Wang Tong River (Minor tributary to Tai Wai Yuen) | 17/3/2022 | Sunny | 17:45 | 0.50 | Surface | 0.25 | 25.10 | 25.10 | 25.2 | 8.24 | 8.31 | 8.3 | 4.50 | 4.47 | 4.5 | 69.30 | 75.60 | 72.4 | 5.54 | 5.89 | 5.7 | 8.08 | 8.06 | 8.0 | 7.40 | 7.1 | |
| | | | 17:50 | 0.50 | | 0.25 | 25.20 | 25.40 | 8.25 | 8.20 | 4.55 | 4.49 | 74.30 | 70.50 | 5.66 | 5.78 | 5.7 | 8.00 | 8.04 | 8.0 | 6.80 | 6.80 | | | | | |
| | 19/3/2022 | Sunny | 19:00 | 0.50 | | 0.25 | 24.80 | 24.80 | 24.8 | 7.53 | 7.49 | 7.5 | 8.33 | 8.13 | 8.3 | 70.90 | 82.60 | 76.0 | 5.57 | 6.31 | 5.9 | 1.84 | 1.93 | 2.0 | 3.30 | 3.3 | |
| | | | 19:05 | 0.50 | | 0.25 | 24.80 | 24.80 | 7.55 | 7.43 | 8.14 | 8.56 | 73.40 | 77.10 | 5.94 | 5.97 | 6.2 | 2.03 | 2.21 | 4.5 | 3.30 | 3.3 | | | | | |
| | 21/3/2022 | Overcast | 14:25 | 0.50 | | 0.25 | 23.90 | 23.90 | 23.9 | 7.87 | 7.14 | 7.6 | 15.28 | 15.28 | 15.3 | 66.20 | 66.10 | 66.1 | 6.21 | 6.20 | 6.2 | 4.56 | 4.38 | 4.5 | 4.50 | 4.6 | |
| | | | 14:30 | 0.50 | | 0.25 | 23.90 | 23.90 | 7.57 | 7.81 | 15.23 | 15.33 | 66.10 | 66.10 | 6.32 | 6.21 | 6.2 | 4.66 | 4.39 | 4.5 | 4.60 | 4.6 | | | | | |
| | 23/3/2022 | Rainy | 16:00 | 0.50 | | 0.25 | 18.40 | 18.40 | 18.5 | 7.47 | 7.47 | 7.5 | 1.24 | 1.24 | 1.2 | 79.40 | 79.30 | 81.2 | 7.31 | 7.28 | 7.4 | 3.18 | 3.18 | 3.1 | 11.00 | 10.9 | |
| | | | 16:05 | 0.50 | | 0.25 | 18.50 | 18.50 | 7.46 | 7.43 | 1.24 | 1.24 | 83.90 | 82.00 | 7.53 | 7.51 | 7.4 | 3.10 | 3.10 | 3.1 | 10.80 | 10.8 | | | | | |
| | 26/3/2022 | Cloudy | 8:45 | 0.50 | | 0.25 | 22.40 | 22.40 | 22.5 | 8.04 | 8.04 | 8.0 | 7.60 | 7.60 | 7.6 | 79.50 | 78.70 | 77.8 | 6.01 | 5.97 | 6.1 | 4.40 | 4.41 | 4.5 | 8.80 | 8.6 | |
| | | | 8:50 | 0.50 | | 0.25 | 22.50 | 22.50 | 8.01 | 8.00 | 7.65 | 7.65 | 76.80 | 76.20 | 6.24 | 6.19 | 6.1 | 4.60 | 4.60 | 4.5 | 8.40 | 8.4 | | | | | |
| | 28/3/2022 | Cloudy | 15:00 | 0.50 | | 0.25 | 19.20 | 19.20 | 19.3 | 7.99 | 8.00 | 7.9 | 11.48 | 11.47 | 11.5 | 94.00 | 93.80 | 93.5 | 7.03 | 6.95 | 7.0 | 9.05 | 9.04 | 9.0 | 11.00 | 10.9 | |
| | | | 15:05 | 0.50 | | 0.25 | 19.30 | 19.30 | 7.76 | 7.85 | 11.47 | 11.46 | 93.10 | 93.20 | 6.94 | 6.93 | 7.0 | 8.88 | 8.89 | 9.0 | 10.70 | 10.7 | | | | | |
| | 30/3/2022 | Sunny | 17:00 | 0.50 | | 0.25 | 21.10 | 21.10 | 21.1 | 8.18 | 8.18 | 8.1 | 4.23 | 4.23 | 4.3 | 91.10 | 89.70 | 89.7 | 7.36 | 7.29 | 7.3 | 4.53 | 4.51 | 4.5 | 5.90 | 5.7 | |
| | | | 17:05 | 0.50 | | 0.25 | 21.10 | 21.10 | 8.10 | 8.10 | 4.31 | 4.31 | 89.30 | 88.60 | 7.21 | 7.23 | 7.3 | 4.52 | 4.52 | 4.5 | 5.40 | 5.4 | | | | | |

General Note: Additional data of temperature, pH, salinity, DO saturation, DO and turbidity were obtained in each duplicate set for better representativeness.



Water Quality Monitoring at Station W5 (Surface) - Ebb Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | | |
|--|---------------|---------|---------------|------------------|----------------|---------------------|-------------------|-------|---------|-------|------|---------|-----------------|-------|---------|--------------------|-------|---------|------------|------|---------|------------------|-------|---------|------------|---------|-------|---------|
| | | | | | | | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W5 Silvermine Bay (Near Silvermine Bay Beach) | 17/3/2022 | Sunny | 12:15 | 0.50 | Surface | 0.25 | 24.60 | 24.70 | 24.6 | 8.11 | 7.95 | 8.0 | 11.19 | 11.22 | 11.2 | 69.00 | 78.90 | 74.8 | 5.75 | 5.92 | 5.8 | 4.52 | 4.53 | 4.5 | 2.70 | 2.9 | | |
| | | | 12:20 | 0.50 | | | 24.60 | 24.60 | | 8.03 | 8.05 | | 11.11 | 11.24 | | 73.50 | 77.80 | | 5.82 | 5.88 | | 4.50 | 4.49 | | 3.12 | | | |
| | 19/3/2022 | Sunny | 12:30 | 0.50 | | 0.25 | 27.00 | 27.10 | 27.1 | 7.56 | 7.16 | 7.4 | 7.87 | 7.69 | 7.6 | 76.30 | 85.70 | 79.4 | 5.67 | 6.30 | 6.1 | 3.98 | 3.84 | 3.9 | 6.40 | 6.2 | | |
| | | | 12:35 | 0.50 | | | 27.00 | 27.30 | | 7.48 | 7.32 | | 7.32 | 7.55 | | 78.90 | 76.50 | | 6.24 | 6.02 | | 3.86 | 3.84 | | 6.00 | | | |
| | 21/3/2022 | Sunny | 8:15 | 0.50 | | 0.25 | 22.70 | 22.70 | 22.7 | 7.63 | 7.55 | 7.6 | 12.32 | 12.24 | 12.5 | 73.60 | 76.40 | 75.7 | 5.84 | 6.01 | 6.1 | 3.01 | 2.56 | 2.8 | 7.00 | 6.9 | | |
| | | | 8:20 | 0.50 | | | 22.90 | 22.60 | | 7.75 | 7.41 | | 12.82 | 12.65 | | 77.10 | 75.50 | | 6.35 | 6.32 | | 2.98 | 2.68 | | 6.80 | | | |
| | 23/3/2022 | Rainy | 9:15 | 0.50 | | 0.25 | 18.60 | 18.60 | 18.6 | 7.60 | 7.65 | 7.6 | 2.84 | 2.84 | 2.9 | 72.70 | 72.50 | 74.5 | 6.49 | 6.45 | 6.6 | 3.22 | 3.51 | 3.4 | 12.70 | 12.6 | | |
| | | | 9:20 | 0.50 | | | 18.60 | 18.60 | | 7.61 | 7.62 | | 2.86 | 2.86 | | 76.60 | 76.00 | | 6.79 | 6.75 | | 3.41 | 3.53 | | 12.40 | | | |
| | 25/3/2022 | Rainy | 18:00 | 0.50 | | 0.25 | 22.20 | 22.20 | 22.2 | 7.95 | 7.93 | 8.0 | 9.23 | 9.23 | 9.2 | 69.00 | 68.80 | 69.0 | 5.90 | 5.87 | 5.9 | 4.32 | 4.33 | 4.3 | 5.00 | 4.8 | | |
| | | | 18:05 | 0.50 | | | 22.20 | 22.20 | | 8.03 | 7.98 | | 9.23 | 9.23 | | 69.00 | 69.00 | | 5.96 | 5.94 | | 4.35 | 4.33 | | 4.60 | | | |
| | 28/3/2022 | Cloudy | 10:45 | 0.50 | | 0.25 | 18.80 | 18.80 | 18.8 | 8.28 | 8.28 | 8.3 | 1.27 | 1.27 | 1.3 | 81.10 | 86.40 | 84.5 | 7.79 | 7.69 | 7.7 | 9.99 | 10.01 | 10.0 | 15.50 | 15.8 | | |
| | | | 10:50 | 0.50 | | | 18.70 | 18.70 | | 8.21 | 8.24 | | 1.27 | 1.28 | | 85.30 | 85.20 | | 7.77 | 7.74 | | 9.89 | 10.00 | | 16.00 | | | |
| | 30/3/2022 | Sunny | 11:30 | 0.50 | | 0.25 | 21.20 | 21.20 | 21.2 | 7.56 | 7.57 | 7.6 | 11.83 | 11.86 | 11.8 | 78.30 | 78.70 | 78.5 | 6.38 | 6.46 | 6.5 | 4.10 | 4.21 | 4.1 | 6.00 | 5.8 | | |
| | | | 11:35 | 0.50 | | | 21.20 | 21.20 | | 7.59 | 7.56 | | 11.83 | 11.83 | | 78.60 | 78.50 | | 6.69 | 6.59 | | 4.01 | 4.14 | | 5.60 | | | |

Water Quality Monitoring at Station W5 (Surface) - Flood Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | | |
|--|---------------|----------|---------------|------------------|----------------|---------------------|-------------------|-------|---------|-------|------|---------|-----------------|-------|---------|--------------------|-------|---------|------------|------|---------|------------------|------|---------|------------|---------|-------|---------|
| | | | | | | | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W5 Silvermine Bay (Near Silvermine Bay Beach) | 17/3/2022 | Sunny | 18:00 | 0.50 | Surface | 0.25 | 25.20 | 25.20 | 25.2 | 8.21 | 8.20 | 8.2 | 3.99 | 4.07 | 4.0 | 74.40 | 81.10 | 77.9 | 5.90 | 6.40 | 6.2 | 6.08 | 5.98 | 6.0 | 3.40 | 3.6 | | |
| | | | 18:05 | 0.50 | | | 25.20 | 25.20 | | 8.33 | 8.25 | | 4.02 | 4.09 | | 77.30 | 78.70 | | 5.99 | 6.32 | | 6.03 | 6.05 | | 3.80 | | | |
| | 19/3/2022 | Sunny | 19:15 | 0.50 | | 0.25 | 24.10 | 24.00 | 24.1 | 7.12 | 7.03 | 7.0 | 6.59 | 5.36 | 6.1 | 68.00 | 73.90 | 69.5 | 5.71 | 6.45 | 6.1 | 2.36 | 2.12 | 2.7 | 2.90 | 2.9 | | |
| | | | 19:20 | 0.50 | | | 24.10 | 24.20 | | 7.00 | 7.04 | | 6.13 | 6.21 | | 67.80 | 68.30 | | 5.97 | 6.31 | | 3.14 | 3.01 | | 2.80 | | | |
| | 21/3/2022 | Overcast | 14:35 | 0.50 | | 0.25 | 23.70 | 23.70 | 23.7 | 8.09 | 8.00 | 8.0 | 14.46 | 14.46 | 14.4 | 64.20 | 63.80 | 63.7 | 5.81 | 5.80 | 5.8 | 5.97 | 5.68 | 5.8 | 4.90 | 5.0 | | |
| | | | 14:40 | 0.50 | | | 23.70 | 23.70 | | 8.01 | 8.03 | | 14.42 | 14.44 | | 63.50 | 63.40 | | 5.83 | 5.82 | | 5.61 | 5.93 | | 5.10 | | | |
| | 23/3/2022 | Rainy | 16:15 | 0.50 | | 0.25 | 18.50 | 18.50 | 18.5 | 7.55 | 7.54 | 7.5 | 1.78 | 1.78 | 1.8 | 86.40 | 85.80 | 79.7 | 7.74 | 7.72 | 7.6 | 2.59 | 2.63 | 2.6 | 16.50 | 16.3 | | |
| | | | 16:20 | 0.50 | | | 18.50 | 18.50 | | 7.53 | 7.53 | | 1.74 | 1.74 | | 73.50 | 73.10 | | 7.41 | 7.38 | | 2.61 | 2.63 | | 16.00 | | | |
| | 26/3/2022 | Cloudy | 8:55 | 0.50 | | 0.25 | 22.50 | 22.50 | 22.5 | 7.99 | 7.99 | 8.0 | 6.72 | 6.72 | 6.9 | 81.30 | 79.50 | 78.7 | 5.91 | 5.87 | 5.9 | 3.43 | 3.44 | 3.4 | 8.00 | 7.8 | | |
| | | | 9:00 | 0.50 | | | 22.50 | 22.50 | | 7.95 | 7.95 | | 6.99 | 6.99 | | 77.10 | 76.95 | | 6.01 | 5.98 | | 3.41 | 3.41 | | 7.56 | | | |
| | 28/3/2022 | Cloudy | 15:10 | 0.50 | | 0.25 | 19.40 | 19.40 | 19.4 | 7.99 | 8.00 | 7.9 | 11.48 | 11.47 | 11.5 | 94.00 | 93.80 | 93.6 | 7.03 | 6.95 | 7.0 | 9.05 | 9.04 | 9.0 | 13.70 | 13.9 | | |
| | | | 15:15 | 0.50 | | | 19.40 | 19.40 | | 7.81 | 7.76 | | 11.46 | 11.46 | | 93.20 | 93.40 | | 7.01 | 6.96 | | 8.78 | 9.01 | | 14.00 | | | |
| | 30/3/2022 | Sunny | 17:15 | 0.50 | | 0.25 | 21.20 | 21.20 | 21.3 | 8.05 | 8.04 | 8.1 | 6.04 | 6.03 | 6.1 | 80.40 | 79.80 | 80.2 | 6.45 | 6.39 | 6.4 | 4.38 | 4.41 | 4.5 | 5.80 | 5.7 | | |
| | | | 17:20 | 0.50 | | | 21.30 | 21.30 | | 8.06 | 8.06 | | 6.12 | 6.10 | | 80.30 | 80.10 | | 6.44 | 6.49 | | 4.51 | 4.55 | | 5.50 | | | |

General Note: Additional data of temperature, pH, salinity, DO saturation, DO and turbidity were obtained in each duplicate set for better representativeness.



Water Quality Monitoring at Station W6 (Middle) - Ebb Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | SS mg/L | | |
|--|---------------|---------|---------------|------------------|----------------|---------------------|-------------------|---------|------|-------|---------|-------|-----------------|-------|---------|--------------------|---------|-------|------------|-------|---------|------------------|---------|------------|---------|-----|
| | | | | | | | Value | Average | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W6 Silvermine Bay (Near Silvermine Bay Beach) | 17/3/2022 | Sunny | 12:30 | 2.10 | Middle | 1.05 | 24.70 | 24.70 | 24.7 | 7.80 | 7.56 | 7.7 | 27.19 | 27.21 | 27.2 | 75.50 | 80.90 | 78.6 | 5.73 | 5.57 | 5.7 | 4.41 | 4.10 | 4.3 | 5.20 | 5.2 |
| | | | 12:35 | 2.10 | | 1.05 | 24.70 | 24.60 | 7.66 | 7.77 | 7.7 | 27.22 | 27.32 | 27.2 | 78.10 | 79.80 | 78.6 | 5.66 | 5.74 | 5.7 | 4.33 | 4.17 | 4.3 | 5.20 | 5.2 | |
| | 19/3/2022 | Sunny | 12:45 | 2.00 | | 1.00 | 24.50 | 24.70 | 24.6 | 7.43 | 7.35 | 7.5 | 17.04 | 16.27 | 17.3 | 89.70 | 87.40 | 86.8 | 8.07 | 8.60 | 8.1 | 2.30 | 2.56 | 2.4 | 5.60 | 5.4 |
| | | | 12:50 | 2.00 | | 1.00 | 24.60 | 24.60 | 7.55 | 7.53 | 7.5 | 18.00 | 17.93 | 17.3 | 85.30 | 84.60 | 86.8 | 7.96 | 7.94 | 8.1 | 2.45 | 2.46 | 2.4 | 5.10 | 5.4 | |
| | 21/3/2022 | Sunny | 8:25 | 2.00 | | 1.00 | 22.60 | 22.60 | 22.6 | 8.01 | 7.87 | 8.1 | 28.91 | 28.95 | 28.9 | 68.80 | 72.30 | 68.3 | 6.53 | 6.19 | 6.4 | 3.54 | 3.78 | 3.7 | 4.20 | 4.5 |
| | | | 8:30 | 2.00 | | 1.00 | 22.30 | 22.70 | 8.21 | 8.31 | 8.1 | 28.94 | 28.91 | 28.9 | 64.30 | 68.10 | 68.3 | 6.72 | 6.01 | 6.4 | 3.66 | 3.98 | 3.7 | 4.80 | 4.5 | |
| | 23/3/2022 | Rainy | 9:30 | 2.10 | | 1.05 | 19.10 | 19.10 | 19.1 | 7.33 | 7.32 | 7.3 | 28.91 | 28.91 | 28.9 | 64.50 | 64.50 | 67.7 | 5.97 | 5.98 | 5.8 | 4.12 | 4.12 | 4.1 | 3.70 | 3.5 |
| | | | 9:35 | 2.10 | | 1.05 | 19.10 | 19.10 | 7.24 | 7.30 | 7.3 | 28.89 | 28.89 | 28.9 | 71.10 | 70.50 | 70.8 | 5.54 | 5.51 | 5.8 | 4.13 | 4.13 | 4.1 | 3.30 | 3.5 | |
| | 25/3/2022 | Rainy | 18:30 | 2.10 | | 1.05 | 22.20 | 22.20 | 22.2 | 7.48 | 7.39 | 7.5 | 15.44 | 15.49 | 15.1 | 74.10 | 71.40 | 70.8 | 5.82 | 5.56 | 5.7 | 2.93 | 2.93 | 2.9 | 6.30 | 6.5 |
| | | | 18:35 | 2.10 | | 1.05 | 22.20 | 22.20 | 7.49 | 7.45 | 7.5 | 14.80 | 14.78 | 15.1 | 69.10 | 68.70 | 70.8 | 5.80 | 5.75 | 5.7 | 2.92 | 2.91 | 2.9 | 6.70 | 6.5 | |
| | 28/3/2022 | Cloudy | 11:00 | 2.00 | | 1.00 | 19.30 | 19.30 | 19.3 | 7.52 | 8.00 | 7.7 | 30.10 | 29.98 | 30.1 | 84.20 | 82.70 | 83.1 | 7.12 | 6.88 | 7.0 | 1.93 | 1.79 | 1.9 | 6.80 | 6.6 |
| | | | 11:05 | 2.00 | | 1.00 | 19.30 | 19.30 | 7.74 | 7.65 | 7.7 | 30.03 | 30.12 | 30.1 | 82.90 | 82.50 | 83.1 | 7.11 | 7.03 | 7.0 | 1.83 | 1.88 | 1.9 | 6.40 | 6.6 | |
| | 30/3/2022 | Sunny | 11:45 | 2.00 | | 1.00 | 20.70 | 20.70 | 20.7 | 6.81 | 6.88 | 6.7 | 29.93 | 29.93 | 29.6 | 90.30 | 89.50 | 88.5 | 7.23 | 7.03 | 7.1 | 3.67 | 3.66 | 3.6 | 3.40 | 3.6 |
| | | | 11:50 | 2.00 | | 1.00 | 20.70 | 20.70 | 6.59 | 6.68 | 6.7 | 29.31 | 29.38 | 29.6 | 87.03 | 87.00 | 88.5 | 7.12 | 7.01 | 7.1 | 3.39 | 3.67 | 3.6 | 3.80 | 3.6 | |

Water Quality Monitoring at Station W6 (Middle) - Flood Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | SS mg/L | | |
|--|---------------|----------|---------------|------------------|----------------|---------------------|-------------------|---------|------|-------|---------|-------|-----------------|-------|---------|--------------------|---------|-------|------------|-------|---------|------------------|---------|------------|---------|------|
| | | | | | | | Value | Average | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W6 Silvermine Bay (Near Silvermine Bay Beach) | 17/3/2022 | Sunny | 18:20 | 2.20 | Middle | 1.10 | 24.20 | 24.20 | 24.2 | 7.95 | 8.03 | 8.0 | 29.33 | 29.39 | 29.3 | 84.10 | 86.10 | 85.4 | 5.96 | 5.88 | 5.9 | 5.10 | 4.68 | 5.0 | 6.60 | 6.7 |
| | | | 18:25 | 2.20 | | 1.10 | 24.20 | 24.30 | 7.99 | 7.83 | 7.9 | 29.38 | 29.27 | 29.3 | 85.10 | 86.40 | 85.4 | 5.98 | 5.89 | 5.9 | 5.12 | 4.93 | 5.0 | 6.70 | 6.7 | |
| | 19/3/2022 | Sunny | 19:30 | 2.10 | | 1.05 | 23.40 | 23.50 | 23.5 | 7.20 | 7.11 | 7.1 | 29.20 | 29.14 | 29.5 | 88.00 | 90.00 | 87.0 | 6.25 | 6.30 | 6.3 | 3.10 | 2.68 | 2.9 | 4.20 | 4.0 |
| | | | 19:35 | 2.10 | | 1.05 | 23.50 | 23.50 | 7.01 | 7.04 | 7.1 | 29.83 | 29.77 | 29.5 | 82.40 | 87.60 | 87.0 | 6.31 | 6.22 | 6.3 | 3.03 | 2.78 | 2.9 | 3.80 | 3.8 | |
| | 21/3/2022 | Overcast | 14:45 | 2.20 | | 1.10 | 22.80 | 22.80 | 22.8 | 8.69 | 8.78 | 8.8 | 29.36 | 29.35 | 29.3 | 71.30 | 71.20 | 71.3 | 6.10 | 6.09 | 6.1 | 3.13 | 3.13 | 3.1 | 5.20 | 5.3 |
| | | | 14:50 | 2.20 | | 1.10 | 22.80 | 22.80 | 8.74 | 8.85 | 8.8 | 29.33 | 29.31 | 29.3 | 71.30 | 71.30 | 71.3 | 6.10 | 6.10 | 6.1 | 3.12 | 3.12 | 3.1 | 5.30 | 5.3 | |
| | 23/3/2022 | Rainy | 16:30 | 2.20 | | 1.10 | 19.30 | 19.30 | 19.3 | 7.41 | 7.42 | 7.4 | 22.64 | 22.64 | 22.7 | 71.70 | 71.40 | 74.1 | 5.79 | 5.72 | 5.8 | 2.34 | 2.31 | 2.3 | 5.20 | 5.4 |
| | | | 16:35 | 2.20 | | 1.10 | 19.30 | 19.30 | 7.43 | 7.44 | 7.4 | 22.74 | 22.74 | 22.7 | 76.70 | 76.70 | 74.1 | 5.92 | 5.90 | 5.8 | 2.35 | 2.33 | 2.3 | 5.50 | 5.4 | |
| | 26/3/2022 | Cloudy | 9:15 | 2.20 | | 1.10 | 22.00 | 22.00 | 22.1 | 8.46 | 8.46 | 8.5 | 27.74 | 27.74 | 27.7 | 80.00 | 79.30 | 79.5 | 6.40 | 6.35 | 6.4 | 0.76 | 0.76 | 0.8 | 16.80 | 16.7 |
| | | | 9:20 | 2.20 | | 1.10 | 22.10 | 22.10 | 8.45 | 8.45 | 8.5 | 27.66 | 27.66 | 27.7 | 79.80 | 79.00 | 79.5 | 6.41 | 6.27 | 6.4 | 0.74 | 0.74 | 0.8 | 16.50 | 16.7 | |
| | 28/3/2022 | Cloudy | 15:25 | 2.10 | | 1.05 | 19.60 | 19.60 | 19.6 | 7.88 | 7.89 | 7.9 | 30.01 | 30.00 | 30.0 | 86.50 | 85.40 | 86.0 | 6.47 | 6.35 | 6.4 | 2.69 | 2.75 | 2.7 | 5.00 | 5.2 |
| | | | 15:30 | 2.10 | | 1.05 | 19.60 | 19.60 | 7.89 | 7.89 | 7.9 | 30.01 | 30.03 | 30.0 | 86.30 | 85.90 | 86.0 | 6.48 | 6.49 | 6.4 | 2.77 | 2.71 | 2.7 | 5.40 | 5.2 | |
| | 30/3/2022 | Sunny | 17:30 | 2.20 | | 1.10 | 21.00 | 21.00 | 21.1 | 8.12 | 8.12 | 8.1 | 29.58 | 29.59 | 29.6 | 92.70 | 92.10 | 92.2 | 6.71 | 6.68 | 6.6 | 4.21 | 4.22 | 4.2 | 5.00 | 4.9 |
| | | | 17:35 | 2.20 | | 1.10 | 21.20 | 21.20 | 8.13 | 8.13 | 8.1 | 29.55 | 29.56 | 29.6 | 92.30 | 91.80 | 92.2 | 6.66 | 6.54 | 6.6 | 4.32 | 4.21 | 4.2 | 4.70 | 4.9 | |

General Note: Additional data of temperature, pH, salinity, DO saturation, DO and turbidity were obtained in each duplicate set for better representativeness.



Water Quality Monitoring at Station W7 (Middle) - Ebb Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | |
|--------------------------------------|---------------|---------|---------------|------------------|----------------|---------------------|-------------------|---------|------|-------|---------|-------|-----------------|-------|---------|--------------------|---------|-------|------------|-------|---------|------------------|---------|-------|------------|-------|---------|
| | | | | | | | Value | Average | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W7 Silvermine Bay (Open Water) | 17/3/2022 | Sunny | 12:45 | 2.40 | Middle | 1.20 | 25.20 | 25.20 | 25.3 | 8.08 | 7.89 | 8.0 | 29.83 | 29.91 | 29.6 | 67.50 | 79.80 | 74.3 | 5.65 | 5.56 | 5.6 | 6.46 | 6.27 | 6.4 | 5.70 | 5.6 | |
| | | | 12:50 | 2.40 | | 1.20 | 25.30 | 25.30 | 8.01 | 7.97 | 8.0 | 29.22 | 29.38 | 29.6 | 77.50 | 72.40 | 74.3 | 5.66 | 5.59 | 5.6 | 6.35 | 6.37 | 6.4 | 5.40 | 5.6 | | |
| | 19/3/2022 | Sunny | 13:00 | 2.20 | | 1.10 | 24.30 | 24.30 | 24.3 | 7.88 | 7.61 | 7.7 | 15.11 | 14.23 | 14.9 | 78.50 | 82.10 | 83.1 | 5.88 | 6.81 | 6.5 | 2.31 | 1.98 | 2.2 | 2.10 | 2.1 | |
| | | | 13:05 | 2.20 | | 1.10 | 24.30 | 24.30 | 7.83 | 7.57 | 7.7 | 15.11 | 14.23 | 14.9 | 86.40 | 85.30 | 83.1 | 6.35 | 6.78 | 6.5 | 2.39 | 2.03 | 2.2 | 2.10 | 2.1 | | |
| | 21/3/2022 | Sunny | 8:35 | 2.10 | | 1.05 | 22.50 | 22.60 | 22.4 | 7.57 | 7.18 | 7.6 | 29.53 | 29.51 | 29.5 | 69.80 | 70.60 | 70.2 | 5.87 | 5.89 | 5.9 | 3.24 | 3.05 | 3.1 | 3.10 | 3.3 | |
| | | | 8:40 | 2.10 | | 1.05 | 22.30 | 22.30 | 22.4 | 7.83 | 7.65 | 7.6 | 29.31 | 29.55 | 29.5 | 70.17 | 70.36 | 70.2 | 5.95 | 5.74 | 5.9 | 3.13 | 3.03 | 3.1 | 3.40 | 3.3 | |
| | 23/3/2022 | Rainy | 9:45 | 2.20 | | 1.10 | 19.00 | 19.00 | 19.0 | 7.75 | 7.77 | 7.7 | 29.37 | 29.70 | 29.4 | 73.10 | 73.10 | 73.4 | 5.60 | 5.55 | 5.6 | 3.56 | 3.59 | 3.6 | 4.40 | 4.2 | |
| | | | 9:50 | 2.20 | | 1.10 | 18.90 | 18.90 | 19.0 | 7.82 | 7.51 | 7.7 | 29.34 | 29.34 | 29.4 | 73.90 | 73.50 | 73.4 | 5.54 | 5.52 | 5.6 | 3.56 | 3.57 | 3.6 | 4.00 | 4.2 | |
| | 25/3/2022 | Rainy | 18:45 | 2.20 | | 1.10 | 22.10 | 22.10 | 22.1 | 8.10 | 8.10 | 8.2 | 14.70 | 14.70 | 14.7 | 9.50 | 69.30 | 53.8 | 6.10 | 6.05 | 5.9 | 2.33 | 2.33 | 2.3 | 4.90 | 4.7 | |
| | | | 18:50 | 2.20 | | 1.10 | 22.10 | 22.10 | 22.1 | 8.22 | 8.22 | 8.2 | 14.68 | 14.68 | 14.7 | 68.10 | 68.10 | 53.8 | 5.70 | 5.69 | 5.9 | 2.32 | 2.32 | 2.3 | 4.50 | 4.7 | |
| | 28/3/2022 | Cloudy | 11:15 | 2.20 | | 1.10 | 19.30 | 19.30 | 19.3 | 7.83 | 7.99 | 7.9 | 29.97 | 29.96 | 30.2 | 82.90 | 73.40 | 76.4 | 5.99 | 6.18 | 6.1 | 2.12 | 1.94 | 2.0 | 5.90 | 5.8 | |
| | | | 11:20 | 2.20 | | 1.10 | 19.30 | 19.30 | 19.3 | 7.86 | 7.84 | 7.9 | 31.00 | 30.01 | 30.2 | 75.60 | 73.80 | 76.4 | 6.03 | 6.12 | 6.1 | 1.99 | 2.03 | 2.0 | 5.60 | 5.8 | |
| 30/3/2022 | Sunny | 12:00 | 2.10 | 1.05 | 21.00 | 21.00 | 21.1 | 7.08 | 7.21 | 7.1 | 30.00 | 30.01 | 30.1 | 84.30 | 83.70 | 84.2 | 6.95 | 6.78 | 6.9 | 3.61 | 3.58 | 3.6 | 6.70 | 6.9 | | | |
| | | 12:05 | 2.10 | 1.05 | 21.10 | 21.10 | 21.1 | 7.14 | 7.15 | 7.1 | 30.33 | 30.23 | 30.1 | 84.50 | 84.30 | 84.2 | 6.95 | 6.97 | 6.9 | 3.55 | 3.68 | 3.6 | 7.10 | 6.9 | | | |

Water Quality Monitoring at Station W7 (Middle) - Flood Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | |
|--------------------------------------|---------------|----------|---------------|------------------|----------------|---------------------|-------------------|---------|------|-------|---------|-------|-----------------|-------|---------|--------------------|---------|-------|------------|-------|---------|------------------|---------|-------|------------|-------|---------|
| | | | | | | | Value | Average | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W7 Silvermine Bay (Open Water) | 17/3/2022 | Sunny | 18:30 | 2.50 | Middle | 1.25 | 24.40 | 24.40 | 24.4 | 8.17 | 7.99 | 8.1 | 29.69 | 29.69 | 29.7 | 66.70 | 78.70 | 73.7 | 5.67 | 5.78 | 5.7 | 5.84 | 5.71 | 5.8 | 4.00 | 3.9 | |
| | | | 18:32 | 2.50 | | 1.25 | 24.30 | 24.40 | 24.4 | 8.01 | 8.12 | 8.1 | 29.55 | 29.67 | 29.7 | 73.50 | 75.80 | 73.7 | 5.77 | 5.68 | 5.7 | 5.83 | 5.70 | 5.8 | 3.80 | 3.9 | |
| | 19/3/2022 | Sunny | 19:45 | 2.30 | | 1.15 | 23.20 | 23.30 | 23.3 | 7.63 | 7.57 | 7.6 | 29.67 | 29.49 | 29.6 | 79.60 | 83.60 | 78.4 | 5.60 | 5.91 | 5.8 | 2.71 | 2.88 | 2.9 | 2.40 | 2.6 | |
| | | | 19:50 | 2.30 | | 1.15 | 23.30 | 23.30 | 23.3 | 7.67 | 7.56 | 7.6 | 29.98 | 29.31 | 29.6 | 73.50 | 76.70 | 78.4 | 5.67 | 5.84 | 5.8 | 2.96 | 3.01 | 2.9 | 2.70 | 2.6 | |
| | 21/3/2022 | Overcast | 15:00 | 2.30 | | 1.15 | 23.00 | 23.00 | 23.0 | 8.07 | 8.21 | 8.1 | 29.54 | 29.54 | 29.5 | 83.00 | 82.70 | 83.0 | 6.97 | 6.90 | 6.9 | 3.64 | 3.64 | 3.6 | 4.50 | 4.6 | |
| | | | 15:05 | 2.30 | | 1.15 | 23.00 | 23.00 | 23.0 | 8.11 | 8.13 | 8.1 | 29.55 | 29.54 | 29.5 | 83.20 | 82.90 | 83.0 | 6.84 | 6.88 | 6.9 | 3.61 | 3.61 | 3.6 | 4.70 | 4.6 | |
| | 23/3/2022 | Rainy | 16:40 | 2.30 | | 1.15 | 19.30 | 19.30 | 19.3 | 7.89 | 7.93 | 7.9 | 23.33 | 23.33 | 23.6 | 70.20 | 19.90 | 57.7 | 5.50 | 5.58 | 5.5 | 3.99 | 3.98 | 4.0 | 5.10 | 5.4 | |
| | | | 16:45 | 2.30 | | 1.15 | 19.30 | 19.30 | 19.3 | 8.01 | 7.94 | 7.9 | 23.80 | 23.80 | 23.6 | 70.40 | 70.10 | 57.7 | 5.56 | 5.51 | 5.5 | 3.93 | 3.91 | 4.0 | 5.60 | 5.4 | |
| | 26/3/2022 | Cloudy | 9:30 | 2.40 | | 1.20 | 21.90 | 21.90 | 22.0 | 8.43 | 8.43 | 8.4 | 29.34 | 29.34 | 29.4 | 79.40 | 78.50 | 83.0 | 6.85 | 6.77 | 5.2 | 2.77 | 2.76 | 2.7 | 6.00 | 5.9 | |
| | | | 9:35 | 2.40 | | 1.20 | 22.00 | 22.00 | 22.0 | 8.43 | 8.43 | 8.4 | 29.40 | 29.41 | 29.4 | 87.20 | 87.00 | 83.0 | 6.03 | 0.97 | 5.2 | 2.70 | 2.70 | 2.7 | 5.70 | 5.9 | |
| | 28/3/2022 | Cloudy | 15:40 | 2.30 | | 1.15 | 19.60 | 19.60 | 19.6 | 7.78 | 7.78 | 7.8 | 30.39 | 30.38 | 30.3 | 87.40 | 85.60 | 86.0 | 6.35 | 6.21 | 6.4 | 2.58 | 2.41 | 2.4 | 6.30 | 6.1 | |
| | | | 15:45 | 2.30 | | 1.15 | 19.50 | 19.50 | 19.6 | 7.67 | 7.84 | 7.8 | 30.12 | 30.33 | 30.3 | 86.30 | 84.60 | 86.0 | 6.51 | 6.44 | 6.4 | 2.35 | 2.33 | 2.4 | 5.90 | 6.1 | |
| 30/3/2022 | Sunny | 17:45 | 2.50 | 1.25 | 20.90 | 20.90 | 20.9 | 7.97 | 7.97 | 8.0 | 30.15 | 30.20 | 30.2 | 88.14 | 88.19 | 88.1 | 6.66 | 6.59 | 6.6 | 3.61 | 3.65 | 3.6 | 5.30 | 5.5 | | | |
| | | 17:50 | 2.50 | 1.25 | 20.90 | 20.90 | 20.9 | 7.95 | 7.95 | 8.0 | 30.11 | 30.14 | 30.2 | 88.30 | 87.90 | 88.1 | 6.72 | 6.31 | 6.6 | 3.55 | 3.65 | 3.6 | 5.60 | 5.5 | | | |

General Note: Additional data of temperature, pH, salinity, DO saturation, DO and turbidity were obtained in each duplicate set for better representativeness.



Water Quality Monitoring at Station W8 (Surface) - Ebb Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | |
|--------------------------------------|---------------|---------|---------------|------------------|----------------|---------------------|-------------------|---------|------|-------|---------|-------|-----------------|-------|---------|--------------------|---------|-------|------------|-------|---------|------------------|---------|-------|------------|-----|
| | | | | | | | Value | Average | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W8 Silvermine Bay (Open Water) | 17/3/2022 | Sunny | 13:00 | 3.70 | Surface | 1.00 | 24.50 | 24.50 | 24.5 | 8.24 | 8.11 | 8.2 | 29.99 | 29.93 | 30.1 | 88.60 | 91.10 | 90.1 | 6.00 | 6.14 | 6.1 | 3.38 | 3.17 | 3.3 | 3.90 | 4.1 |
| | | | 13:05 | 3.70 | | 1.00 | 24.50 | 24.50 | 24.5 | 8.31 | 8.24 | 8.2 | 30.50 | 30.10 | 30.1 | 89.60 | 91.00 | 90.1 | 6.12 | 6.24 | 6.1 | 3.22 | 3.57 | 3.3 | 4.30 | |
| | 19/3/2022 | Sunny | 13:15 | 3.60 | | 1.00 | 24.20 | 24.10 | 24.2 | 8.14 | 7.98 | 8.1 | 16.35 | 16.47 | 16.6 | 85.60 | 85.00 | 85.3 | 6.49 | 7.91 | 7.0 | 3.94 | 3.64 | 3.8 | 2.10 | 2.3 |
| | | | 13:20 | 3.60 | | 1.00 | 24.30 | 24.10 | 24.2 | 8.03 | 8.14 | 8.1 | 16.65 | 16.89 | 16.6 | 85.00 | 85.60 | 85.3 | 6.84 | 6.94 | 7.0 | 3.94 | 3.75 | 3.8 | 2.40 | |
| | 21/3/2022 | Sunny | 8:45 | 3.70 | | 1.00 | 22.50 | 22.60 | 22.5 | 7.95 | 7.96 | 7.9 | 29.54 | 29.44 | 29.5 | 71.60 | 82.40 | 76.5 | 6.16 | 6.19 | 6.4 | 2.03 | 2.57 | 2.5 | 2.60 | 2.8 |
| | | | 8:50 | 3.70 | | 1.00 | 22.40 | 22.60 | 22.5 | 7.85 | 7.65 | 7.9 | 29.59 | 29.46 | 29.5 | 78.30 | 73.60 | 76.5 | 6.74 | 6.59 | 6.4 | 2.95 | 2.46 | 2.5 | 2.90 | |
| | 23/3/2022 | Rainy | 10:00 | 3.80 | | 1.00 | 19.10 | 19.10 | 19.1 | 7.99 | 8.01 | 8.0 | 29.43 | 29.43 | 29.4 | 74.90 | 74.70 | 74.9 | 5.63 | 5.60 | 5.6 | 3.53 | 3.51 | 3.5 | 3.50 | 3.4 |
| | | | 10:05 | 3.80 | | 1.00 | 19.10 | 19.10 | 19.1 | 7.97 | 8.00 | 8.0 | 29.42 | 29.42 | 29.4 | 75.00 | 74.90 | 74.9 | 5.64 | 5.61 | 5.6 | 3.51 | 3.51 | 3.5 | 3.30 | |
| | 25/3/2022 | Rainy | 19:00 | 3.80 | | 1.00 | 22.10 | 22.10 | 22.1 | 8.28 | 8.28 | 8.3 | 26.20 | 26.15 | 28.0 | 67.00 | 66.95 | 72.5 | 6.55 | 6.52 | 6.4 | 2.35 | 2.35 | 2.3 | 3.80 | 3.7 |
| | | | 19:05 | 3.80 | | 1.00 | 22.10 | 22.10 | 22.1 | 8.31 | 8.31 | 8.3 | 29.84 | 29.81 | 28.0 | 78.10 | 77.95 | 72.5 | 5.91 | 6.80 | 6.4 | 2.23 | 2.23 | 2.3 | 3.50 | |
| | 28/3/2022 | Cloudy | 11:30 | 3.80 | | 1.00 | 19.40 | 19.40 | 19.5 | 6.52 | 6.59 | 6.5 | 26.63 | 29.28 | 28.7 | 89.60 | 89.50 | 89.6 | 7.14 | 7.22 | 7.2 | 2.96 | 2.43 | 2.6 | 5.90 | 5.8 |
| | | | 11:35 | 3.80 | | 1.00 | 19.50 | 19.50 | 19.5 | 6.32 | 6.64 | 6.5 | 29.51 | 29.31 | 28.7 | 89.70 | 89.50 | 89.6 | 7.12 | 7.21 | 7.2 | 2.61 | 2.59 | 2.6 | 5.60 | |
| 30/3/2022 | Sunny | 12:15 | 3.70 | 1.00 | 20.70 | 20.80 | 20.8 | 7.44 | 7.45 | 7.5 | 30.48 | 30.16 | 30.7 | 80.90 | 79.80 | 80.6 | 6.49 | 6.42 | 6.4 | 2.80 | 2.78 | 2.8 | 4.00 | 4.2 | | |
| | | 12:20 | 3.70 | 1.00 | 20.80 | 20.90 | 20.8 | 7.56 | 7.63 | 7.5 | 31.12 | 31.23 | 30.7 | 80.70 | 80.80 | 80.6 | 6.32 | 6.39 | 6.4 | 2.78 | 2.98 | 2.8 | 4.40 | | | |

Water Quality Monitoring at Station W8 (Surface) - Flood Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | |
|--------------------------------------|---------------|----------|---------------|------------------|----------------|---------------------|-------------------|---------|------|-------|---------|-------|-----------------|-------|---------|--------------------|---------|-------|------------|-------|---------|------------------|---------|-------|------------|-------|---------|
| | | | | | | | Value | Average | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W8 Silvermine Bay (Open Water) | 17/3/2022 | Sunny | 18:35 | 3.90 | Surface | 1.00 | 24.50 | 24.50 | 24.6 | 8.32 | 8.14 | 8.3 | 29.80 | 29.91 | 29.9 | 83.10 | 90.30 | 86.4 | 5.66 | 6.01 | 5.8 | 2.96 | 2.80 | 2.9 | 2.40 | 2.6 | |
| | | | 18:40 | 3.90 | | 1.00 | 24.60 | 24.60 | 24.6 | 8.33 | 8.21 | 8.3 | 29.93 | 29.87 | 29.9 | 83.40 | 88.60 | 86.4 | 5.67 | 6.00 | 5.8 | 2.99 | 3.01 | 2.9 | 2.70 | | |
| | 19/3/2022 | Sunny | 19:55 | 3.70 | | 1.00 | 23.50 | 23.50 | 23.5 | 7.89 | 7.68 | 7.8 | 29.63 | 29.64 | 29.7 | 73.60 | 82.10 | 78.3 | 8.61 | 9.16 | 8.8 | 2.13 | 3.05 | 2.8 | 3.60 | 3.4 | |
| | | | 20:00 | 3.70 | | 1.00 | 23.50 | 23.50 | 23.5 | 7.88 | 7.67 | 7.8 | 29.31 | 30.12 | 29.7 | 78.30 | 79.20 | 78.3 | 8.62 | 8.83 | 8.8 | 3.17 | 3.04 | 2.8 | 3.20 | | |
| | 21/3/2022 | Overcast | 14:10 | 3.80 | | 1.00 | 22.90 | 22.90 | 22.9 | 8.46 | 8.31 | 8.4 | 29.56 | 29.58 | 29.6 | 79.10 | 78.90 | 78.9 | 6.60 | 6.48 | 6.5 | 3.88 | 3.85 | 3.9 | 2.00 | 2.0 | |
| | | | 15:15 | 3.80 | | 1.00 | 22.90 | 22.90 | 22.9 | 8.43 | 8.44 | 8.4 | 29.56 | 29.58 | 29.6 | 78.90 | 78.70 | 78.9 | 6.67 | 6.44 | 6.5 | 3.86 | 3.85 | 3.9 | 2.00 | | |
| | 23/3/2022 | Rainy | 16:50 | 3.90 | | 1.00 | 19.60 | 19.50 | 19.6 | 8.04 | 8.01 | 8.0 | 24.40 | 24.40 | 24.3 | 71.80 | 71.40 | 70.7 | 6.11 | 6.07 | 5.8 | 3.76 | 3.76 | 3.8 | 6.70 | 6.6 | |
| | | | 16:55 | 3.90 | | 1.00 | 19.60 | 19.60 | 19.6 | 7.89 | 7.87 | 8.0 | 24.29 | 24.29 | 24.3 | 70.00 | 69.50 | 70.7 | 5.44 | 5.51 | 5.8 | 3.75 | 3.75 | 3.8 | 6.40 | | |
| | 26/3/2022 | Cloudy | 9:45 | 4.00 | | 1.00 | 21.90 | 21.90 | 22.0 | 8.41 | 8.41 | 8.4 | 29.80 | 29.81 | 29.8 | 74.10 | 73.95 | 81.7 | 6.61 | 6.52 | 6.6 | 3.38 | 3.38 | 3.3 | 4.50 | 4.6 | |
| | | | 9:50 | 4.00 | | 1.00 | 22.00 | 22.00 | 22.0 | 8.42 | 8.42 | 8.4 | 29.80 | 29.79 | 29.8 | 90.10 | 88.60 | 81.7 | 6.67 | 6.58 | 6.6 | 3.27 | 3.28 | 3.3 | 4.70 | | |
| | 28/3/2022 | Cloudy | 15:50 | 3.90 | | 1.00 | 19.70 | 19.70 | 19.7 | 7.56 | 7.51 | 7.5 | 29.81 | 29.79 | 29.9 | 85.10 | 77.50 | 79.8 | 6.60 | 5.86 | 6.2 | 6.61 | 6.63 | 6.6 | 6.80 | 6.9 | |
| | | | 15:55 | 3.90 | | 1.00 | 19.60 | 19.60 | 19.7 | 7.50 | 7.48 | 7.5 | 29.95 | 30.01 | 29.9 | 77.70 | 78.90 | 79.8 | 6.03 | 6.31 | 6.2 | 6.59 | 6.66 | 6.6 | 7.00 | | |
| 30/3/2022 | Sunny | 18:00 | 4.00 | 1.00 | 20.80 | 20.80 | 20.9 | 7.86 | 7.86 | 7.9 | 29.99 | 30.00 | 30.0 | 87.40 | 86.50 | 86.4 | 6.77 | 6.59 | 6.7 | 3.10 | 3.09 | 3.1 | 3.30 | 3.5 | | | |
| | | 18:05 | 4.00 | 1.00 | 20.90 | 20.90 | 20.9 | 7.86 | 7.85 | 7.9 | 30.12 | 30.01 | 30.0 | 86.20 | 85.31 | 86.4 | 6.78 | 6.55 | 6.7 | 3.01 | 3.03 | 3.1 | 3.60 | | | | |

General Note: Additional data of temperature, pH, salinity, DO saturation, DO and turbidity were obtained in each duplicate set for better representativeness.



Water Quality Monitoring at Station W8 (Bottom) - Ebb Tide

| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | | | | |
|--------------------------------------|---------------|---------|---------------|------------------|----------------|---------------------|-------------------|-------|---------|-------|-------|---------|-----------------|-------|---------|--------------------|-------|---------|------------|------|---------|------------------|------|---------|------------|-----|---------|-------|--|---------|
| | | | | | | | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W8 Silvermine Bay (Open Water) | 17/3/2022 | Sunny | 13:15 | 3.70 | Surface | 2.70 | 24.70 | 24.60 | 24.7 | 8.36 | 8.21 | 8.3 | 29.92 | 29.93 | 29.9 | 85.00 | 90.40 | 86.9 | 5.83 | 6.13 | 6.0 | 2.79 | 2.68 | 2.8 | 6.10 | 6.4 | | | | |
| | | | 13:20 | 3.70 | | 2.70 | 24.70 | 24.60 | 24.7 | 8.33 | 8.34 | 8.3 | 30.01 | 29.88 | 29.9 | 85.40 | 86.60 | 86.9 | 5.97 | 6.23 | 6.0 | 2.88 | 2.90 | 2.8 | 6.60 | 6.4 | | | | |
| | 19/3/2022 | Sunny | 13:30 | 3.60 | | 2.60 | 24.20 | 24.20 | 24.2 | 8.21 | 8.13 | 8.3 | 29.63 | 29.18 | 29.4 | 89.00 | 89.20 | 86.2 | 6.97 | 7.40 | 7.3 | 3.51 | 3.64 | 3.6 | 2.40 | 2.6 | | | | |
| | | | 13:35 | 3.60 | | 2.60 | 24.20 | 24.20 | 24.2 | 8.52 | 8.14 | 8.3 | 29.63 | 29.13 | 29.4 | 83.80 | 82.60 | 86.2 | 7.32 | 7.43 | 7.3 | 3.49 | 3.66 | 3.6 | 2.80 | 2.6 | | | | |
| | 21/3/2022 | Sunny | 9:00 | 3.70 | | 2.70 | 22.50 | 22.60 | 22.5 | 7.87 | 7.88 | 7.9 | 29.56 | 29.48 | 29.6 | 78.70 | 79.10 | 78.8 | 5.78 | 5.71 | 5.8 | 3.51 | 3.27 | 3.5 | 3.30 | 3.3 | | | | |
| | | | 9:05 | 3.70 | | 2.70 | 22.50 | 22.50 | 22.5 | 7.86 | 7.88 | 7.9 | 29.97 | 29.33 | 29.6 | 79.30 | 78.10 | 78.8 | 5.83 | 5.75 | 5.8 | 3.41 | 3.84 | 3.5 | 3.20 | 3.3 | | | | |
| | 23/3/2022 | Rainy | 10:10 | 3.80 | | 2.80 | 19.00 | 19.00 | 19.0 | 8.07 | 7.97 | 8.0 | 29.44 | 29.44 | 29.4 | 75.10 | 74.94 | 76.5 | 5.87 | 5.87 | 5.8 | 4.01 | 4.03 | 4.0 | 3.30 | 4.0 | | | | |
| | | | 10:15 | 3.80 | | 2.80 | 19.00 | 19.10 | 19.0 | 8.03 | 7.99 | 8.0 | 29.43 | 29.43 | 29.4 | 78.00 | 77.95 | 76.5 | 5.67 | 5.61 | 5.8 | 3.95 | 3.94 | 4.0 | 4.60 | 4.0 | | | | |
| | 25/3/2022 | Rainy | 19:10 | 3.80 | | 2.80 | 22.20 | 22.20 | 22.2 | 8.34 | 8.34 | 8.3 | 29.84 | 29.84 | 29.8 | 72.90 | 72.10 | 77.1 | 6.26 | 6.20 | 6.0 | 2.33 | 2.33 | 2.3 | 3.20 | 3.4 | | | | |
| | | | 15:15 | 3.80 | | 2.80 | 22.20 | 22.20 | 22.2 | 8.35 | 8.35 | 8.3 | 29.81 | 29.81 | 29.8 | 82.60 | 80.90 | 77.1 | 5.85 | 5.80 | 6.0 | 2.32 | 2.32 | 2.3 | 3.50 | 3.4 | | | | |
| | 28/3/2022 | Cloudy | 11:40 | 3.80 | | 2.80 | 19.20 | 19.20 | 19.3 | 7.53 | 7.71 | 7.6 | 29.78 | 29.99 | 29.9 | 82.10 | 82.70 | 82.4 | 7.02 | 6.69 | 6.8 | 1.54 | 1.67 | 1.5 | 3.30 | 3.5 | | | | |
| | | | 11:45 | 3.80 | | 2.80 | 19.30 | 19.30 | 19.3 | 7.64 | 7.62 | 7.6 | 29.93 | 29.87 | 29.9 | 82.30 | 82.50 | 82.4 | 6.83 | 6.59 | 6.8 | 1.48 | 1.43 | 1.5 | 3.70 | 3.5 | | | | |
| 30/3/2022 | Sunny | 12:30 | 3.70 | 2.70 | 20.70 | 20.80 | 20.8 | 7.55 | 7.60 | 7.6 | 30.70 | 30.65 | 30.8 | 87.00 | 85.90 | 86.4 | 6.10 | 6.05 | 6.1 | 2.96 | 2.95 | 3.0 | 3.50 | 3.7 | | | | | | |
| | | 12:35 | 3.70 | 2.70 | 20.80 | 20.80 | 20.8 | 7.63 | 7.62 | 7.6 | 30.75 | 30.96 | 30.8 | 86.40 | 86.30 | 86.4 | 6.11 | 6.12 | 6.1 | 2.96 | 2.97 | 3.0 | 3.80 | 3.7 | | | | | | |

Water Quality Monitoring at Station W8 (Bottom) - Flood Tide

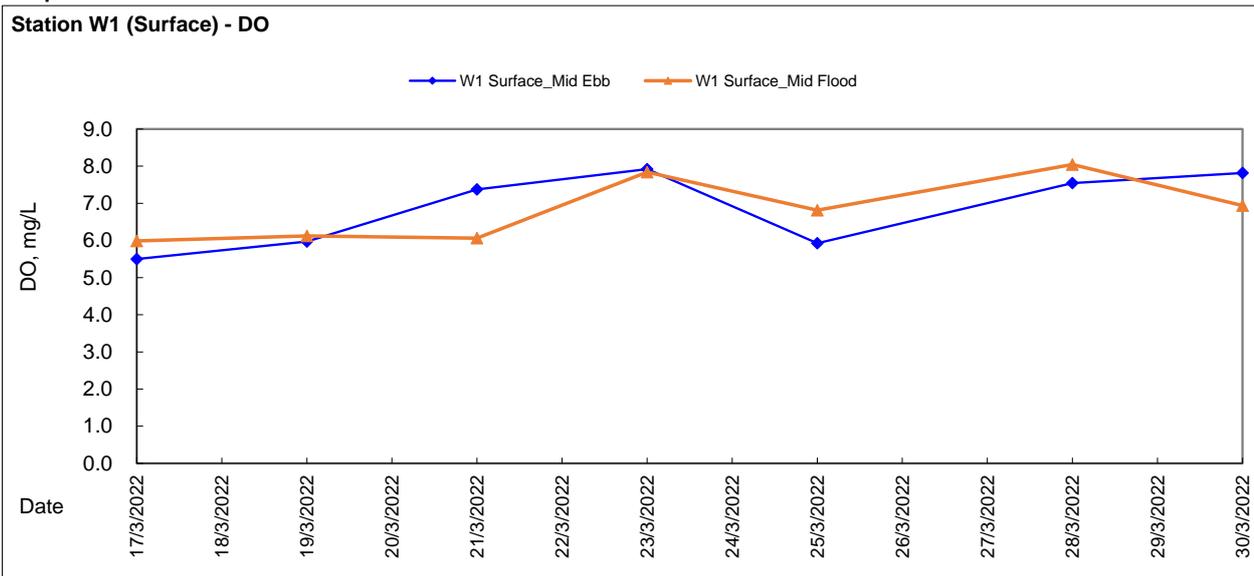
| Station Reference | Sampling Date | Weather | Sampling Time | Water Depth m | Sampling Level | Sampling Depth m | Temperature °C | | | pH | | | Salinity ppt | | | DO Saturation % | | | DO mg/L | | | Turbidity NTU | | | SS mg/L | | | | | |
|--------------------------------------|---------------|----------|---------------|------------------|----------------|---------------------|-------------------|-------|---------|-------|-------|---------|-----------------|-------|---------|--------------------|-------|---------|------------|------|---------|------------------|------|---------|------------|-----|---------|-------|--|---------|
| | | | | | | | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average | Value | | Average |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W8 Silvermine Bay (Open Water) | 17/3/2022 | Sunny | 18:45 | 3.90 | Surface | 2.90 | 24.40 | 24.40 | 24.4 | 8.39 | 8.21 | 8.3 | 16.45 | 16.41 | 16.5 | 81.00 | 88.00 | 84.1 | 5.91 | 6.35 | 6.2 | 2.91 | 2.77 | 3.0 | 4.00 | 4.3 | | | | |
| | | | 18:50 | 3.90 | | 2.90 | 24.40 | 24.40 | 24.4 | 8.33 | 8.25 | 8.3 | 16.44 | 16.51 | 16.5 | 82.30 | 85.20 | 84.1 | 6.21 | 6.31 | 6.2 | 2.99 | 3.21 | 3.0 | 4.50 | 4.3 | | | | |
| | 19/3/2022 | Sunny | 20:10 | 3.70 | | 2.70 | 23.50 | 23.50 | 23.5 | 8.03 | 7.84 | 8.0 | 29.67 | 29.66 | 29.8 | 89.90 | 88.20 | 88.7 | 7.64 | 8.23 | 7.9 | 2.01 | 2.89 | 2.5 | 6.40 | 6.6 | | | | |
| | | | 20:15 | 3.70 | | 2.70 | 23.50 | 23.50 | 23.5 | 8.11 | 7.94 | 8.0 | 29.77 | 30.13 | 29.8 | 88.80 | 87.90 | 88.7 | 7.93 | 7.93 | 7.9 | 2.45 | 2.68 | 2.5 | 6.70 | 6.6 | | | | |
| | 21/3/2022 | Overcast | 15:20 | 3.80 | | 2.80 | 21.20 | 21.00 | 21.1 | 8.42 | 8.13 | 8.3 | 29.54 | 29.56 | 29.6 | 80.10 | 79.70 | 80.1 | 6.51 | 6.54 | 6.6 | 3.52 | 3.52 | 3.5 | 2.40 | 2.3 | | | | |
| | | | 15:25 | 3.80 | | 2.80 | 21.00 | 21.00 | 21.1 | 8.31 | 8.30 | 8.3 | 29.55 | 29.55 | 29.6 | 80.20 | 80.20 | 80.1 | 6.65 | 6.57 | 6.6 | 3.52 | 3.55 | 3.5 | 2.20 | 2.3 | | | | |
| | 23/3/2022 | Rainy | 17:00 | 3.90 | | 2.90 | 19.50 | 19.50 | 19.6 | 8.13 | 8.11 | 8.1 | 20.97 | 20.97 | 20.5 | 72.10 | 71.80 | 71.2 | 5.70 | 5.65 | 5.6 | 3.64 | 3.64 | 3.6 | 7.80 | 7.9 | | | | |
| | | | 17:05 | 3.90 | | 2.90 | 19.60 | 19.60 | 19.6 | 8.12 | 8.12 | 8.1 | 19.95 | 19.95 | 20.5 | 70.60 | 70.20 | 71.2 | 5.62 | 5.60 | 5.6 | 3.55 | 3.55 | 3.6 | 8.00 | 7.9 | | | | |
| | 26/3/2022 | Cloudy | 9:55 | 4.00 | | 3.00 | 22.00 | 22.00 | 22.0 | 8.38 | 8.39 | 8.4 | 29.68 | 29.69 | 29.7 | 71.20 | 70.90 | 74.6 | 6.20 | 6.17 | 6.1 | 2.78 | 2.78 | 2.8 | 4.70 | 3.7 | | | | |
| | | | 10:00 | 4.00 | | 3.00 | 22.00 | 22.00 | 22.0 | 8.39 | 8.39 | 8.4 | 29.74 | 29.74 | 29.7 | 78.20 | 77.90 | 74.6 | 6.06 | 6.03 | 6.1 | 2.78 | 2.79 | 2.8 | 2.60 | 3.7 | | | | |
| | 28/3/2022 | Cloudy | 16:00 | 3.90 | | 2.90 | 19.80 | 19.80 | 19.8 | 7.03 | 7.20 | 7.1 | 29.64 | 29.72 | 29.7 | 77.40 | 78.40 | 77.8 | 5.90 | 6.19 | 6.1 | 6.39 | 6.45 | 6.4 | 8.70 | 8.9 | | | | |
| | | | 16:05 | 3.90 | | 2.90 | 19.70 | 19.70 | 19.8 | 7.03 | 7.13 | 7.1 | 29.78 | 29.65 | 29.7 | 78.30 | 77.20 | 77.8 | 6.15 | 6.32 | 6.1 | 6.03 | 6.55 | 6.4 | 9.10 | 8.9 | | | | |
| 30/3/2022 | Sunny | 18:10 | 4.00 | 3.00 | 20.90 | 20.90 | 20.9 | 7.37 | 7.38 | 7.4 | 30.15 | 30.09 | 30.1 | 91.30 | 90.80 | 90.5 | 7.63 | 7.60 | 7.6 | 3.75 | 3.83 | 3.7 | 4.50 | 4.7 | | | | | | |
| | | 18:15 | 4.00 | 3.00 | 20.90 | 20.90 | 20.9 | 7.35 | 7.34 | 7.4 | 30.11 | 30.03 | 30.1 | 90.20 | 89.70 | 90.5 | 7.66 | 7.35 | 7.6 | 3.56 | 3.84 | 3.7 | 4.90 | 4.7 | | | | | | |

General Note: Additional data of temperature, pH, salinity, DO saturation, DO and turbidity were obtained in each duplicate set for better representativeness.

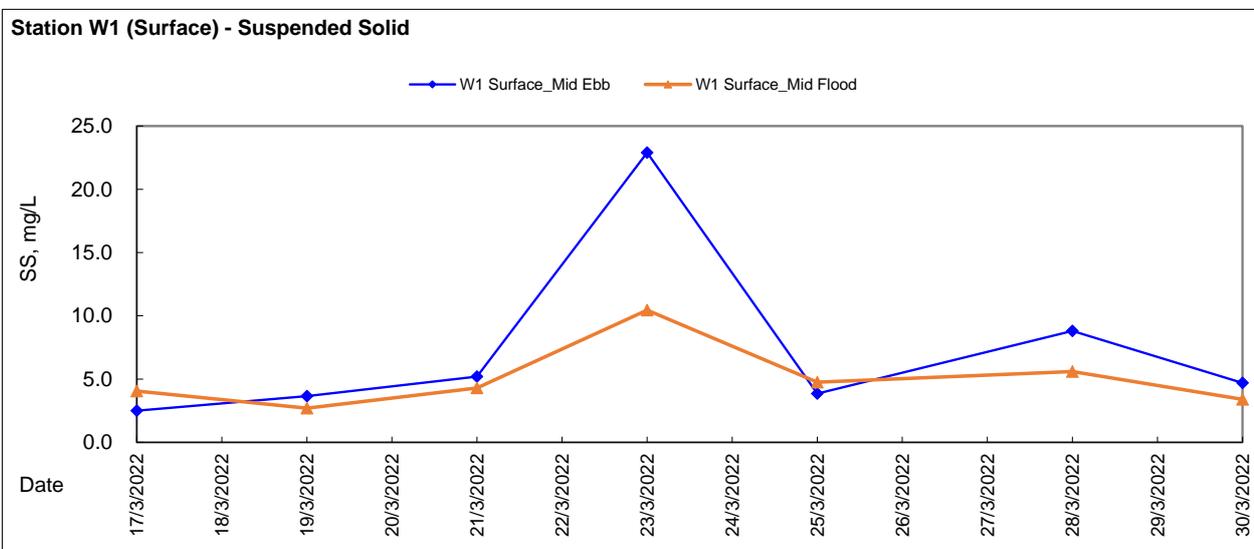
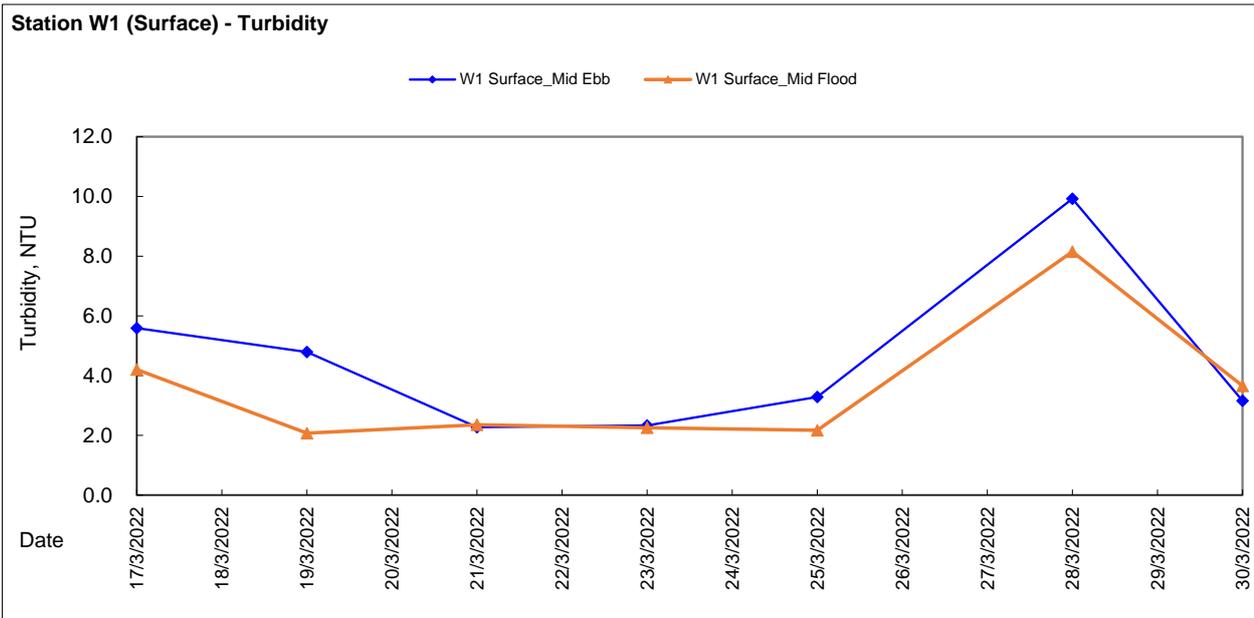


Graphic Presentation of WQM Result

Station W1 (Surface) - DO

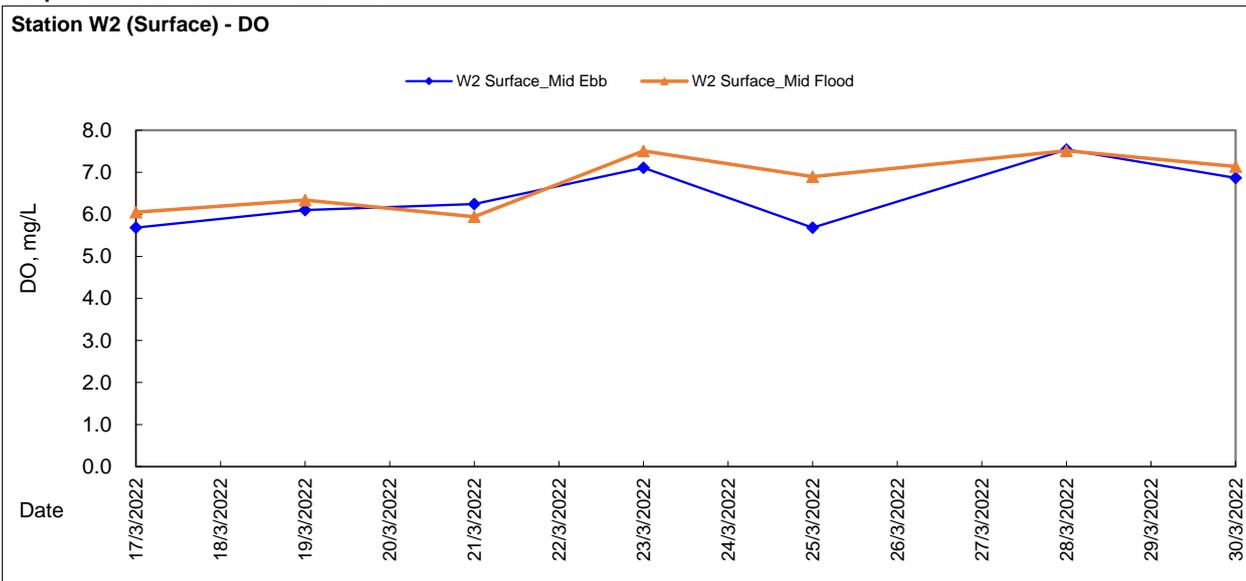


Graphic Presentation of WQM Result

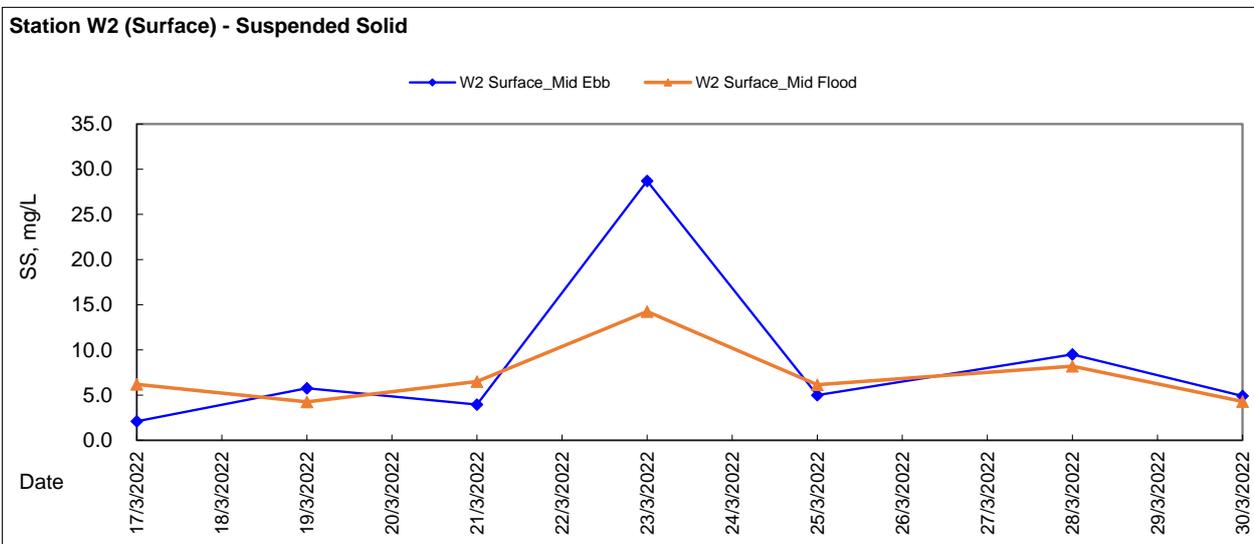
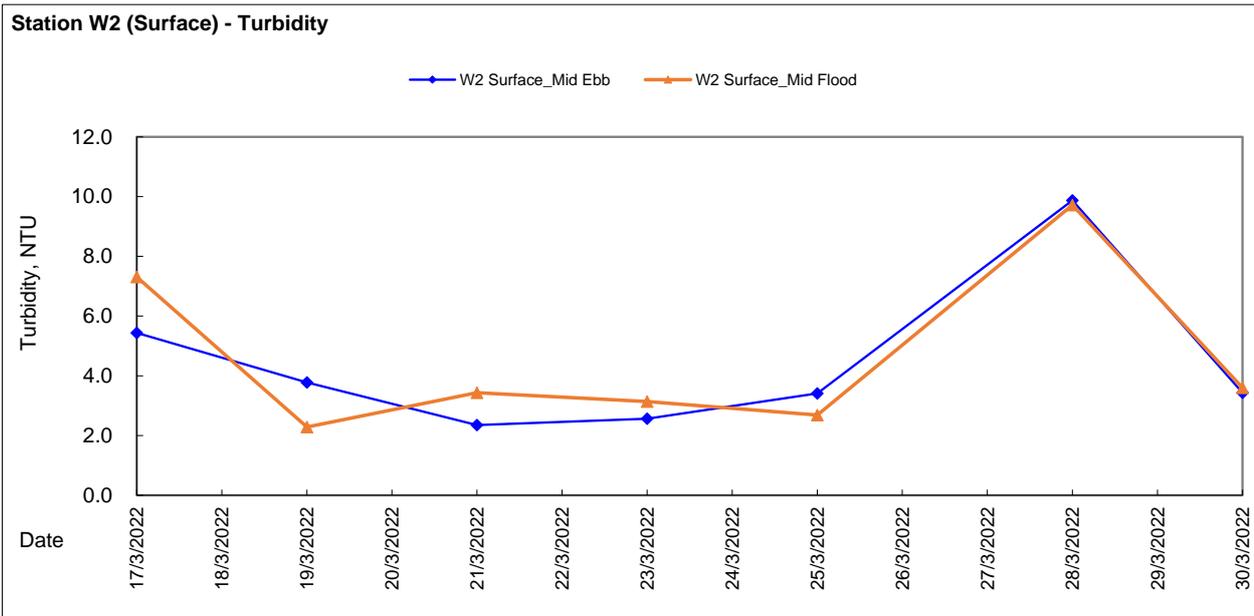


Graphic Presentation of WQM Result

Station W2 (Surface) - DO



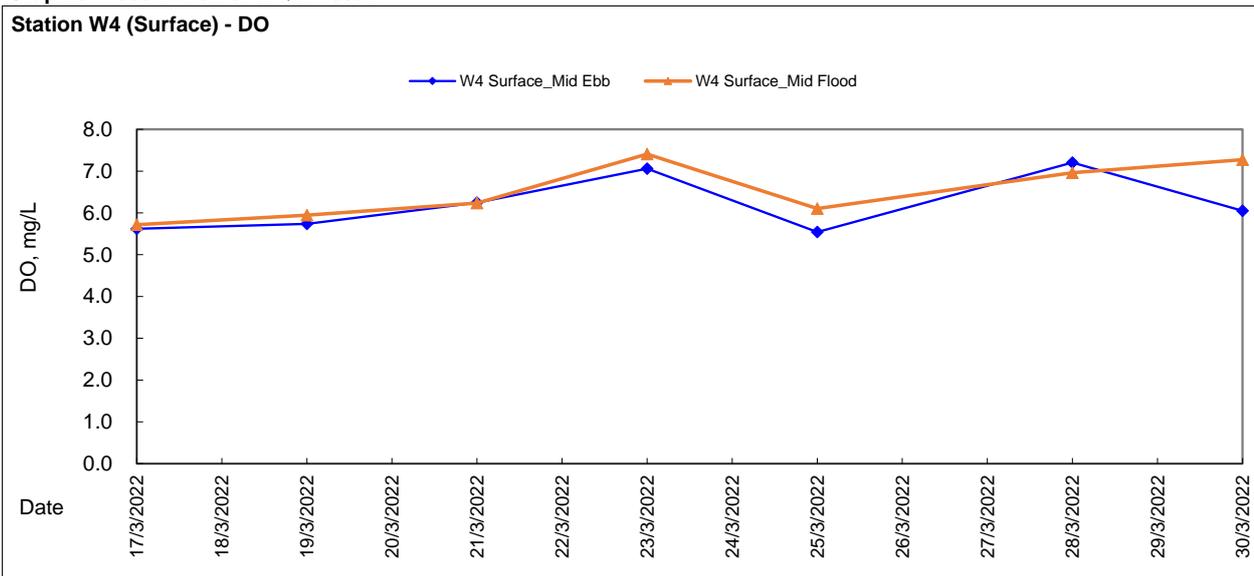
Graphic Presentation of WQM Result



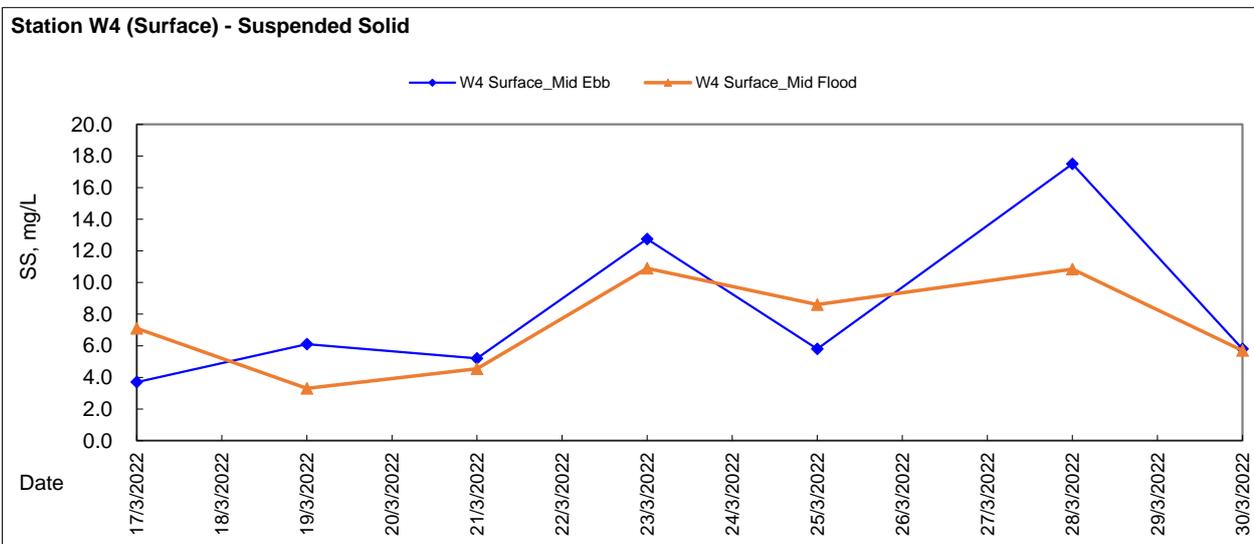
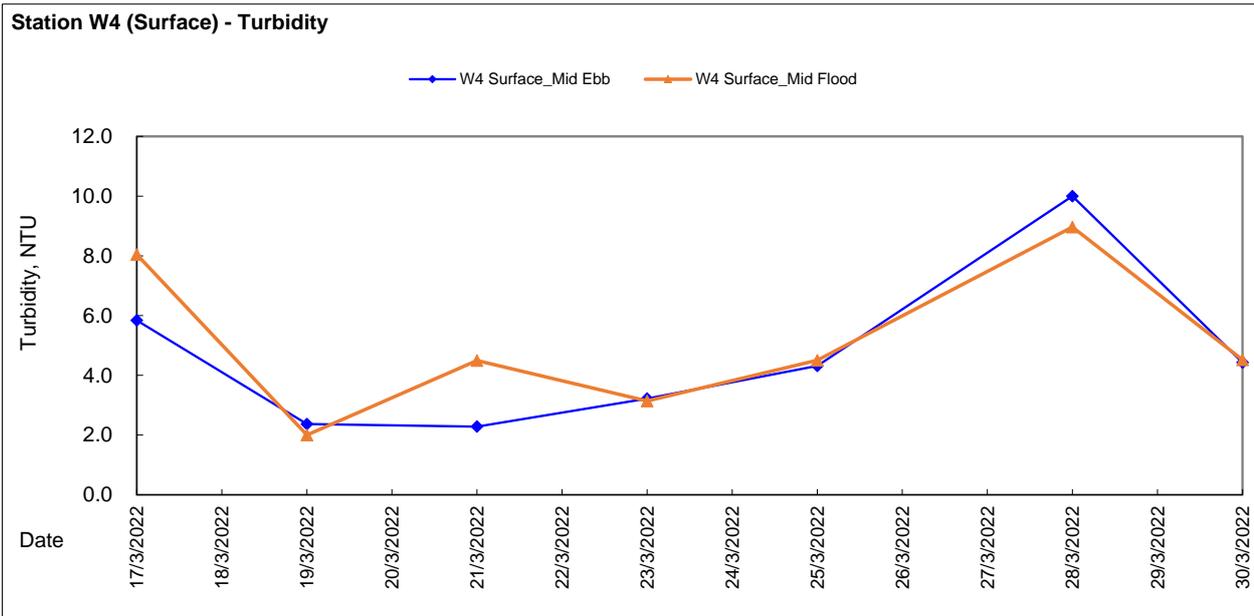


Graphic Presentation of WQM Result

Station W4 (Surface) - DO



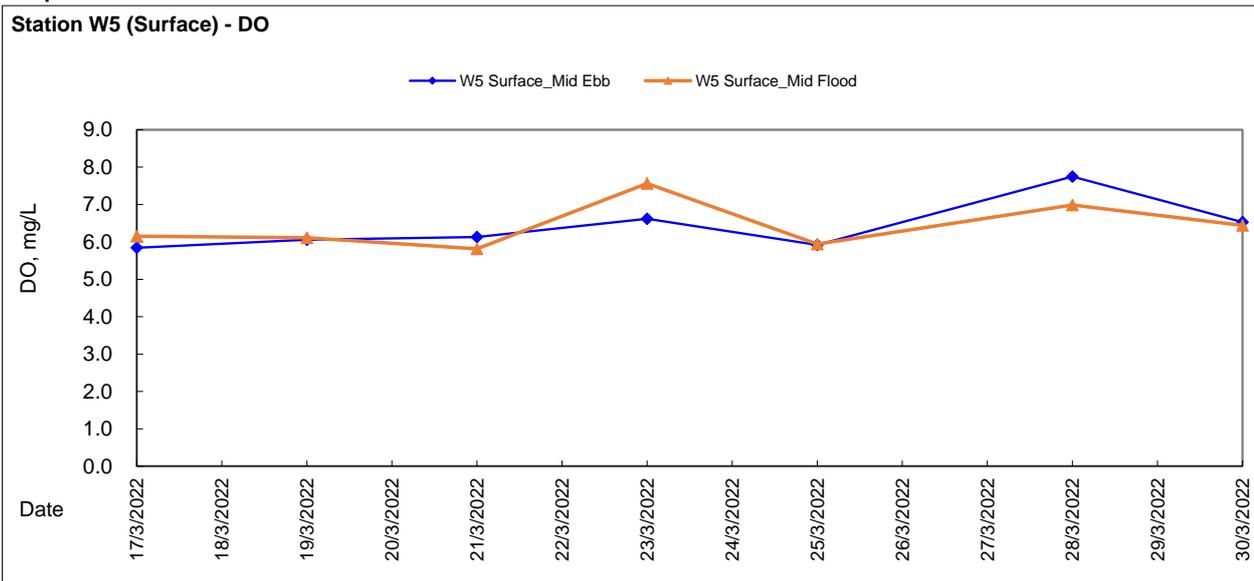
Graphic Presentation of WQM Result



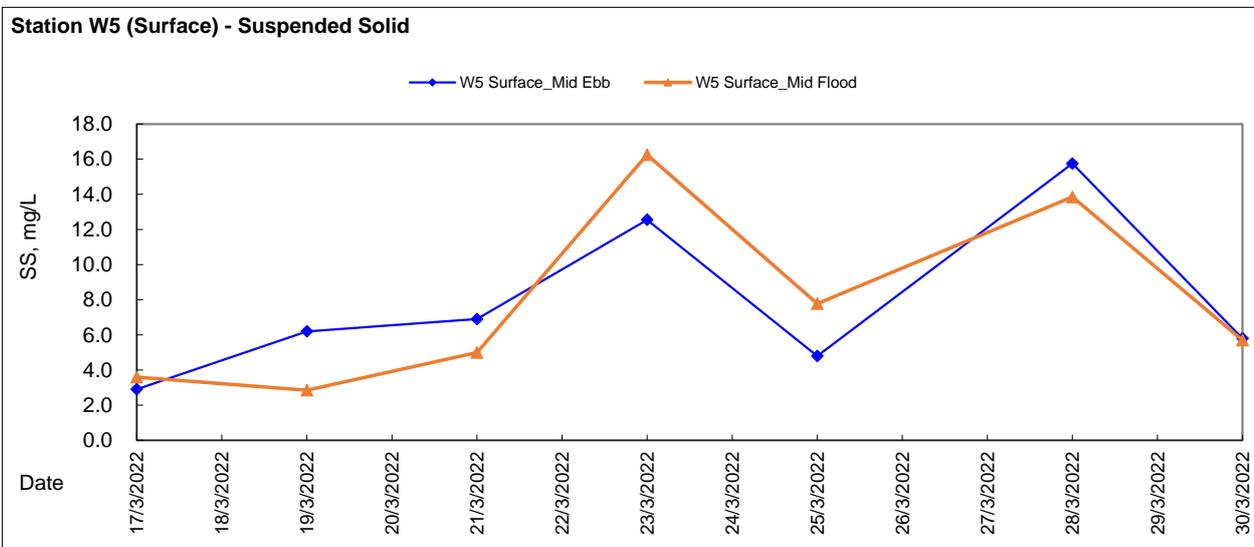
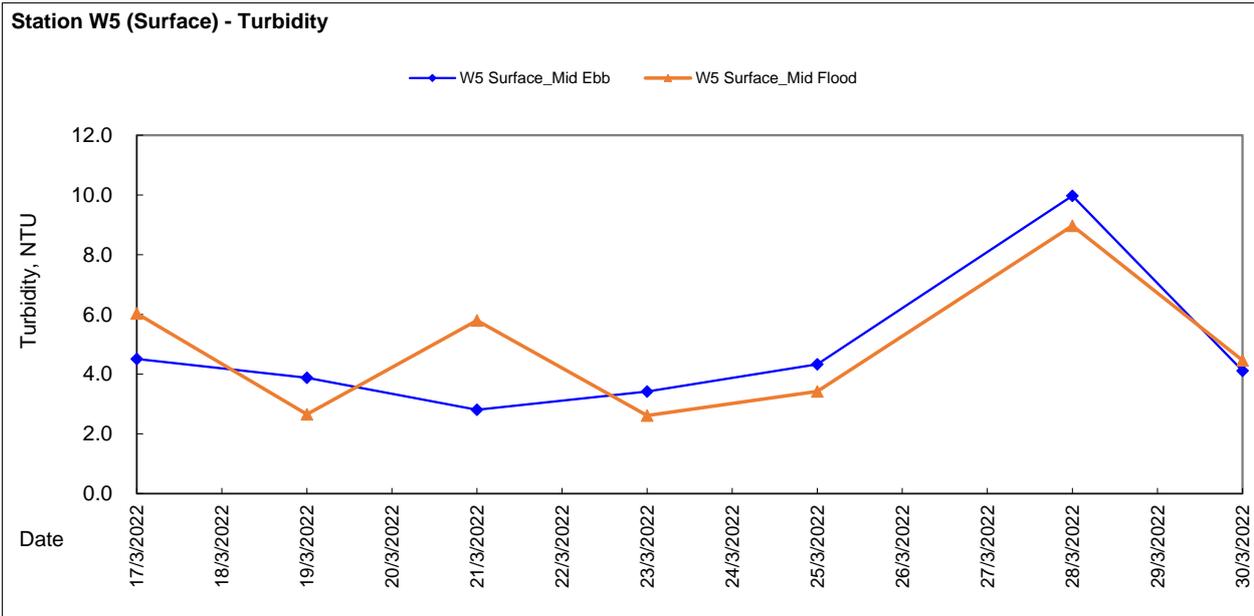


Graphic Presentation of WQM Result

Station W5 (Surface) - DO



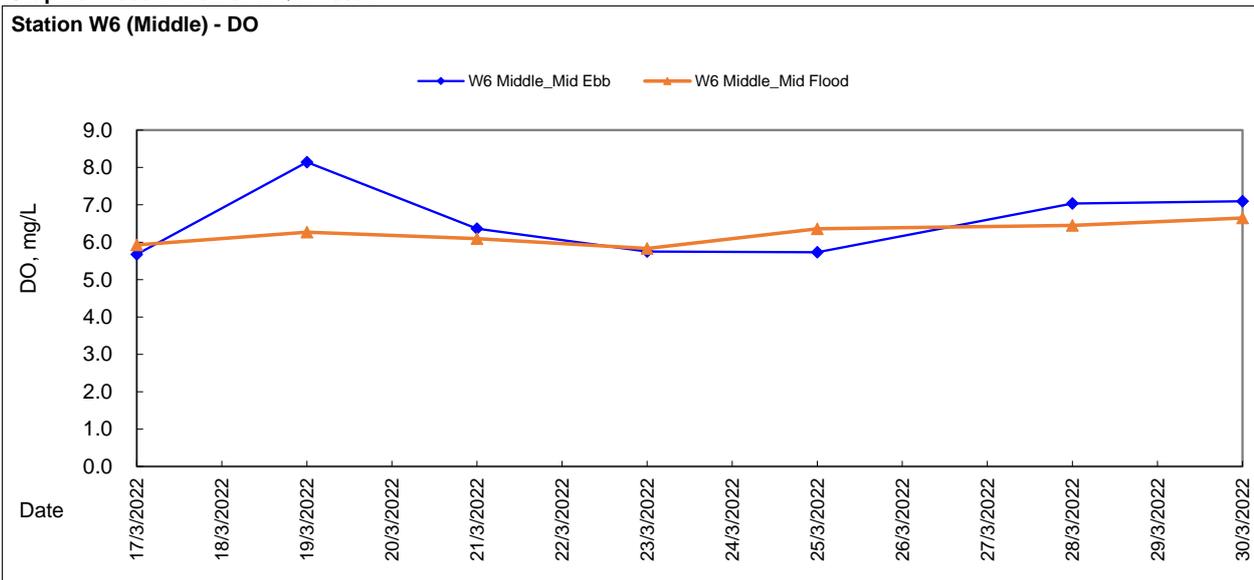
Graphic Presentation of WQM Result



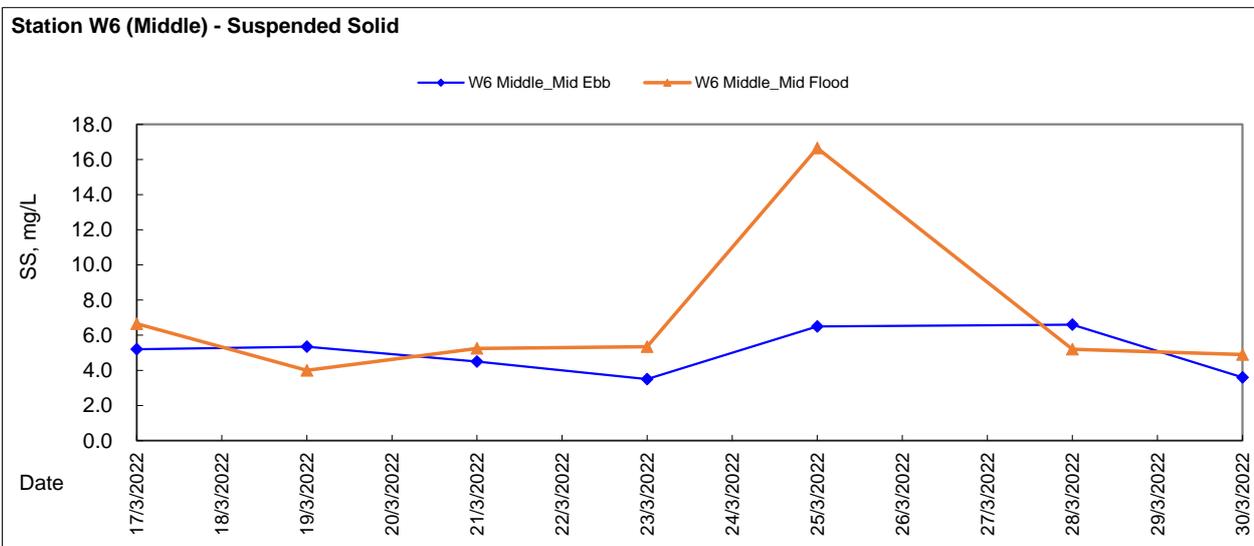
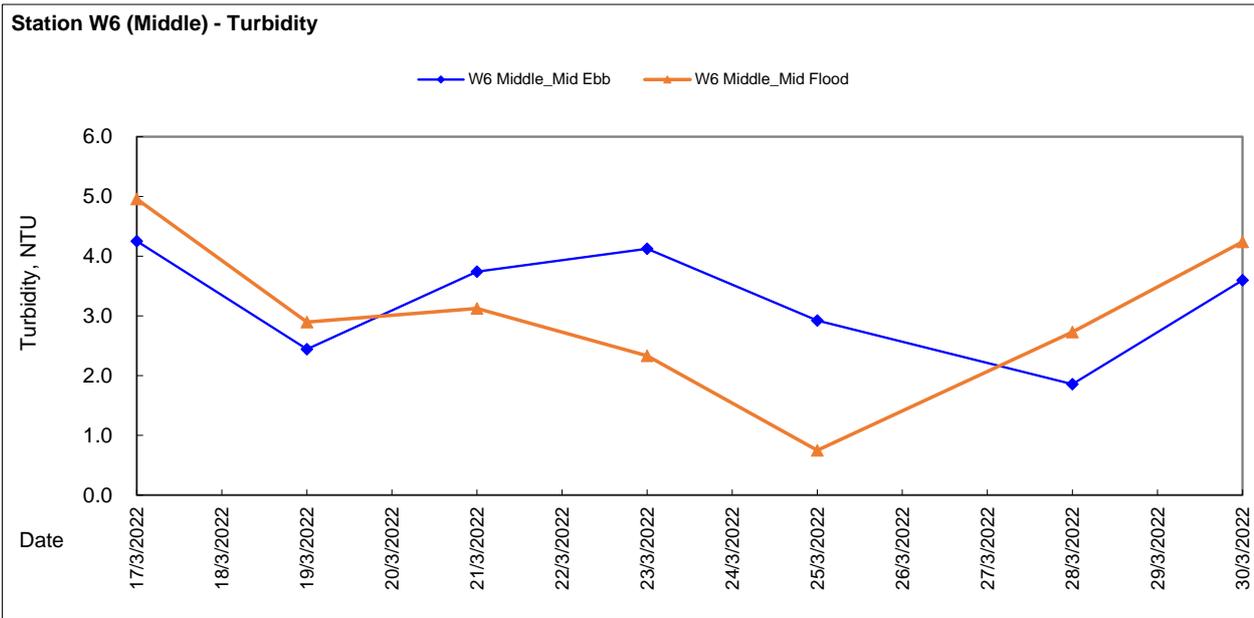


Graphic Presentation of WQM Result

Station W6 (Middle) - DO



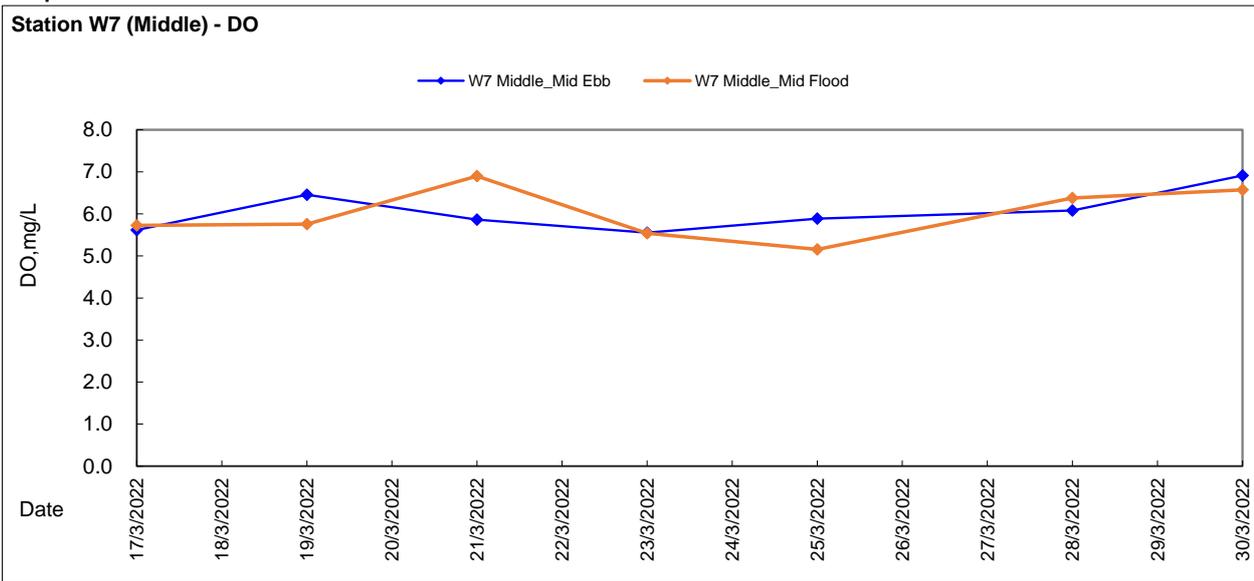
Graphic Presentation of WQM Result



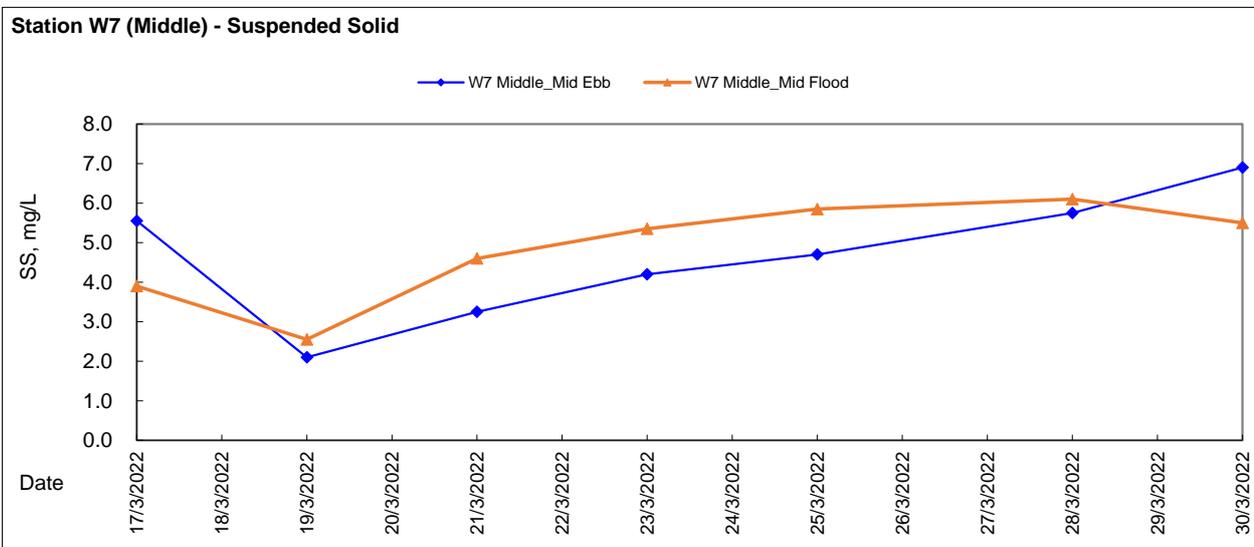
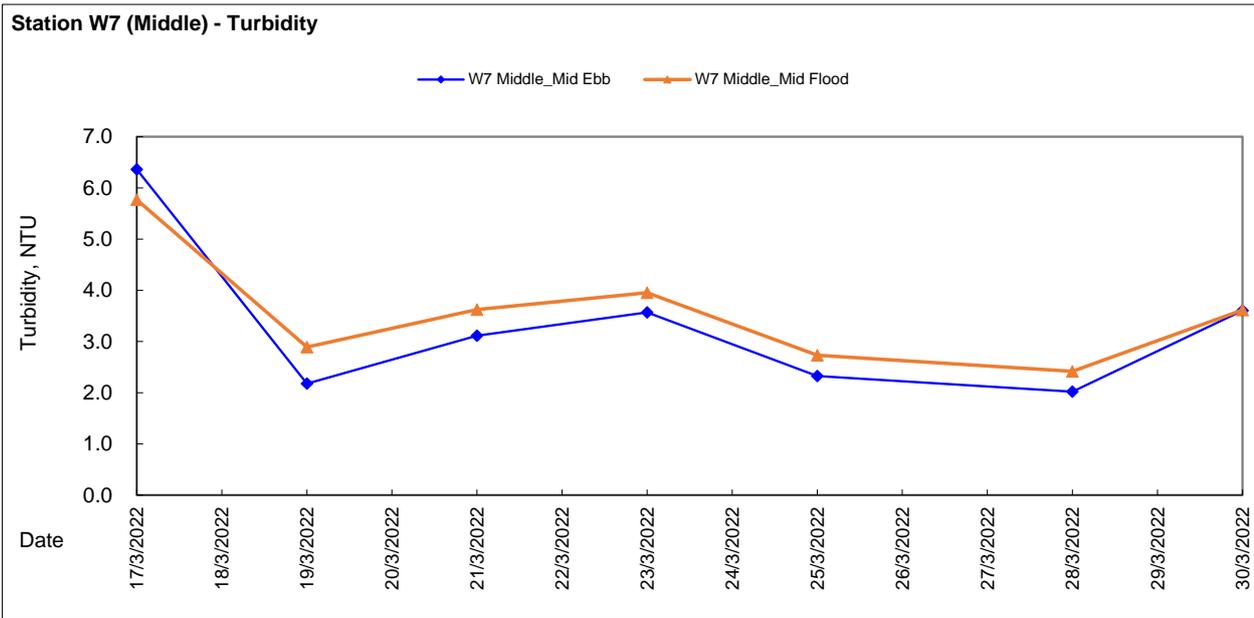


Graphic Presentation of WQM Result

Station W7 (Middle) - DO



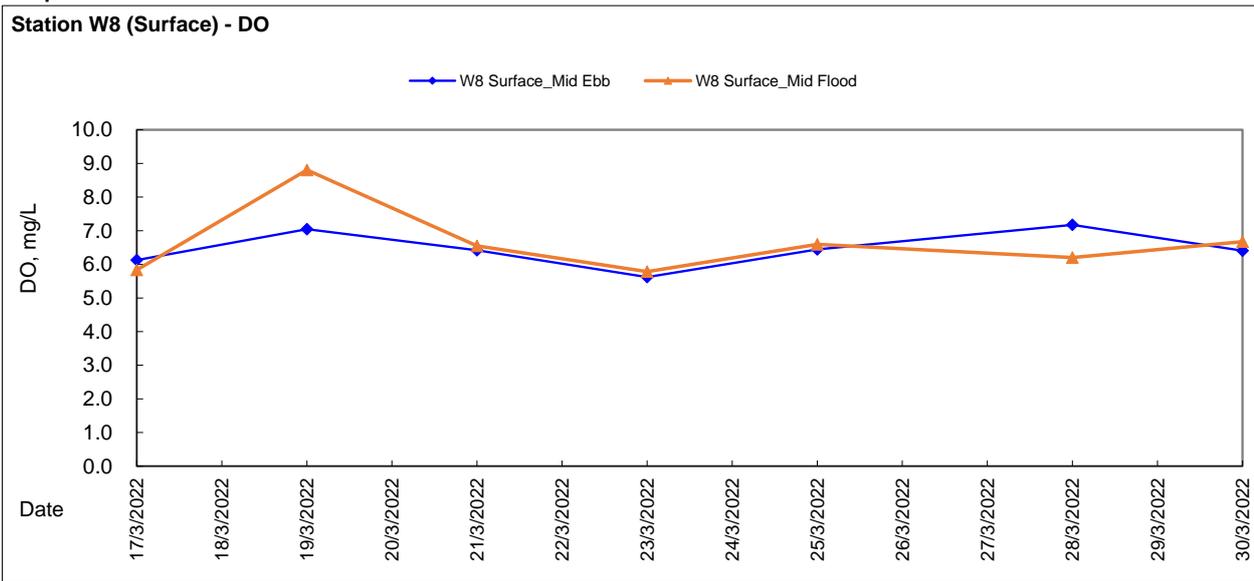
Graphic Presentation of WQM Result



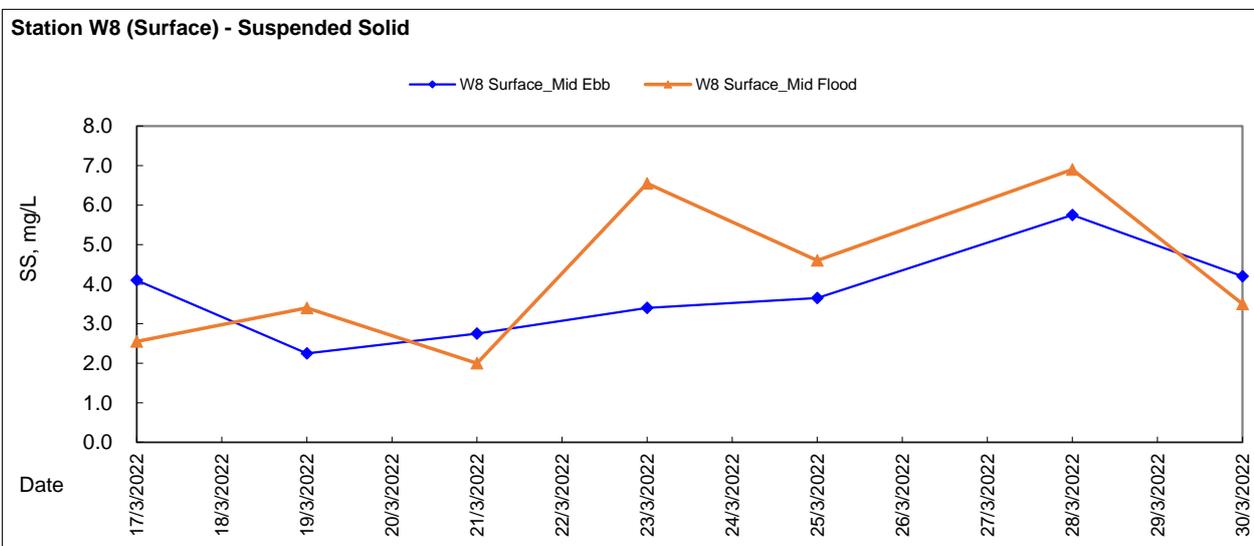
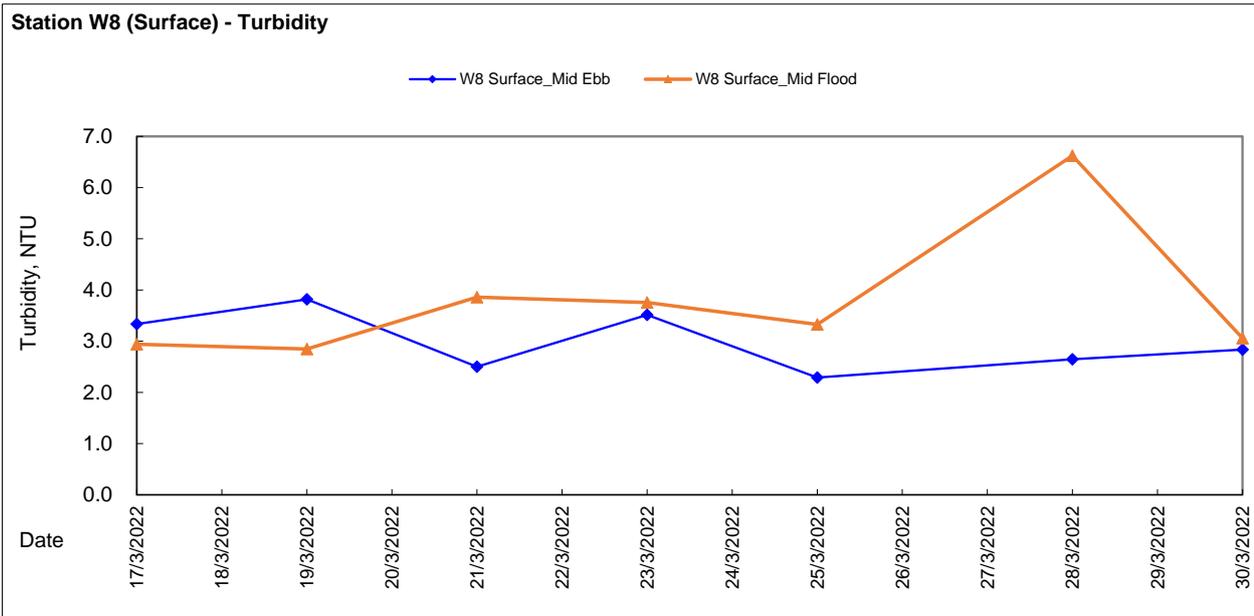


Graphic Presentation of WQM Result

Station W8 (Surface) - DO



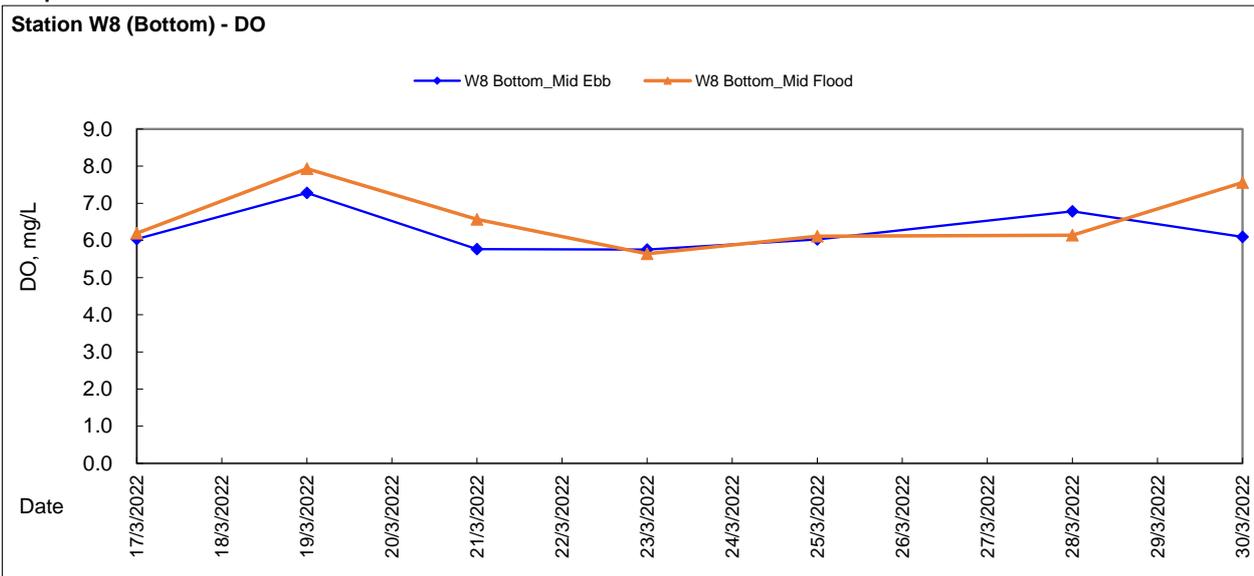
Graphic Presentation of WQM Result



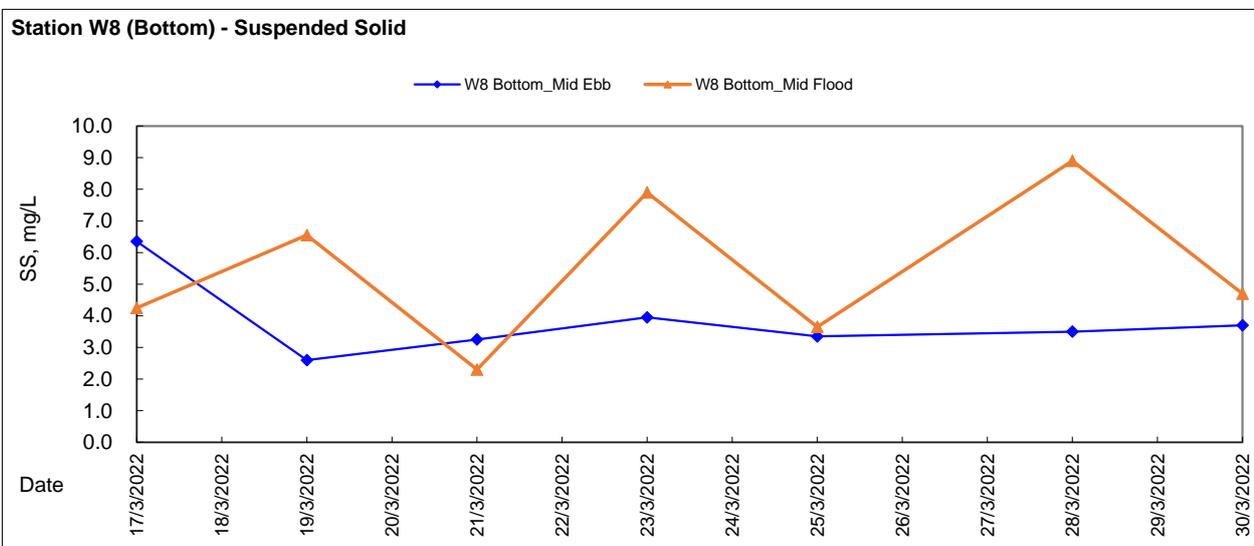
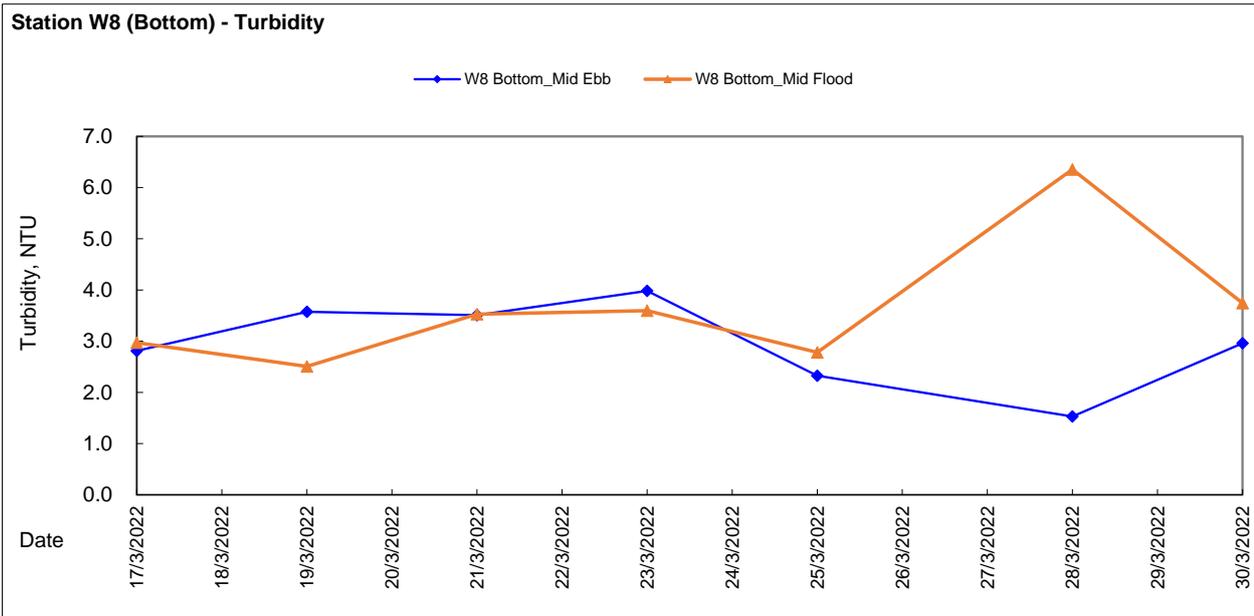


Graphic Presentation of WQM Result

Station W8 (Bottom) - DO



Graphic Presentation of WQM Result





Appendix 5.5

Monthly Summary Waste Flow Table

Name of Department: ArehSD/CEDD/HA/EMSD/HyD/WSB

Contract No.: HY/2019/14

(Notes: The following Waste Flow Table should be used for contracts either not included under the Pay for Safety and Environment Scheme or exempted from the full requirement for environmental management)

Monthly Summary Waste Flow Table for 2022

| Monthly ending | Actual Quantities of Inert C&D Materials Generated | | | | | | Actual Quantities of C&D Wastes Generated | | | | |
|----------------|--|---|---|---|--|--|---|---|------------------------------------|-----------------------------|--|
| | Total Quantity Generated (in '000m ³) | Broken Concrete (see Note 3) (in '000m ³) | Reused in the Contract (in '000m ³) | Reused in other Projects (in '000m ³) | Disposed as Public Fill (in '000m ³) | Imported Fill (in '000m ³) | Metals (in '000 kg) | Paper/ cardboard packaging (in '000 kg) | Plastics (see Note 2) (in '000 kg) | Chemical Waste (in '000 kg) | Others, e.g. general refuse (in '000m ³) |
| Jan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Feb | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mar | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apr | | | | | | | | | | | |
| May | | | | | | | | | | | |
| Jun | | | | | | | | | | | |
| Sub Total | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jul | | | | | | | | | | | |
| Aug | | | | | | | | | | | |
| Sept | | | | | | | | | | | |
| Oct | | | | | | | | | | | |
| Nov | | | | | | | | | | | |
| Dec | | | | | | | | | | | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

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

(3) Broken concrete for recycling into aggregates.



Appendix 6.1

Event Action Plans

Appendix 6.1 Event and Action Plan

Event and Action Plan for Construction Air Quality

| EVENT | ACTION | | | |
|---|---|--|---|--|
| | ET | IEC | ER | CONTRACTOR |
| ACTION LEVEL | | | | |
| 1. Exceedance for one sample | 1. Inform IEC, ER and Contractor; 2. Identify source, investigate the causes of exceedance and propose remedial measures; 3. Repeat measurement to confirm finding. | 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. | 1. Notify Contractor. | 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate. |
| 2. Exceedance for two or more consecutive samples | 1. Inform IEC, ER and Contractor; 2. Identify source; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC, ER and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring. | 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET/ER on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. | 1. Submit proposals for remedial to ER and IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate. |

Event and Action Plan for Construction Air Quality

| EVENT | ACTION | | | |
|--|---|--|--|---|
| | ET | IEC | ER | CONTRACTOR |
| LIMIT LEVEL | | | | |
| 1.Exceedance for one sample | <ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Identify source, investigate the causes of exceedance and propose remedial measures; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on remedial actions 3. Submit proposals for remedial actions to IEC within 3 working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate. |
| 2.Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER and Contractor to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 5. Supervise the implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to terminate that portion of work until the exceedance ceases. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on remedial actions 3. Submit proposals for remedial actions to ER and IEC within 3 working days of notification; 4. Implement the agreed proposals; 5. Resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance ceases. |

Event and Action Plan for Construction Noise

| EVENT | ACTION | | | |
|--------------|--|--|---|--|
| | ET | IEC | ER | CONTRACTOR |
| Action Level | <ol style="list-style-type: none"> 1. Notify IEC, ER and Contractor of exceedance; 2. Identify source 3. Investigate the causes of exceedance and propose remedial measures; 4. Report the results of investigation to the IEC, ER and Contractor; 5. Discuss with the IEC, ER and Contractor and formulate remedial measures; 6. Increase monitoring frequency to check mitigation effectiveness. | <ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented | <ol style="list-style-type: none"> 1. Submit noise mitigation proposals to ER with copy to ET and IEC; 2. Implement noise mitigation proposals. |
| Limit Level | <ol style="list-style-type: none"> 1. Inform IEC, ER, EPD and Contractor; 2. Identify source; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented; 5. If exceedance continues, investigate what portion of the work is responsible and instruct the Contractor to terminate that portion of work until the exceedance ceases. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER with copy to ET and IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Terminate the relevant portion of works as determined by the ER until the exceedance ceases. |

Event and Action Plan for Water Quality

| EVENT | ACTION | | | |
|--|---|--|--|--|
| | ET Leader | IEC | ER | Contractor |
| ACTION LEVEL | | | | |
| Action level being exceeded by one sampling day | <ol style="list-style-type: none"> 1. Repeat in situ measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor and ER; 4. Check monitoring data, all plant, equipment and Contractor's working methods. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working methods. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of non-compliance in writing; 2. Notify Contractor. | <ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Amend working methods if appropriate. |
| Action level being exceeded by two or more consecutive sampling days | <ol style="list-style-type: none"> 1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, ER and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Action level. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; 4. Supervise the implementation of mitigation measures. | <ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures; 2. Ensure mitigation measures are properly implemented; 3. Assess the effectiveness of the implemented mitigation measures. | <ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; 4. Submit proposal of additional mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER; 5. Implement the agreed mitigation measures. |

Event and Action Plan for Water Quality

| EVENT | ACTION | | | |
|---|--|---|--|---|
| | ET Leader | IEC | ER | Contractor |
| LIMIT LEVEL | | | | |
| Limit level being exceeded by one sampling day | <ol style="list-style-type: none"> Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, ER and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor. | <ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor's working method; Discuss with ET and Contractor on possible remedial actions; Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly. | <ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to review the working methods. | <ol style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment and consider changes of working methods; Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER. |
| Limit level being exceeded by two or more consecutive sampling days | <ol style="list-style-type: none"> Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, ER and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. | <ol style="list-style-type: none"> Check monitoring data submitted by ET and Contractor's working method; Discuss with ET and Contractor on possible remedial actions; Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the ER accordingly; Supervise the implementation of mitigation measures. | <ol style="list-style-type: none"> Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Ensure mitigation measures are properly implemented; Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level. | <ol style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET, IEC and ER; Implement the agreed mitigation measures; Resubmit proposals of mitigation measures if problem still not under control; As directed by the Supervising Officer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level. |



Appendix 6.2

Summary for Notification of Exceedance



Summary for Notification of Exceedance

| Ref No. | Date | Location | Parameters (Unit) | Measured | Action Level | Limit Level | Follow-up Action |
|---------|------|----------|-------------------|----------|--------------|-------------|------------------|
| - | - | - | - | - | - | - | - |

| Ref. No. | Date | Time | Location | Construction Noise Level | Parameter | Action Level | Limit Level | Follow-up action |
|----------|------|------|----------|--------------------------|-----------|--------------|-------------|------------------|
| - | - | - | - | - | - | - | - | - |



Appendix 8.1

Complaint Log



Environmental Complaints Log

| Complaint Log No. | Date of Complaint | Received From and Received By | Location of Complainant | Nature of Complaint | Outcome | Status |
|--------------------------|--------------------------|--------------------------------------|--------------------------------|----------------------------|----------------|---------------|
| - | - | - | - | - | - | - |



Appendix 9.1

Construction Programme of Individual Contracts

Contract No. HY/2019/14 - New Wang Tong River Bridge
3-Month Rolling Programme

| 識別碼 | Task Name | Period | Start | End | 2022年4月 | 2022年5月 | 2022年6月 | 2022年7月 | 2022年8月 | 2022年9月 | 2022年10月 |
|-----|--|-----------------|------------|----------|---------|---------|---------|---------|---------|---------|----------|
| 1 | Piling Constuction | 100 days | 3月14日星期... | 7月16日星期六 | | | | | | | |
| 2 | Piling P2-9,11,13,10,12,14 | 27 days | 3月14日星期... | 4月14日星期四 | | | | | | | |
| 3 | Drilling to rock head | 20 days | 3月14日星期... | 4月6日星期三 | | | | | | | |
| 4 | Rock socket, rebar installation and grouting | 7 days | 4月7日星期四 | 4月14日星期四 | | | | | | | |
| 5 | Piling P2-7,8,15, P3-9,12,13 | 22 days | 4月2日星期六 | 5月3日星期二 | | | | | | | |
| 6 | Drilling to rock head | 19 days | 4月2日星期六 | 4月28日星期四 | | | | | | | |
| 7 | Rock socket, rebar installation and grouting | 9 days | 4月22日星期... | 5月3日星期二 | | | | | | | |
| 8 | Piling P3-8,11,14, P1-7,11,14 | 20 days | 4月30日星期... | 5月25日星期三 | | | | | | | |
| 9 | Drilling to rock head | 16 days | 4月30日星期... | 5月20日星期五 | | | | | | | |
| 10 | Rock socket, rebar installation and grouting | 13 days | 5月11日星期... | 5月25日星期三 | | | | | | | |
| 11 | Piling P3-7,12, P1-8,10,16 | 19 days | 5月24日星期... | 6月15日星期三 | | | | | | | |
| 12 | Drilling to rock head | 15 days | 5月24日星期... | 6月10日星期五 | | | | | | | |
| 13 | Rock socket, rebar installation and grouting | 13 days | 5月31日星期... | 6月15日星期三 | | | | | | | |
| 14 | Piling P2-16,17 | 9 days | 6月14日星期... | 6月23日星期四 | | | | | | | |
| 15 | Drilling to rock head | 6 days | 6月14日星期... | 6月20日星期一 | | | | | | | |
| 16 | Rock socket, rebar installation and grouting | 3 days | 6月21日星期... | 6月23日星期四 | | | | | | | |
| 17 | Piling P1-9,12,17,13,15,18 | 21 days | 6月22日星期... | 7月16日星期六 | | | | | | | |
| 18 | Drilling to rock head | 18 days | 6月22日星期... | 7月13日星期三 | | | | | | | |
| 19 | Rock socket, rebar installation and grouting | 12 days | 7月4日星期一 | 7月16日星期六 | | | | | | | |
| 20 | Pile Loading test (Compression) | 4 days | 5月16日星期... | 5月19日星期四 | | | | | | | |
| 21 | Pile Loading test (Tension) | 3 days | 5月24日星期... | 5月26日星期四 | | | | | | | |

| | | | | | | | | | | | | |
|---|-------|--|---------|--|----------|--|---------|--|---------|--|----|--|
| HY/2019/14 3-Month Rolling Programm Date: 20220404 | 任務 | | 上顯型要徑任務 | | 專案摘要 | | 非作用中的摘要 | | 僅定義開始日期 | | 期限 | |
| | 要徑任務 | | 上顯型里程碑 | | 摘要群組 | | 手動任務 | | 僅包含完成時間 | | | |
| | 里程碑 | | 上顯型進度 | | 非作用中的任務 | | 僅包含工期 | | 外部任務 | | | |
| | 摘要 | | 分割 | | 非作用中的里程碑 | | 手動上顯型摘要 | | 外部里程碑 | | | |
| | 上顯型任務 | | 外部任務 | | 非作用中的里程碑 | | 手動摘要 | | 進度 | | | |