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Sewage Services Branch
Harbour Area Treatment Scheme
5/F, Western Magistracy
2A, Pok Fu Lam Road
Wan Chai
Hong Kong

Your reference:

Our reference: HKDSD205/50/108894

Date: 7 July 2023

Attention: Mr Ng Ka Wah

BY EMAIL & POST
(email: kwng04@dsd.gov.hk)

Dear Sirs

Agreement No.: HATS 07/2017
Independent Environmental Checker for
Upgrading of Kwun Tong Preliminary Treatment Works and
Enhancement Works for Kwun Tong Sewage Pumping Station
Environmental Monitoring and Audit Manual for Emergency Discharge (v4.0)

We refer to email of 6 July 2023 from Wellab Limited attaching the Environmental Monitoring and Audit Manual for Emergency Discharge (v4.0).

We have no comments and hereby verify the Environmental Monitoring and Audit Manual for Emergency Discharge (v4.0) in accordance with Condition 2.6 of the Environmental Permit no. EP-511/2016/A.

Should you have any queries regarding the above, 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

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Binnies Hong Kong Limited – Mr Harry Ching (email: reem1@bvde201701.com)
Chevalier – CPC Joint Venture – Mr Charles Lai (email: charles_lai@chevalier.com)

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Our Ref: MA17047/Chevalier/hn230706_C2.6

Chevalier-CPC Joint Venture

Chevalier-CPC Joint Venture Kwun Tong Site Office
G/F, No.2 Wai Lok Street,
Kwun Tong, Kowloon

By Mail
6th July 2023

Attn.: Mr. Charles Lai

Dear Mr. Lai,

Contract No. DE/2017/01
Upgrading of Kwun Tong Preliminary Treatment Works

- **Environmental Permit No. EP-511/2016/A (Condition 2.6): Environmental Monitoring and Audit (EM&A) Manual for Emergency Discharge**

I refer to the Environmental Monitoring and Audit (EM&A) Manual for Emergency Discharge submitted to us via email dated 6th July 2023 under Condition 2.6 of EP-511/2016/A.

I am pleased to inform you that I have no further comment and I hereby agree to certify the above document in accordance with the Environmental Permit (No. EP-511/2016/A), Condition 1.9 and 2.6.

If you need any further information, please call our Mr. Him Ng at 2151 2073 or undersigned at 2151 2090.

Yours faithfully,
WELLAB Limited



Ms. Ivy Tam
Environmental Team Leader

c.c.

IEC - ANewR (Attn.: James Choi)
BINNIES (Attn: Ernest Chan)

By e-mail: jpschoi@anewr.com
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(DE/2017/01) Chevalier-CPC Joint Venture

**EP-511/2016/A – Proposed Upgrading of Kwun Tong
Preliminary Treatment Works**

**Environmental Monitoring and Audit (EM&A) Manual
For Emergency Discharge**

(Version 4.0)

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1 INTRODUCTION

Project Background

- 1.1 The Harbour Area Treatment Scheme (HATS, formerly known as Strategic Disposal Scheme) is to improve water quality in Victoria Harbour by intercepting and treating sewage from developments on both sides of the harbour.
- 1.2 In stage 1 of HATS which was commissioned in the end of 2001, about 75% of sewage generated around Victoria Harbour was collected and treated before discharge. Water quality in the eastern part of Victoria Harbour has improved since then.
- 1.3 The Kwun Tong Preliminary Treatment Works (KTPTW) is one of the seven preliminary treatment works in the HATS Stage 1 collection system. The preliminary treated sewage is discharged to the HATS Stage 1 tunnel system via a drop shaft within KTPTW for further treatment and ultimate disposal at the Stonecutters Island Sewage Treatment Works (SCISTW).
- 1.4 To cope with the forecasted increase in sewage flow from the committed and planned developments in the East Kowloon, such as the Kai Tak Development, housing developments at Anderson Road, Jordan Valley, Lam Tin, Ngau Tau Kok, Sau Mau Ping, etc., there is an urgent need for upgrading the existing KTPTW to increase the treatment capacity.
- 1.5 The purpose of the Project is to increase the treatment capacity of KTPTW by upgrading the existing facilities and construction of additional facilities inside KTPTW. The general layout of the Project site is shown in Figure 1.
- 1.6 A Project Profile (Register No. PP-534/2016) of the Project was submitted to seek permission from the Director of Environmental Protection under Section 5(10) of the EIAO to apply directly for an Environmental Permit on 14 April 2016. The application (Application No. DIR-245/2016) were approved by the Environmental Protection Department (EPD) on 25 May 2016.
- 1.7 An Environmental Permit (EP) No.: EP-511/2016 was issued on 22 June 2016 for the Proposed Upgrading of Kwun Tong Preliminary Treatment Works to Drainage Services Department (DSD) as the Permit Holder. Pursuant to Section 13 of the EIAO, the Director of Environmental Protection amended the Environmental Permit No.: EP-511/2016 based on the Application No. VEP-509/2016 and the Environmental Permit (No.: EP-511/2016/A) was issued on 11 November 2016.
- 1.8 Chevalier-CPC Joint Venture (CCJV) was commissioned by the DSD to undertake “DE/2017/01 - Upgrading of Kwun Tong Preliminary Treatment Works” to update the existing facilities and construct additional facilities inside KTPTW. The commencement date of the works contract is 31 July 2017.

Purpose of the Manual

- 1.9 In accordance with Condition 2.6 of EP-511/2016/A, an Environmental Monitoring and Audit (EM&A) Manual with the monitoring work for the first 2 operation years, which shall be certified by the Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC), shall be submitted to the Director of Environmental Protection at least three months before the commencement of the operation of the Project.
- 1.10 The purpose of this EM&A Manual is to guide the setup and outlines details of the marine water quality monitoring for emergency raw sewage discharge during operation of the Project.
- 1.11 Hong Kong environmental regulations and the Hong Kong Planning Standards and Guidelines have served as environmental standards and guidelines in the preparation of this Manual. In addition, this EM&A Manual has been prepared in accordance with the requirements stipulated in Annex 21 of the Technical Memorandum on the EIA Process (TM-EIAO).

1.12 This Manual contains the following information:

- Responsibilities of the Project Proponent (Drainage Services Department (DSD)), Environmental Team (ET) and Independent Environmental Checker (IEC) with respect to the environmental monitoring and audit requirements during the operation of the Project.
- Project organisation for the Project
- Methodologies to be adopted, including all field, laboratories and analytical procedures, and quality assurance and quality control programme (e.g. calibration of monitoring equipment)
- Requirements for presentation of environmental monitoring and appropriate reporting procedures

1.13 For the purpose of this Manual, the ET leader, who shall be responsible for and in charge of the ET, is the person responsible for executing the EM&A requirements.

Project Organisation

1.14 The roles and responsibilities of the various parties involved in the EM&A process during the operation of the Project and the implementation of the EM&A programme are outlined below. Figure 2 shows the proposed organisation of the personnel involved in the EM&A process.

Drainage Services Department (DSD)

1.15 DSD will be responsible for the operation of the Project and compliance with the conditions of the environmental permit during its operation. Besides, DSD shall establish an Environmental Team (ET) and employ an Independent Environmental Checker (IEC). Sewage Treatment Division 2 of DSD will be appointed as the ET after the first year of operation.

Environmental Team

1.16 The ET shall not be in any way an associated body of the Contractor or the IEC. The ET shall be headed by an ET Leader. The ET Leader shall be a person who has at least 7 years of experience in EM&A or environmental management or a representative from Sewage Treatment Division 2 of DSD. The ET and the ET Leader shall be responsible for the implementation of the EM&A programme in accordance with the requirements as contained in this EM&A Manual. In addition, ET should:

- Monitor various environmental parameters and conduct various laboratory tests, as required in this EM&A Manual
- Analyze monitoring result.
- Prepare Water Quality Monitoring Report for each emergency raw sewage discharge event

Independent Environmental Checker

1.17 Independent Environmental Checker shall not be in any way an associated body of the Contractor or the ET for the Project. The IEC shall be a person who has at least 7 years of experience in EM&A or environmental management. The IEC shall be responsible for duties defined in the EM&A Manual and shall audit the overall EM&A programme, including the implementation of all environmental mitigation measures, submissions required in the EM&A Manual, and any other submissions required under the Environmental Permit. In addition, the IEC shall be responsible for:

- Review and verify the monitoring data and all submission relating to or under the EM&A Manual submitted by the ET

- Monitor the implementation of the EM&A programme
- Ensure the impact monitoring is conducted at the correct location at the frequency identified in the EM&A Manual

Structure of the Manual

1.18 The structure of the EM&A Manual is set out below:

- Section 1: **Introduction**
- Section 2: **Water Quality Monitoring for Emergency Discharge of Raw Sewage during Operation of the Project**
- Section 3: **Emergency Response and Monitoring**
- Section 4: **Reporting**

2 WATER QUALITY MONITORING FOR EMERGENCY DISCHARGE OF RAW SEWAGE DURING OPERATION OF THE PROJECT

Introduction

- 2.1 During the Operation Phase of the upgraded KTPTW, there are potential risks caused by different scenarios including Case I – Overflow due to Power or Equipment Failure in KTPTW, and Case II – Overflow due to Power or Equipment Failure at SCISTW according to Project Profile. In case of emergency raw sewage discharge occurs in at KTPTW, marine water quality monitoring is required to be conducted. A framework of the emergency response has been formulated in this EM&A Manual to minimize the impacts from the emergency raw sewage discharge.

Monitoring Requirement and Schedule

Baseline Monitoring

- 2.2 A baseline monitoring programme is required to establish the baseline water quality conditions at selected monitoring point with seasonal variation. During each monitoring period, water sample shall be collected at both mid-flood tide and mid-ebb tide. The selected monitoring points are shown in **Table 2.1**.
- 2.3 A baseline monitoring programme covering both wet and dry seasons is proposed to establish the baseline water quality conditions at the designated control station, gradient station and impact stations as shown in **Table 2.1**.
- 2.4 During the first-year operation of the Project, the baseline monitoring programme will be conducted 12 times in total per each station (3 times per week for 2 consecutive weeks in wet season [tentatively conduct in July-August 2023] and dry season [tentatively conduct in November 2023]), water samples shall be collected at different tidal status (one for mid-flood tide and one for mid-ebb tide). The purpose of the baseline monitoring is to establish ambient conditions when the KTPTW is operated normally. The baseline monitoring shall be ceased in the events of any emergency raw sewage discharges.
- 2.5 The proposed baseline water quality monitoring schedule shall be verified by IEC and reviewed by DSD for onward submission to EPD at least 2 weeks before the first day of the monitoring month. IEC and DSD should also be notified immediately for any changes in schedule.
- 2.6 1-year baseline monitoring is included in the 2-year operation phase. Previous water quality monitoring was conducted in January 2022 and April 2022 at Kwun Tong Promenade near KTPTW and the results would be used for reference if emergency overflow occurs during the baseline monitoring period. The results of previous water quality monitoring are shown in Appendix C.

Monitoring after Emergency Discharge of Raw Sewage

- 2.7 The Marine Water Quality Monitoring is required after the following situations:

Case I – Overflow due to Power or Equipment Failure in KTPTW:

KTPTW will conduct raw sewage discharge and water quality monitoring will be conducted.

Case II – Overflow due to Power or Equipment Failure in SCISTW:

It is possible that KTPTW may conduct treated sewage overflow or raw sewage discharge. In case of raw sewage discharge, water quality monitoring will be conducted.

- 2.8 In case of emergency raw sewage discharge due to power/equipment failure, daily marine water monitoring at the designated control station, gradient station and impact station as shown in **Table 2.1**. Given that the monitoring event should be commenced within 24 hours after emergency raw sewage discharged event occurs until the normal water quality resumes. During each monitoring event, water samples shall be collected at both mid-flood tide and mid-ebb tide (i.e. 2 samples per each monitoring day). It is the responsibility of every field person to take proper precautions to ensure their own safety and the safety of others prior to the commencement and during water sampling. The safety considerations and access shall refer to **Section 2.12 to 2.14**. It is possible that water sampling may not be able to commence within 24 hours after emergency raw sewage discharged due to the safety considerations or accessibility of monitoring stations.
- 2.9 The monitoring programme for such emergency raw sewage discharge event shall be conducted in the first 2 operation years. After the 2-year monitoring period, a review shall be conducted to determine whether such monitoring shall be continued. The review shall take into consideration the compliance of the operational control requirements as mentioned in section 4 of Project Profile. Other considerations might include, but not limited to, the effectiveness of the proposed mitigation measures to control the pollution discharge, the compliance rate for Table 4-2 in Project Profile, environmental impact on water sensitive receivers, etc. The review results shall be submitted to DSD and EPD. Any amendment to the monitoring programme shall be agreed by EPD.

Monitoring Location

- 2.10 It is recommended to set up 1 control station, 1 gradient station and 2 impact stations as shown in **Table 2.1**. Control station is located at Kai Tak Runway park. Impact station 1 is located at the raw sewage bypass location of KTPTW. Impact station 2 is located at water intake of Cha Kwo Ling Salt Water Pumping Station. Gradient station is located between Impact station 1 and 2. Location of monitoring stations are shown in **Figure 3.1 to Figure 3.5**. The status and location of water sensitive receivers and the marine activities may change after issuing this Manual. In such case, and if changes to the monitoring location are considered necessary, the ET should propose alternative monitoring station. The alternative monitoring station shall be verified by IEC and reviewed by DSD for onward submission to EPD for approval before the commencement of the monitoring.
- 2.11 The proposed control station, gradient station and impact stations are listed in **Table 2.1**.

Table 2.1 Proposed Water Quality Monitoring Stations for Emergency Situations

Station	Description	Coordinates	
		Northing	Easting
Control Station	Kai Tak Runway Park	22.303769	114.216448
Gradient Station	The end of KT promenade	22.304078	114.223665
Marine Water Quality Impact Station 1	KT promenade near seawall bypass in KTPTW	22.305849	114.222717
Marine Water Quality Impact Station 2	Combined WSR1 & WSR2	22.298143	114.231538

Safety Considerations

- 2.12 Any time water samples are collected from other bodies of water, a wide variety of safety and health concerns may be encountered. Proper pre-planning should be an integral part of any projected sampling event. With proper planning and preparation, any recognized hazards should be able to be avoided. All members in water sampling should be trained in safety procedures and should carry with them a set of safety instructions. They should remain alert to any changes in the surrounding environment throughout the sampling event that may require to change or modify sampling strategy.
- 2.13 The following safety rules should be followed:
- Always monitor with at least one partner. Each partner should clearly understand their locations, time of intend to return and the action if the partners do not return at the appointed time.
 - Check the updated weather forecast for the sampling area. Do not attempt to sample when severe weather is anticipated. For example, there is thunder or storm in vicinity, during rainy period or when strong wind signal is hoisted.
 - Never enter a stream at high flow.
 - Never wade in swift or high water. Do not monitor if the stream is at flood stage.
 - Do not monitor if the stream is posted as unsafe for body contact.
 - Do not walk on unstable stream banks. Disturbing these banks can accelerate erosion and might prove dangerous if a bank collapses. Disturbing streamside vegetation as little as possible.
 - Park the car in a safe location if necessary. The car shall not pose a hazard to other drivers and block the traffic.
 - Never cross private property without the permission of the landowner.
 - Be careful on nearby irate dogs, farm animals, wildlife (particularly snakes), and insects such as ticks, hornets, and wasps.
 - It is recommended that some sort of personal protective equipment be available and used during sampling. If feasible, eye protection and gloves should be worn during the actual sample collection.
 - If at any time feeling uncomfortable about the condition of the stream or the surroundings, stop monitoring and leave the site at once.
- 2.14 ET shall refer to the contact list in **Appendix D** to contact the representatives of monitoring stations.

Monitoring Parameters, Frequency and Duration

- 2.15 During each sampling occasion, measurements shall be taken at both mid-flood tide and mid-ebb tide at water depth refer to **Table 2.2**.

2.16 **Table 2.2** summarized the monitoring parameters, monitoring periods and frequencies of the water quality monitoring.

Table 2.2 Water Quality Monitoring Parameters and Frequency

Parameters	Depth	Period	Frequency
<u>In-situ Measurements:</u> <ul style="list-style-type: none"> • Dissolved Oxygen (DO) • pH • Water Temperature • Salinity • Turbidity <u>Laboratory Measurement:</u> <ul style="list-style-type: none"> • <i>E.coli</i> level • Suspended Solid • Unionized Ammonia (UIA) 	<u>Sampling (SWB)</u> <ul style="list-style-type: none"> • 3 water depth: 1m below water surface, mid-depth and 1m above river bed. • If the water depth was less than 3m, mid-depth sampling only. • If water depth was less than 6m, mid-depth may be omitted. 	<u>Baseline:</u> 12 times in total per each station during the first-year operation of the Project (3 times per week for 2 consecutive weeks in each dry and wet seasons) <u>Monitoring for Emergency Raw Sewage discharge:</u> Within 24 hours after emergency raw sewage discharged event occurs until the baseline water quality levels are restored for two consecutive days or 3 days after the emergency raw sewage discharge is ceased, whichever is the longest.	<u>Baseline:</u> Once at both mid-flood tide and mid-ebb tide for each monitoring station during each sampling occasion. <u>Monitoring for Emergency Raw Sewage discharge:</u> Daily at both mid-flood tide and mid-ebb tide.

Monitoring Equipment

pH Measurement Instrument

2.17 The instrument should consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It should be readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 should be used for calibration of the instrument before and after use.

Dissolved Oxygen and Temperature Measuring Equipment

2.18 The Dissolved Oxygen (DO) measuring equipment should be portable and weatherproof. It should complete with cable and sensor, and a DC power source. The equipment should be capable of measuring:

- a DO level in the range of 0 - 20 mg·L⁻¹ and 0 - 200% saturation; and
- a temperature of 0 - 45 degree Celsius (°C).

2.19 It should have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables shall be available for replacement where necessary. (e.g. YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).

2.20 Should salinity compensation not be built-in to the DO equipment, in-situ salinity should be measured to calibrate the DO measuring equipment prior to each DO measurement.

Turbidity Measurement Instrument

- 2.21 The turbidity measuring instrument should be a portable and weatherproof using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU (for example, Hach model 2100P or an approved similar instrument).

Sampler

- 2.22 A water sampler is required to collect water samples for laboratory testing. It should comprise a transparent PVC cylinder, with a capacity of not less than 2 liters, which can be effectively sealed with latex cups at both ends. The sampler should 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 (for example, Kahlsico Water Sampler or an approved similar instrument).

Water Depth Detector

- 2.23 A portable, battery-operated echo sounder should be used for the determination of water depth at each monitoring station. This unit can either be hand-held or affixed to the bottom of the work boat, if the same vessel is to be used throughout the monitoring programme.

Salinity

- 2.24 A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring station.

Monitoring Position Equipment

- 2.25 A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message "screen pop-up" facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel at the correct location before taking measurements.

Sample Containers and Storage

- 2.26 Water samples shall be stored and preserved in suitable containers according to the Standard Methods, APHA, and packed in ice (cooled to 4°C without being frozen) and delivered to the laboratory and analyzed within 24 hours after collection. Sufficient volume of samples shall be collected to achieve the required detection limit.

Calibration of In-Situ Instruments

- 2.27 All in-situ monitoring instrument shall be checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement.
- 2.28 For the on-site calibration of field equipment, the BS 127:1993, "Guide to Field and on-site test methods for the analysis of waters" shall be observed. Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring can proceed uninterrupted even when some equipment are under maintenance, calibration, etc.

In-Situ Measurement

- 2.29 For the dissolved oxygen (DO), pH, water temperature, salinity and turbidity, in-situ measurement will be carried out.

2.30 Other relevant data will also be recorded, including monitoring location/position, time, waterdepth, sea conditions, tidal stage, weather conditions and any special phenomena or work underway nearby will also be recorded. A sample data record sheet is shown in **Appendix B** for reference.

Laboratory Measurement / Analysis for Marine Water

- 2.31 Analysis of marine water quality shall be carried in a HOKLAS or other international accredited laboratory. The recommended analysis method is provided in **Table 2.3**. The analysis shall commence within 24 hours after collection of the water samples. The laboratory shall be HOKLAS accredited for analysis of *E. coli*, Suspended Solid and Unionized Ammonia (UIA) in marine water.
- 2.32 EPD may also request the laboratory to carry out analysis of know standards provided by EPD for quality assurance. Additional duplicate samples may be required by EPD for inter laboratory calibration. Remaining samples after analysis shall be kept by the laboratory for 3 months in case repeat analysis is required.
- 2.33 If in-house or non-standard methods are proposed, details of the method verification shall be required to submit to EPD. In any circumstance, the sample testing shall have comprehensive quality assurance and quality control programmes. The laboratory shall prepare to demonstrate the programmes to EPD or his representatives when requested.

Table 2.3 Analytical Methods and Detection Limit of Laboratory Measurement

Determinant	Method Reference	Limit of Reporting
<i>E.coli</i>	TM09/EC/10/98 Issue 3, HKEPD	1 CFU/100mL
Suspended Solid	APHA 2540 D	2 mg/L
Unionized Ammonia (UIA)	ALS EK055K	0.001 mg/L

Action Level

- 2.34 Actions for monitoring parameters are provided in Table 2.4.
- 2.35 If there is no exceedance recorded comparing with the action levels (i.e. baseline monitoring results) for two consecutive days or 3 days after the emergency raw sewage discharge is ceased, whichever is the longest, water quality will be considered as restoring to the baseline water quality levels.

Table 2.4 Actions for Monitoring Parameters

Parameter(unit)	Action
<i>E.coli</i> (CFU/100mL)	Maintaining the water sample collection for water quality monitoring until the baseline water quality levels are restored.
Dissolved Oxygen (mg/L)	Maintaining the water sample collection for water quality monitoring until the baseline water quality levels are restored.
Suspended Solid (mg/L)	Maintaining the water sample collection for water quality monitoring until the baseline water quality levels are restored.
Unionized Ammonia (mg/L)	Maintaining the water sample collection for water quality monitoring until the baseline water quality levels are restored.

3 EMERGENCY RESPONSE

General

- 3.1 Relevant government departments including EPD and WSD shall be informed of any emergency raw sewage discharge events. The Plant operator shall maintain good communications with various concerned parties. A list of addresses, email addresses and phone and fax numbers of key persons in various departments responsible for action shall be made available to the Plant operator.

Framework of Emergency Response and Monitoring

- 3.2 A framework of the emergency response for emergency raw sewage discharge events is as follows:
- ET shall coordinate with the Plant operator/DSD to inform EPD and WSD in case of any emergency raw sewage discharge of effluent due to power supply failure, system failure or equipment failure in KTPTW. A list of address, email address and phone and fax numbers of key persons of concerned parties responsible for action should be made available to the Plant operators. DSD shall be responsible for carrying out marine water quality monitoring within 24 hours (Weather Permitting) when the discharge event occurs. The Plant operator/DSD shall closely liaise with relevant parties so that the EPD and WSD can be informed promptly of any cases of emergency raw sewage discharge. The contacts of responsible person in EPD and WSD are listed on **Table 3.1**.

Table 3.1 Contact List of EPD and WSD

	Contact Person
EPD	Mr. NG Kai-ming, Alfred (Sr Env Protection Offr (Regional East)3) <ul style="list-style-type: none">▪ Address: 5th floor, Nan Fung Commercial Centre, 19 Lam Lok Street, Kowloon Bay, Kowloon.▪ Email: alfredkmng@epd.gov.hk▪ Phone number: 2117 7538▪ Fax number: 2756 8588
WSD	Mr. CHAN Cheuk Yin (Mechanical Engr/Kln (Ops)) <ul style="list-style-type: none">▪ Address: Cheung Sha Wan Office - 2 Lai Hong Street, Cheung Sha Wan, Kowloon▪ Email: cy_chan@wsd.gov.hk▪ Phone number: 2360 6107▪ Fax number: 2386 7813

- Under emergency raw sewage discharge, ET should monitor daily quality (i.e. *E.coli* level, Unionized Ammonia, pH value, temperature, salinity, turbidity, dissolved oxygen and suspended solid) and quantity of sewage effluent discharged from the KTPTW during the whole water quality monitoring period for data interpretation.

- 3.3 The emergency response plan for emergency raw sewage discharge is provided in **Table 3.2**.

Table 3.2 Emergency Response and Monitoring Plan for Emergency Raw Sewage Discharge from KTPTW

Event	Action Plan
Emergency Discharge of Raw Sewage from KTPTW	<ol style="list-style-type: none"> 1. Plant operator/ DSD to investigate the reason of power / equipment failure and implement appropriate remedial measures and identify the need of emergency raw sewage discharge. 2. In case of emergency discharge of raw sewage, seawall bypass will be used for emergency discharge. 3. Plant operator/DSD to notify EPD and WSD, and notify ET and IEC about the emergency raw sewage discharge as soon as possible for preparing the marine water quality monitoring. 4. ET shall commence the marine water quality monitoring within 24 hours after emergency raw sewage discharge event occur. ET shall monitor and record the effluent quality (i.e. Temperature, pH value, Turbidity, Salinity, Dissolved Oxygen, Unionized Ammonia, Suspended Solid and <i>E.coli</i> level) during the water monitoring period on monitoring data record sheet (Appendix B). The monitoring data record sheet shall be verified by IEC and reviewed by DSD for onward submission to EPD and WSD as detailed in Section 4. 5. ET shall conduct the daily marine water monitoring until the baseline water quality levels are restored for two consecutive days or 3 days after the emergency raw sewage discharge is ceased, whichever is the longest. 6. ET shall prepare a detailed report on the marine water quality result, including comparing the impact monitoring data with the baseline data to identify the degree of impact caused by the emergency raw sewage discharge (if any) and to determine when the normal water quality conditions are restored. The detailed report shall be verified by IEC and reviewed by DSD for onward submission to EPD within 10 working days after the laboratory testing result for the last sample collected during the monitoring period is available as detailed in Section 4.

4 REPORTING

General

- 4.1 Reports can be provided in an electronic medium upon agreeing the format with DSD and EPD. This would enable a transition from a paper / historic and reactive approach to an electronic / real time proactive approach. All the monitoring data (baseline and operation phase marine monitoring) shall also be submitted in electronic format.
- 4.2 ET Leader shall submit baseline monitoring report and operation phase marine monitoring reports. In accordance with Annex 21 of the EIAO-TM, a copy of the baseline and operation phase marine monitoring reports shall be made available to the Director of Environmental Protection.
- 4.3 To facilitate public inspection of the various operation phase marine monitoring reports via the EIAO Internet website and at the EIAO register office, electronic copies of these reports shall be prepared in Hyper Text Markup Language (HTML)(version 4.0 or later) and in Portable Document Format (PDF Adobe 11 Pro version or later), unless otherwise agreed by EPD and shall be submitted at the same time as the hardcopies. For the HTML version, a content page capable of providing hyperlink to each section and sub-section of these reports shall be included at the beginning of the document. Hyperlinks to all figures, drawings and tables in these reports shall be provided in the main text from where the respective references are made. All graphics in these reports shall be in interlaced GIF format unless otherwise agreed by EPD. The content of the electronic copies of these reports must be the same as the hard copies. The summary of the monitoring data taken shall be included in the various monitoring reports to allow for public inspection via the EIAO Internet website.

Baseline Monitoring Report

- 4.4 A Baseline Environmental Monitoring Report shall prepare and submit within 10 working days after the laboratory testing result for the sample collected in the baseline monitoring is available. The Baseline Environmental Monitoring Report shall be verified by IEC and reviewed by DSD for onward submission to EPD.
- 4.5 The Baseline Monitoring Reporting shall include at least the following:
 - i) Up to half a page executive summary
 - ii) Brief project background information
 - iii) Drawings showing location of the baseline monitoring stations
 - iv) Monitoring results (in both hard and diskette copies) together with the following information:
 - monitoring methodology
 - name of laboratory and types of equipment used and calibration details
 - parameters monitored
 - monitoring location (and depth)
 - monitoring date, time, frequency and duration
 - quality assurance (QA) / quality control (QC) results and detection limits
 - v) Details of influencing factors, including:
 - weather conditions during the period/monitoring
 - other factors which might affect results
 - major activities, if any, being carried out on the site during the period
 - vi) Conclusion.

Operation Phase Marine Water Quality Monitoring Report

- 4.6 Water Quality Monitoring Report shall be prepared for each emergency raw sewage discharge event during the operational phase. The impact monitoring data shall be compared with the baseline data and relevant water quality objectives to identify the degree of impact caused by the emergency raw sewage discharge. The report shall be submitted to EPD within 10 days after the laboratory testing result for the last sample collected during the monitoring period is available. The findings of the water quality monitoring results including data presentation, statistical analysis, discussion, conclusion and recommendation shall be provided in the Water Quality Monitoring Report. The detailed reporting requirements shall be agreed with DSD and EPD.

Data Keeping

- 4.7 No site-based documents (such as monitoring field records, laboratory analysis records, site inspection forms, etc.) are required to be included in the EM&A reporting documents. However, any such document shall be well kept by the ET and be ready for inspection upon request. All relevant information shall be clearly and systematically recorded in the document. Monitoring data shall also be recorded in electronic format, and the software copy must be available upon request. Data format shall also be agreed with IEC, DSD and EPD. All documents and data shall be kept for at least one year after the completion of operation phase monitoring.

FIGURES

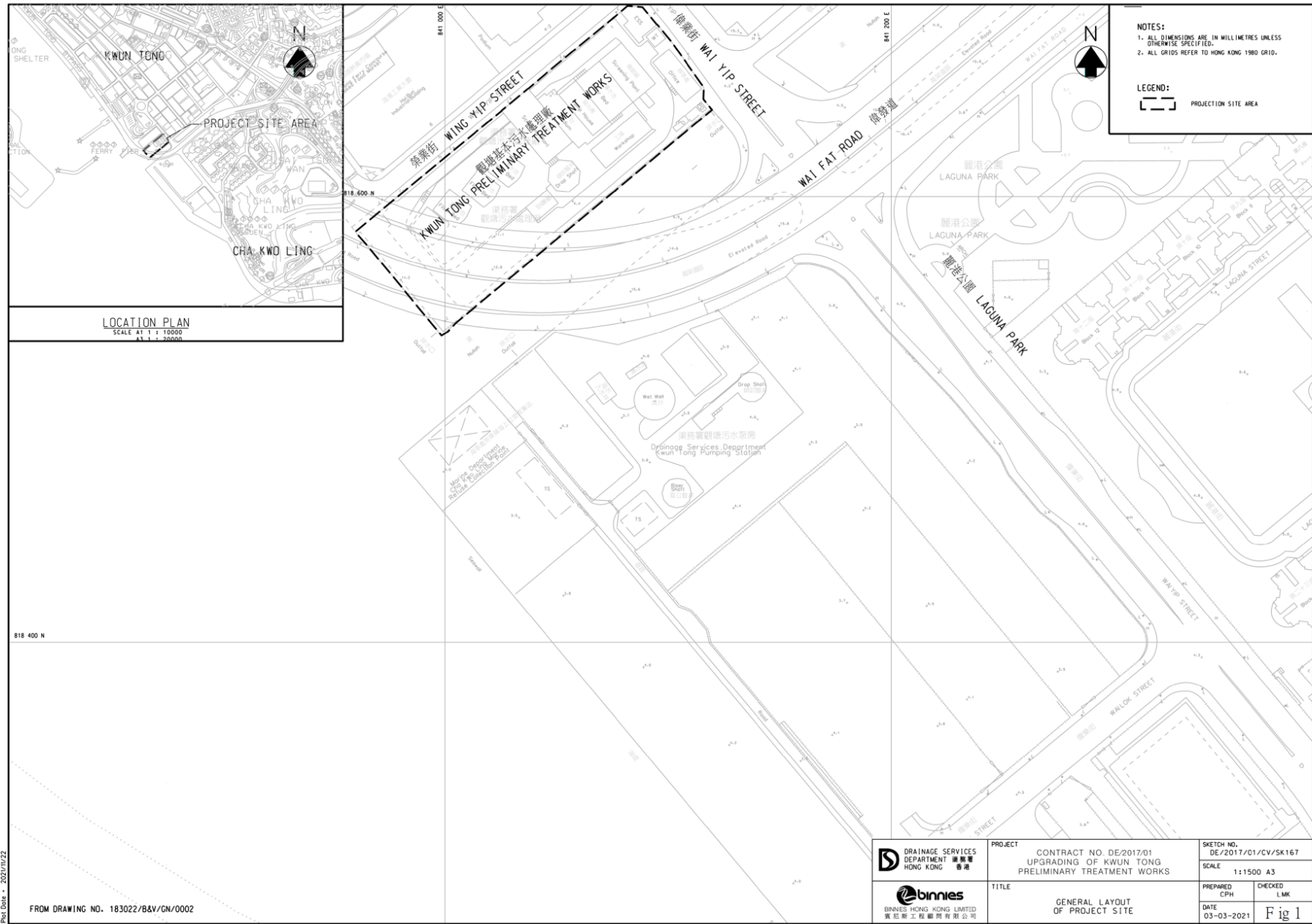


Figure 1
Locations of Project Site

Contract No. DE/2017/01
Upgrading of Kwun Tong Preliminary Treatment Works
Works Supply Contract No. EM003
Proposed Water Quality Monitoring Station (Operation Phase)



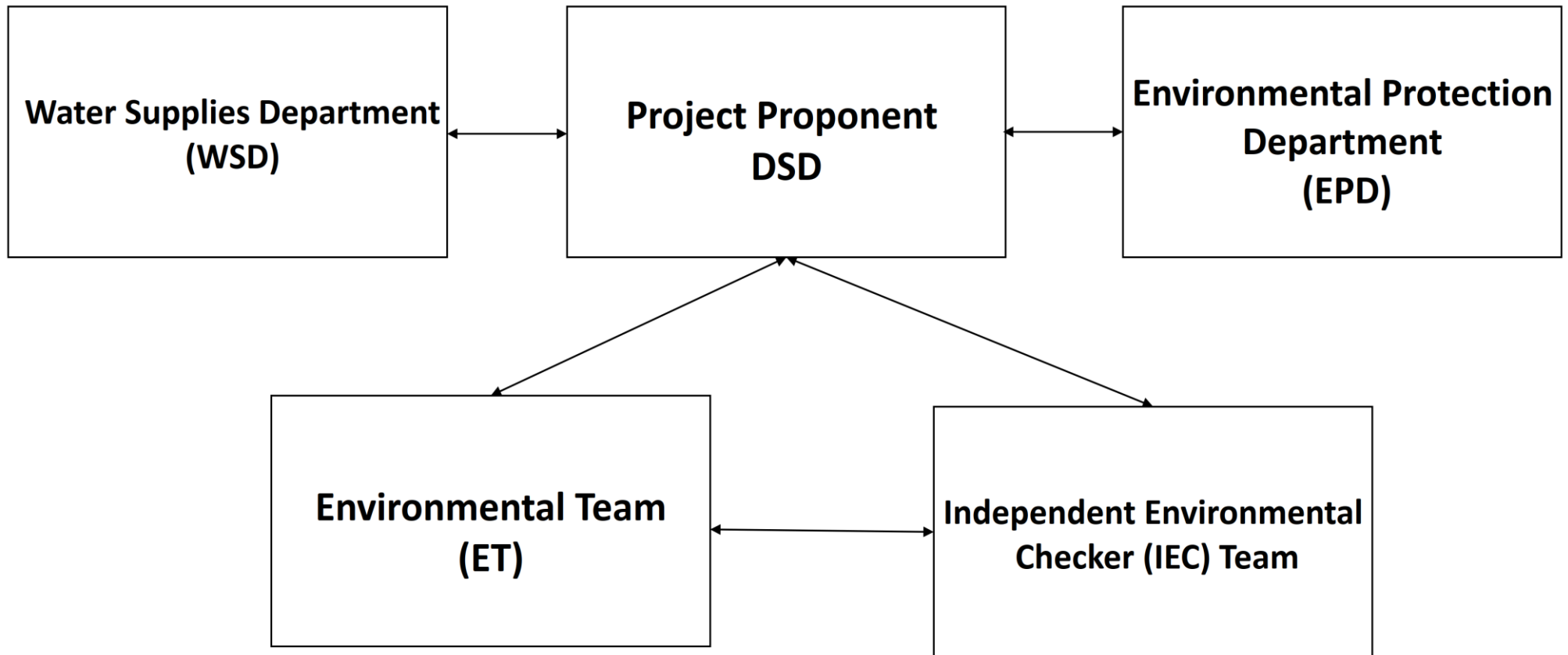


Figure 2
Proposed Project Organization for EM&A
Process

Contract No. DE/2017/01
Upgrading of Kwun Tong Preliminary Treatment Works
Works Supply Contract No. EM003
Proposed Water Quality Monitoring Station (Operation Phase)





Figure 3.1
Locations of Proposed Water Quality
Monitoring Stations

Contract No. DE/2017/01
Upgrading of Kwun Tong Preliminary Treatment Works
Works Supply Contract No. EM003
Proposed Water Quality Monitoring Station (Operation Phase)





Figure 3.2
Location of Proposed Control Station

Contract No. DE/2017/01
 Upgrading of Kwun Tong Preliminary Treatment Works
 Works Supply Contract No. EM003
 Proposed Water Quality Monitoring Station (Operation Phase)





Figure 3.3

Location of Proposed Gradient Station and Water Quality Impact Station 1

Contract No. DE/2017/01

Upgrading of Kwun Tong Preliminary Treatment Works
Works Supply Contract No. EM003

Proposed Water Quality Monitoring Station (Operation Phase)



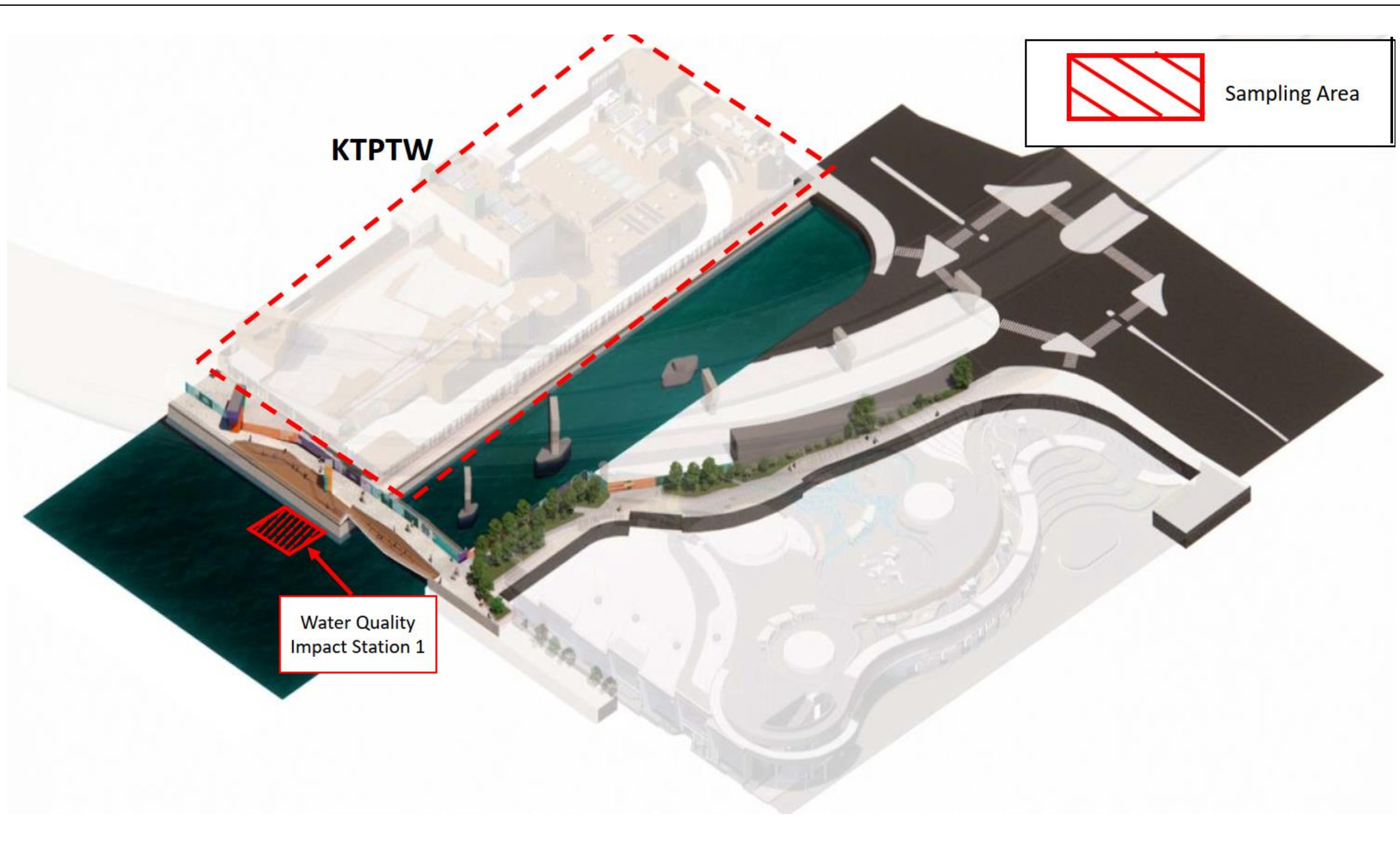


Figure 3.4
Location of Proposed Water Quality Impact
Station 1

Contract No. DE/2017/01
Upgrading of Kwun Tong Preliminary Treatment Works
Works Supply Contract No. EM003
Proposed Water Quality Monitoring Station (Operation Phase)



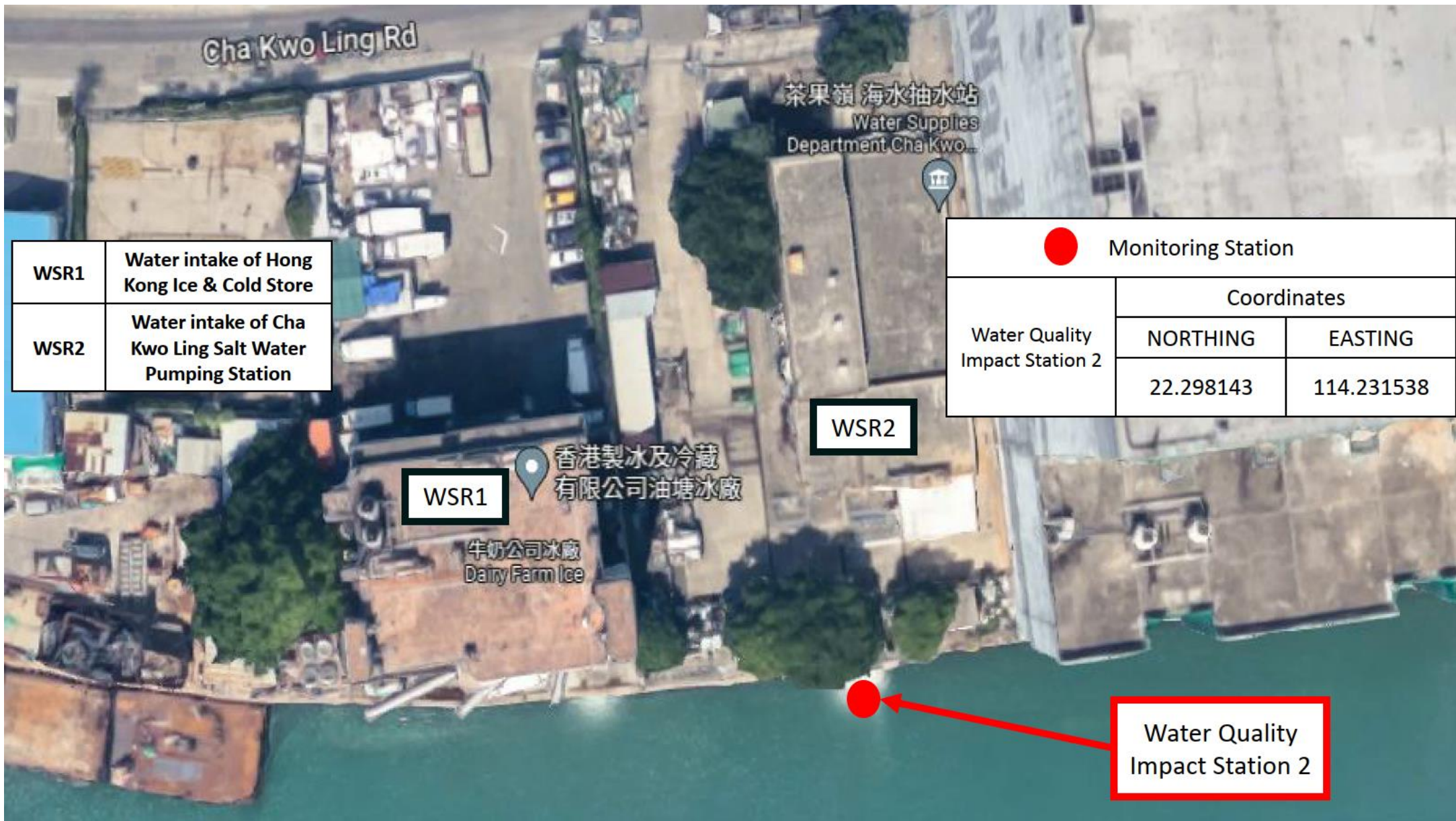


Figure 3.5

Location of Proposed Water Quality Impact Station 2

Contract No. DE/2017/01

Upgrading of Kwun Tong Preliminary Treatment Works
Works Supply Contract No. EM003

Proposed Water Quality Monitoring Station (Operation Phase)



**APPENDIX A
IMPLEMENTATION SCHEDULE AND
PRECAUTION AND MITIGATION MEASURES**

APPENDIX A IMPLEMENETATION SCHEDULE AND PRECAUTION AND MITIGATION MEASURES

Recommended Mitigation Measures	Objectives of the Precaution and Mitigation Measures & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
A Water quality impact due to emergency raw sewage discharge					
Operation Phase					
<ul style="list-style-type: none"> • Provide dual power supply. • Provide stand-by facilities for the main treatment units equipment parts/accessories. • Set up emergency contingency plan • Establish sound communication channel with relevant departments • Prepare action plan and detailed water quality monitoring programme • Use of sea wall bypass for emergency raw sewage discharge 	To minimize the water quality impact from emergency raw sewage discharge	DSD	KTPTW	Operation stage	EIAO-TM and WPCO
The response procedure and monitoring requirements for emergency raw sewage discharge as stated in EM&A Manual should be followed.	To minimize water quality impact due to emergency raw sewage discharge	DSD	KTPTW	Operation stage	EIAO-TM and WPCO

APPENDIX B
WATER QUALITY MONITORING DATA
RECORD SHEET

APPENDIX B Water Quality Monitoring Data Record Sheet (In-situ Measurement)

Monitoring Station	
Date	
Weather Condition	Sunny / Fine / Cloudy / Rainy
Sea Condition	Calm / Moderate / Rough
Tide Mode	Mid-Flood Tide/ Mid-Ebb Tide
Start Time (hh:mm)	
Water Depth which sample is collected (m)	
pH	
Temperature (°C)	
Salinity (ppt)	
Sample Identification	
DO (mg/L)	
DO Saturation (%)	
Turbidity (NTU)	
Remarks / Other Observations	

Name & Designation

Signature

Date

Recorded by: _____

Checked by: _____

Notes:
Each measurement shall be deployed at mid-floor tide and mid-ebb tide per day.

APPENDIX B Water Quality Monitoring Data Record Sheet (Laboratory Measurement)

Monitoring Station	
Date	
Weather Condition	Sunny / Fine / Cloudy / Rainy
Sea Condition	Calm / Moderate / Rough
Tide Mode	Mid-Flood Tide/ Mid-Ebb Tide
Start Time (hh:mm)	
Suspended Solid (SS) (mg/L)	
<i>E.coli</i> (CFU/100mL)	
Unionized Ammonia (UIA) (mg/L)	
Remarks / Other Observations	

Name & Designation

Signature

Date

Recorded by:

Checked by:

Notes:

Each measurement shall be deployed at mid-floor tide and mid-ebb tide per day.

APPENDIX C
PREVIOUS BASELINE WATER QUALITY
MONITORING RESULTS IN KTP

Appendix C Previous Baseline Water Quality Monitoring Results in Kwun Tong Promenade (KTP)

Date		Parameter									
		Water Depth	Temperature	pH Value	Turbidity	Salinity	Dissolved Oxygen		Suspended Solid (SS)	Unionized Ammonia	<i>E.coli</i>
		M	°C	pH unit	NTU	g/L	%	mg/L	mg/L	mg/L	CFU/ 100mL
21/01/2022	Mid-flood tide	1.2	18.3	8.2	2.0	32.2	83.2	6.5	3	0.009	110
	Mid-ebb tide	1.2	18.4	8.3	1.3	35.4	92.2	7.0	<2	0.006	44
22/01/2022/	Mid-flood tide	1.4	18.4	8.2	1.5	32.4	83.8	6.5	2	0.011	170
	Mid-ebb tide	1.2	18.4	8.3	1.6	35.2	89.5	6.9	<2	0.023	150
26/04/2022	Mid-flood tide	1.51	24.2	8.3	1.2	32.3	78.0	5.4	3	0.045	100
	Mid-ebb tide	2.0	25.2	8.4	0.7	31.3	86.9	6.0	3	0.051	42
27/04/2022	Mid-flood tide	1.7	24.9	8.2	3.9	31.1	75.4	5.3	3	0.045	140
	Mid-ebb tide	1.6	25.4	8.6	0.5	32.7	83.1	5.7	3	0.065	32
28/04/2022	Mid-flood tide	1.7	26.0	8.5	0.5	29.5	91.8	6.3	3	0.102	81
	Mid-ebb tide	1.6	25.4	8.5	0.6	33.6	83.4	5.7	4	0.041	51

Remark:

Largest value among original and duplicate samples is shown in the above table.

APPENDIX D
CONTACT LIST FOR CONTROL
STATION AND MARINE WATER
QUALITY IMPACT STATION 2

Appendix D Contact List for Control Station and Marine Water Quality Impact Station 2

Station	Contact Person
Control Station	Kai Tak Cruise Terminal Park (Park Office) <ul style="list-style-type: none">▪ Email: ktctp@lcsd.gov.hk▪ Phone number: 2806 3155▪ Fax number: 2806 3379
	Kai Tak Community Isolation Facility (KTCIF) <ul style="list-style-type: none">▪ Contact Person: Ms. Luna LAM (person-in-charge of KTCIF's security team)▪ Phone number: 6010 0241
Marine Water Quality Impact Station 2	Mr. CHEUNG Kwok Kee (Insp Mechanical/Kln (Ops) 1) <ul style="list-style-type: none">▪ Address: Cheung Sha Wan Office - 2 Lai Hong Street, Cheung Sha Wan, Kowloon▪ Email: kwok_kee_cheung@wsd.gov.hk▪ Phone number: 2191 5115▪ Fax number: 2720 1350